



# Review of Fisheries in OECD Countries

**POLICIES AND SUMMARY  
STATISTICS**



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# **Review of Fisheries in OECD Countries**

Policies and Summary Statistics

2002 Edition



ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

## **ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT**

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## Foreword

**T**his review was approved and declassified at the 90th Session of the Committee for Fisheries 14-16 October 2002.

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PART I

# General Survey 2002

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## Summary

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### *Record world production.*

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World total fish production in 2000 was estimated at a record 141.8 million tonnes. Of this total, 32% came from aquaculture.<sup>1</sup> According to the data provided by OECD member countries, total production in OECD countries was 29.3 million tonnes in 2000 (21% of world production), amounting to around USD 41 billion in 2000.<sup>2</sup>

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### *Good returns despite general overcapitalisation.*

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According to various reports published in 2000/2001 most fisheries are considered to be overexploited from an economic point of view. The economic performance of this sector is thus lower than could be expected, even if returns to the fishing industry are positive in many OECD countries. One of the growing concerns today is the social sustainability of the fishing sector, which is faced with ageing and decreasing number of fishermen.

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### *International initiatives toward responsible fisheries.*

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Major inter-governmental organisations (UN General Assembly, FAO, UNESCO) have adopted recommendations and measures to promote sustainable fisheries. Indeed, sustainable development, ecosystem-based management and problems related to illegal, unreported and unregulated fishing (IUU), are among the major issues addressed in international fora and civil society.

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### *More OECD countries committed themselves under UN and FAO Agreements.*

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There are a number of international agreements to which many OECD countries adhere. The United Nations Convention on the Law of the Sea (UNCLOS) was ratified by two additional OECD countries: Luxembourg in 2000 and Hungary in 2002. The UN Fish Stocks Agreement (UNFSA)<sup>3</sup> entered into force on 11 December 2001. The FAO Compliance Agreement (FAOCA)<sup>4</sup> requires another three instruments of acceptance to become legally binding. By 1 September 2001, nine OECD countries had not yet ratified the FAOCA. In accordance with UNCLOS texts, several international conventions were adopted in 2000 and 2001 with the aim of establishing, *inter alia*, Regional Fisheries Organisations (RFO).



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*Trade related policies were discussed in international fora.*

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International trade of fish and fishery products amounted to 25.9 millions tonnes in 2000 (import figures), representing USD 61 billion. OECD countries accounted for 83% of total world imports in value. Liberalisation in the fishery sector was discussed in various international fora, including WTO, FAO, APEC and OECD. Trade related policies in the fishery sector were also discussed. In particular, fishery subsidies and commercial measures were integrated in the WTO Doha negotiations in 2001 and were addressed by OECD Council at Ministerial level during the same year.

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*GFT in the OECD countries.*

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Government financial transfers (GFTs) in OECD countries amounted to USD 6.2 billion in 2000 and to USD 5.5 billion in 2001.<sup>5</sup> General services accounted for 75% of this amount, direct payments for 12% and cost reducing transfers for 13%.

## 1. Fisheries status

### Stocks status

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*Many stocks are in a precarious state.*

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Among the 441 stocks surveyed by the FAO in 1999 (of a total of 590 identified), 4% were assessed as underexploited, 21% moderately exploited, 47% fully exploited, 18% over-fished, 9% depleted and 1% recovering (FAO, 2000).<sup>6</sup> It was also observed that the rate of over-fishing in the Pacific Ocean seems to be following the same trend as in the Atlantic Ocean, while some improvements in the Northeast Atlantic have been recorded.<sup>7</sup>

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*Stock status varies considerably across European...*

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Whether one focuses either on the national or individual stock levels, the resource situation varies considerably. In the **EC**, following ICES (International Council for the Exploration of the Sea) assessments, recovery plans were recommended for 14 stocks (seven species are involved: blue whiting, cod, hake, sole, Norway lobster, haddock and whiting), while 12 stocks are considered to be outside safe biological limits (five species: sole, megrim, pilchard, plaice and anglerfish).<sup>8</sup> In addition, some stocks are considered to be moderately exploited at the local level (e.g. sardine and anchovy in Mediterranean Sea<sup>9</sup>). In **Norway**, the stock situation for the main species in the northern part of their Exclusive Economic Zone (EEZ), particularly North-East Arctic cod, gives rise to some concern. However, of the 13 most important species in Norwegian fisheries for which the ICES defines a “spawning stock reference point” following a precautionary approach, seven presented a biomass greater than the reference point in 2001. In **Iceland**, the size of both the stocks of cod, haddock and pollock and spawning stocks showed a decrease between 2000 and 2001, together with the size of the spawning stocks. Moreover, there are some indications pointed of an overestimation of the cod stock size in the previous year. As a result, over-fishing of cod occurred. Concerning the other demersal stocks, the decrease in stock size could be due to

various reasons, such as changes in general ocean conditions. The overall development in stock size for pelagic species – capelin and herring – is fairly positive.

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*... and Pacific...*

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In **Australia**, 35 Commonwealth fisheries stocks are considered to be of uncertain status, 11 fully exploited and 11 overexploited. In **New Zealand**, the stocks are considered to be healthy. In **Korea**, pelagic species such as mackerels, anchovies, squids have been found to be abundant while demersal species have declined due to increased water temperature. Furthermore, commercially important species such as redlip croaker and Alaskan pollock are considered overexploited. In **Japan**, while several stocks are considered in good state (e.g. common squid, anchovy, chum salmon), many others give concerns (e.g. sardine, mackerel and many bottom fish).

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*... and North-American countries.*

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In the **US**, the number of stocks with sustainable harvest rates increased from 159 to 230 between 1999 and 2001 (+45%), while those with sustainable stock sizes increased by a third. The number of overfished stocks has declined by 10% (from 92 to 81) and two stocks were declared to be fully rebuilt in 2001. In **Canada**, many groundfish stocks on the east coast, including the northern cod but except haddock and yellowtail stocks on the Scotian Shelf and Georges Bank, remain at or near record low levels. In contrast, many invertebrate resources are in healthy condition. Among pelagic species, herring stocks off the Atlantic Coast of Nova Scotia and southern New Brunswick are in relatively good condition, but with the exception of several spawning components, those in the Gulf of St. Lawrence and off Newfoundland are in the low range. Concerning salmon, reductions in harvest combined with improving ocean conditions have reversed declines in most stocks. In **Mexico**, during the period under review, 80% of the fisheries included in the National Fisheries Charter<sup>10</sup> are considered developed to the maximum, while in the remaining 20% greater development could be achieved. Concerning the 18 main fisheries studied by the National Fisheries Institute, 6 are considered in deterioration, 6 developed to the maximum sustainable and 6 with potential for development.

### **The marine environment situation**

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*Increasing human pressure on marine ecosystem.*

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The multitude of activities supported by oceans is placing increasing pressure on the marine ecosystem in general, and on fish stocks in particular. A study published in 2001 by the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP, 2001) shows that many human activities are particularly harmful, including industrial and agricultural pollution, coastal habitats destruction or global warming. Inland infrastructure extension/construction (port) or mineral resources extraction<sup>11</sup> also can have adverse impacts on the marine ecosystem. As a result of the pressure exerted on the marine ecosystem, 88 marine mammals were listed on the IUCN<sup>12</sup> Red List of Threatened Species in 2001 (of 126 species registered),<sup>13</sup> 300 000 sea birds are caught accidentally each year,<sup>14</sup> important seagrass habitats are destroyed and Arctic and Antarctic icefields are broken.

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*Increasing competition between the various stakeholders.*

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In addition to the increasing scarcity of fish stocks, the fishing industry must compete with various stakeholders for the use of this resource. The number and diversity of the groups involved in fisheries management – ranging from other industry (maritime transport, sailing, offshore mining, whale watching) to environmentalist groups (civil society organisations) – increase every year. In the **UK**, recreational fishing groups called for a stop to commercial bass trawling, while mineral extractors asked for a large dredging area in the English Channel. In the **US**, a pro-sportfishing, anti-commercial fishing advocacy group called for the use of harpoon, surface lines or rod-and-reel gear in the swordfish fisheries in lieu of net or longline. In **Australia**, new marine parks and sanctuaries were established in the southern EEZ. In **Japan**, the number of persons engaged in marine recreational fishing has reached 39 million person-years (in 1998), leading to many conflicts with the fishing industry.

### **Socio-economic situation**

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*World record production.*

---

Preliminary statistics for world fish production in 2000 is estimated to be a record 141.8 million tonnes, of which 32% came from aquaculture (FAO, 2002; FAO Fishstat database). Of the total, China is estimated to have produced some 49.6 million tonnes, remaining the world's largest producer.<sup>15</sup> Peru was the second major fishing nation in 2000 with a production of 10.7 million tonnes. The contribution of OECD countries amounts to 29.3 million tonnes<sup>16</sup> (i.e. 21% of the total world production). Among the OECD countries, the largest producer is the **EC** (6.5 millions tonnes in 2000) followed by **Japan** (6.4 millions tonnes in 2000) and the **USA** (4.6 millions tonnes in 2000).

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*Economic performance difficult to assess across countries...*

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Given the lack of data and consistent basis for analysis, it is difficult to assess the economic performance of fishing industries across OECD countries. However, some governmental institutions and Inter Governmental Organisations (IGOs) have undertaken economic surveys that provide useful information during the period under review. In the **US**, while the economic performance of the fleet varies substantially from fishery to fishery, overall performance in the last several years is considered to have been at a sub-optimum level.<sup>17</sup> Commercial harvesting is estimated to contribute more than USD 2 billion to the US GDP in 2001 (i.e. around 0.02% of GDP).<sup>18</sup> In **Europe**, despite a considerable increase in vessel operational costs due to, *inter alia*, increases in oil prices, 27 of the 39 fleet segments surveyed showed a positive financial profit in 2000 (while 31 presented a positive economic profit<sup>19</sup>).

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*... but several fisheries showed positive financial returns.*

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The **FAO** 1999-2000 economic survey (Tietze, 2001) found that the financial return on investment varied among countries and fleet segments, from 2% to 12% in **Germany**,<sup>20</sup>

1% to 73% in **Korea** and 2% to 3% in **Spain**. This survey also found that, on average, all twelve types of **Norwegian** vessels covered by economic surveys showed a net financial profit. Furthermore, in Norway it is expected that the fleet profitability as a whole will have increased in 2001 compared to 2000. In **France**, 10 of the 11 segments surveyed showed a net financial profit.

In **Iceland**, net earnings of the entire fisheries sector as a proportion of income was 2.5% for 2000 and preliminary statistics for 2001 indicate a favourable performance in this sector (see Icelandic chapter). Conversely, in **Sweden**, profitability tended to decrease, although the trend was buffered by price increases due to a shift from fish reduction to human consumption. In **Australia**, real rates of return to boat capital<sup>21</sup> were positive in three of the five fisheries surveyed in 2000 (ranging from 1% to 7.4%), as well as in the three fisheries surveyed in 2001 (ranging from 4.3% to 7%). When taking into account management costs in the economic analysis, only one fishery (of four) presented a positive net return to the industry in 2000, against two (of three) in 2001.

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### *Continuing decline in employment.*

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The fishing industry (comprising the marine capture fisheries, the aquaculture and the marketing and processing sectors) employed directly around 1 million people in OECD countries in 2000. Although this figure is not fully comprehensive, it shows a decrease compared to 1999 (1.3 million people). There are concerns about the social sustainability of the fishing industry in some OECD countries, where fishermen are becoming older and the recruitment rate is declining fast (*e.g.* in Japan, the proportion of those 60+ years was 42% in 1998, 8% higher than in 1993). There are a number of reasons that can explain this phenomenon, including quality of life, salaries, concerns about the status of stocks and management measures.

## **2. International developments**

### ***International initiatives***

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#### *UN General Assembly initiatives in 2000 and 2001.*

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In October 2000, the United Nations' General Assembly adopted a resolution on "large-scale drift-net fishing, unauthorized fishing in zones of national jurisdiction and on the high seas, fisheries by-catch and discards, and other developments". In adopting this resolution, the UN General Assembly expressed its concern for illegal, unreported and unregulated fishing ("IUU fishing") as one of the most severe problems currently affecting world fisheries and the sustainability of marine living resources. It urged states to continue the development of an international plan of action on IUU fishing as a priority, and encouraged the International Maritime Organizations and other relevant agencies to continue working constructively with the FAO to combat such practices.

The UN General Assembly also expressed its concern about the significant level of both by-catches and discards and urged States and relevant international fisheries management bodies to take action to reduce these and post-harvest losses in a manner consistent with international law and relevant international instruments, including the Code of Conduct for Responsible Fisheries.

At its annual meeting in November 2001, the UN General Assembly adopted a resolution on the 1995 UN Fish Stock Agreement, expressing the need to promote international co-operation at the regional and subregional levels to ensure the long-term sustainability of both straddling and highly migratory fish stocks.

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*FAO initiatives in 2000 and 2001.*

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At its 24th Session in March 2001, the FAO Committee on Fisheries adopted the International Plan of Action (IPOA) on illegal, unreported and unregulated fishing to prevent, deter and eliminate IUU fishing. This was later endorsed by the 120th Session of the FAO Council. This IPOA stressed and promoted the responsibility of flag states in ensuring compliance by domestic vessels. It also addressed the problem of “flag hopping”: the repeated and rapid changes of a vessel’s flag for the purpose of circumventing conservation and management laws. The IPOA against IUU fishing is a non-binding agreement aimed at promoting more responsible fisheries practices.<sup>22</sup> It was first elaborated at an expert consultation meeting jointly organised by the Australian government and the FAO in Sydney in May 2000.

The FAO Fisheries Department, in collaboration with member states and interested organisations, continued to prepare technical guidelines for the implementation of the Code of Conduct for Responsible Fisheries. As of May 2002, the FAO had published eight sets of guidelines including three supplemental guidelines under its “Technical Guidelines for Responsible Fisheries” series. These guidelines deal with: i) fishing operations; ii) the precautionary approach to capture fisheries and species introduction; iii) the integration of fisheries into coastal area management; iv) fisheries management; v) aquaculture development; vi) inland fisheries; vii) responsible fish utilisation; and viii) indicators for the sustainable development of marine capture fisheries.

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*Increasing interest in ecosystem based management.*

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During 2000-2001, sustainable development issues received increasing attention in governmental fora and civil society. In particular, UNESCO organised the “*Global Conference on Oceans and Coasts at Rio + 10*” to prepare the World Summit on Sustainable Development (WSSD) held in Johannesburg in September 2002. In order to deal with the biological side of sustainable development, increased attention was given to ecosystem-based management of fisheries and aquaculture.

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*A Declaration on Responsible Fisheries in the Marine Ecosystem.*

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Within this context, a Conference on Responsible Fisheries in the Marine Ecosystem, jointly organised by the Iceland and the FAO with the co-sponsorship of Norway, was held in Reykjavik in October 2001. The Conference led to a Declaration that was conveyed to the WSSD. Concerning the aquaculture sector, a Conference on Aquaculture in the Third Millennium was held in February 2000 in Bangkok, and was followed by the establishment of a FAO Sub-Committee on Aquaculture in 2001.

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*OECD worked on sustainable development.*

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OECD has participated actively in the move towards sustainable development.<sup>23</sup> When OECD Ministers of Economics, Finance, and Environment first met at OECD in May 2001, they recognised sustainable development as an overarching goal of OECD governments. In their Ministerial Communiqué, they emphasised that OECD countries bear a special responsibility for leadership on sustainable development world-wide because of the weight they continue to have in the global economy and environment. In particular, the Ministers asked OECD to continue their work in developing indicators that measure progress across all three dimensions of sustainable development, including decoupling of economic growth from environmental degradation.<sup>24</sup> Within this framework, the OECD Fisheries Committee has examined the definition of sustainable development indicators as it pertains to fisheries (Chapter 2).

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*Increasing participation of Civil Society Organisations.*

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The rules of governance, as well as recommendations for an ecosystem-based approach, make the active involvement of the stakeholder as one of the key factors for successful fishery management. The role played by civil society can be seen through the increasing participation of civil society organisations (CSO) in discussions within the framework of Regional Fisheries Organisations (RFOs) (e.g. 37th session of the **IBSFC** in September 2001, the 20th meeting of the **NEAFC** in November 2001, and the seventh annual meeting of the **CCSBT** in April 2001), international conferences (e.g. the Global Conference on Oceans and Coasts held by UNESCO in September 2001) or *ad hoc* national committees (e.g. the committee in **Denmark** studying human impacts on environmental and on fishing resources).

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*Discussion on GFT issues in international fora.*

---

Government financial transfer issues were treated in several international fora, including OECD, WTO, FAO and the UNEP. At the OECD Council at Ministerial level in May 2001, the relationship between the sustainable management of resources and trade liberalisation, as well as the need to avoid subsidies that are environmentally harmful, were addressed.

### **International agreements**

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*FAO Compliance Agreement not yet legally operational.*

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The “Agreement to Promote Compliance with International Conservation and Management measures by Fishing Vessels on the High Seas” (“the FAOCA”) is binding on those states that have ratified the Agreement. Twenty-five instruments of acceptance are required for it to become legally operational. In 2000 and 2001 seven new instruments of acceptance were submitted to the FAO, bringing the overall total to twenty-two.<sup>25</sup>

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*Among OECD countries, Japan deposited its instrument of acceptance in 2000.*

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**Japan** deposited its instrument of acceptance on 20 June 2000, joining Canada, the European Community, Norway, Mexico, Sweden and the United States as the only OECD countries to have done so. Article VI of the Compliance Agreement requires Parties to exchange information on vessels authorised by them to fish on the high seas, and obliges the FAO to facilitate this information exchange. The entry into force of this agreement is particularly important within the framework of the fight against IUU fishing.

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*Luxembourg ratifies UNCLOS in 2000, Hungary in 2002.*

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The United Nations Convention on the Law of the Sea (UNCLOS), which came into force in November 1994, was ratified by **Luxembourg** in 2000 and **Hungary** in 2002. These countries join the twenty-three OECD countries or entities that have already either acceded to,<sup>26</sup> or ratified UNCLOS.

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*1995 UN Fish Stocks Agreement entered into force on 11 December 2001.*

---

The Agreement for the implementation of the provisions of the Convention relating to the conservation and management of straddling fish stocks and highly migratory fish stocks (UNFSA) has been in force since 11 December 2001. Among OECD countries, **New Zealand** ratified the Agreement in 2001. The Agreement contains a provision that provide for the use of trade sanctions.

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*Four OECD countries signed the Western and Central Pacific Convention.*

---

In accordance with UNCLOS texts, several conventions were signed world-wide. The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean was opened for signature on 5 September 2000. As of March 2002, the Convention was signed by 19 states, including four OECD countries: **Australia, Canada, New Zealand** and the **United States**. The “Galapagos Agreement” (Conservation of the Living Marine Resources of the High Seas of the South Pacific) was adopted on 14 August 2000.

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*Six OECD countries signed the Southeast Atlantic Ocean Convention.*

---

The Convention on the Conservation and Management of Fishery resources in the Southeast Atlantic Ocean was adopted in April 2001. It will establish the South-East Atlantic Fisheries Organisation (SEAFO). Nine countries signed the convention on 20 April 2001, including six OECD countries: **Iceland, Norway, Republic of Korea, the United Kingdom** (on behalf of St. Helena and its dependencies, Tristan Da Cunha and Ascension Island), the **United States** and the **European Community**. However, the Convention has not yet come into force.

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*On-going implementation of RFOs...*

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Other conventions are under discussion. These aim to establish, *inter alia*, the South West Atlantic Fisheries Organisation, South West Indian Ocean Fisheries Organisation and Southeast Pacific Fisheries Organisation.

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*... and international conventions.*

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In addition, a number of regional agreements were signed during the period under review, such as the Agreement on the Conservation of Albatrosses and Petrels adopted in February 2001 under the Bonn Convention on the Conservation of Migratory Species of Wild Animals.

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*Organisation of a conference on indicators to assess the performance of RFOs.*

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A conference on performance indicators of RFO efficiency was held in 2001.<sup>27</sup> The conference addressed not only the obligation incumbent on RFOs to efficiently manage the stocks within their jurisdiction, but also that the Contracting Parties ensure that RFOs function properly. In particular, in accordance with the Bellagio principle, one of the key factors in the success of RFOs lies in the clear definition of the goals pursued. From a technical standpoint, the specification of indicators was encouraged. It was proposed that indicators should be multi-dimensional and defined at the level of the resource stock concerned. Lastly, to ensure transparency in the decision-making process, participation by civil society and co-operation between RFOs were encouraged.

### **3. Fisheries management**

#### ***Management of fisheries under national jurisdiction***

##### ***Supranational measures***

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*European Community.*

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Under the Common Fisheries Policy (CFP), the **European Community** has introduced a number of measures aimed at consolidating the sustainable harvesting of fish stocks. In 2000 and 2001, the Commission introduced a number of technical measures aimed at aiding the recovery of certain stocks in danger of collapse (cod stocks in the Irish Sea, North Sea and north-west Europe). Some TACs were reduced between 2000 and 2001, while in 2001 new TACs were introduced for some species (albacore tuna, bigeye tuna and yellowtail flounder). Other TACs have been increased, sometimes substantially as in the case of pelagic and industrial species.

As part of its structural policy towards the fisheries sector, the Commission submitted a report to the Council in May 2000 on the results of the Multi-Annual Guidance Programmes (MAGPs). This report noted that Community fleet capacity had been reduced by 2% in tonnage and 3% in power in 1997, which is close to the objectives of MAGP IV. Compared with MAGP III (overall reduction of 10%), the results of MAGP IV remain modest. The European Commission has proposed new policy directions as part of the reform of the CFP.



The European Community also progressed on the integration of environmental policies with other policies. Important policy documents describing how environmental concerns should be addressed by the future CFP were published.<sup>28</sup> In addition, scientific studies have been promoted and financed to evaluate the impact of fishing on marine mammals and on possible by-catch mitigation measures. Scientific bodies have been requested to analyse this information and preliminary advice was issued in 2001 by the ICES, and further advice is expected for 2002 both from ICES and from the STECF.<sup>29</sup> Accordingly, the EU Council of Ministers has, for example, decided that the fishery on sandeel off the coast of Scotland will be closed from 2000 to 2002 in order to secure the stock of sandeel available to natural predators, especially birds. This should help to improve the health of the marine ecosystem.

In 2000 and 2001, the European Community adopted several decisions aimed at ensuring more effective control of compliance with fishing legislation. The Council adopted a Decision regarding a financial contribution by the Community towards expenditures incurred by member states in implementing control systems. The European Community signed several bilateral agreements with third countries regarding satellite surveillance of fishing vessels. Finally, in 2001 the Commission submitted a Communication to the Council and the European Parliament setting out details of infringements to the rules of the CFP reported in 2000 (4 000 cases).<sup>30</sup>

### **National measures**

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#### *Australia.*

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In **Australia**, among the measures taken to achieve ecologically sustainable fishery, the AFMA closed the Bass Strait Central Zone Scallop fishery, to protect the bed of adult scallops, during 1999-2001. It also introduced an ITQ system for school and gummy shark on 1 January 2001. Following a scientific review, the Australia implemented an interim ban on shark finning at sea. In 2000-2001, the Fisheries Action Program, which aims to rebuild fisheries to more productive and sustainable levels, provided AUD 3.2 million to implement a broad range of fish protection, enhancement and sustainable use projects which support a 'whole of environment' approach through fisheries habitat restoration and protection. Within Australia's Oceans Policy framework, two new Marine Protected Areas (MPAs) were established in 2000. When fishing occurs in areas where there is a by-catch of threatened or endangered species, By-catch Action Plans (BAPs) are introduced (required for all Commonwealth managed fisheries) to protect these species from the impact of fishing. Within the 19 Commonwealth Managed Fisheries, 11 were subject to a BAP in 2001.

Australian fisheries are developing a National ESD Reporting Framework to assist with reporting on Ecologically Sustainable Development (ESD). This framework helps fisheries identify issues of sustainable development, to develop operational objectives, to determine appropriate indicators and performance measures, and to evaluate performance and develop management responses. The National ESD Reporting Framework was tested in 2000 and 2001 by applying it to nine case study fisheries. A "How To Guide" has been finalised to help fishery managers apply the National ESD Reporting Framework to their particular fishery, including all social, economic and ecological components of sustainable development.

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*Canada.*

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In **Canada**, fisheries management policies have undergone significant renewal over the last two years. The Pacific New Directions initiative for the renewal of Pacific fisheries management is under way, while the Atlantic Fisheries Policy Review (AFPR) aims to define principles which will guide fisheries management direction in the long term. A national policy framework is being developed that synthesises these initiatives and will ensure consistency in the approach.

Since 1998, Fisheries and Oceans Canada announced twelve areas of interest for establishing Marine Protected Areas (MPAs) on Canada's Pacific and Atlantic coasts with additional areas, including the Arctic, currently under consideration. A National Plan of Action to reduce the incidental mortality of seabirds in the longline fishery is also being developed. In addition, the Canadian Code of Conduct for responsible fishing operations, an industry-driven initiative that has been ratified by nearly three quarters of all fishing organisations in Canada, includes articles referring to responsible and sustainable fishing practices and to the minimisation (to the extent practicable) of unintended by-catch. The federal government has taken legislative and policy steps to address marine pollution under the Fisheries Act. This Act contains habitat protection provisions prohibiting any project or activity that would cause harm to fish and fish habitat, unless authorised by the Minister of Fisheries and Oceans. The pollution prevention provisions prohibit the discharge of deleterious substances to waters, unless authorised by a regulation under the Fisheries Act or other federal legislation.

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*New Zealand.*

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In **New Zealand**, 92% of the catch concerns species that are managed under the Quota Management System (QMS). For the 2000-2001 fishing year the main changes to the Total Annual Commercial Catch (TACC) were an increase of catch limits for stocks of North Island orange roughy, alfonsino, Bluenose, elephant fish and sea perch, and a reduction of catch for mid-West Coast orange roughy, hoki, oreos on the east coast of South Island and Chatham, and Marlborough Sounds paua. In addition, some areas were opened to commercial hand gathering of beach cast seaweed, where the potential impacts are likely to be small or manageable. Concerns with flexibility in the fisheries management regime led to an independent review of the operation of the quota management system. This review resulted in the enactment of amendments to the Fisheries Act 1996 in 1999. The Fisheries Act 1996 fully entered into force on 1 October 2001.

In accordance with the ecosystem approach, the New Zealand government closed the Auckland Islands squid fishery in view of the number of sea lions that had been killed (more than the legal limit of 79 in 2002). The limit in 2000 was set at 65 animals.

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*Japan.*

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**Japan** enacted the "Basic Law on Fisheries Policy" in June 2001. This law has two basic concepts: securing a stable supply<sup>31</sup> of fishery products and the sound development of the fishing industry to promote the appropriate conservation and management of marine living resources. It also clearly establishes the basic direction for measures to be implemented under these concepts.

Since 1998 one species has been added to the TAC system, which now regulates seven species. In accordance with the “International plan of action for the management of fishing capacity” adopted by the Fisheries Committee of the FAO in February 1999, Japan scrapped 132 tuna longline fishing vessels corresponding to about 20% of the vessels in this fleet segment. In order to avoid the numerous conflicts between commercial and recreational fishers, some prefectures have held meetings to discuss marine utilisation in order to promote rule making on a local basis.

Many fish products provided from flag of convenience vessels are imported into Japan. This situation encourages disorderly fishing operations. In order to prevent this, and on the basis of the “Law Concerning Special Measures to Strengthen Conservation and Management of Tuna Resources”, the Japanese Government requires traders importing tuna to submit a report indicating the fishing vessel name. Furthermore, in response to recommendations from international organisations, the Japanese Government strengthened measures against flag of convenience vessels by requesting tuna traders to voluntarily terminate imports of fish products from such vessels.

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#### Norway.

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In **Norway**, the TAC and national quotas for some groundfish species were further reduced in 2000 and 2001. Conversely, the positive development for almost all pelagic stocks resulted in an increase in TAC's and national quotas in 2000 and 2001 compared to previous years. In order to improve the efficiency of the output-control based management system, 175 Norwegian coastal vessels fishing with conventional gears participated in an experiment with “groundfish” quotas in 2001.<sup>32</sup> To reduce the total fishing capacity in the ocean going part of the Norwegian fishing fleet, the unit quota system in use in some fleet segments in 1996 – 1998, was reintroduced in 2000 for the cod trawler fleet, the purse seine fleet and part of the shrimp trawler fleet. The system was extended to include other segments of the fleet, the saithe trawler and the longline fleet.

In order to improve the control of fisheries, satellite-based monitoring systems were established in 2000. In addition, various measures regarding the strengthening of control and enforcement were implemented in 2001. To this end, the control on shore was made more effective. The maximum penalty for fisheries-related crime has been increased and the Norwegian fisheries authorities now have a legal base for withdrawing licences for fishing and for buying fish for a short or long period depending on the seriousness of the violation.

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#### Iceland.

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In 2000, the **Icelandic** catch rule was amended to include a buffering factor so as to avoid excessive changes in quotas from one year to the next.<sup>33</sup> In 2001, new legislation affected small fishing craft. As a result, the majority of hook-and-line boats were included in the catch quota system, which as of 2001 also included tusk, ling and monkfish. At the end of 2001, the Minister of Fisheries submitted a bill on a fishing fee to the Icelandic parliament, *Althingi*, which made it Government policy that those parties granted rights to utilise natural resources should pay a fair price for them. The fee is expected to be levied on vessel owners for the first time in 2004.

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United States.

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In the **US**, the NOAA (National Oceanic and Atmospheric Administration) continued to implement the 1996 Sustainable Fisheries Act (SFA) mandate to establish management plans with a view to end overfishing in ten years. For this purpose, NOAA reported on essential fish habitats in US fisheries. In addition, the NAS (New National Academy of Sciences) launched in 2002 a report entitled "Effects of Trawling and Dredging on Seafloor Habitat" that recommended the NMFS to protect specific areas and modify specific fishing gears.

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Mexico.

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In **Mexico**, within the framework of the National Consultative Committee on Normalisation of Responsible Fishing, 3 projects were approved in 2000, related, *inter alia*, to the development of fisheries resources, the protection of dolphins, the marketing of tuna species in the national territory, and the presence of viral diseases. Furthermore, to favour wider knowledge of the fisheries resources that exist in the country, 15 permits for development fishing were granted to foreign citizens and institutions to carry out scientific research.

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Korea.

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In **Korea**, to complement existing technical measures, TACs were set for seven species in 2001, after an experimental period during 1999-2000. The Korean Government operates the Fishery Resources Protected Area (FRPA) system to protect fish habitats and spawning grounds. Currently, ten FRPAs are designated across the coastal and inland areas.

In 2001, 1 532 Korean flagged vessels and 95 foreign-flagged vessels were convicted of violating the law within the Korean EEZ. Thus, IUU issues remain on top of the agenda in fisheries policy. Observers are employed to operate the TAC system. The Korean Government also started a fishermen-oriented co-management system for more effective implementation of responsible fisheries. In particular, the system is designed to encourage a greater sense of responsibility among fishers with respect to the environment as well as to prevent illegal fishing.

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European Community countries.

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Following the basic regulation (EC) 3760/92, most **European countries** implemented management policies in 2000 and in 2001 in addition to those established by the European Community. In **Sweden**, maximum cod landings per week have been established, as well as limitations on days per week in the herring and sprat fisheries. New regulations have been implemented that prohibit trawling in some areas in order to protect the sensitive seabed and reduce discards. In 2001, 15 objectives for environmental quality were specified with short- and long-term goals. In **Denmark**, a fishery management plan has been adopted for the largest fjord with the aim of restoring fish stocks and versatile fish life. Furthermore a committee has been established to study the impact on fishery resources of human induced impacts other than fisheries. The committee has concluded its work and the final report is expected to appear before the end of 2002. In **Spain**, the Spanish Oceanographical Institute studied the impact of fishing on the ecosystem in terms of by-catches of reptiles, birds and

mammals, as well as the impact of marine reserves and artificial reefs. In **Italy**, a new modality for the implementation of temporary withdrawals has been approved in 2001. In agreement with local consultative commissions, a period of 30 consecutive days of compulsory technical temporary withdrawal has been set. In addition to permanent and temporary withdrawal measures, some technical measures were introduced, such as restrictions to the fishing of demersal species in areas and over periods of major concentration of juvenile catch. During 2001, the Italian administration completed the decentralisation process in order to transfer competencies to regions in order to improve, *inter alia*, the effectiveness of the fisheries management. In **Portugal**, the daily catch quotas per species and per boat were reduced in 2000 and 2001. In 2001, the administration and Producer Organisations also agreed to continue sardine fishing restriction measures. Following a collaboration working group with the industry, a new legal framework concerning fishing gears was established in 2000. Concerning the monitoring of the fishing activity, 431 "blue boxes" were installed on Portuguese vessels at the end of 2001. In **France**, the French Institute for the Research and the Exploitation of the Sea (IFREMER), in collaboration with the industry, contributed to the preservation of biodiversity and species at risk through research on the implementation of more selective fishing gears. In particular, trials were conducted in 2001 and 2002 for trawlers in the English Channels and for Norway lobster vessels in the Bay of Biscay respectively. In **Belgium**, within the EC cod recovery plan, fishing vessels over 221 kW had to stop fishing during four weeks between the 1st March and the 30th April 2001. In order to help an overall recovery of the marine ecosystem, a sole replenishment project was launched in 2000. For this purpose, small farmed sole was released. Monitoring of fishing activity was also enhanced as around 100 vessels were equipped with the satellite monitoring system and over 1 000 control operations were conducted during 2000/2001.

Within the **Natura 2000**<sup>34</sup> network some European countries established Marine Protected Areas (MPAs). **Spain** created a ninth marine nature reserve in 2001 (La Palma, Canary Islands). Together with the Alboran Island protected fishing reserve and the fishery reserves created by the Autonomous Communities, special protective measures now apply to 546 460 hectares of sea. In **Sweden**, the Koster fjord, a traditional fishing area in the northern parts of Skagerrak, has been designated as a special area of conservation by the Swedish government. In **France**, the National Marine Park of Iroise received due recognition by the government in 2001.

### **Aboriginal fisheries**

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#### *New Zealand.*

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In **New Zealand**, following the comprehensive settlement of Maori fisheries claims against the Crown in 1992 and the passing of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, the Maori have become the biggest player in New Zealand's commercial fishing industry, controlling well over half of all commercial fishing quota. Maori commercial fishing assets are currently managed by a central commission that oversees a significant increase in the asset base since 1992. The Commission is currently in the process of finalising a model for allocating the settlement assets to Maori, largely on a tribal basis. The commission currently leases its quota holdings to tribes on an annual basis and at discounted rates.

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*Canada.*

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Following the 1999 Marshall decision by the Supreme Court of **Canada**, the Government launched the Marshall Strategy to increase access to fisheries resources by aboriginal people in areas affected by commercial fisheries. Fisheries and Oceans Canada (DFO) is responsible for the negotiation of multi-year agreements that provide immediate access to commercial fisheries, along with vessels, gear and training. In 2001 and 2002, DFO signed one to three-year agreements with 30 of the 34 First Nations involved, of which 22 agreements provided increased access to fisheries. Access is being provided through voluntary withdrawal of non-native fishers, to provide for the assignment of licences to First Nations or through additional licences where the resource conditions permit.

**Management of straddling, highly migratory and high sea fish stocks**

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*Canada and US agree to amend tuna treaty.*

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In April 2002, **Canada** and the **United States** agreed in principle to amend the 1981 Canada-US Pacific Albacore Tuna Treaty to limit access by their respective fleets to the other's EEZ to fish albacore tuna. Under the current treaty, Canadian and US fishermen have unrestricted access to the other country's EEZ to fish for albacore tuna and to land it at designated ports. The amendments are expected to come into force in 2003 at the earliest. In addition, the US and Canada are negotiating an agreement on sharing the coast-wide Pacific whiting resource.

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*Cuts in IBSFC catch limits for cod and herring.*

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The **International Baltic Sea Fishery Commission (IBSFC)** cut almost all of its 2000 TACs. The TAC for cod was reduced by 17% from 1999 levels. Other reduced TACs were herring (-10%) and sprat (-15%). There were two opposite evolution concerning the salmon stocks. While the main basin salmon TAC was raised (+10%), the Gulf of Finland TAC was reduced by 10%. In 2001, while the TACs of cod and main basin salmon were maintained at the same levels, the TACs of herring, sprat and Gulf of Finland salmon were reduced once again (respectively by 24%, 11% and 22%). IBSFC TACs evolution during the period 1998-2002 is provided in Table I.1.

**Table I.1. TACs by the International Baltic Sea Fishery Commission: 1998 to 2002**

Species	Units	1998	1999	2000	2001	2002
Cod	Tonnes	145 000	126 000	105 000	105 000	76 000
Herring	Tonnes	670 000	570 000	490 000	372 000	260 000
Sprat	Tonnes	550 000	468 000	400 000	355 000	380 000
Salmon (Main basin + Gulf of Bothnia)	No. of Fish	410 000	410 000	450 000	450 000	450 000
Salmon (Gulf of Finland)	No. of Fish	110 000	100 000	90 000	70 000	60 000

Source: IBSFC.

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**Concern over stocks and compliance in NEAFC.**


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A variety of trends were apparent in the fish stocks managed by the **North-East Atlantic Fishery Commission (NEAFC)**. While the TAC for blue whiting remained unchanged during 1999-2001, studies conducted by the ICES indicated that the stock was in danger of collapse.<sup>35</sup> Similarly, while the TAC for Norwegian Spring Spawning herring also remained unchanged from 1999 to 2000, the TAC for 2001 has been reduced by 25%. The stock of redfish is also giving cause for concern with reduction of the TAC by 38% between 1999 and 2001. In contrast, improvements in the mackerel stock resulted in an adjustment to the 1999 agreements, with the TAC for 2001 30% up on the 2000 TAC. Further particulars are given in Table I.2. The NEAFC introduced a number of measures supplementing the TACs agreed upon and proposed that a satellite monitoring system be introduced as of 1 January 2000. The NEAFC also addressed the issue of IUU fishing and, in particular, adopted a resolution on the creation of a "black list" of vessels committing infringements of Commission regulations. The Commission also introduced a control and enforcement system for fishing vessels operating in the NEAFC zone. Lastly, to improve the transparency of its decisions, the Commission adopted rules allowing NGOs to take part in its meetings.

**Table I.2. TACs by the North East Atlantic Fishery Commission: 1999 to 2002**

Species	1999	2000	2001	2002
	Tonnes			
Norwegian Spring Spawning herring	102 000	102 000	76 500	76 500
Blue whiting	650 000	650 000	650 000	..
Red fish	153 000	120 000	95 000	97 000
Mackerel	44 000	50 000	65 000	66 400

.. Not available.

Source: NEAFC.

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**NAFO increased some TACs and improved compliance.**


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**NAFO (Northwest Atlantic Fisheries Organisation)** increased TACs for Greenland halibut and yellowtail flounder between 2000 and 2001. During the 22nd Annual NAFO Meeting held in September 2000, Contracting Parties agreed to a program of 100% observer coverage and to require all vessels to be equipped with satellite tracking devices no later than January 2001. NAFO also must deal with non-compliance (IUU fishing) behaviour that could undermine management measures. It is estimated that 10 000 tonnes of groundfish were illegally caught in 2001, including plaice, cod and redfish. According to Canadian sources, more than 1 000 tonnes of shrimps may have been caught by Estonian vessels<sup>36</sup> in NAFO division 3L in 2001, compared to their 268 tonne quota and chartering arrangements. Concerning Greenland halibut, quotas are estimated to have been exceeded by 3 100 tonnes. In addition, some parties failed to submit observer reports in 2000 and 2001. Table I.3 provides details on the evolution of TACs in selected NAFO divisions and for selected species.

Table I.3. **Total TACs set by the Northwest Atlantic Fisheries Organisation: 1998 to 2001<sup>1</sup>**

Species	NAFO Division	1998	1999	2000	2001
		Tonnes			
American plaice	3M, 3LNO	0	0	0	0
Capelin	3NO	0	0	0	0
Cod	3M, 3NO	2 000	0	0	0
Greenland halibut	3LMNO	20 000	24 444	25 935	29 640
Redfish	3M,3LN	20 000	13 000	5 000	5 000
Squid	Sub-areas 3 + 4	150 000	75 000	34 000	34 000
Yellowtail flounder	3LNO	4 000	6 000	10 000	13 000
Witch flounder	3NO	0	0	0	0
Shrimp	3L	–	–	6 000	6 000

1. A quota for redfish in division 1F of 95 000 tonnes was set, based on the TAC established by NEAFC (NAFO and NEAFC are two adjacent convention areas).

– No NAFO fishery.

Source: NAFO.

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### *ICCAT established several stock rebuilding programmes...*

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In 2000 and 2001, **ICCAT** maintained a number of measures aimed at rebuilding stocks of **bigeye tuna** such as a three-month ban on the use of Fish Aggregation Devices (FADs) and limits on catch sizes and numbers of fishing vessels. These measures are primarily aimed at limiting catches of juveniles. To combat over-harvesting of East-Atlantic **swordfish** stocks, ICCAT established a ten-year recovery programme aimed at achieving the maximum level of biomass with at least a 50% chance of success. This programme began with TACs of 10 600, 10 500 and 10 400 tonnes for the years 2000, 2001 and 2002 respectively. To encourage fishermen to limit the size of discards, maximum discards were also introduced for these three years (400, 300 and 200 tonnes respectively). A TAC of 14 620 tonnes a year was introduced for West-Atlantic swordfish as a precautionary measure. TACs were established for 2001 and 2002 to ensure the sustainable exploitation of **albacore** stocks in the North and South Atlantic (34 500 and 29 200 tonnes in the respective areas). The TAC of 2 500 tonnes established under the programme to rebuild stocks of **bluefin tuna** in the West Atlantic was maintained at the same level in 2000. TACs of 29 500 tonnes were set for East-Atlantic and Mediterranean bluefin tuna (amounting to an 8% reduction compared with 1999). In addition, ICCAT voiced its concern over the rapid growth in bluefin tuna farming in the Mediterranean in that this highly lucrative practice might well lead to the over-harvesting of wild stocks.<sup>37</sup>

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### *... and introduced trade measures to stop IUU fishing.*

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To supplement these management measures and ensure their effectiveness, ICCAT introduced a number of measures to combat IUU fishing, and in December 2000,<sup>38</sup> Japan and Taiwan were asked to take measures. A list vessels names infringing regulations was drawn up, specifying the country of the flag of convenience. In 2000,<sup>39</sup> ICCAT asked Contracting Parties to introduce commercial measures aimed at banning imports of swordfish from Belize, Honduras and



Equatorial Guinea and similar measures were asked in 2001<sup>40</sup> for bigeye tuna from Belize, Honduras, Cambodia, Equatorial Guinea and Saint-Vincent and the Grenadines.

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*IATTC established catch restrictions for yellowfin and bigeye tuna.*

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Considering that the estimated size of the **yellowfin tuna** stock was “significantly greater than the level that would produce the average Maximum Sustainable Yield”, the **IATTC** raised the catch limits for yellowfin tuna – to 240 000 tonnes and 250 000 tonnes respectively in 2000 and 2001 (an increase of 7% and 11% comparing to the 1999 TAC). In 2001, the IATTC was given discretion to increase this limit by up to three increments of 20 000 tonnes each, provided such increases posed no substantial dangers to the stock. Given the uncertainty in **bigeye tuna** assessment, and despite positive indications, the IATTC decided to introduce a ban on Fishing Aggregate Devices (FADs) from 15 September through 15 December 2000. In 2001, such a ban was in force in relation to the number of specimens of less than 60 centimetres caught.

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*CCSBT meetings yield mixed results.*

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The eighth meeting of the Commission for the Conservation of Southern Bluefin Tuna (**CCSBT**) in 2001 yielded mixed results. **Korea** formally acceded to the Convention as of 17 October 2001, and Taiwan also undertook to join the CCSBT during the course of 2002. The Commission members (New Zealand, Australia, Japan and Korea) were, however, unable to agree on a total allowable catch limit. New Zealand, Australia and Korea subsequently undertook to voluntarily constrain their catch to the previously agreed national allocations. To ensure the proper conservation and management of the SBT stocks, trade-restrictive measures may be taken against several countries, including Belize, Cambodia, Honduras and Equatorial Guinea if no satisfactory responses are received before the next CCSBT annual meeting. In addition, Indonesia was urged to take measures to prevent fishing activities in waters containing important areas of SBT spawning grounds.

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*CCAMLR introduced a catch documentation scheme for toothfish and measures to limit seabird by-catches.*

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In 1999, the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) adopted a Catch Documentation Scheme for toothfish that was implemented in May 2000. The scheme is intended to assist in the prevention of illegal, unreported and unregulated fishing (IUU) operations of toothfish catch from entering markets in CCAMLR member countries. The CCAMLR has estimated that 12 520 tonnes of toothfish were illegally caught in 2000/2001 in waters adjacent to Heard Island and MacDonal Island. The sale of Patagonian toothfish is limited to certified catches. In order to limit seabird by-catches, the CCAMLR took additional measures. In this framework, an important aspect of the Ross Sea toothfish fishery has been the successful implementation of a line-weighting regime to sink the longlines so as to minimise the risk of seabirds taking baited hooks during the line setting operations. During the five fishing seasons that have since taken place in the Ross Sea, vessels have reported zero seabird captures.

### **Agreements on access to the waters of other countries**

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#### *Australia and New Zealand agree on orange roughy management.*

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In February 2000, **Australia** and **New Zealand** signed the second Arrangement between the Government of Australia and the Government of New Zealand for the Conservation and Management of Orange Roughy on the South Tasman Rise. This Arrangement took effect from 1 March 2000 and is of indefinite duration. Under this arrangement, Australia is allocated TAC of 1 800 tonnes, while New Zealand is allocated the remaining 600 tonnes. The TAC can be changed by agreement.

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#### *Faroe Islands gain access to Iceland EEZ.*

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In 2000 and 2001, **Iceland** reached agreement with the Faroe Islands on allowable catches for long line and hand line vessels in Icelandic waters. The Faroese were permitted to catch up to 5 600 tonnes of demersal fish in Icelandic waters in 2000 and 2001. Cod catch was not to exceed 1 200 tonnes in each year, halibut catch not more than 100 tonnes in 2000 (80 tonnes in 2001), tusk not more than 1 700 tonnes (in 2000) and no fishing of Greenland halibut was allowed (both years). A maximum of 16 long line vessels, including halibut vessels, was allowed to fish at any one time within Icelandic jurisdiction.

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#### *Foreign fleets have limited operations in Canada.*

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Two arrangements allowed foreign fleets to fish in **Canadian** waters. A Canadian company contracted Russian vessels to harvest a developmental silver hake quota. Vessels from Latvia, Poland, Estonia and the Faroe Islands were also contracted in 2001 in an experimental Greenland halibut (turbot) fishery in NAFO Division 0A. The year 2002 will be the last year foreign vessels are permitted in the Division 0A fishery and 2004 will be the last year for foreign participation in the developmental silver hake fishery.

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#### *Japan has 27 access agreements in force.*

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As of 2001, 27 agreements permitting **Japanese** fishing vessels access to fishing in foreign waters were in force. Two agreements, with Gabon and Mauritius, were signed in 2000. A new agreement with China entered into force in June 2000. With the exception of the agreements with Russia, Canada, China and Korea (mutual fishing access agreements), those arrangements are for tuna fisheries. The conditions of the agreements such as quota and fishing fees borne by fishermen vary. Some arrangements are concluded as government to government arrangements; others are concluded between the Japanese private sector and foreign governments.

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#### *Korea-China fishery agreement signed.*

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The Republic of **Korea** has 13 bilateral fishing agreements between governments and 5 fishing arrangements between the Korean private sector and foreign governments in 2001. The Korea-China Fishery Agreement was signed on 3 August 2000 and entered into force on 30 June 2001.

According to these bilateral agreements, only Chinese and Japanese vessels can gain access to the Korean EEZ on a reciprocal basis. In order to monitor the activities of its long distance fleet, the Korean Government is setting up a fishing control centre. Currently, more than 250 vessels have been integrated into a tracking system. The fishing fees related to the agreements totalled USD 55 million. In this context, 575 000 tonnes were caught in 2001.

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*EC continues to negotiate bilateral fishing agreements protocols.*

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In 2000 and 2001, the **European Community** signed a number of new protocols in the framework of existing bilateral fishing agreements with third countries under the Common Fisheries Policy. Of these Community Fishing Agreements (CFAs), most concerned access to the resources of African countries such as Cape Verde (for an annual sum of EUR 680 000), Angola (EUR 13.975 million), Gabon (EUR 1.262 million), Guinea-Bissau (EUR 10 million for 2001-2003), Madagascar (EUR 825 000), Mauritania (EUR 86 million), the Comoros (EUR 350 000), Ivory Coast (EUR 957 000), Equatorial Guinea (EUR 320 100) and Guinea Conakry (EUR 3.33 million).<sup>41</sup>

Other agreements were reached with European countries, such as Denmark on behalf of the local government of Greenland (for an annual sum of EUR 42.82 million), Latvia (EUR 252 000) and Lithuania (EUR 546 000). In addition, the EU continued quota exchanges with Iceland, Faeroe Island and Norway. The financial contribution by the European Community covers the financial compensation granted to third countries and helps to finance various activities (fishing and technical research programmes, control and surveillance, the running costs of institutions, scholarships, and participation in international fisheries organisations and international meetings). Over the period 2000-2001, the annual average budget for CFAs amounted to EUR 154 million. This budget is sharply down from previous years (approximately EUR 280 million, i.e. around 29% of the CFP budget) due to the non-renewal of agreements with countries such as Morocco and Argentina.<sup>42</sup>

Consultations on bilateral fishing arrangements for 2000 and 2001 were also held between the **European Community**, **Norway**, Russia, the Faroe Islands, Greenland and **Poland**. With the exception of the agreement with Poland, these included exchanges of quotas. The objective of the agreements is to develop a reasonable balance in reciprocal fishing patterns.

#### 4. Aquaculture

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*OECD accounts for 10% of world aquaculture production.*

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World aquaculture production was approximately 46 million tonnes in 2000.<sup>43</sup> Aquaculture production in most OECD countries has tended to decline or to remain stable. The contribution of OECD countries in 2000 was 10% of world aquaculture volume (4.6 million tonnes) and 20% of world aquaculture value (USD 11.2 billion). The main OECD producer in 2000<sup>44</sup> was **Japan** (USD 5.3 billion for 1.3 million tonnes), followed by the **EC** (USD 1.7 billion for 1.1 million tonnes), **Norway** (USD 1.4 billion for 0.5 million tonne) and **Korea** (USD 0.7 billion for 0.7 million tonne).

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*The Bangkok Declaration highlights the need to develop aquaculture.*

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The “Aquaculture in the Third Millennium Conference” was held in February 2000 in Bangkok, with the purpose of developing a strategy for aquaculture development over the next 20 years. It was organised by NACA<sup>45</sup> and the FAO, and led to a Declaration addressing the role of aquaculture in alleviating rural poverty, improving livelihoods and food security, and maintaining the integrity of natural and biological resources and the sustainability of the environment. The strategy comprises 17 elements that focus on measures that governments, the private sector and other concerned parties can incorporate in their development programmes and highlights the need for regional and interregional co-operation to assist in its implementation.

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*The first session of the FAO Sub-Committee on Aquaculture took place in 2002.*

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An FAO Sub-Committee on Aquaculture was established in 2001 to provide a forum for consultation and discussion on aquaculture and to advise the FAO Committee on Fisheries (COFI) on technical and policy matters. The first session took place in Beijing on 18-22 April 2002. As some forms of production practice had been identified as unsustainable and the cause of negative environmental and socio-economic impacts, sustainable development issues were at the heart of the discussions. Product safety and fair access to markets for developing countries’ products were the other main agenda items.

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*OECD initiatives to increase aquaculture development.*

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Several OECD countries took initiatives to further develop their aquaculture industries. In **Denmark**, the 1996 ban on establishing and extending marine fish farms was lifted in 2001. In **New Zealand**, the government approved further development of green mussel farming. As an example, plans were accepted to develop a six kilometre offshore farm. **Iceland** amended the Act on Salmon and Trout Fishing in 2001 in order to strengthen the position of aquaculture and enable increased activity in this field. In 2001, **Norway** increased feed quotas to 830 tonnes for every fish farm of 12 000 m<sup>3</sup> produced salmon, an increase of 22% from 1999. Forty new licenses for salmon and trout production were granted in 2002 and each license was subject to a charge of NOK 5 million. **Canada** launched a new Program for Sustainable Aquaculture in 2000 (CAD 75 million), through which CAD 15 million is annually invested in aquaculture-related science, research and development, human health, and the development of improved departmental policy and regulatory frameworks for aquaculture development. In addition, an Aquaculture Policy Framework consisting of principles to guide departmental decision-making and ensure that the department’s actions support the social, economic and ecological aspects of sustainable aquaculture development was approved in 2001. In **Mexico**, as a strategy to combat extreme poverty and contribute to food production in communities in the rural milieu, actions to promote aquaculture of an industrial and high-yield nature were carried out during the period. In particular the Rural Aquaculture Program was continued, which constitutes one of the most important alternatives for increasing domestic fisheries production and favouring the Mexican rural milieu.

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*FIFG funds used for aquaculture development in the EC.*

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The **EC's** Financial Instrument for Fisheries Guidance (FIFG) for the period 2000-2006, adopted in 1999, includes measures that promote the development of aquaculture. In particular, it supports techniques that substantially reduce the environmental impact of aquaculture operations. Where investments concern the use of such techniques, the contribution of the private beneficiary may be restricted to 30% in Objective 1 regions and 50% in other areas, instead of 40% and 60% respectively. Another important event for EC aquaculture in 2000 was the adoption of the Commission Regulation, which allows the aquaculture sector to receive funds from FIFG in order to eradicate pathological risks. The new Common Market Organisation also includes some aspects of interest for the aquaculture sector such as the possibility to establish and promote producer organisations (POs). These POs can take measures aimed at ensuring the best marketing conditions for their products. Moreover, the current FIFG can provide financial support to set up such POs.

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*Industry-driven process and product development continued.*

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The aquaculture industry, supported by government initiatives, has continued to develop new processes and products. In **Norway** and **Ireland**, commercial trials of cod and haddock farming have been successful in their transition from laboratory to commercial cultivation. In the **United Kingdom** farming of non-salmonid finfish species have produced encouraging results. In **Greece**, sole farming continued to increase. In **Italy**, there are a higher number of sea bass and sea bream fish farm units, and aquaculture production is still increasing. In **Portugal**, the increase of semi-intensive units encouraged fish farmers to avoid the use of wild juvenile in the production process. While environmentally beneficial, the purchase of juvenile in reproduction units led to productivity increase. In **Australia**, the aquaculture industry expressed its commitment to implementation of an Aquaculture Action Agenda to achieve a target of AUD 2.5 billion in annual sales by 2010. In **Japan**, there is a movement to diversify aquacultured species, leading to more import of seed of yellowtail and similar species. In **New Zealand**, techniques are being developed to enable a variety of new species, such as dredge oysters, sea urchins, scallops, seaweed, snapper and sponges, to be farmed. The New Zealand Aquaculture Council has estimated that the export value of farmed products would exceed NZD 1 billion by the year 2020. In **France**, a quality charter was implemented by the aquaculture industry in order to promote aquaculture products. In particular, a label "Quality – Aquaculture from France" is in use. A Red label was also obtained for the farmed sea bass.

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*Greece suspended new installation licences for the new marine Mediterranean species.*

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In **Greece** renting of new sea areas and issuing of new installation licences have been suspended for the new marine "Mediterranean species" (*Pagrus pagrus*, *Putazzo putazzo*, *Dentex dentex*, *Diplodus sargus* etc.). This happened because of the significant discrepancy observed between the number of installations and their approved capacities, in relation to their yielded production, which is on a relatively low level, as well as for fish production

stabilisation and controlling, in relation to the approved targets of the Operational Programme for Fisheries 2000-2006.

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#### *Environmental limits to aquaculture expansion.*

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In **Japan**, the aquaculture sector suffers from environmental deterioration due to excessive stocking and over-feeding, as well as pollution due to discharges. In order to resolve these problems, Japan maintains and improves the environment of aquaculture grounds through fishery cooperatives. In addition, the import of new seed could increase the possibility that diseases are brought from foreign countries. In **Korea**, as of 29 January 2000 the Aquaculture Ground Management Act was enacted to build a sustainable aquaculture and to improve the productivity of farming grounds. In particular, the Act introduces a system of sabbatical years for mariculture grounds and inspection of marine grounds.

## 5. Government financial transfers

### **Overview of GFT**

In the OECD countries government financial transfers (GFT) are estimated<sup>46</sup> to amount to USD 6.2 billion in 2000 and USD 5.5 billion in 2001. This represents around 15% of the value of the fish production in 2000. In absolute terms, **Japan** had the highest GFTs in 2000 (USD 2.9 billion), followed by the **EC** (USD 1.1 billion) and the **USA** (USD 1.03 billion). Most of the GFTs are dedicated to general services, which represent 75% or USD 4.6 billion of the total GFTs. However, the relative importance of general services spending varies across OECD countries, from 12% in the **UK** and in **Spain** (in 2000) to 98% in **Japan** (in 2001). The remaining spending can be split into direct payments (USD 740 million in 2000, 12% of total GFTs) and cost reducing transfers (USD 826 million in 2000, 13% of total GFTs).

According to the data available, most of the GFT are granted to marine capture fisheries sector. GFTs are also provided to the aquaculture and marketing and processing sectors, although the available data are not comprehensive for all OECD countries. In **the Netherlands**, 84% of the GFT (EUR 1.3 million in 2000) was granted to the marketing and processing sector, while in **Germany** and in **Denmark** the corresponding figure was respectively 61% and 45% in 2000 (DKK 60 million). In the **UK**, while 35% of the GFT is granted to the marketing and processing sector, 16% was also granted to the aquaculture sector in 2000 (GBP 1 billion).

### **General Services: Fisheries research, management, enforcement and infrastructure**

In 2000 **Canada** spent CAD 85 million on fisheries research and science, CAD 180 million on fisheries management, CAD 88 million on harbour services and CAD 2.7 million on aquaculture development. Total expenditure for general services was 21% higher than in 1999. The increase in general services mainly reflects increased funding to strengthen scientific research capacity and heightened enforcement activities, as well as major repairs and maintenance of federally maintained small harbours. Ninety-eight per cent of **Japan's** government financial transfers went towards general services in 2001. Japan spent JPY 313 billion for management costs, fisheries facilities and infrastructure, enhancement of fishing communities' environment, technology research, deep-sea marine living resources research and promotion of international fisheries co-operation. In 2001, 90% of total GFTs in the **United States** was spent on management, research and enforcement, an 11% increase

from the previous year. There were sharp increases in spending on management and research (up 45% to USD 593 million) and a slight decrease in spending on enforcement (down 15% to USD 463 million).

**EC** member states spent EUR 282 million on general services in 2000 (both national and EC funding), which represents 25% of the total EC GFT. The situation varies broadly across EC countries, from **Spain** (ESP 8 billion; 12% of the GFT in 2000) and the **UK** (GBP 745 000; 11% of the GFT in 2000) to **Sweden** (which spent SEK 161.1 million on general services in 2001, i.e. 70% of the GFT).

In 2001, **Iceland** spent ISK 2 153 million on fisheries management, research and enforcement. This was about 18% higher than the previous year due to increased spending by Marine Research Institute. Coast guard expenditure on fisheries enforcement makes up 75% of the total cost. In **Korea**, expenditure for general services was about 39% of that country's GFTs. Between 2000 and 2001, the share of this spending fell sharply from 68% (KRW 242 billion) to 39% (KRW 217 billion). The majority of this expenditure was spent on improving fishing ports and the environment of fishing communities. A further KRW 55 billion was spent on fisheries enhancement programmes, including the installation of artificial reefs.

Spending on general services comprised 100% of **New Zealand's** GFTs. In 2001, NZD 65 million was spent on policy framework, monitoring, enforcement, prosecution and research. Compared with the previous year, spending on fisheries information and monitoring increased slightly. About 45% of these costs were recovered from commercial fishers. **Australia** continued to fund the Fisheries Action Program, which aims to develop awareness of fishery issues, encourage participation in habitat rehabilitation and the enhancement of sustainable resource use. The program provided AUD 3.2 million funding in 2001 to implement a broad range of projects.

### **Capacity adjustment**

Over the period 2000-2006, the **European Community** plans to spend more than EUR 1 billion (an average of EUR 150 million per year) to adjust fishing capacity. The total number of vessels decreased from 97 318 in 1999 to 92 270 in 2001 (a 5% decline). Funds for the permanent cessation of fishing activities are available for three types of measures – scrapping, exports to a third country and assignment to activities other than fishing. Additional measures were introduced, including fishing vessels definitively assigned to surveillance of fishing activities, fisheries research or training. Several EC countries took initiatives aimed at improving the capacity adjustment scheme. In 2000, **EC** member countries granted EUR 32 million for permanent capacity reduction (both national and EC funding). The corresponding figure for 2001 is EUR 31 million. In **Spain**, a new financial aid procedure for permanent withdrawal from fishing activities was introduced. Over the 2000-2001 period, the Spanish fishing fleet was reduced by 262 units, and around ESP 7 billion were spent (around 6% of the GFT). In **France**, EUR 6.3 million in 2000 and EUR 7.7 million in 2001 were dedicated to capacity adjustment (representing respectively 3% and 5% of the GFT). The 2001 spending corresponds to the permanent withdrawal of 169 vessels (19730 kW). In the **Netherlands**, 12 vessels were removed during 2000/2001, for which a total of NLG 15.9 million was disbursed under the FIFG.

As a result of the suspension of some European Community Fishing Agreements, a part of the fishing fleet working in foreign waters was granted aid for reconversion. This aid is used in the following manner: scrapping or re-registering (export) of vessels under another

flag, transfer (including through the establishment of joint stock companies),<sup>47</sup> modernisation and social measures. Some vessels have also redirected their activities in European Community waters.

**Australia** completed two fisheries adjustment programs. The Southern Shark Fishery (SSF) development program was completed in mid-2002. In 2000-2001, AUD 1.739 million was paid out to 40 SSF permit holders to leave the fishery. Operators who left the fishery had the option of selling or leasing their shark quota. The Southeast Non Trawl Fishery (SENTF) development programme was completed by 4 May 2001. A total of AUD 345 766 was spent in 2000-2001 with eight operators submitting a tender to sell their blue-eye trevalla quota. In 2000 **Norway** changed the renewal and decommissioning scheme, established in 1999. Since 2000 new grants have not been given for the building of new vessels or import of second-hand vessels. Support is available to fishers who: i) permanently withdraw their vessels from fishing activities; ii) permanently withdraw their vessels but transfer the license or fishing rights to more efficient vessels. About NOK 67 million was spent under this scheme in 2000 and about NOK 75 million in 2001.

In 2001, **Korea** scrapped 113 fishing vessels under the General Buy-back Program and 551 vessels were scrapped by another buy-back scheme, *Buy-back Program by International Agreements*. The latter program was aimed at compensating fisherman for losses resulting from international fishery agreements with Japan and China. The Korean government spent KRW 254.5 billion for reductions in the fishing fleet, representing 46% of total GFTs (an almost eight-fold increase compared to 2000). In **Canada**, to address permanent restructuring requirements, the Atlantic Groundfish Strategy (TAGS), the Pacific Salmon Revitalisation Strategy (PSRS), and the Canadian Fisheries Adjustment and Restructuring (CFAR) programme were put in place in the mid- to late-1990's to permanently reduce the number of fishermen. These programmes have now come to an end. The Government also put in place adjustment programmes for older fishers. Government expenditures to remove fishers from capture fisheries through licence retirement and older fisher adjustment programmes totalled CAD 188 million in 1999, decreasing rapidly to CAD 29 million in 2000 as some reduction targets were met.

### **Social measures**

In the **EC** the compensation scheme for fish marketing costs in certain areas in 2001 was extended. The scheme was designed to compensate for the additional costs incurred in the marketing of certain fisheries products in the EC's outermost areas; i.e. the Azores, Madeira, the Canary Islands and the French departments of Guyana and Reunion. Social measures for fishers affected by the non-renewal of CFAs were also in place in 2000-2001. In **Spain**, for the unique temporary stop resulting from the end of the CFA with Morocco EUR 83 million were made available in 2000 for social aid (EUR 53 million in 2001). The corresponding figure for **Portugal** was EUR 17.5 million for the whole 2000/2001 period.<sup>48</sup> In **Finland**, the damages to the salmon fishery caused by seals were further compensated in 2000 by FIM 320 000. In **France**, respectively EUR 5.7 and EUR 7.7 million were granted to fishers in 2000 and 2001 under the employment/weather insurance scheme. In addition, in order to compensate the damages caused both by the sinking of the petroleum tanker Erika and a storm in December 1999, exceptional grants were made available to the sector (EUR 42.3 and EUR 11.2 million respectively in 2000 and 2001, i.e. around 16% of the total GFT during the 2000/2001 period). In the **UK**, a GBP 1.8 million support was made available in order to reduce the restructuring cost in 2000 (28% of the GFT).



**Norway** spent NOK 13.9 million and NOK 7.9 million in 2000 and 2001, respectively, on the minimum wage scheme to support insufficient income from fishing activity. The principle of the minimum wage scheme has been changed since 2000. The weekly payment now depends on how much one has received from this scheme during the past three years compared to the maximum payable amount.

**Canadian** assistance in the form of employment insurance for fishers increased from CAD 231 million in 1999 to CAD 250 million in 2000. In the **US**, expenditure on social measures increased significantly in 2001 (up to USD 49.5 million) due to the disaster assistance funds granted to the Alaska salmon industry (USD 40 million).

In **Iceland**, the Ministry of Fisheries, in co-operation with associations of employers and employees in fish processing, has supported occupational training for workers in fish processing. In 2000 and 2001, the Ministry allocated ISK 9.8 million and ISK 12.1 million (USD 123 000) respectively to this project.

### **Producer support**

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#### *Tax exemptions.*

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In **Iceland**, a special tax deduction is available to all persons working on sea-going vessels according to the number of days they spent at sea. About 95% of recipients are fishers. It currently constitutes the largest transfer to Iceland's fisheries sector, accounting for ISK 1 250 million in 2001. In the **US**, following revision of the legislation in 2000, the Fuel Excise Tax Exemption is no longer considered to be a subsidy.

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#### *Market intervention.*

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In 2000, the **European Council** adopted a regulation which added five species entitled to price support within the framework of the Common market. For 2002, guide prices increased by 1% to 3% for most species, except for tuna destined for processing, where the 2001 price level was maintained.<sup>49</sup> The objective of this aid programme is to ensure a minimum price for fishers. Expenditure on price support within the Common Market Organisation was budgeted at EUR 16.7 million for 2001, up 19% from EUR 14 million in 2000. However, the amount for price support actually spent in 2000 was EUR 9.5 million, down from EUR 11 million in 1999. According to estimates by the Commission, the budgeted amount for price support for 1999 (EUR 20 million) amounts to less than 0.5% of the landings of the species covered and to less than 0.01% of the total value of landings in the Community. In **Finland**, FIM 20 000 was used in 2001 for the withdrawal of Baltic herring from the market.

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#### *Support for marketing and promotion.*

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In **Germany**, under the aegis of the Federal Market Association, a communication campaign was launched to promote the sale of prawns. This campaign, covering 2000 and 2001, was financed by a national parafiscal levy (DEM 386 023) and the EU (Financial Instrument for Fisheries Guidance for the amount of DEM 315 837). The campaign is aimed at promoting shrimp in trade, gastronomy and among consumers and provides general information on this product. Two promotional efforts by organised professionals of the sector were conducted in **Greece** in 1999-2000 using TV, radio, press and outdoor messages, and had a cost of

EUR 1.1 million for aquaculture products, and EUR 730 000 for the promotion of mussels. In **Ireland**, a market strategy plan for 2001-2006, "Realising the Market potential for Irish seafood", was launched. It maps out detailed measures to achieve a total seafood industry output of EUR 735 million by 2006. In **Finland**, a total of FIN 1.8 million was used in 2000 to promote the consumption of Baltic herring and farmed rainbow trout. This was FIM 0.4 million more than in 1999. In 2001, FIM 3.067 million was used for this purpose. In **Sweden**, the organisation promoting fish and fish products became an economic association in 2001 run jointly by fishermen, the processing industry, aquaculture organisations and the trade industry. In **Australia**, Seafood Services Australia Ltd. (SSA) was established in October 2001. SSA works with the seafood industry in Australia to enable the industry to make the most of its opportunities and to rapidly adapt to changing business environments. Australia's Supermarket to Asia (STA) initiative aims to promote the export of all food products, including fisheries products, to Asia. The STA council provides advice and support to Australian food exporters, including information on food market profiles and market access in Asia.

### **Investment and modernisation**

In 2000, **EC** member countries granted EUR 96 million for investment and modernisation (both national and EC funding), i.e. 9% of the total Community GFT. The corresponding figures for 2001 were EUR 114 million and 12%. Among OECD countries, **Germany** decreased grants, loans and interest subsidies for purchasing support of new or second hand vessels and for the modernisation of vessels. In 2001, total payments for these schemes decreased by 46% over the previous year to DEM 9 million. Spending by **Finland** on the construction and modernisation of fishing vessels also decreased in 2001. Spending co-financed by the EC decreased by about 68% to FIM 1 million. In **Spain**, 21% of the GFT in 2000 were dedicated to investment and modernisation (ESP 14 billion, i.e. around EUR 85 million).

### **Cost recovery**

Several OECD countries charged fishers some of the costs of managing fisheries (e.g. research, administration and enforcement). In **Iceland** the costs of certain services are recovered from the harvesting sector. The vessel owners pay an annual surveillance fee on the basis of catch quota and also pay an annual levy to the Development Fund (used to finance loan and building of new research vessels) according to the size of the vessel. In 2000, vessel owners paid ISK 780 million. **New Zealand** recovered NZD 29 million from its commercial fishers in 2000/2001. This was NZD 2 million more than the previous year. **Canada** recovered CAD 48 million from users in 2000. This was CAD 4 million more than the previous year.

## **6. Post-harvesting policies and practices**

### **Food safety**

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#### *New legislation on allowable level of dioxin.*

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The **European Community** adopted in 2000 a revised legislation on food hygiene. On 1 July 2002, new rules concerning the allowable level of dioxin in food and foodstuffs entered into force.<sup>50</sup> Under the **EEA** arrangement, work has been underway to adopt rules on maximum dioxin levels in foodstuffs and feeds. In particular, emphasis has been placed on fish as a healthy food and future rules adopted must take into consideration the varying dioxin content in fish according to ocean areas and marine conditions.

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### *Development of HACCP system in Japan and Korea.*

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In **Japan**, inspectors of food hygiene appointed by local governments control bacteria number, anti-bacteria substance and environmental pollutants in food, and the proper utilisation of food additives. They conduct this surveillance through sampling fish and fish products at wholesale markets, cold storage facilities and retail stores on the basis of the Food Hygiene Law. All marine products (domestic or imported products) are subject to surveillance. Recently, large fish processors have started to introduce the HACCP<sup>51</sup> system for quality and sanitation control purposes. In **Korea**, to ensure food safety and harmonisation with international standards, the Fishery Products Quality Control Act was enacted as of 29 January 2001 and has been in force since 1 September 2001. The act introduced the HACCP system.

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### *Australia implements national strategy for aquatic animal health.*

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During 2000 and 2001, **Australia** continued to implement the 1999 five year National Strategic Plan for Aquatic Animal Health (AQUAPLAN). AQUAPLAN is a comprehensive set of initiatives ranging from border controls and import certification to improved veterinary education and capacity to manage incursions of exotic diseases. It was jointly developed by State, Territory and Commonwealth Governments, and private industry sectors. Following the establishment of the National Taskforce on the Prevention and Management of Marine Pest Incursions, Australia also implemented a national system for the management of ballast water to minimise the introduction and translocation of marine pests. Australia initiated national baseline surveys of ports and harbours to accurately monitor the impact of marine pest species and facilitate future management approaches. Import risk analyses for prawn (shrimp) products, bivalve mollusc products, freshwater crayfish products and freshwater finfish products are presently being conducted.

### **Information and labelling**

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#### *Five fisheries certified by the Marine Stewardship Council.*

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The Western Rock Lobster Fishery (**Australia**) became in 2000 the first seafood fishery certified by the Marine Stewardship Council (MSC). Four others fisheries were awarded a certificate in 2000 and 2001. The Alaska salmon fishery (**US**), the Burry Inlet Cockle Fishery (**UK**),<sup>52</sup> the South West (England) Mackerel Handline Fishery and the Thames Blackwater Herring fishery (**UK**). The Hoki fishery, one of the largest in **New Zealand**, also applied for MSC certificate. As a condition of certification, the Hoki Fishery Management Company was required to present an action plan and commence the required actions by 14 September 2001. In **Australia**, the Southern Fishermen's Association on the Lakes and Coorong, located at the end of the Murray River in South Australia, are also seeking certification with a pre-assessment underway. The South African hake trawl fishery began the certification process in 2002. The MSC certification process proves that professionals have an interest in showing consumers that they act in a responsible manner. As of 2002, over eighty products around the world carried the MSC label.

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*Ecolabelling initiatives in the US...*

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In the **US**, the company Ecofish sources and sells seafood only from environmentally and ecological friendly fisheries. Ecofish-branded products should meet the sustainability criteria of an advisory board that includes the National Audubon Society and Packard Foundation. The Ecofish label aims at supporting well managed fisheries, including through helping ease the stress on over-fished species by purchasing alternative selections. In addition, Ecofish donates 25% of pre-tax profits to organisations around the world involved in efforts to better understand and help preserve the world's marine resources/biodiversity.

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*... and Sweden.*

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In **Sweden**, a system for eco-labelling of aquaculture products was introduced in 2001 by a Norwegian-Swedish organisation. Two farms use this label, producing around 40 tonnes of ecologically farmed fish per year. Two Swedish organisations are jointly developing criteria to be used for eco-labelling of commercially caught fish.

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*Reference to the capture zone  
and country-of-origin information.*

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The **European Community** adopted at the end of 1999 a regulation which seeks to improve transparency of market conditions as well as improved consumer knowledge of fish products. From January 2002, fresh, salted, frozen and smoked fishery product will have to carry a mark or label that indicates its commercial designation, how it was produced (aquaculture or wild) and where it was caught. This information requirement is intended to provide consumers with better information on the products they are purchasing and reduce opportunities for fraud. The new labelling rules will strengthen the traceability of fish products, hence facilitate the monitoring of fish products from the ship to the shop, and enhance the checks on their quality. In **Italy**, in order to differentiate domestic products from foreign ones, Italian operators have set up initiatives and research aimed at making domestic products more easily identifiable. In the **US**, a similar country-of-origin provision is included in the 2002 Farm Bill. As well as other products, fish and fishery products will have to be labelled with the country of origin. In addition, the label will inform consumers whether the fish was farmed or caught. In **Japan**, according to the 1999 revision of the Law Regarding the Adjustment of the Standardisation and Quality Display for Agriculture and Forestry Goods, all unprocessed seafood and several processed seafoods are required to display information, such as their origin.

## 7. International trade

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*World trade increased in 2000.*

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Total world trade of fish and fish products increased in 2000 to reach an import value of USD 61 000 million, an increase of 4.4% from 1999, corresponding to 25.9 million tonnes.<sup>53</sup> Thus 18% of world production is traded.<sup>54</sup> OECD countries accounted for more 83% in value of total imports of fishery products in 2000. **Japan** was once again the biggest importer,

accounting for some 26% of the total import value. Japanese imports declined in 1998 due to the economic recession, and only in 2000 did the value of Japanese imports regain the level of 1997. Apart from **Spain**, the third largest importer of fishery products in the world, all the **EC** countries reported lower value of import in 2000. The **United States**, besides being the world's fourth major exporting country, was the second biggest importer. **Norway**, which used to be the second major fish exporter, reported lower export values for 2001. This is in part due to lower salmon prices, but also by the weak Euro. In 2001, for the first time **Korea** recorded a trade deficit as a result of declining exports to Japan and increasing imports from China.

### **International initiatives**

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#### *WTO discussions focus on market access and subsidies*

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At its annual meetings in 2000 and 2001, the World Trade Organisation's Committee on Trade and the Environment (CTE) discussed market access issues, in particular the market access implications of environmental measures and the prospects of "win-win-win" opportunities for trade, environment and sustainable development arising from trade liberalisation in the fisheries sector. Documents were presented to the CTE by New Zealand, Iceland, Japan and Korea on issues related to subsidies, their role, and the possible implications of their reform. Iceland also presented a document on eco-labelling. Delegations expressed a variety of views in discussing the role and impact of fishery subsidies. In regard to emerging environmental requirements such as eco-labelling, many delegations were concerned that these could have significant adverse effects on market access by developing countries.

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#### *Fishery subsidies and commercial measures in the fishery sector were put on the 2001 WTO Agenda.*

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A new round of global trade negotiations was successfully launched in November 2001, as Ministers and delegates from 140 member countries reached an agreement on the Doha Ministerial Declaration. Ministers reaffirmed their commitment to the objective of sustainable development and gave instructions for the future work of the WTO. Discussion has been taking place in the WTO rules Negotiating Group on how to deal with the clarification and improvement of fisheries subsidies in the context of the negotiations of the Agreement on Subsidies and Countervailing Measures. The Doha Declaration also provides for negotiations on the relationship between existing WTO rules and specific trade obligations set out in multilateral environmental arrangements (MEAs). Trade measures imposed in support of environmental/conservation efforts by MEAs (in the case of fisheries, the regional fisheries management arrangements) may be tolerated by the WTO as long as the fisheries management body is open to membership without discrimination.<sup>55</sup>

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#### *APEC continues EVSL initiatives.*

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The Asian Pacific Economic Co-operation (APEC) countries continued to work towards the Early Voluntary Sectoral Liberalisation (EVSL) for fish and fish products. As the tariff liberalisation element of EVSL transferred to WTO, APEC focused on non-tariff measures, trade facilitation and economic and technical co-operation. In 2000 and 2001, the APEC

Fisheries Working Group completed two projects in towards EVSL. One project is “A Study in the Nature and Extent of Subsidies in the Fisheries Sector in APEC member Economies”, identifying policies of member countries that might lead to disputes under the WTO Subsidies and Countervailing Measures Agreement. The other project, “A Study to Reduce Impediments to Early Voluntary Sectoral Liberalisation in the Fisheries Sector”, is a three-part project to develop a policy model to eliminate barriers to EVSL. The First APEC Ocean-Related Ministerial Meeting was held in April 2002 in Seoul and adopted the Seoul Ocean Declaration which signifies a major milestone in cooperation among APEC member economies to work towards sustainable management of marine and coastal resources.

### **National policy changes**

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#### *Autonomous tariff quotas in the EC.*

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In the **European Community**, a series of autonomous tariff quotas for fishery products became effective on 1 January 2001.<sup>56</sup> They were opened as a result of the reform of the EC Common Organisation of Markets for fishery and aquaculture products. These tariffs rate quotas are open for the period 1 January 2001 to 31 December 2003. Annual amounts of quota (in tonnes) are set for, among others, herrings, cod, tubes of squid, tuna loins, and cooked shrimps and prawns. The new “Market” Regulation<sup>57</sup> provides for a tariff regime that is more in line with the needs of the market, including provisions for the suspension of common customs tariffs for certain products intended for the processing industry.

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#### *SPS issues in the EC and the US.*

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In 2001, Peru and Chile lodged a complaint with WTO Sanitary and Phyto-Sanitary (SPS) Committee to persuade the **EC** to lift the current restrictions on fishmeal usage. This prohibition of the use of fishmeal in animal feed is part of the EC campaign to combat BSE.<sup>58</sup> In 2001, the **US** Federal Department of Agriculture (FDA) issued an alert calling for increased surveillance of shrimp and other products originating from all countries for the presence of unapproved drugs. At the end of 2001 and the beginning of 2002, a few countries, including the **EC, US, Canada** and **Japan**, found prohibited antibiotic residues in seafood products imported from some Asian countries. As some findings concerning chloramphenicol (the use of which has been forbidden in the EC since 1994 in food production) and nitrofurans, temporary bans were established.

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#### *Standards being developed on antibiotic use in aquaculture.*

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To prevent import bans being introduced in the **EC, the US, Canada** or **Japan** for SPS reasons, several Asian and Latin American countries are drawing up standards to regulate the use of antibiotics in aquaculture products. In **Mexico**, where there is currently no use of antibiotics in aquaculture, the Emergency Official Standard was issued in 2002 with the aim of establishing the requirements and measures to prevent and control the spread of high-impact diseases and for the use and application of antibiotics in aquaculture. Within this framework, **Australia** will host the 5th Symposium on Diseases in Asian Aquaculture in December 2002. The theme, “Health, Wealthy and Wise”, should cover a broad range of items, including biosecurity and

risk assessment, emerging diseases of finfish and other vertebrates, mollusc health, molecular technologies, genetic selection for disease resistance, shrimp disease control and prevention, and finfish and shellfish immunology.

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*Anti-dumping measures taken in the US  
and in the EC.*

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During the period under review, anti-dumping measures were still in place in the **EC**<sup>59</sup> and in the **US** on salmon products from **Norway**. In 2001, the **US** Customs Service, the agency responsible for dispersing tariffs under the Continued Dumping and Subsidy Off-set Act of 2000, commonly referred to as the Byrd Amendment, paid USD 45 900 to one of the eight US farmed salmon producers, known collectively as the Coalition for Fair Atlantic Salmon Trade that won an antidumping suit against Norwegian farmed salmon producers in 1991. Eleven WTO members, including **Australia, Canada, Japan** and the **EC** disputed the legality of the Byrd Amendment, arguing that it undermines international trade laws. The WTO Dispute Settlement Body established a panel on the "Byrd Amendment" at its 23 August 2001 meeting.<sup>60</sup>

**Trade measures seeking to support management initiatives**

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*Shrimp imports to US restricted.*

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The **US** has banned imports of shrimps from Indonesia and Haiti on the grounds that the two countries have failed to protect sea turtles adequately. In 2001, WTO gave final approval to current US implementation of the law, defeating a challenge from Malaysia. On 29 April 2002, the US Department of State certified 41 nations and one economy as meeting the requirements for continued export of shrimp to the US.

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*Trade information schemes implemented by CCBS  
and CCAMLR.*

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The **CCSBT** implemented a Trade Information Scheme (TIS) on 1 June 2000 to collect more accurate and comprehensive data on SBT fishing. The TIS also operates to deter IUU fishing by effectively denying access to markets for SBT. The basis of the TIS is the provision for all members of the CCSBT to maintain requirements that all imports of SBT be accompanied by a completed CCSBT statistical document. This document must be endorsed by an authorised competent authority in the exporting country and include extensive details of the shipment, such as name of fishing vessel, gear type, area of catch, dates, etc. Shipments not accompanied by this form must be denied entry by the member country.

In May 2000, **CCAMLR** parties implemented the Catch Document Scheme. This scheme is open to all Flag States irrespective of whether they are members of CCAMLR or not. Under the Scheme, landings, transshipments and importation of toothfish into the territories of Contracting Parties are required to be accompanied by a completed catch document. This will specify a range of information relating to the volume and location of catch, and the name and Flag State of the vessel. The scheme also applies to all catches of *dissostichus spp.* regardless of whether they were taken as by-catch or as a result of targeted fishing.

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*Import bans maintained by ICCA and IATTC.*

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**ICCAT** continued a recommended import ban for Atlantic bigeye tuna from Belize, Cambodia, Honduras and Equatorial Guinea to support resource conservation and management measures. In 2001, ICCAT lifted the import ban on Atlantic bigeye tuna from St. Vincent and the Grenadines due to this country's increasing co-operation with ICCAT. It is in this perspective that the European Council prohibited the import of tuna originating from Belize, Cambodia and Saint Vincent and the Grenadines.<sup>61</sup> To promote international co-operation in resource management, Japan has prohibited the import of Atlantic bluefin tuna from Belize and Equatorial Guinea in accordance with ICCAT recommendations.

In accordance with an **IATTC** recommendation, the **US** imposed embargoes on yellowfin tuna and yellowfin tuna products from Belize, Bolivia, Colombia, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Spain, Vanuatu and Venezuela in 2000.<sup>62</sup> The embargoes were imposed because these nations harvest tuna with purse seine vessels that have a carrying capacity greater than 400 short tonnes (362.8 mt). Nor had these countries received "affirmative findings" as required by US legislation.

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*"Dolphin safe" label required for US market.*

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The "dolphin safe" tuna label is still necessary to export tuna to the **US** as it ensures that tuna are not caught with "significant adverse impact". Due to this requirement, a part of the **Mexican** production could not be sold on the US market in 2000. Mexico estimated that, as a consequence, it suffered an annual loss of USD 50 to USD 200 million according to different sources.<sup>63</sup> In this regard, the member countries of the Agreement of the International Dolphin Conservation Program (APICD) announced in 2001, at the 5th Meeting of the Parties held in San Salvador, the creation of a program for certification and labelling of tuna caught in the Eastern Pacific Ocean.<sup>64</sup>

### **Bilateral matters**

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*Free trade agreement between EFTA and Mexico...*

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A free trade agreement between the EFTA states and **Mexico** entered into force from July 2001. The agreement includes free market access for EFTA states' exports of certain fish and fish products to Mexico.

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*... and between the EC and Poland.*

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The **EC** and **Poland** signed a free trade agreement on fish and fish products, which came into force in 2002. Under the agreement, tariffs will be eliminated completely by January 2004. Existing import duties will be reduced by 30% in 2002, by a further 30% in 2003 and the remaining 40% in 2004. In addition to market access liberalisation, the Polish government abandoned its demand for a five-year ban on EC vessels over 30 meters long operating in the Polish EEZ following its accession to the EC.



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*EC and Chile settle swordfish dispute.*

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In 2001, the **EC** and Chile reached an agreement to end their nine-year dispute over swordfish. Chile has agreed to open access to a limited number of vessels to its ports for EC vessels landing swordfish in exchange for new conservation measures to protect swordfish stocks. EC and Chile also dropped proceedings they had launched at the WTO and the UN International Tribunal of the Law of the Sea (ITLOS), respectively.

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*Canada expanding bilateral arrangements.*

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**Canada** is involved in free trade negotiations with the Central America Four,<sup>65</sup> the CARICOM<sup>66</sup> and Singapore. In addition, following the launch of bilateral free trade negotiations between Canada and Costa Rica in June 2000, agreement has been reached on phased tariff elimination for all industrial goods, including fish.

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*Swedish companies merged with Norwegian or Icelandic companies.*

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Recently, a few of **Swedish** processing companies have been bought by or merged with **Norwegian** or **Icelandic** companies.<sup>67</sup> This is a way for the Swedish companies to secure their access to the raw material, which is presently the main obstacle for increasing production and profitability, as well as a way for the Norwegian and Icelandic companies to gain access to the EC market.

## 8. Outlook

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*Greater attention to sustainable fisheries.*

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The importance of fisheries as a source of protein in many countries coupled with the precarious state of many fish stocks across the world are likely to further highlight the importance of **sustainable development** in the fishery sector. The World Summit on Sustainable Development "Rio + 10" (WSSD) held at Johannesburg in August/September 2002 under the auspices of the UN attests to this need. National and international decisions regarding fisheries management will, in the years to come, be influenced by the outcomes of the WSSD. In particular, negotiators at the WSSD agreed to restore depleted fish stocks by 2015 and to enhance the protection of marine eco-systems from various activities.

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*Further works on management instruments.*

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In order to contribute towards sustainable approaches to fisheries management, the OECD Committee for Fisheries decided to further examine economic aspects of the transition to sustainable and responsible fisheries during its 2003-2005 Programme of Work. In particular, the work will discuss how reform in the fisheries sectors across OECD countries can be developed using market-like instruments/incentives with due regard to social, economic and environmental considerations.

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*Continuing negotiations on market liberalisation issues.*

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Within the Doha round, negotiations on fishery **market liberalisation** are likely to be extended and discussion has also been taking place in the WTO rules Negotiating Group on how to deal with the clarification and improvement of fisheries subsidies in the context of the negotiations of the Agreement on Subsidies and Countervailing Measures.<sup>68</sup> From this perspective, one issue should be to identify the negative impacts of subsidies on the environment. Thus, in addition to on-going work on GFT collection by the OECD Committee for Fisheries, a workshop on “Environmentally Harmful Subsidies” will be organised in 2002 by OECD. The Doha negotiations will also focus on further tariff and non-tariff barrier reductions. In particular, measures seeking to support management initiatives and SPS measures should be a priority.

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*Necessary, but limited, aquaculture development.*

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As countries seek to restore the ocean environment and rebuild fish stocks to sustainable levels, more focus may need to be placed on aquaculture to provide fish protein. While there is potential for production increases in this sector, the present production systems continue to be mostly dependent on fish for feed compounds that can have negative impacts on the environment. A second problem concerns the limited number of suitable sites. Nevertheless, as increasing stress is placed on the carrying capacity of marine ocean production, it is important that more attention is given to alternative protein sources and to develop appropriate frameworks within which trade-offs between competing uses and users can be analysed.

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*Further initiatives against IUU fishing.*

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The effective management of the high seas fisheries resources will continue to be a challenge for policy makers. The highly negative impacts of IUU fishing on fish stocks and on fisheries management undertaken by regional fisheries management bodies will be addressed in various forums. In autumn 2002, in collaboration with the FAO and the EU, the Spanish government organised a conference on the impacts of IUU fishing and on possible policy actions. The OECD Fisheries Committee has decided to deal with the economic and social aspects of IUU fishing within its 2003-2005 Programme of Work. In particular, those responsible for IUU behaviour will be analysed. This may include analysis to improve understanding of the links between IUU fishing practices and lack of national fishing opportunities, the influence of tax rules in FOC countries and the role of international investment rules.

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*An International need for labelling standard.*

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Increasing consumer interest on sustainability has led to the proliferation of labels for fish and fish products. In order to reduce confusion there are calls for international standardisation of labels, including the labelling process itself. At an international level, the FAO's Sub-Committee on Fish Trade called in 2002 for the development of guidelines, standards and objectives of a global eco-labelling plan. While a number of initiatives are have been undertaken, there is still no single international standard.

## Notes

1. Including "aquatic plants". FAO Fishstat database 2002.
2. See OECD (2003a) or the Summary Tables for further details. 2001 data are uncompleted. FAO 2000 production estimate for OECD countries is 29.9 million tonnes.
3. Agreement for the Implementation of the provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.
4. FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas.
5. 2001 data are provisional and are missing for some countries. See OECD (2003a) or the Summary Tables for further details. In general, GFT are not covering non-budgeted and regional support, and are not necessarily comprehensive.
6. Stocks described as "Fully exploited" are considered as being exploited close to their MSY (maximum sustainable yield).
7. Garcia and De Leiva Moreno (2001).
8. In order to improve advice on the maintenance of stocks, the European Commission called for greater co-operation between scientists and fishermen on stock research.
9. European Commission (2001b), Vol. 2, pp. 84-85.
10. The National Fisheries Charter is a comprehensive, updated document that summarises research efforts and wide-ranging institutional and citizen participation. It is a point of contact between academia, society and the authority, for the implementation of management rules. It is an important exercise for advancing in the shared management of fisheries and aquaculture resources and their habitats (co-management).
11. The exploitation of coastal and offshore mineral resources provide about 25 to 30% of the world's energy supplies. This percentage continues to increase (UN, 2000).
12. IUCN: International Union for the Conservation of Nature.
13. Marsh et al., 2001, in "The global conference on Oceans and Coasts at Rio + 10", UNESCO.
14. Birdlife International estimation, quoted in "The global conference on Oceans and Coasts at Rio + 10", UNESCO.
15. However, the production volume of China has been questioned by Watson and Pauly (2001).
16. *Op. cit.* 2.
17. See US chapter.
18. According to *Fishing Boats World*, July 2002, the entire contribution from the commercial (industry) and recreational fishing activities to the US GDP amounted to USD 50 billion in 2001 (0.5% of the GDP).
19. SJFI, 2001.
20. A more positive assessment of the overall situation was made in 2002 (see country note for Germany).
21. Average per boat, including the value of licences or quotas; ABARE (2001).
22. The other three International Plans of Action were for Reducing Incidental Catch of Seabirds on Longline Fisheries, for Conservation and Management of Sharks and for the Management of Fishing Capacity.
23. See for example, OECD (2001), *Sustainable development. Critical issues* and OECD (2002), *Working Together Towards Sustainable Development: The OECD Experience*.
24. See [www.oecd.org/EN/document/0,,EN-document-21-nodirectorate-no-27-33053-21,00.html](http://www.oecd.org/EN/document/0,,EN-document-21-nodirectorate-no-27-33053-21,00.html)
25. Situation as of 6 February 2002 (Table 6).
26. Accession is necessary for a country that has not signed UNCLOS before it came into force on 16 November 1994.
27. Second meeting of FAO and Non-FAO Regional Fishery Bodies or arrangements, Rome, February 2001.
28. See EU chapter in Part III.

29. Scientific, Technical, and Economic Committee for Fisheries.
30. European Commission (2001a).
31. Japan's fishery ministry (MAFF) is hoping to increase the country's seafood self-sufficiency from 55 to 65% by 2012 in an effort to increase all Japan's locally-produced foodstuffs, rather than relying on foreign suppliers. According to MAFF's ten-year plan, meeting this goal will require increasing the production of seafood from 4.61 to 5.26 millions tonnes.
32. A "groundfish" quota combines quotas of cod, haddock and saithe given to each participating vessel. The intention is to investigate the possibilities for a more rational fishing pattern of the Norwegian coastal fleet.
33. The catch rule for cod continues to stipulate that the annual quota may not exceed 25% of the fishable stock, but in addition it now specifies that annual fluctuations shall not exceed 30 000.
34. The network Natura 2000 is based on EC-legislation which seeks to promote the maintenance of biodiversity in the EC.
35. In 2002 the European Community decided to unilaterally reduce its catches by 35%.
36. Some of which were reported to be owned by Icelandic companies.
37. ICCAT failed to adopt, at its 2001 meeting, conservation and management measures consistent with scientific advice for over-fished eastern Atlantic and Mediterranean bluefin tuna.
38. Pursuant to the "1999 Resolution": *Resolution Calling for Further Actions Against Illegal, Unregulated and Unreported Fishing Activities by Large-Scale Longline Vessels in the Convention Area and Other Areas.*
39. Under the "1995 Resolution": *Resolution for an Action Plan to Ensure the Effectiveness of the Conservation Program for Atlantic Swordfish.*
40. "The 1998 Resolution": *Resolution Concerning the Unregulated and Unreported Catches of Tuna by Large-Scale Longline Vessels in the Convention Area.*
41. Concerning Equatorial Guinea the last protocol, ended in June 2001, has not been renewed; the agreement with Angola, which was due to end in May 2002, was extended for three months.
42. Several APC could be jeopardised by Russia which is seeking reimbursement of debts in exchange of access to territorial waters. Such agreements are currently being negotiated with Mauritius, Morocco and Guinea-Bissau. It is possible that such agreements will also be broached with Angola, Chile and Peru. The use of this method to cancel debts corresponds to granting a subsidy to the Russian fishing fleet (Infotrade News, March/April 2002).
43. FAO Fishstat database 2002.
44. See Summary Tables for details.
45. NACA: Network of Aquaculture Centres in Asia-Pacific.
46. See OECD (2003a) or the Summary Table for further details. The data provided by member countries are not necessary comprehensive. In particular, 2001 data are missing for Belgium, Canada, Denmark, Ireland, Poland and Turkey.
47. Some of the vessels exported as a result of these developments are now registered under flags of convenience such as Panama, Honduras or Saint-Vincent and the Grenadines (Lloyd's list includes almost 200 vessels owned by EU interests which operate under these and other FOC (flag of convenience). The FIFG (Financial Instrument for Fisheries Guidance) was therefore amended in December 2001 to close this possibility by prohibiting the re-registering of vessels that have benefited from subsidies under flags of convenience (Earle, 2002).
48. For 2002, the global EC contribution for this purpose is budgeted at EUR 197 million.
49. Council Regulation (EC) No. 2563/2001 of 19 December 2001, established for the 2002 fishing year the guide prices for fishery products listed in Annexes I and II and the Community producer price for the fishery products listed in Annex III to Regulation (EC) No. 104/2000, Official Journal L 344, 28/12/2001.
50. Sweden and Finland have been granted an exemption from the EU directive and can continue to sell the fish on their national markets until the end of 2006.
51. HACCP: Hazard Analysis Critical Control Point.
52. The Burry Inlet cockle industry remained closed for more than a year during the 2000-2001 period due to problems caused by diarrhetic shellfish poisoning; there are concerns on the future of this fishery.

53. FAO, 2002, *op. cit.*
54. However, the bulk of the trade is realised by a few species, which can be traded several times under different forms (raw, canned).
55. OECD, 2000, *Transition to Responsible Fisheries*, p. 93.
56. Council Regulation (EC) 2803/2000 of 14 December 2000.
57. Council Regulation (EC) 104/2000, Annex VI.
58. Other countries, such as Iceland, were involved in this discussion and indicated there has never been any evidence to demonstrate that BSE could be spread in cattle through fishmeal. After extensive discussion, the prohibition against fishmeal in animal feed was limited to ruminants.
59. Within the framework of the EU-Norway Salmon Agreement, the Commission considered that there were sufficient grounds warranting the initiation of an "interim review" of the existing measures.
60. On 18 July 2002, the WTO panel circulated an interim report, which has found the US legislation to be in violation with the WTO's antidumping provisions and other trade rules under the General Agreement on Tariffs and Trade (GATT).
61. Regulation (EC) No. 1036/2001 of 22.05.2001, JO L 145 of 31.05.2001.
62. Imports from Peru was embargoed for the same reasons in May 2002.
63. Source: The Associated Press, 2000; [www.atuna.com/markt/Archive\\_oct\\_nov\\_dec.htm](http://www.atuna.com/markt/Archive_oct_nov_dec.htm)
64. See Mexico chapter for further details.
65. El Salvador, Guatemala, Honduras and Nicaragua.
66. Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines, Trinidad and Tobago.
67. See Sweden chapter.
68. For example, a range of fish-exporting nations (including Indonesia, Peru, Mexico and Brazil) would negotiate for the extension of the WTO's ban on farm subsidies to include fishery subsidies.

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## ANNEX 1

### *Tables to the General Survey*

Table I.A1.1. **OECD member country status with respect to three major international agreements**

OECD member country or entity	UNCLOS <sup>1</sup>	Compliance agreement <sup>2</sup>	1995 United Nations agreement <sup>3</sup>	
	Ratified	Acceptance <sup>4</sup>	Signed	Ratified
Australia	5.10.94	–	4.12.95	23.12.99
Austria	14.07.95	Yes <sup>5</sup>	27.06.96	–
Belgium	13.11.98	Yes <sup>5</sup>	3.10.96	–
Canada	–	Yes	4.12.95	3.08.99 <sup>9</sup>
Czech Republic	21.06.96	–	–	–
Denmark	–	Yes <sup>5</sup>	27.06.96	–
European Community	1.04.98 <sup>6</sup>	Yes	27.06.96	–
Finland	21.06.96	Yes <sup>5</sup>	27.06.96	–
France	11.04.96	Yes <sup>5</sup>	4.12.96	–
Germany	14.10.94 <sup>7</sup>	Yes <sup>5</sup>	28.08.96	–
Greece	21.07.95	Yes <sup>5</sup>	27.06.96	–
Hungary	<b>05.02.02</b>	–	–	–
Iceland	21.06.85	–	4.12.95	14.02.97
Ireland	21.06.96	Yes <sup>5</sup>	27.06.96	–
Italy	13.01.95	Yes <sup>5</sup>	27.06.96	–
Japan	20.06.96	Yes	19.11.96	–
Luxembourg	<b>05.10.00</b>	Yes <sup>5</sup>	27.06.96	–
Mexico	18.03.83	Yes	–	–
Netherlands	28.06.96	Yes <sup>5</sup>	28.06.96	–
New Zealand	19.07.96	–	4.12.95	<b>18.04.01</b>
Norway	24.06.96	Yes	4.12.95	30.12.96 <sup>9</sup>
Poland	13.11.98	–	–	–
Portugal	3.11.97	Yes <sup>5</sup>	27.06.96	–
Korea	29.01.96	–	26.11.96	–
Spain	15.01.97	Yes <sup>5</sup>	3.12.96	–
Sweden	25.06.96	Yes	27.06.96	–
Switzerland <sup>8</sup>	–	–	–	–
Turkey	–	–	–	–
United Kingdom	25.07.97 <sup>7</sup>	Yes <sup>5</sup>	27.06.96	<b>10.12.01</b>
United States of America	–	Yes	4.12.95	21.08.96 <sup>9</sup>

1. United Nations Convention on the Law of the Sea of 10 December 1982. **Situation as at 6 February 2002.**
2. Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas. **Situation as at 1 September 2001.**
3. Agreement for the Implementation of the provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. **Situation as at 6 February 2002.**
4. Instrument of Acceptance sent to the UN Food and Agricultural Organisation.
5. Instrument of acceptance submitted to the FAO by the European Community on behalf of the member State.
6. Date of formal confirmation.
7. Date of accession to UNCLOS.
8. Non-member State of the United Nations.
9. Declaration.

Source: OECD Secretariat.



Table I.A1.2. **Economic instruments for marine fisheries**

	Instrument	Coverage
Australia	Individual transferable quotas Fees	5 fisheries (more than 22 species) 29% of management costs
Canada	Individual transferable quotas	50% landed value
Finland	Fees <sup>1</sup>	
Iceland	Individual transferable quotas	All fisheries
Italy	Individual quotas	1 species (Bluefin tuna, under the regulation of ICCAT)
Netherlands	Individual transferable quotas	2 species: sole and plaice
New Zealand	Individual transferable quotas Fees	92% of landed volume from EEZ <sup>2</sup> (45 species/290 stocks) To recover management costs
Norway	Individual quotas	Used for the most important fish stocks
Portugal	Individual quotas	Only for long distance fleet operating under FRO's <sup>3</sup> jurisdiction
United States	Individual transferable quotas	3 fisheries: halibut/sablefish; wreckfish; surf clam/ocean quahog

1. FIM 27.8 million in 2000 and 27.3 million in 2001 +10 million in 2000 and 11.1 million in 2001 from recreational fisheries.

2. Exclusive Economic Zone.

3. Fisheries Regional Organisations.

Source: OECD (2001), *Review of Fisheries*.

## ANNEX 2

## Statistical Summary Tables to the General Survey 2002

Table I.A2.1. National unit per US Dollar (USD)

	Monetary unit	1999	2000	2001
Australia	Dollar	1.55	1.73	1.94
Belgium-Luxembourg	Euro	0.94	1.09	1.12
Canada	Dollar	1.49	1.49	1.55
Czech Republic	Koruny	34.59	38.64	38.02
Denmark	Krone	6.98	8.09	8.32
Finland	Markka	5.58	6.45	6.64
France	Euro	0.94	1.09	1.12
Germany	Deutsche Mark	1.84	2.12	2.18
Greece	Drachma	305.69	365.45	380.49
Iceland	Krona	72.43	78.85	97.67
Ireland	Pound	0.74	0.85	0.88
Italy	Euro	0.94	1.09	1.12
Japan	Yen	113.89	107.83	121.48
Korea	Won	1 186.71	1 130.64	1 290.41
Mexico	Peso	9.55	9.45	9.34
Netherlands	Guilder	2.07	2.39	2.46
New Zealand	Dollar	1.89	2.20	2.38
Norway	Krone	7.80	8.80	8.99
Poland	Zloty	3.96	4.35	4.10
Portugal	Escudo	188.17	217.54	223.86
Spain	Peseta	156.16	180.54	185.79
Sweden	Krona	8.26	9.16	10.34
Turkey	Lira	418 984.03	624 325.30	1 228 268.61
United Kingdom	Pound	0.62	0.66	0.69
United States	Dollar	1.00	1.00	1.00

Source: OECD Economic Outlook No. 72.

Table I.A2.2. **OECD fishing fleet, 2000 and 2001**

	Total vessels				Vessels without engines				Vessels with engines			
	2000		2001		2000		2001		2000		2001	
	Number	GRT/GT	Number	GRT/GT	Number	GRT/GT	Number	GRT/GT	Number	GRT/GT	Number	GRT/GT
Australia	..	..	..	..	..	..	..	..	..	..	..	..
Canada	23 809	..	23 438	..	..	..	..	..	..	..	..	..
Czech Republic	129	23 221	132	24 246	..	..	..	..	129	23 221	132	24 246
Iceland	1 992	180 258	2 006	191 318	..	..	..	..	1 992	180 258	2 006	191 319
Japan	209 832	..	..	..	85 370	..	..	..	124 462	..	..	..
Korea	95 890	923 099	94 935	884 853	6 596	5 136	5 588	4 386	89 294	917 963	89 347	880 467
Mexico	..	..	106 425	234 602	..	..	102 807	..	..	..	3 618	234 602
New Zealand	1 742	..	1 879	..	..	..	..	..	1 742	..	1 879	..
Norway	13 018	392 175	11 923	403 438	..	..	..	..	13 018	392 175	11 923	403 438
Poland	1 415	117 376	1 420	87 277	120	..	121	..	1 295	117 376	1 299	87 277
Turkey	17 319	..	..	..	..	..	..	..	17 319	..	..	..
United States	..	..	..	..	..	..	..	..	..	..	..	..
European Union	95 360	2 022 427	92 268	2 004 947	8 394	6 980	7 870	6 776	86 966	2 015 446	84 398	1 998 171
Belgium-Luxembourg	129	23 221	132	24 246	..	..	..	..	129	23 221	132	24 246
Denmark	4 178	106 150	4 070	103 169	210	171	197	164	3 968	105 979	3 873	103 005
Finland	3 663	20 782	3 612	19 993	..	..	..	..	3 663	20 782	3 612	19 993
France	8 181	230 172	7 935	230 861	236	406	207	363	7 945	229 766	7 728	230 499
Germany	2 328	79 452	2 294	78 332	162	166	158	162	2 166	79 286	2 136	78 170
Greece	20 091	108 547	20 129	108 992	489	277	480	273	19 602	108 270	19 649	108 719
Ireland	1 196	61 451	1 198	63 111	6	14	6	14	1 190	61 437	1 192	63 097
Italy	17 483	231 682	16 496	217 921	2 143	2 365	2 087	2 440	15 340	229 317	14 409	215 481
Netherlands	1 096	212 355	1 093	210 067	..	..	..	..	1 096	212 355	1 093	210 067
Portugal	10 711	115 645	10 514	116 969	2 302	1 270	2 268	1 248	8 409	114 375	8 246	115 721
Spain	16 660	526 134	15 386	528 491	2 793	1 956	2 412	1 749	13 867	524 178	12 974	526 742
Sweden	1 963	49 914	1 859	46 911	3	4	3	4	1 960	49 910	1 856	46 907
United Kingdom	7 681	256 924	7 550	255 884	50	352	52	360	7 631	256 573	7 498	255 524
<b>OECD total</b>	<b>460 506</b>	<b>3 658 555</b>	<b>334 426</b>	<b>3 830 681</b>	<b>100 480</b>	<b>12 116.26</b>	<b>116 386</b>	<b>11 161.63</b>	<b>336 217</b>	<b>3 646 439</b>	<b>194 602</b>	<b>3 819 520</b>

.. Not available.

Source: OECD (2003a).

Table I.A2.3. OECD fishing fleet per length, 2001

	Vessels with engines									
	Unknown		0-11.9 m		12-23.9 m		24-44.9 m		45 m and over	
	Number	GRT/GT	Number	GRT/GT	Number	GRT/GT	Number	GRT/GT	Number	GRT/GT
Australia	..	..	..	..	..	..	..	..	..	..
Canada	..	..	..	..	..	..	..	..	..	..
Czech republic	..	..	2	46	67	5 194	63	19 006	..	..
Iceland	..	..	1 493	8 209	208	8 273	181	48 338	124	126 498
Japan	..	..	..	..	..	..	..	..	..	..
Korea	..	..	80 051	156 289	7 101	141 865	1 673	182 068	522	400 245
Mexico	..	..	162	1 781	3 024	159 176	364	36 764	68	36 881
New Zealand	..	..	..	..	..	..	..	..	..	..
Norway	..	..	10 098	38 910	1 365	48 388	292	100 709	168	215 431
Poland	..	..	821	58	293	11 695	170	21 890	15	53 634
Turkey	..	..	..	..	..	..	..	..	..	..
United States	..	..	..	..	..	..	..	..	..	..
<b>European Union</b>	<b>567</b>	<b>11 583</b>	<b>69 561</b>	<b>220 779</b>	<b>11 735</b>	<b>686 708</b>	<b>2 260</b>	<b>605 031</b>	<b>275</b>	<b>474 070</b>
Belgium-Luxembourg	..	..	2	46	67	5 194	63	19 006	..	..
Denmark	2	13	3 033	12 710	663	28 831	163	49 456	12	11 994
Finland	3	5	3 465	9 817	122	6 129	22	4 042	..	..
France	1	..	6 347	28 611	1 220	99 489	106	27 875	54	74 524
Germany	..	..	1 719	4 739	360	18 652	42	9 853	15	44 926
Greece	32	..	18 678	43 654	846	39 748	85	18 671	8	6 647
Ireland	478	11 280	445	2 507	169	13 327	92	21 735	8	14 248
Italy	1	9	10 677	34 377	3 527	139 862	201	37 477	3	3 756
Netherlands	..	..	354	1 280	394	20 762	327	96 194	18	91 830
Portugal	43	262	7 420	14 492	616	37 219	144	32 454	23	31 294
Spain	..	..	9 634	30 154	2 500	159 884	739	193 935	101	142 770
Sweden	..	..	1 581	7 703	206	13 990	69	25 214	..	..
United Kingdom	7	15	6 206	30 688	1 045	103 621	207	69 120	33	52 081
<b>OECD total</b>	<b>567</b>	<b>11 583</b>	<b>162 188</b>	<b>426 072</b>	<b>23 793</b>	<b>1 061 298</b>	<b>5 003</b>	<b>1 013 807</b>	<b>1 172</b>	<b>1 306 759</b>

.. Not available.

Source: OECD (2003a).

Table I.A2.4. **OECD total employment in fisheries, 2001**

	Harvest sector	Aquaculture	Processing
Australia	..	..	..
Canada	..	..	..
Czech Republic	..	2 280	120
Iceland	4 400	300	7 200
Japan <sup>1</sup>	252 920	54 870	..
Korea	86 074	50 795	..
Mexico	247 765	20 962	21 845
New Zealand	..	..	..
Norway <sup>2</sup>	18 967	4 496	..
Poland <sup>3</sup>	7 600	5 000	14 400
Turkey	..	..	..
United States	..	..	..
<b>European Union</b>	<b>195 205</b>	<b>17 831</b>	<b>14 852</b>
Belgium-Luxembourg	710	..	..
Denmark	..	..	..
Finland <sup>4</sup>	3 095	2 000	1 265
France	26 036	..	..
Germany	4 272	..	11 053
Greece <sup>5</sup>	37 490	6 673	2 534
Ireland	..	..	..
Italy	40 701	..	..
Netherlands	..	..	..
Portugal	23 580	..	..
Spain	44 676	9 158	..
Sweden	..	..	..
United Kingdom	14 645	..	..
<b>OECD total</b>	<b>812 931</b>	<b>156 534</b>	<b>58 417</b>

.. Not available.

1. Data for Harvest sector include aquaculture and offshore fishery. Data for aquaculture exclude inland water.

2. Data for aquaculture are provisional and include hatcheries.

3. Data are estimations.

4. Figure for aquaculture corresponds to the last estimation (beginning of 1990's). Figure for processing correspond to the year 1997.

5. Data for aquaculture include lagoon exploitations. Data for processing are provisional.

Source: OECD (2003a).

Table I.A2.5. **Government financial transfers to marine capture fisheries sector in OECD member countries, 1999**

	Direct payments (A)	Cost reducing transfers (B)	General services (C)	Total transfers (D)	Total landed value (TL)	(A + B)/TL	(A + B + C)/TL
	USD million					%	
Australia	..	..	..	..	1 000	..	..
Canada	312	26	190	498	1 272	27	39
European Union <sup>1</sup>	196	370	440	1 005	5 997	9	17
Belgium	3	..	..	3	92	3	3
Denmark	10	..	1	11	460	2	2
Finland	0	5	8	14	19	29	72
France <sup>2</sup>	2	..	70	72	996	0	7
Germany	6	6	..	12	185	7	7
Greece	29	13	1	44	92	46	48
Ireland	2	..	113	115	224	..	..
Italy	65	8	71	145	814	9	18
Netherlands	..	..	..	..	446	..	..
Portugal	3	..	23	25	252	1	10
Spain	72	167	59	297	1 355	18	22
Sweden	4	..	22	27	113	4	23
United Kingdom	..	6	71	76	948	1	8
Iceland	..	16	22	35	802	2	4
Japan	26	35	2 476	2 538	12 104	1	21
Korea	203	48	183	435	3 405	7	13
Mexico	..	..	..	..	959	..	..
New Zealand	..	..	30	13	..	..	..
Norway	12	53	116	181	1 275	5	14
Poland	..	..	..	..	142	..	..
Turkey	..	..	0	0	616	..	..
United States of America <sup>3</sup>	121	166	798	1 084	3 602	8	30
<b>OECD total</b>	<b>870</b>	<b>714</b>	<b>4 255</b>	<b>5 790</b>	<b>31 173</b>	<b>5</b>	<b>19</b>

.. Not available.

0 refers to data between 0 and 0.5.

1. Excludes Belgium and the Netherlands.

2. Excludes financial transfers from the EU.

3. Includes an estimate of market price support (that is, transfers from consumers to producers).

Source: OECD (2003a).

Table I.A2.6. **Government financial transfers to marine capture fisheries sector in OECD member countries, 2000p**

	Direct payments (A)	Cost reducing transfers (B)	General services (C)	Total transfers (D)	Total landed value (TL)	(A + B)/TL	(A + B + C)/TL
	USD million					%	
Australia	..	56	26	82	1 011	6	8
Canada	209	69	230	476	1 418	20	34
European Union	295	322	278	895	6 255	10	14
Belgium	6	..	..	6	82	7	7
Denmark	6	..	2	8	404	2	2
Finland	0	4	7	11	21	19	53
France	60	9	98	167	952	7	18
Germany	1	8	..	9	150	6	6
Greece	18	15	30	62	233	14	27
Ireland	..	..	..	..	..	..	..
Italy	93	7	51	151	1 422	7	11
Netherlands <sup>1</sup>	0	..	..	0	446	..	0
Portugal	2	..	24	26	252	1	10
Spain	109	132	46	287	1 355	18	21
Sweden	1	2	18	21	106	3	20
United Kingdom	..	4	66	70	833	0	8
Iceland	..	16	26	31	735	2	4
Japan	19	37	2 807	2 864	12 021	0	24
Korea	34	68	214	316	3 667	3	9
Mexico	..	..	..	..	1 044	..	..
New Zealand	..	..	27	15	..	..	..
Norway	2	18	85	105	1 112	2	9
Poland	..	..	..	..	91	..	..
Turkey	..	..	0	0	..	..	..
United States of America <sup>2</sup>	67	14	952	1 032	3 638	2	28
<b>OECD total</b>	<b>625</b>	<b>600</b>	<b>4 647</b>	<b>5 816</b>	<b>30 992</b>	<b>4</b>	<b>19</b>

.. Not available.

0 refers to data between 0 and 0.5.

p Preliminary.

1. Turnover Dutch fisheries estimate.

2. Includes an estimate of market price support (that is, transfers from consumers to producers).

Source: OECD (2003a).

Table I.A2.7. **Government financial transfers to marine capture fisheries sector in OECD member countries, 2001p**

	Direct payments (A)	Cost reducing transfers (B)	General services (C)	Total transfers (D)	Total landed value (TL)	(A + B)/TL	(A + B + C)/TL
	USD million					%	
Australia	1	51	24	76	928	6	8
Canada	..	..	..	..	1 305	..	..
European Union	244	273	290	807	4 675	11	17
Belgium	..	..	..	..	86	..	..
Denmark	..	..	..	..	428	..	..
Finland	..	5	7	12	19	26	62
France	37	14	91	142	955	5	15
Germany	1	4	..	5	153	3	3
Greece	16	14	33	63	127	23	49
Ireland	..	..	..	..	..	..	..
Italy	114	..	62	176	1 321	9	13
Netherlands <sup>1</sup>	10	..	..	10	381	3	3
Portugal	1	..	24	25	261	0	10
Spain	65	93	56	214	..	..	..
Sweden	0	3	16	19	116	3	16
United Kingdom	..	2	63	65	827	0	8
Iceland	..	13	25	29	703	2	4
Japan	17	32	2 483	2 532	..	..	..
Korea	202	56	168	426	3 140	8	14
Mexico <sup>2</sup>	..	..	..	..	1 035	..	..
New Zealand	..	..	27	15	..	..	..
Norway	3	8	82	93	1 273	1	7
Poland	..	..	..	..	87	..	..
Turkey	..	..	..	..	..	..	..
United States of America <sup>2</sup>	50	53	1 056	1 159	3 342	3	35
<b>OECD total</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>16 488</b>	<b>n.a.</b>	<b>n.a.</b>

.. Not available.

n.a. Not applicable.

0 refers to data between 0 and 0.5.

p Preliminary.

1. Turnover Dutch fisheries estimate.

2. Includes an estimate of market price support (that is, transfers from consumers to producers).

Source: OECD (2003a).



Table I.A2.8. Captured fish production in OECD countries,<sup>1</sup> 2000 and 2001

	2000					2001				
	Fish for food	Fish for reduction	Total	Total value	Unit value	Fish for food	Fish for reduction	Total	Total value	Unit value
	'000 tonnes			USD million	USD/kg	'000 tonnes			USD million	USD/kg
Australia	194	..	194	1 011	5.22	191	..	191	928	4.85
Canada	1 078	..	1 078	1 418	1.32	1 027	..	1 027	1 305	1.27
Czech Republic	..	..	..	..	..	..	..	..	..	..
Iceland	1 930	..	1 930	735	0.38	1 942	..	1 942	703	0.36
Japan	5 092	..	5 092	12 021	2.36	4 792	..	4 792	..	..
Korea <sup>2</sup>	2 095	..	2 095	3 667	1.75	2 142	..	2 142	3 140	1.47
Mexico <sup>7,3</sup>	906	287	1 193	1 044	0.87	872	379	1 251	1 035	0.83
New Zealand <sup>4</sup>	..	..	544	..	..	..	..	536	..	..
Norway	1 791	1 104	2 894	1 112	0.38	1 717	1 142	2 859	1 273	0.45
Poland <sup>8,5</sup>	167	34	200	91	0.46	164	44	207	87	0.42
Turkey	..	..	..	..	..	..	..	..	..	..
United States	3 447	799	4 245	3 638	0.86	3 644	790	4 434	3 342	0.75
European Union	3 995	1 473	5 468	6 015	1.10	2 690	1 392	4 083	4 294	1.05
Belgium-Luxembourg <sup>7</sup>	27	..	27	82	3.08	27	..	27	86	3.21
Denmark <sup>7</sup>	411	1 113	1 524	404	0.27	410	1 091	1 501	428	0.29
Finland	44	48	92	21	0.23	38	58	96	19	0.20
France <sup>8</sup>	682	..	682	952	1.40	664	..	664	955	1.44
Germany <sup>6</sup>	193	1	194	150	0.77	176	3	179	153	0.85
Greece <sup>8</sup>	93	..	93	233	2.49	58	..	58	127	2.21
Ireland <sup>8</sup>	291	..	291	205	0.70	..	..	..	..	..
Italy <sup>7</sup>	387	..	387	1 422	3.68	339	..	339	1 321	3.90
Netherlands	..	..	..	..	..	..	..	..	..	..
Portugal <sup>7</sup>	168	4	172	252	1.47	166	7	173	261	1.51
Spain <sup>7</sup>	909	8	917	1 355	1.48	..	..	..	..	..
Sweden	103	237	341	106	0.31	129	179	308	116	0.38
United kingdom <sup>8</sup>	687	62	748	833	1.11	685	53	738	827	1.12
<b>OECD total</b>	<b>20 694</b>	<b>3 696</b>	<b>24 934</b>	<b>30 752</b>	<b>1.23</b>	<b>19 181</b>	<b>3 746</b>	<b>23 464</b>	<b>n.a.</b>	<b>n.a.</b>

.. Not available.

n.a. Not applicable.

1. Total national landings, including fish, crustaceans, molluscs and algae.

2. Including Inland Fish.

3. Net value.

4. Figure for the year 2000 correspond to the period 1999/2000 and figure for 2001 correspond to 2000/01.

5. Landings exclude fish purchased at fishing grounds.

6. Data are provisional.

7. Landed weight.

8. Live weight.

Source: OECD (2003a).

Table I.A2.9. OECD aquaculture production, 2000 and 2001

	Volume (tonnes)										Value (USD million)	
	Total finfish		Total shellfish		Other aquatic animals		Total aquatic plants		Total aquaculture		Total aquaculture	
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001
Australia	22 345	25 176	17 445	18 374	..	..	..	..	39 790	43 549	397	384
Canada	91 195	..	32 729	..	..	..	..	..	123 924	..	412	..
Czech republic	19 475	..	..	..	..	..	..	..	19 475	..	23	..
Iceland	3 626	4 510	..	..	..	..	..	..	3 626	4 510	..	..
Japan	318 814	318 778	443 390	471 895	649	207	528 881	509 970	1 291 734	1 300 850	5 363	..
Korea	39 198	40 975	223 817	219 547	29 338	33 937	374 463	373 538	666 816	667 997	684	613
Mexico <sup>1</sup>	10 157	25 190	35 503	49 817	6	16	..	..	45 667	75 023	249	344
New Zealand	6 500	8 524	80 001	67 501	..	..	..	..	86 501	76 025	95	96
Norway	490 277	511 141	937	925	..	..	..	..	491 214	512 066	1 381	1 023
Poland	31 990	34 200	..	..	..	..	..	..	31 990	34 200	49	59
Turkey	78 633	..	398	..	..	..	..	..	79 031	..	..	..
United States	350 874	..	22 217	..	..	..	..	..	373 091	..	973	..
European Union	365 929	297 089	687 147	416 872	..	..	..	..	1 053 076	713 962	1 789	1 312
Belgium-Luxembourg	1 630	1 630	..	..	..	..	..	..	1 630	1 630	..	..
Denmark	43 605	41 641	4	4	..	..	..	..	43 609	41 645	..	..
Finland	15 400	15 739	..	..	..	..	..	..	15 400	15 739	45	38
France	59 775	60 679	206 877	191 378	4	5	..	..	266 656	252 062	422	424
Germany <sup>2</sup>	44 750	43 000	..	..	..	..	..	..	44 750	43 000	142	129
Greece	55 575	62 950	35 550	31 981	..	..	..	..	91 125	94 931	236	227
Ireland	20 085	..	21 065	..	..	..	..	..	41 150	..	80	..
Italy	68 600	71 450	159 000	190 000	..	..	..	..	227 600	261 450	443	449
Netherlands	..	..	..	..	..	..	..	..	..	..	..	..
Portugal	..	..	3 367	3 509	..	..	..	..	3 367	3 509	39	45
Spain	51 338	..	260 834	..	..	..	..	..	312 172	..	367	..
Sweden	5 171	..	450	..	..	..	..	..	5 621	..	15	..
United Kingdom	..	..	..	..	..	..	..	..	..	..	..	..
<b>OECD total</b>	<b>1 829 013</b>	<b>1 265 583</b>	<b>1 543 584</b>	<b>1 244 931</b>	<b>29 993</b>	<b>34 160</b>	<b>903 344</b>	<b>883 508</b>	<b>4 305 934</b>	<b>n.a.</b>	<b>11 416</b>	<b>n.a.</b>

.. Not available.

n.a. Not applicable.

1. Excluding production for restocking purposes.

2. Data are provisional.

Source: OECD (2003a).

Table I.A2.10. **OECD imports of food fish by major product groups and major world regions, 2000**

	All fish (tonnes)	%	Fish, fresh, frozen, incl. fillets (tonnes)	%	Fish, dried, smoked (tonnes)	%	Crustaceans and molluscs (tonnes)	%	Prepared and preserved (tonnes)	%
<b>Importers</b>										
EU	6 142 971	47	3 426 733	45	289 570	77	1 318 665	45	1 108 003	54
Japan	3 017 083	23	1 880 034	25	19 641	5	796 143	27	321 265	16
United States	1 698 482	13	788 675	10	30 250	8	504 209	17	375 348	18
OECD total	12 949 939	100	7 556 149	100	377 878	100	2 955 211	100	2 060 701	100
<b>Origins</b>										
OECD	6 523 046	50	4 322 942	57	324 472	86	1 020 962	35	854 670	41
Non-OECD <sup>1</sup>	6 422 942	50	3 230 698	43	53 299	14	1 933 530	65	1 205 415	59
Africa	926 939	14	376 340	12	3 283	6	311 061	16	236 255	20
America	1 329 466	21	752 323	23	12 174	23	396 314	20	168 655	14
Asia	3 119 108	49	1 306 367	40	16 179	30	1 039 615	54	756 947	63
Europe	969 315	15	738 362	23	21 648	41	183 780	10	25 524	2
Oceania	78 079	1	57 288	2	16	0	2 741	0	18 034	1

Notes: Fish, fresh, frozen, including fillets = HS Codes 302, 303, and 304.

Fish, dried, smoked = HS code 305.

Crustaceans and molluscs = HS codes 306 + 307.

Prepared and preserved = HS codes 1604 + 1605.

1. The total of the imports to the five non-OECD zones may not correspond to the global figure for non-OECD as a whole, since the latter also includes values from non-specified origin.

Source: OECD, International Trade Statistics Database, 2002.

Table I.A2.11. **OECD exports of food fish by major product groups and major world regions, 2000**

	All fish (tonnes)	%	Fish, fresh, frozen, incl. fillets (tonnes)	%	Fish, dried, smoked (tonnes)	%	Crustaceans and molluscs (tonnes)	%	Prepared and preserved (tonnes)	%
<b>Exporters</b>										
EU	3 986 950	45	2 586 719	43	123 037	30	654 915	49	622 279	62
Canada	481 859	5	224 032	4	41 687	10	151 390	11	64 749	6
United States	963 979	11	686 292	11	32 822	8	164 518	12	80 347	8
OECD total	8 791 575	100	6 044 046	100	414 394	100	1 328 496	100	1 004 638	100
<b>Destination</b>										
OECD	6 565 544	75	4 270 250	71	317 393	77	1 052 352	79	925 550	92
Non-OECD <sup>1</sup>	2 216 238	25	1 766 871	29	96 630	23	274 737	21	77 999	8
Africa	671 645	30	625 200	35	12 839	13	25 469	9	8 138	10
America	144 261	7	61 307	3	57 897	60	12 202	4	12 855	16
Asia	713 839	32	447 154	25	19 598	20	214 331	78	32 755	42
Europe	653 258	29	605 064	34	4 479	5	21 111	8	22 604	29
Oceania	28 538	1	25 257	1	89	0	1 547	1	1 645	2

Notes: Fish, fresh, frozen, including fillets = HS codes 302, 303 and 304.

Fish, dried, smoked = HS code 305.

Crustaceans and molluscs = HS codes 306 + 307.

Prepared and preserved = HS codes 1604 + 1605.

1. The total of the exports to the five non-OECD zones may not correspond to the global figure for non-OECD as a whole, since the latter also includes values from non-specified origin.

Source: OECD, International Trade Statistics Database, 2002.

Table I.A2.12. Imports of fish, crustaceans, molluscs and products thereof by OECD countries according to origin,<sup>1</sup> 1999

	Importing country (USD million)															Total EU
	Australia	Canada	Czech Republic	Hungary	Iceland	Japan	Korea	Mexico	New Zealand	Norway	Poland	Slovak Republic	Switzerland	Turkey	United States	
<b>Origin of imports</b>																
Australia	2	2	..	..	..	420	1	0	8	0	0	0	1	..	81	27
Canada	17	4	0	0	3	528	19	4	7	24	1	0	11	0	1 719	370
Czech republic	0	0	0	..	..	..	..	..	..	..	..	1	0	..	0	3
Hungary	..	..	0	..	..	..	..	..	0	..	0	0	0	0	0	5
Iceland	1	47	0	1	..	136	4	0	0	69	1	0	3	0	245	933
Japan	11	15	0	..	0	..	80	1	2	2	..	0	1	0	168	11
Korea	6	11	1	0	0	1 002	..	2	1	5	0	0	0	0	75	100
Mexico	0	4	..	..	..	25	15	..	..	..	..	0	..	..	507	45
New zealand	93	9	0	0	0	148	14	0	1	0	1	0	5	0	152	135
Norway	5	44	4	2	21	689	12	6	0	..	120	2	39	10	168	2 132
Poland	0	2	7	5	2	18	2	..	0	1	..	1	5	..	3	193
Slovak Republic	..	..	0	0	..	..	..	..	..	..	..	0	0	..	..	0
Switzerland	0	0	0	..	0	0	0	0	0	0	0	..	..	0	0	2
Turkey	..	2	0	0	..	14	0	0	0	0	..	0	1	..	2	80
United States	26	571	1	0	2	1 514	125	36	2	39	1	1	9	0	..	517
European Union	23	71	27	9	10	448	31	6	3	182	52	10	207	18	157	8 014
Austria	..	0	0	0	..	0	..	..	..	..	..	0	1	..	..	3
Belgium	..	0	..	..	..	..	..	..	..	..	..	0	3	..	3	225
Denmark	7	44	8	4	2	82	3	0	2	90	10	1	54	0	22	1 665
Finland	..	0	0	..	..	12	0	..	..	0	..	0	0	..	0	7
France	0	1	2	1	0	31	0	1	0	3	0	1	36	1	8	830
Germany	3	1	9	2	2	7	0	0	0	6	13	5	22	1	4	730
Greece	1	0	0	0	..	6	..	..	0	0	..	..	1	0	1	219
Ireland	0	0	2	0	0	26	5	..	0	7	9	1	4	0	1	291
Italy	3	2	1	0	0	24	0	0	0	0	0	0	17	0	3	179
Luxembourg	..	1	..	..	..	..	..	..	..	..	..	..	0	..	..	6
Netherlands	1	3	3	1	0	49	3	0	0	3	14	1	30	0	22	1 219
Portugal	1	4	..	0	3	10	1	0	0	1	..	..	4	..	7	237
Spain	1	2	2	0	1	180	10	5	0	1	3	1	14	14	24	1 003
Sweden	0	2	0	0	0	7	0	0	0	15	1	0	4	0	3	270
United Kingdom	5	10	0	0	3	15	7	0	0	56	2	0	18	1	60	1 129
Non-OECD Africa	45	7	1	1	0	598	13	0	0	3	2	0	5	1	97	2 041
Non-OECD America	21	93	6	17	3	1 434	38	49	5	40	6	5	10	28	1 945	2 112
Non-OECD Asia	255	335	16	4	1	6 191	521	12	23	16	24	6	66	0	3 270	1 707
Non-OECD Oceania	10	2	..	..	..	135	1	0	1	0	..	..	0	..	25	49
World	517	1 331	74	41	80	14 507	1 082	119	53	613	257	30	371	59	8 945	18 472

.. Not available.

0 value less than 0.5 of unit of measure.

1. Comprises HS codes 302.307, 121220, 1504, 1604 1605 and 230120.

Source: OECD, International Trade Statistics Database, 2002.

Table I.A2.12. Imports of fish, crustaceans, molluscs and products thereof by OECD countries according to origin,<sup>1</sup> 1999 (cont.)

	Importing country (USD million)															OECD total
	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	United Kingdom	
<b>Origin of imports</b>																
Australia	0	0	0	0	11	2	..	0	1	..	0	0	10	..	3	<b>542</b>
Canada	1	36	81	2	53	25	..	1	17	..	16	9	13	18	99	<b>2 705</b>
Czech republic	0	..	..	..	2	0	..	..	0	..	0	..	0	..	..	<b>4</b>
Hungary	0	0	..	..	3	1	..	..	0	..	0	0	..	0	0	<b>6</b>
Iceland	1	20	82	6	108	107	..	2	1	0	66	91	74	13	362	<b>1 441</b>
Japan	0	0	0	0	1	2	..	1	1	..	3	0	2	0	2	<b>291</b>
Korea	0	4	2	0	12	2	..	1	21	..	2	3	44	3	6	<b>1 203</b>
Mexico	..	0	..	..	6	0	..	..	11	..	0	0	27	..	0	<b>595</b>
New zealand	1	3	2	0	36	36	..	0	7	0	3	3	22	2	18	<b>559</b>
Norway	2	1	294	54	374	362	..	4	5	0	42	190	63	456	286	<b>3 256</b>
Poland	1	2	18	..	28	120	..	0	0	..	17	0	2	1	4	<b>238</b>
Slovak Republic	..	..	..	..	0	0	..	..	0	..	..	..	0	..	..	<b>1</b>
Switzerland	0	0	0	0	0	0	..	0	0	0	0	0	0	0	0	<b>3</b>
Turkey	0	2	0	0	12	26	..	..	25	1	8	0	4	1	0	<b>99</b>
United States	0	15	18	1	126	43	..	2	46	0	25	51	70	10	110	<b>2 844</b>
European Union	160	691	230	37	1 399	853	3	98	1 698	48	444	470	1 223	155	506	<b>9 270</b>
Austria	..	0	0	0	0	1	..	..	1	..	0	..	..	0	0	<b>5</b>
Belgium	1	..	3	0	112	36	3	0	13	20	..	4	17	1	15	<b>231</b>
Denmark	27	92	..	13	175	375	..	11	349	3	97	65	158	109	193	<b>1 993</b>
Finland	..	0	2	..	0	0	..	0	0	0	0	0	0	4	..	<b>20</b>
France	5	111	6	1	8	72	..	0	189	14	44	34	295	5	48	<b>915</b>
Germany	97	76	50	5	100	..	..	0	108	4	180	12	25	8	64	<b>805</b>
Greece	1	0	0	0	26	7	..	0	139	..	2	2	37	0	3	<b>229</b>
Ireland	1	4	3	0	95	24	..	1	33	0	5	1	74	3	47	<b>346</b>
Italy	5	8	2	0	31	24	..	1	..	0	4	1	100	0	2	<b>231</b>
Luxembourg	0	3	0	..	2	1	..	..	0	..	..	..	0	..	..	<b>7</b>
Netherlands	17	290	25	2	169	196	..	5	262	4	..	13	151	20	65	<b>1 350</b>
Portugal	2	5	1	0	30	3	..	0	43	1	1	..	134	1	17	<b>268</b>
Spain	2	14	7	1	201	30	..	0	394	1	5	312	..	1	36	<b>1 260</b>
Sweden	2	18	99	15	17	16	..	0	60	0	16	5	6	..	16	<b>302</b>
United Kingdom	2	69	31	0	432	67	..	79	107	3	90	20	227	4	..	<b>1 307</b>
Non-OECD Africa	3	54	4	2	431	73	..	0	350	0	90	105	760	2	167	<b>2 814</b>
Non-OECD America	1	48	255	0	375	149	..	1	311	1	45	9	816	3	98	<b>5 813</b>
Non-OECD Asia	13	141	46	9	248	282	..	3	178	6	127	25	239	31	358	<b>12 450</b>
Non-OECD Oceania	0	0	0	..	14	9	..	0	0	..	9	..	1	..	16	<b>223</b>
World	185	1 023	1 034	113	3 241	2 084	..	111	2 672	57	896	958	3 369	696	2 035	<b>46 553</b>

.. Not available.

0 value less than 0.5 of unit of measure.

1. Comprises HS codes 302.307, 121220, 1504, 1604 1605 and 230120.

Source: OECD, International Trade Statistics Database, 2002.

Table I.A2.13. Imports of fish, crustaceans, molluscs and products thereof by OECD countries according to origin,<sup>1</sup> 2000

	Importing country (USD million)															Total EU
	Australia	Canada	Czech Republic	Hungary	Iceland	Japan	Korea	Mexico	New Zealand	Norway	Poland	Slovak Republic	Switzerland	Turkey	United States	
<b>Origin of imports</b>																
Australia	1	1	0	..	..	484	2	..	9	..	0	0	1	0	88	22
Canada	14	4	0	0	3	544	18	7	7	23	7	0	11	0	1 922	357
Czech Republic	..	0	0	0	..	..	0	..	..	..	1	0	..	..	..	2
Hungary	..	0	0	..	..	..	..	..	0	..	0	0	0	0	0	3
Iceland	0	44	0	0	..	140	3	0	0	58	2	0	3	0	196	917
Japan	14	12	0	..	0	..	139	0	3	1	..	..	1	0	161	13
Korea	7	13	0	0	0	1 057	..	0	1	2	..	0	0	0	81	89
Mexico	..	4	..	..	..	38	24	0	..	..	..	..	..	..	541	33
New Zealand	83	10	0	0	0	148	14	0	1	0	1	0	4	0	132	103
Norway	4	41	3	2	23	610	18	4	0	..	116	1	35	12	157	1 914
Poland	1	5	8	6	2	10	1	..	0	2	..	1	5	0	3	170
Slovak Republic	..	..	0	0	..	..	..	..	..	..	..	0	0	..	..	0
Switzerland	0	0	0	0	..	..	1	0	1	0	0	..	..	0	..	5
Turkey	0	2	0	0	0	15	0	..	..	..	..	0	1	..	2	75
United States	23	588	0	0	0	1 541	140	81	2	31	1	0	10	0	..	418
<b>European Union</b>	22	56	23	8	6	411	46	9	2	177	55	8	192	23	144	7 755
Austria	..	0	0	0	..	..	0	..	..	0	..	0	1	..	..	3
Belgium	..	0	0	0	..	1	..	..	0	..	0	0	4	..	1	271
Denmark	8	31	7	4	2	60	5	0	0	70	11	2	50	0	19	1 578
Finland	..	0	0	..	..	9	..	..	..	0	0	..	0	..	0	7
France	0	1	2	1	0	29	2	1	0	2	0	1	32	4	8	772
Germany	2	2	5	2	0	4	2	0	0	4	18	2	21	3	7	662
Greece	1	0	0	0	..	6	..	..	0	0	..	0	1	0	2	220
Ireland	0	0	1	0	0	21	9	..	0	5	8	1	4	..	1	261
Italy	3	1	2	1	0	27	1	0	0	0	0	0	16	0	4	227
Luxembourg	..	..	..	..	0	..	..	..	..	..	..	0	0	..	..	13
Netherlands	0	4	3	1	0	48	2	0	0	5	11	1	25	0	19	1 197
Portugal	1	5	0	..	3	7	1	0	0	2	..	..	4	..	8	233
Spain	1	2	2	0	1	185	10	7	1	1	3	1	13	15	25	1 054
Sweden	0	2	0	0	0	3	0	0	0	15	2	0	4	0	1	255
United Kingdom	4	7	0	0	0	11	14	0	0	72	3	0	16	1	48	1 002
Non-OECD Africa	42	5	1	1	0	589	13	0	2	1	2	0	5	0	122	2 209
Non-OECD America	33	111	8	15	1	1 380	54	38	5	73	10	7	11	13	2 084	2 037
Non-OECD Asia	239	377	22	8	2	6 883	660	0	23	13	41	7	61	1	3 970	1 915
Non-OECD Oceania	8	1	0	..	..	144	0	..	1	..	..	..	0	..	36	28
World	492	1 377	74	41	67	15 317	1 266	138	55	597	292	29	350	52	9 944	18 941

.. Not available.

0 value less than 0.5 of unit of measure.

1. Comprises HS codes 302.307, 121220, 1504, 1604 1605, and 230120.

Source: OECD, International Trade Statistics Database, 2002.

Table I.A2.13. Imports of fish, crustaceans, molluscs and products thereof by OECD countries according to origin,<sup>1</sup> 2000 (cont.)

	Importing country (USD million)															OECD total
	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	United Kingdom	
<b>Origin of imports</b>																
Australia	0	0	0	0	4	1	1	0	2	..	0	0	11	0	2	<b>609</b>
Canada	0	32	77	2	46	24	2	1	18	0	14	11	13	13	104	<b>2 917</b>
Czech Republic	0	..	..	0	1	0	..	..	0	..	0	..	0	..	..	<b>3</b>
Hungary	0	0	..	..	2	1	0	..	0	..	0	0	..	0	..	<b>4</b>
Iceland	0	29	65	9	91	80	1	2	0	0	116	109	77	9	327	<b>1 364</b>
Japan	0	0	0	0	1	2	0	0	1	..	3	0	2	0	4	<b>345</b>
Korea	0	4	4	0	7	2	1	..	14	..	2	2	27	2	25	<b>1 250</b>
Mexico	0	..	..	..	11	0	0	..	5	..	3	0	14	..	0	<b>639</b>
New Zealand	1	3	2	0	26	17	5	0	8	..	2	3	25	1	11	<b>497</b>
Norway	2	0	291	47	299	309	6	4	4	0	22	115	64	485	267	<b>2 941</b>
Poland	1	3	16	..	18	111	0	0	0	..	15	0	1	2	3	<b>213</b>
Slovak Republic	..	..	0	..	0	0	..	..	0	..	..	..	..	..	..	<b>0</b>
Switzerland	0	0	0	0	0	1	0	..	0	0	0	1	0	0	3	<b>7</b>
Turkey	0	3	0	0	12	22	7	..	20	1	6	..	2	1	0	<b>96</b>
United States	0	15	8	1	105	37	7	1	49	0	19	23	64	5	85	<b>2 836</b>
European Union	122	618	226	35	1 232	931	151	93	1 605	51	465	430	1 155	141	499	<b>8 935</b>
Austria	..	0	0	..	0	1	0	..	1	..	..	0	..	0	0	<b>5</b>
Belgium	1	..	4	0	83	39	2	0	19	20	61	5	21	1	15	<b>276</b>
Denmark	21	89	..	10	158	407	34	10	312	3	90	29	143	102	172	<b>1 847</b>
Finland	0	..	4	..	0	1	..	..	0	0	0	0	0	3	0	<b>17</b>
France	5	93	6	1	4	69	8	0	186	16	42	29	258	5	50	<b>855</b>
Germany	70	62	43	4	82	..	8	0	98	3	172	15	18	5	81	<b>733</b>
Greece	1	1	0	0	25	9	..	0	128	0	3	5	43	0	6	<b>231</b>
Ireland	1	4	2	0	78	24	0	2	28	0	5	1	64	3	48	<b>311</b>
Italy	5	8	3	0	43	25	38	0	..	0	5	0	96	0	3	<b>283</b>
Luxembourg	0	3	1	..	4	1	..	0	0	..	1	..	2	..	..	<b>13</b>
Netherlands	14	268	33	3	157	210	19	4	241	5	..	17	153	18	54	<b>1 317</b>
Portugal	1	3	1	0	27	2	2	0	32	1	0	..	148	1	14	<b>263</b>
Spain	2	16	8	1	202	39	25	0	411	0	7	308	..	1	34	<b>1 319</b>
Sweden	1	15	86	15	14	20	8	0	52	0	9	8	5	..	22	<b>283</b>
United Kingdom	2	57	36	1	353	83	6	76	97	2	70	12	204	2	..	<b>1 181</b>
Non-OECD Africa	2	108	5	3	424	82	55	0	313	..	132	101	827	2	155	<b>2 992</b>
Non-OECD America	2	42	221	1	317	172	14	1	278	0	50	13	836	3	87	<b>5 878</b>
Non-OECD Asia	10	147	41	9	271	293	27	4	210	6	168	28	277	28	396	<b>14 221</b>
Non-OECD Oceania	0	0	0	..	12	7	0	..	..	..	0	..	0	0	7	<b>218</b>
World	147	1 009	1 207	112	2 966	2 280	282	105	2 546	59	1 056	883	3 434	705	2 150	<b>49 031</b>

.. Not available.

0 value less than 0.5 of unit of measure.

1. Comprises HS codes 302.307, 121220, 1504, 1604 1605, and 230120.

Source: OECD, International Trade Statistics Database, 2002.



Table I.A2.14. Exports of fish, crustaceans, molluscs and products thereof by OECD countries according to origin,<sup>1</sup> 1999

Destination	Exporting country (USD million)															Total EU
	Australia	Canada	Czech Republic	Hungary	Iceland	Japan	Korea	Mexico	New Zealand	Norway	Poland	Slovak Republic	Switzerland	Turkey	United States	
Australia	..	7	..	..	0	9	5	0	86	5	..	..	..	0	37	25
Canada	1	..	0	..	21	12	10	1	5	33	1	..	0	2	657	25
Czech Republic	..	0	..	0	0	..	0	..	..	4	7	0	0	0	0	28
Hungary	..	0	0	..	..	..	..	..	..	1	5	0	..	0	..	21
Iceland	0	5	..	..	..	1	0	1	..	22	..	..	..	..	1	6
Japan	371	324	..	..	98	..	1 058	6	154	566	1	..	0	10	1 184	501
Korea	1	7	..	..	3	70	..	20	23	12	..	..	0	0	179	25
Mexico	..	1	..	..	0	0	1	..	0	5	..	..	0	..	54	6
New Zealand	7	3	..	..	..	17	10	..	..	0	..	..	..	0	3	2
Norway	0	8	0	..	66	0	4	..	0	..	1	..	0	0	27	132
Poland	0	1	0	0	1	..	0	..	1	101	..	0	0	..	0	73
Slovak Republic	..	0	..	..	1	0	..	..	2	0	..	..	..	0	0	12
Switzerland	0	6	..	0	2	0	0	..	2	37	3	..	..	1	5	178
Turkey	..	0	..	0	0	0	0	..	0	9	..	..	..	..	0	15
United States	82	1 833	0	0	222	142	71	553	144	173	11	..	0	2	..	159
European Union	28	250	3	5	913	11	79	33	118	2 261	162	..	2	75	478	8 461
Austria	0	0	0	0	1	0	0	..	0	4	0	0	0	0	0	157
Belgium	..	24	..	..	27	..	..	..	10	..	4	..	0	..	15	369
Denmark	0	41	0	..	74	0	3	..	1	379	15	..	0	0	13	182
Finland	0	3	..	..	6	0	..	..	0	56	..	..	..	..	2	41
France	10	29	2	3	97	0	6	8	22	342	20	..	0	11	92	1 789
Germany	1	34	0	1	92	2	2	0	32	221	76	0	1	11	29	1 112
Greece	2	2	..	1	12	0	1	..	6	27	..	..	0	8	6	146
Ireland	0	0	..	..	4	..	0	..	..	4	..	..	..	0	1	114
Italy	1	10	0	0	28	1	18	5	6	168	..	0	0	24	48	1 582
Luxembourg	..	..	..	..	0	..	..	..	0	..	..	..	0	..	..	50
Netherlands	1	9	0	0	39	3	3	0	7	117	15	..	0	7	40	606
Portugal	0	6	..	..	95	..	2	0	3	290	0	..	..	0	41	469
Spain	9	5	0	..	96	4	35	20	16	123	1	0	..	3	60	1 055
Sweden	..	15	..	..	13	0	2	..	1	184	1	..	0	1	7	204
United Kingdom	3	71	0	0	329	0	6	0	13	347	30	..	0	10	122	582
Non-OECD Africa	3	0	..	..	14	7	3	1	2	29	0	..	0	0	4	368
Non-OECD America	0	34	..	..	2	16	4	4	0	155	..	..	0	0	60	77
Non-OECD Asia	394	151	0	..	22	336	139	23	166	142	..	..	0	2	225	241
Non-OECD Oceania	1	0	..	..	0	49	4	..	7	..	..	..	..	..	3	10
World	889	2 633	6	8	1 382	697	1 407	642	709	3 759	212	1	3	99	2 932	10 791

.. Not available.

0 value less than 0.5 of unit of measure.

1. Comprises HS codes 302.307, 121220, 1504, 1604 1605 and 230120.

Source: OECD, International Trade Statistics Database, 2002.

Table I.A2.14. **Exports of fish, crustaceans, molluscs and products thereof by OECD countries according to origin,<sup>1</sup> 1999 (cont.)**

Destination	Exporting country (USD million)															OECD total
	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	United Kingdom	
Australia	..	0	7	0	0	2	1	0	3	..	3	1	1	1	5	175
Canada	..	1	4	0	1	1	0	0	1	..	2	4	2	0	9	768
Czech Republic	0	1	7	0	1	11	..	1	1	..	3	..	1	0	0	40
Hungary	1	0	3	..	0	15	0	0	1	..	1	..	0	0	0	27
Iceland	..	0	2	..	0	0	..	0	0	0	0	1	1	0	1	36
Japan	..	1	122	11	13	3	3	21	18	..	40	4	240	7	17	4 274
Korea	0	..	4	0	0	0	..	5	0	..	2	1	6	0	7	340
Mexico	..	0	0	..	0	0	0	0	..	0	0	0	5	..	..	69
New Zealand	..	..	1	..	0	0	0	0	0	..	0	0	0	0	0	43
Norway	..	2	99	0	2	2	0	0	0	..	2	1	0	17	7	238
Poland	0	0	9	0	0	34	..	8	0	..	12	..	4	4	1	178
Slovak Republic	..	0	6	0	..	3	1	0	0	..	..	1	1	..	0	15
Switzerland	0	2	51	0	29	25	1	1	13	0	25	4	8	2	16	235
Turkey	..	0	0	..	1	1	1	0	0	..	0	..	11	..	0	25
United States	..	3	14	0	9	4	2	1	3	..	22	8	24	1	68	3 393
European Union	2	467	1 744	4	870	900	242	247	265	12	906	234	1 164	405	1 001	12 880
Austria	..	1	25	..	5	100	1	0	7	0	8	3	3	2	1	164
Belgium	..	..	88	0	99	72	1	2	9	3	..	4	11	16	65	450
Denmark	0	4	..	0	7	37	1	3	1	0	12	2	10	84	23	709
Finland	0	0	13	..	1	5	0	0	0	..	1	0	1	19	1	107
France	0	190	242	0	..	247	26	80	37	6	226	27	238	83	387	2 431
Germany	1	62	473	1	99	..	12	28	41	2	217	5	47	31	95	1 617
Greece	..	3	30	..	7	6	..	0	44	..	9	4	28	10	5	210
Ireland	..	0	12	..	1	0	..	..	0	0	6	0	0	0	94	124
Italy	0	14	279	0	189	106	151	29	..	0	210	35	410	66	91	1 892
Luxembourg	..	23	1	..	18	4	..	..	0	..	..	1	0	0	1	50
Netherlands	0	124	142	0	52	177	4	5	6	0	..	1	13	23	58	847
Portugal	..	5	12	..	29	15	3	1	1	0	15	..	358	18	12	906
Spain	0	24	115	0	245	47	36	51	116	0	113	123	..	22	165	1 429
Sweden	0	2	159	3	6	7	0	3	0	0	19	1	1	..	3	429
United Kingdom	0	15	154	0	112	76	8	44	3	0	70	28	43	28	..	1 514
Non-OECD Africa	..	1	15	0	87	6	0	12	2	..	137	8	84	0	15	430
Non-OECD America	0	0	4	0	3	2	0	1	1	..	8	3	49	0	6	353
Non-OECD Asia	0	2	113	0	11	3	1	4	4	..	20	6	53	1	25	1 842
Non-OECD Oceania	..	0	0	..	3	0	0	2	..	..	0	0	3	..	1	74
World	5	480	2 234	21	1 039	1 045	257	309	338	15	1 439	279	1 685	443	1 203	26 170

.. Not available.

0 value less than 0.5 of unit of measure.

1. Comprises HS codes 302.307, 121220, 1504, 1604 1605 and 230120.

Source: OECD, International Trade Statistics Database, 2002.

Table I.A2.15. Exports of fish, crustaceans, molluscs and products thereof by OECD countries according to origin,<sup>1</sup> 2000

Destination	Exporting country (USD million)															Total EU
	Australia	Canada	Czech Republic	Hungary	Iceland	Japan	Korea	Mexico	New Zealand	Norway	Poland	Slovak Republic	Switzerland	Turkey	United States	
Australia	..	6	..	..	1	12	6	0	81	4	1	..	..	0	35	24
Canada	2	..	0	..	20	12	12	1	7	34	1	..	0	1	673	26
Czech Republic	..	0	0	0	0	..	..	..	0	3	8	0	0	0	0	27
Hungary	..	0	0	..	0	..	0	..	0	1	5	0	..	0	0	19
Iceland	..	0	..	..	..	1	1	..	..	25	..	..	0	..	1	4
Japan	430	355	0	..	90	..	1 030	14	146	480	1	..	0	11	1 168	393
Korea	1	9	..	..	3	101	..	9	19	20	..	..	..	0	213	33
Mexico	0	1	..	..	0	..	1	..	0	3	..	..	..	0	71	9
New Zealand	14	4	..	..	..	23	22	..	..	0	..	..	..	..	2	1
Norway	0	8	..	..	52	1	3	..	0	..	1	..	0	0	27	118
Poland	0	0	0	0	3	..	0	..	0	104	..	..	0	0	0	78
Slovak Republic	..	..	4	0	..	..	..	..	..	1	1	..	..	0	..	9
Switzerland	1	3	0	0	2	1	0	..	2	35	3	..	..	1	11	158
Turkey	0	0	0	0	..	0	0	..	0	13	..	..	0	..	0	18
United States	84	2 016	0	0	176	142	72	623	120	158	5	..	0	2	..	148
European Union	22	230	2	3	819	25	60	27	101	2 015	153	0	2	63	433	8 323
Austria	0	0	0	0	0	0	0	..	1	5	1	0	0	0	0	145
Belgium	..	23	0	0	27	0	..	..	5	..	4	..	0	..	19	542
Denmark	0	48	0	..	61	0	5	..	1	406	14	..	0	0	10	195
Finland	0	3	..	..	8	0	..	..	0	49	..	..	..	..	1	42
France	4	26	1	1	81	3	4	15	19	305	17	..	0	10	89	1 701
Germany	1	29	0	1	67	1	2	..	19	187	65	..	1	13	51	1 076
Greece	1	1	..	0	12	0	0	0	6	24	..	..	0	7	6	160
Ireland	0	1	..	..	2	1	..	..	..	3	..	..	..	..	1	97
Italy	2	9	0	0	18	1	11	4	7	145	..	0	0	18	52	1 446
Luxembourg	..	..	..	..	0	..	..	..	..	..	..	..	0	..	0	50
Netherlands	1	6	0	0	44	3	2	..	6	103	13	..	0	5	33	549
Portugal	0	10	..	..	106	0	2	..	3	199	..	..	..	..	21	470
Spain	11	2	0	..	81	15	25	8	24	101	1	..	..	2	65	1 059
Sweden	0	6	0	..	8	0	2	..	1	185	2	..	..	1	4	175
United Kingdom	2	65	0	0	304	0	7	0	10	303	36	..	0	6	80	616
Non-OECD Africa	2	1	0	..	15	9	3	0	3	21	..	0	0	1	3	327
Non-OECD America	0	24	..	..	1	16	6	7	1	154	..	..	..	0	60	62
Non-OECD Asia	412	161	..	0	28	375	161	20	169	164	0	..	0	3	328	266
Non-OECD Oceania	1	0	..	..	0	43	4	..	8	0	..	..	..	..	3	3
World	969	2 822	6	6	1 224	774	1 393	702	659	3 518	196	1	3	92	3 038	10 260

.. Not available.

0 value less than 0.5 of unit of measure.

1. Comprises HS codes 302.307, 121220, 1504, 1604 1605 and 230120.

Source: OECD, International Trade Statistics Database, 2002.

Table I.A2.15. **Exports of fish, crustaceans, molluscs and products thereof by OECD countries according to origin,<sup>1</sup> 2000 (cont.)**

Destination	Exporting country (USD million)															OECD total
	Austria	Belgium	Denmark	Finland	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	Portugal	Spain	Sweden	United Kingdom	
Australia	..	..	7	0	0	2	1	0	3	..	3	1	2	0	4	<b>171</b>
Canada	..	1	5	..	1	1	0	0	1	..	4	5	2	1	5	<b>789</b>
Czech Republic	0	0	7	0	1	10	0	1	2	..	3	..	1	0	0	<b>40</b>
Hungary	1	0	3	..	0	13	0	0	1	..	0	0	1	0	0	<b>26</b>
Iceland	..	0	1	..	0	0	..	0	0	0	0	0	1	1	1	<b>31</b>
Japan	..	0	65	8	25	4	3	17	17	..	35	4	199	2	14	<b>4 119</b>
Korea	..	..	7	..	1	0	0	6	2	..	2	0	4	0	10	<b>408</b>
Mexico	..	0	0	..	1	0	..	..	0	..	0	0	7	..	0	<b>85</b>
New Zealand	..	..	0	..	0	0	0	0	0	..	0	0	0	0	0	<b>65</b>
Norway	..	1	76	0	2	2	0	0	0	..	3	0	0	27	6	<b>211</b>
Poland	..	1	14	0	0	31	0	7	0	..	13	..	3	4	3	<b>187</b>
Slovak Republic	0	0	1	..	..	5	..	2	0	..	0	..	0	0	0	<b>15</b>
Switzerland	0	3	46	0	26	22	1	1	12	0	28	3	8	3	6	<b>218</b>
Turkey	..	0	1	..	1	2	1	0	0	..	0	..	12	0	0	<b>31</b>
United States	..	1	18	0	10	5	3	1	3	0	20	8	24	1	55	<b>3 546</b>
European Union	2	448	1 633	3	866	883	213	236	285	14	1 064	242	1 153	415	866	<b>12 276</b>
Austria	..	1	26	..	5	89	1	0	7	0	7	2	3	2	1	<b>152</b>
Belgium	0	..	73	0	85	58	0	3	8	3	223	3	12	17	56	<b>621</b>
Denmark	0	4	..	0	7	49	0	2	1	0	13	2	7	93	18	<b>740</b>
Finland	0	0	13	..	2	4	0	0	0	..	1	0	2	19	1	<b>102</b>
France	0	167	221	0	..	265	25	71	46	7	234	34	234	73	323	<b>2 278</b>
Germany	2	56	460	1	97	..	8	27	39	2	210	3	46	36	91	<b>1 514</b>
Greece	..	2	33	0	9	9	..	0	43	..	14	3	32	9	5	<b>217</b>
Ireland	..	0	11	..	2	1	0	..	0	0	4	0	0	0	79	<b>106</b>
Italy	0	22	253	0	186	101	118	27	..	0	152	28	414	58	88	<b>1 712</b>
Luxembourg	..	21	1	..	16	5	..	0	0	..	3	1	0	1	1	<b>51</b>
Netherlands	0	119	135	0	45	149	4	7	12	1	..	1	13	18	46	<b>767</b>
Portugal	..	5	7	..	26	19	6	1	1	..	18	..	348	29	11	<b>810</b>
Spain	0	33	117	0	240	37	44	43	124	0	110	140	..	29	142	<b>1 391</b>
Sweden	0	2	136	2	6	6	0	3	0	..	14	1	2	..	4	<b>385</b>
United Kingdom	0	18	148	..	142	93	7	51	3	0	60	24	39	31	..	<b>1 431</b>
Non-OECD Africa	..	1	11	0	56	4	0	20	3	..	132	9	69	0	23	<b>384</b>
Non-OECD America	..	0	3	0	5	1	0	1	1	..	7	7	34	0	3	<b>331</b>
Non-OECD Asia	0	1	96	0	20	6	1	2	4	..	25	4	83	1	21	<b>2 089</b>
Non-OECD Oceania	..	0	0	..	3	0	0	..	..	..	0	0	..	..	..	<b>62</b>
World	4	459	2 035	16	1 023	1 022	230	302	358	14	1 359	286	1 636	459	1 055	<b>25 663</b>

.. Not available.

0 value less than 0.5 of unit of measure.

1. Comprises HS codes 302.307, 121220, 1504, 1604 1605 and 230120.

Source: OECD, International Trade Statistics Database, 2002.

## PART II

# Special Chapter on Economic and Social Sustainability Indicators for Fisheries

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## Executive summary

Measurement of progress towards sustainable development goals has become an increasingly important policy focus in recent years. In the fisheries sector, the use of environmental indicators in the development of fisheries assessments and management plans has been standard practice in most OECD countries for many years. However, relatively little attention has been paid to the development of economic and social indicators that serve to assess progress on other aspects of sustainable development. In this report, a review is provided of recent developments by OECD countries and international organisations on social and economic indicators, together with a survey of the key conceptual and practical issues involved in their use at the international, national and local level.

The survey revealed that many OECD member countries place a particularly high priority on the need for social and economic indicators and have devoted considerable resources to the development of this stream of information. However, few of these initiatives have reached the stage where economic and social indicators are produced and used on a regular basis – the evolution of such indicators for fisheries is still very much in its infancy.

There is a significant degree of diversity across OECD countries regarding the key policy issues to which current efforts to develop sustainability indicators are being applied. In a number of countries the policy priority is the assessment of regional impacts of fisheries policy changes, particularly with respect to the impact on local and regional communities. Other countries are more focussed on the economic performance of their national fleets and of the various fisheries within their EEZs.

The diverse policy priorities result in a wide range of approaches to developing indicators being adopted within member countries. There is very little commonality amongst the countries with respect to frameworks and the various approaches clearly reflect the policy processes and demands faced by the individual countries. Some countries have developed measures of economic returns to their fisheries and have been able to employ them primarily in *ex post* evaluations of the performance of the sector and of management. Other countries are embarking on ambitious programs of developing objectives and targets for fisheries management based on the use of bioeconomic models. Such an approach differs from the former in that it aims to set targets and then measure progress towards those targets.

There is also a significant difference across countries with respect to both the available data and the institutional capacity to provide relevant data to support the development of sustainability indicators. However, there are benefits and costs that need to be considered when developing indicators. Obtaining data for use in indicators is not costless and there needs to be careful consideration as to whether or not there are net benefits associated with the use of the indicators for which the data are collected.

## Introduction

The purpose in this paper is to provide a survey of the development and implementation of economic and social sustainability indicators in OECD countries and to review the key issues surrounding the use of such indicators. The pursuit of sustainable development as a policy objective has become increasingly important in recent years and policy makers are requiring more information on how to measure progress towards sustainable development goals. In the fisheries sector, the use of environmental indicators in the development of fisheries assessments and management plans has been standard practice in most OECD countries for many years. However, relatively little attention has been paid to the development of economic and social indicators that serve to assess progress on other aspects of sustainable development.

In recognition of this information gap, the OECD Committee for Fisheries undertook this project on economic and social sustainability indicators. The overall goal for the study is to contribute to improvement in the measurement of economic and social dimensions of sustainable development of fisheries, and where possible, relate these to the resource and environmental dimensions. The project was given additional impetus through the 2001 OECD Council at Ministerial level which asked the OECD to assist its member countries to realise their sustainable development objectives, and to report on progress through, amongst other things, the development of appropriate indicators.

This paper does not seek to provide a definitive list of indicators for use by OECD countries. Nor does it seek to be prescriptive about the type of framework that should be employed or indicators that should be developed. Rather, it provides a review of the initiatives that have been undertaken by OECD countries and international organisations (such as the FAO) in this area. It also provides a survey of the key conceptual and practical issues involved in the use of economic and social indicators at the international, national and local level. In this way, OECD and non-OECD countries can benefit from the pooling of experiences in the development and use of indicators, adapting sustainability concepts and frameworks to their individual needs and circumstances.

### 1. Indicators of sustainable development

In considering the concept of indicators of sustainable development, a necessary first step is to define what is meant by sustainable development in the context of fisheries. Sustainable development is generally defined as being development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs. As a renewable, but potentially depletable, resource, fisheries can be regarded as being a good example of what sustainable development is ideally about. Sound stewardship of fish stocks will generally result in the environmental conditions for sustainable development being met. However, recent experience has demonstrated that fish stocks are vulnerable to overfishing and depletion. Of 441 marine stocks fished worldwide, more than 28% are estimated to be overfished (18%), depleted (9%) or recovering (1%), while about 47% are fully exploited.

There has been an increasing interest in recent years in the measurement of progress toward sustainable development across all sectors of the economy. The concept of sustainable development, which seeks to incorporate environmental, economic and social considerations into policy making, poses a significant challenge for measurement. Trying to adequately incorporate these issues into a readily understood framework has proved to be difficult,

requiring significant efforts to enhance existing concepts and to develop new approaches. While most OECD countries have a wide range of statistics on the environmental, economic and social status of their societies, these have generally not yet been integrated into a single coherent framework.

The fisheries sector is no exception. This sector depends primarily on the sustainable exploitation of fish stocks, but it has become increasingly recognised that decisions on the use of fish resources cannot be made in isolation from social and economic considerations. Knowledge about fishing activities and other pressures on marine resources is critical to ensuring sustainable management of fisheries and to contributing to the broader goal of sustainable development.

### **What are indicators?**

Indicators are data or combination of data collected and processed for a clearly defined analytical or policy purpose. That purpose should be explicitly specified and taken into account when interpreting the value of an indicator. Fisheries indicators should provide practical and cost-effective means for the evaluation of the state and the development of fisheries systems and the effects that policy changes have on those systems.

For the indicators to be effective and workable in assessing the economic and social performance of fisheries, they should:

1. Have a clear policy relevance and in particular:
  - provide balanced coverage of some of the key issues of common concern to OECD countries, and reflect changes over time;
  - be easy to interpret (that is, movements in each indicator should have clear link to overall sustainability);
  - allow comparisons across countries;
  - lend themselves to being adapted to different national contexts, analysed at different levels of aggregation and linked to more detailed indicator sets.
2. Be analytically sound in technical and scientific terms, based on internationally accepted standards and broadly accepted by stakeholders.
3. Be based on data that are available, of known quality and regularly updated (OECD, 2001c, p. 71).

Most effort to date has been on developing indicators related to the ecological sustainability of fisheries. There is a large and established literature on the use of a wide range of indicators to assess the relative abundance and health of individual fish stocks. This is done through such concepts as target and limit reference points, biomass indexes, fishing mortality and effort measures, and so on (see, for example, Hilborn and Walters 1992; Caddy and Mahon 1995). This work is largely based on a range of increasingly complex population models and is often used to inform fisheries policy and decision makers when setting management targets for fisheries. To a large extent, these indicators have stayed in the preserve of specialists and have not generally had much exposure or impact in the public arena. More often, it is the headline statistics on the overall health of specific fish stocks that is used to communicate the state of fisheries.

In the meantime, relatively little attention has been paid to the set of potential indicators that could be used to assess the economic and social aspects of fisheries and the interaction with the pursuit of sustainable development objectives. The growing demand for social and economic indicators from policy makers is a result of this perceived imbalance.



### **What are indicators used for?**

The main purpose in developing a set of sustainability indicators is to assist in assessing the performance of fisheries policy and management and to stimulate action to better pursue sustainability objectives. This can occur in a number of areas. For example, indicators can be used for: *ex post* evaluations of the impacts of management initiatives; assessment of progress towards medium and/or long term objectives; and assessment of the impacts of fisheries.

They can also enhance communication, transparency, effectiveness and accountability in fisheries management. In this regard, indicators can be developed and reported at various levels of aggregation – international, national, regional and local levels. Many of the environmental indicators for fisheries referred to above are focussed on the fishery level. Other aggregates that are regularly reported, such as the contribution of fisheries to exports, are reported at a national level. Yet others relate to fisheries that are managed regionally as straddling and/or highly migratory stocks.

The range of purposes for which indicators are currently used within OECD countries is discussed later in the survey.

### **Frameworks for measurement**

It is clearly necessary to ensure that the linkages between objectives, indicators and outcomes be identified within a well-founded framework. Frameworks are important for linking indicators to analytical questions and policy issues. As noted in OECD (2001c), there is a range of frameworks currently in use in the various areas of sustainable development, with the choice of framework varying according to the purpose of the measurement. Two broad types of frameworks can be identified: accounting and analytical frameworks.

#### **Accounting frameworks**

National accounts have traditionally been the primary measurement framework for economic policy making. These accounts record the economic transactions of a country in monetary terms, encompassing economic production, consumption and savings, assets and productivity, employment and so on. However, it is recognised that traditional national accounts do not incorporate environmental issues appropriately, nor are they amenable to the measurement of sustainable development. Much recent work has considered how to extend the national accounts to take account of environmental and social issues. This is generally done by augmenting existing accounts with other relevant accounts, usually linked by monetary measures.

One of the most common extensions is the use of environmental or natural resource accounts. In brief, these accounts measure the quantitative changes in stocks and flows for different environmental assets. They are generally presented in terms of the supply of resources, matched against the demand for these resources from society. The accounts are usually compiled in physical units and then converted to monetary terms. Many OECD countries have developed resource accounts for different types of assets, including water, forests and mineral resources. There have been few attempts to develop resource accounts for fisheries, with the publication of a fish account by Australia being the most recent example (Australian Bureau of Statistics 1999). Some of the key issues highlighted in the Australian exercise were the problem in developing robust estimates of fish stocks and the difficulty in obtaining reliable valuation estimates for stocks and flows. Despite these concerns, such fish accounts provide useful information on the physical flows of fish resources.

In relation to the social aspects of sustainable development, there have been significant advances in recent years in analysing the interactions between the social and economic spheres, particularly in the areas of income distribution, household consumption patterns and employment. Work has been underway for some time expanding the national accounting framework to encompass social capital concepts and measurement. However, it is recognised that there is much work to be done to link such efforts to a broader sustainable development framework (OECD 2001c, p. 63).

### **Analytical frameworks**

Analytical frameworks supplement the accounting frameworks by targeting the development and interpretation of indicators more directly to policy issues. One such framework that has been developed and used extensively within OECD, and adapted by other international organisations, is the pressure-state-response (PSR) framework (see OECD 1998, 2000b, 2001c). In broad terms, the PSR framework aims to identify the *pressure* on the environment from human and economic activities, which lead to changes in the *state* or environmental conditions that prevail as a result of that pressure, and may provoke *responses* by society to change the pressures and the state of the environment (Box II.1). This framework has primarily been used for analysing the environmental aspects of policy development rather than for the analysis of social or economic aspects of sustainable development. The main advantage of the PSR framework is that it provides a means of selecting and organising indicators in a coherent way that is generally useful and understood by decision makers and the public. However, a key concern with the use of the PSR framework is that it is primarily a process for describing linkages between human activities and the environment, and does not have a sound theoretical underpinning that can be readily applied to assessing progress towards sustainable development.

The Resource-Outcome Indicator approach recently developed by the OECD seeks to overcome this drawback of the PSR framework by building on the generally accepted view that sustainable development is development that satisfies current needs without compromising the needs of future generations to satisfy theirs (OECD 2001c, pp. 64-70). In brief, this approach identifies a necessary condition for sustainable development as the maintenance of assets, broadly defined to include environmental, economic and social assets, over time as these assets provide the means through which societal needs can be satisfied both today and in the future. Such condition poses interesting questions about the substitutability of the different forms of assets both within and between generations, but has the main advantage that it requires the explicit recognition of the importance of maintaining the portfolio of assets over time.

In terms of measurement, this approach requires that indicators be developed on how well the range of assets is preserved (resource indicators) and how well current needs are being satisfied (outcome indicators). In essence, it links the importance of extending national balance sheets to include a broad range of assets with the maintenance of these assets in order to provide for future well-being. The approach was used in the development of a set of sustainable development indicators by the OECD in 2001 (OECD 2001c). While fisheries were not included in the indicative list of resource indicators presented in that report (due largely to methodological concerns with measurement), it is clear that such an approach merits further attention in relation to fisheries.

The resource-outcome approach is also being pursued in a number of OECD countries, generally at the level of pilot studies. In Canada, for example, the development of a set of

### Box II.1. Overview of the PSR framework for sustainable development indicators

The PSR framework defines three types of indicator:

**Pressure** – These indicators provide information about the pressure that is being applied on some aspect of the fisheries sustainability system. It can be difficult to determine whether a level of pressure is acceptable or whether it is too high, unless information is also available on the state of the environment. Therefore these indicators generally need to be read alongside the state indicators. However, variations in pressure indicators can be early warnings of problems before they cause a change in the state indicators.

**State** – These indicators report on the current state of some aspect of the fisheries sustainability system. They provide information on where the system stands at the moment it is observed. The observation of a time series of one indicator indicates trends in the state of the system.

**Response** – These indicators report on what action decision-makers and managers are taking in response to signals they receive on the state of the fisheries sustainability system or, very often, in response to pressures from stakeholders. If indicators suggest that the state of the system is satisfactory then no action may be required. These indicators form an important part of the feedback loop into the management system.

To be meaningfully interpreted, the three types of indicator should be directly related. For instance the indicator of pressure (*e.g.* fishing rate) should be accompanied by a measure of impact of such pressure (*i.e.* stock level) and a measure of response to such pressure (regulation of fishing pressure or removals). Ideally, a model should be available on how the three are related. PSR indicators should be developed that are dynamic and therefore capture both the direction and rate of change as well as static measures of the system. For ease of presentation and understanding, indicators could be presented in a sustainability “scorecard” or “dashboard” format at some appropriate periodicity, perhaps annually.

Examples of PSR indicators for fisheries are given in the table. Many of these indicators can be applied to more than one of the scales identified – global, regional, national, sub-national and local. Some indicators can also serve as more than one of the three types of indicator – catch, for instance, could serve as both a pressure and a state indicator.

Source: FAO, 1999.

environmental and sustainable development indicators (ESDI) is framed by the goal of maintaining future economic options (Smith and Choury 2002). The ESDI initiative focuses on maintaining productive capital which is broadly defined to include produced capital (such as buildings and machinery), human capital, as well as natural capital. The ESDI’s capital approach to indicators recognises that different types of capital can substitute for one another. The use of more machines and less labour is a typical substitution of produced capital for human capital. In some cases, produced capital can substitute for natural capital (for example, the use of fibre optics to replace copper). But it is also recognised that there are no substitutes for some of the features of natural capital (for example, clean air and clean water).

### **Fisheries data and indicators**

The OECD Committee for fisheries annual *Review of Fisheries in OECD Countries* (see, for example, OECD 2001d) presents statistical information on quantity and value of landings,

Table II.1. **Examples of PSR indicators**

Dimensions	Pressure	State	Response
Ecosystem (resource and environment)	Total catch	B/Target B	TAC/sustainable yield
	Total area fished	F/Target F	% depleted stocks rebuilding
	Catch/sustainable yield	E/Target E	Reduction of land-based pollution
	% resources > target	% TR > target	User rights established
	Total effluent discharge	% NTR > target	User fees established
		Biodiversity index	
		Community structure	
		Trophic structure	
		Area of critical habitat	
Social	Fishing effort	Number of fishers	Unemployment assistance
	Number of vessels	Demography	Support to associations
	Growth rate of number of fishers	Number of associations	Resources allocation decision
	Unemployment rate	% below poverty line	
	Immigration rate	Income and asset distribution	
	Social unrest		
Economic	Sector unemployment	Profitability	Economic incentives and disincentives (e.g. subsidies, taxes, buy-back)
	Subsidies	Wages and salaries	Command and control measures
	Excess fishing capacity	Sector employment	
	Resource rent potential		
Institutions/governance	Employment policies	% resources assessed	% resources assessed
	Absence of use of property rights	% with management plans	Job conversion programmes
		% management cost recovery	Retraining programmes
		Rate of compliance	Number of compliance operations
		% resources co-managed	

B = Biomass, F = Fishing mortality, E = Exploitation rate, TR = Target resources, NTR = Non-target resources.

Source: FAO, 1999.

employment, fleet capacity, government financial transfers, aquaculture production and trade in fish and fish products. This data provides extensive information about the basic economic and social characteristics of fisheries at a national level. The collection has been underway for some years and provides a time series from which indicators related primarily to the economic aspects of fisheries can be developed.

The OECD report, *Transition to Responsible Fisheries – Economic and Policy Implications* (OECD 2000) presents the modelling approach being used for analysing a cross section of fisheries (groundfish, small pelagic and invertebrates) from OECD member countries (Australia, Canada, Germany, Iceland, Japan and New Zealand) and the results of the case studies. A further set of case studies was presented using various other analytical approaches for fisheries in the European Community, Korea, Norway, Mexico and the United States of America. The first set of case studies consisted of an annual historical, current and projected status of the fisheries with respect to biological, economic, social and administrative targets. The non-biological performance elements are shown in Table II.2.

For each of the economic, social and administrative model components in Table II.2, two or three indicators measure the performance of the fishery within the modelling framework. This approach makes it possible to compare the modelling performance with the specified policy objectives. For a further description of the modelling approach of the Transition study see *A Model Approach for Analysis of Fishery Transition* in OECD (2000c). Due to the high resource costs in maintaining such modelling frameworks, this approach has not been pursued to date within the OECD.

Table II.2. **Performance measures by model components**

Model component	Description	Performance output and specified objectives
Economic	Annual <i>pro forma</i> operating performance by harvesting gear type and processing sector; gear type performance is described for an average vessel	1. Annual profit statement 2. Annual cash calculation 3. Annual balance sheet
Social	Annual analysis of workforce demographics for harvesting and processing; annual employment and unemployment based on catch information	1. Level of employment (harvesting, processing) 2. Labour earnings
Administrative	Annual harvesting and processing administrative costs for fisheries management, fees, licenses; costs associated with administrative functions, e.g., dockside monitoring, observers, quota transactions costs	1. Number of administrative personnel 2. Annual administrative costs

Source: OECD (2000c).

### Environmental indicators

There has been extensive work done within the OECD in recent years in developing environmental indicators as well as efforts to link environmental indicators to sustainable development goals. The recent report on *Key Environmental Indicators* (OECD 2001a) builds on previous work and presents ten sets of key environmental indicators, including a set relating to fish resources. These indicators were primarily based on catches as a percentage of world catches and changes in total catches since 1980. In assessing the measurability concerns about indicators for fish resources, the report noted that, while catch and production data are available for most OECD countries at a significant level of detail, more work needs to be done to better reflect the composition of the landings and its trophic structure. In addition it was observed that additional efforts should be made to relate fish harvest to available fish resources.

The recent OECD work on sustainable development generated additional indicators on fish resources. The report *Towards Sustainable Development: Environmental Indicators 2001* (OECD 2001b) reported on fish consumption per capita as an indirect pressure indicator on fish resources. However, this indicator was not integrated with the existing indicators on fish catches. In a related report, *Sustainable Development – Critical Issues* (OECD 2001c), the long term trend in the price of fish meal was presented as a partial indicator of resource scarcity when discussing natural resource management in the context of sustainable development.

In May 2001, the OECD Council at Ministerial level requested that the OECD undertake the task of developing agreed indicators to measure progress across all three dimensions of sustainable development. This included indicators that can measure the decoupling of economic growth from environmental degradation. The report from this process noted that “the decoupling concept cannot easily be applied to the fisheries sector and the lack of pertinent data makes it difficult to present a wholly adequate decoupling indicator for the fishery sector” (OECD 2002, p. 56). The reason for this is that population growth, per capita income and changing consumer preferences are underlying factors driving the demand for fish products. At the same time, however, sound fishery management requires that settings for maximum sustainable yields be followed. In principle, these are set independent of the level of economic activity, thereby making the decoupling concept difficult to apply in this case.

### **Territorial indicators**

The Territorial Development Policy Committee's Working Party on Territorial Indicators has proposed a set of core indicators for assessing the socio-economic performance and impact of territorial policies. These indicators are intended to provide, firstly, a coherent set of economic, social and environmental criteria as a basis for comparing any region of an OECD member country with any other such region and, secondly, to evaluate territorial disparities in member countries based on this set of multidimensional criteria. The paper *Core Indicators: Proposed List and Theoretical Framework* discusses possible territorial indicators in addition to those already analysed in *Territorial Outlook* (per capita GDP, unemployment rate, employment and population).

## **2. Survey of OECD country experiences**

In undertaking this study, OECD countries provided a series of case studies, which served to illustrate the development and implementation of social and economic indicators in their fisheries sectors. These case studies were supplemented with information obtained by the OECD Secretariat. The full case studies can be obtained from the OECD Fisheries web site: ([www.oecd.org/agr/fish](http://www.oecd.org/agr/fish)).

### **Australia**

#### **National reporting framework**

Australian fisheries management agencies in 1999 embarked on a project to develop a national reporting system to demonstrate how well Australian fisheries (wild capture and aquaculture) are meeting the objectives of ecologically sustainable development. The intention of this project is to initiate a regular reporting process that will continue as an integral part of fisheries management. The Australian country brief provides an overview of the project, as developed by the Bureau of Rural Science (BRS), and its approach to developing indicators for all three dimensions of sustainable development: economic, social and environmental.

#### **Policy issues**

The main question being asked is "How does an entity (in this case a fishery) contribute to sustainable development?". The BRS framework initially divides the contributions of a fishery into two components: direct contributions to human well being, including economic and social, and contributions to ecological well being (which indirectly contribute to human well being). It further breaks down the contributions of a fishery into successively more specific sub-components until a level of detail is reached where the specification of an operational objective and an associated indicator for each component is possible. The selection of an indicator to measure performance with respect to that objective then follows. The objective, rather than the indicator, is the initial focus of discussion.

#### **Concepts and framework**

The National Reporting Framework (NRF), and the BRS Framework, from which it is derived, provides a process for developing sustainability indicators rather than specifying a particular set of indicators. The reporting unit is a fishery, as defined by the management agency. This allows reporting to be linked directly to management actions.

### ***Data availability***

Eight case studies were initiated in 2000 to apply the framework to various fishing methods and jurisdictions. A final report on the case studies will be completed at the end of 2001. Commercial, recreational and aquaculture operations were included and a case study of an indigenous fishery is planned. Each case study began with a two-day workshop at which stakeholders developed the set of component trees and started to identify operational objectives and associated indicators and performance measures. At the higher levels, the trees tend to be similar for all fisheries, whereas at the lower levels they diverge considerably in response to the different types of fisheries and the social, economic and biophysical environments in which they operate. Management responses currently in place, and actions to be taken if performance falls outside stated bounds, are also being documented. Over the next few months, the fisheries reports will be completed to serve as a model for other fisheries.

### ***Proposed indicators***

Major components of the NRF Framework include national social and economic well being. These components are then further sub-divided into more specific sub-components as required for the fishery. The component tree for contribution to human well being will reflect the characteristics of the communities related to the fishery. The component trees are developed through an open consultative process involving all stakeholders. The visual nature of the component trees has proved very effective in promoting and structuring discussion. More controversial questions such as how the contribution might be measured (using indicators) and whether the contribution is positive or negative, acceptable or unacceptable (performance measures) are postponed until later.

### **Economic indicators for Commonwealth fisheries**

In a parallel development, a methodology for assessing the economic performance of Commonwealth fisheries<sup>1</sup> has been developed by the Australian Bureau of Agricultural and Resource Economics (ABARE). The methodology is detailed in Rose, Stubbs, Gooday, Cox and Shafron (2000) and applied to a selection of major fisheries in ABARE (2001).

### ***Policy issues***

The methodology has been developed to assist in providing an assessment of the performance of fisheries management against the legislated objective to pursue maximum economic efficiency in the management of Commonwealth fisheries. This requirement exists alongside other objectives relating to efficient and cost effective management, the pursuit of ecologically sustainable development and accountability to the industry and the broader community. The emphasis in the approach is therefore on the evaluation of management outcomes and providing guidance for the timing and direction of changes fisheries policy and management at the fishery level.

### ***Concepts and framework***

The key concept used in the methodology is that of resource rent. Due to well-identified measurement concerns, this is approximated by a measure of the apparent net returns to the fisheries resource (equal to revenue from fishing less the social opportunity cost of capital and other inputs used in fishing (including management inputs)). The estimates of net returns need to be interpreted in conjunction with assessments of

changes in both the manufactured capital stock (that is, the fleet) and the natural capital stock of the fishery. In this way, the economic and biological health of individual fisheries and the performance of management policies can be assessed in an integrated fashion.

### **Data availability**

To produce reasonably accurate estimates of net returns and the value of fishing capital for a fishery requires quite detailed financial, input and output information for the fishery. Generally the most cost-effective way to obtain such information is through a survey of a representative sample of operators in the fishery. Surveys of major Commonwealth fisheries are carried out annually on a rotational basis with each fishery being surveyed at least every second year.

### **Proposed indicators**

The indicator of net returns to the fishery needs to be considered in the context of market conditions and the condition of the fishery. In the absence of a full bioeconomic model of the fishery, quantitative or qualitative information on a number of aspects of the fishery may shed light on its relative efficiency. Of particular importance are the condition of the fish stock, capital capacity, prices of the fishery's products and inputs and management structure of the fishery.

### **Denmark**

In March 2001 the government of Denmark invited all interested parties to take part in a broad dialogue on the national strategy for sustainable development. The strategy documents include the Discussion Paper on a *Set of Indicators for Denmark's Strategy for Sustainable Development* (available at [www.mst.dk](http://www.mst.dk)). Public consultations on the strategy have been taking place until May 2002. Viewpoints aired in the debate will be used to select the final set of indicators for Denmark's Sustainable Development Strategy. The indicators will be used to continuously monitor and report on the progress made in implementing the strategy and achieving the objectives. The public consultation process is recognition of the view that sustainable development cannot be obtained without the participation of local authorities and citizens, since they are perceived as having the most detailed knowledge about local aspects of environmental issues and thus play an important role in securing sustainable development. Table II.3 provides some preliminary objectives and indicators for fisheries in Denmark.

**Table II.3. Objectives and indicators for fisheries in Denmark**

Objectives and activities	Indicators
The marine fish stocks and ecosystem should be preserved	1. Spawning biomass and fish mortality compared to fishing quotas, size of catch and biologically safe standards
The volume of discarded catch must be reduced	2. Volume of by-catch and discarded catch broken down on fishing gear and fisheries types (based on estimates)
Fishing gear must be made more selective, so that unintended by-catch (including harbour porpoise) and unintended impacts on the sea bed can be avoided	3. By-catch of harbour porpoise (estimates) and monitoring of effect of special preventative measures (e.g. electronic preventative measures)
Size and composition of fleet should better reflect fishing possibilities	4. Fisheries fleet capacity (tonnage, engine power, etc.) and composition

Source: Set of Indicators for Denmark's Strategy for Sustainable Development (available at [www.mst.dk](http://www.mst.dk)).



Importantly, Danish activities to develop indicators should constantly refer to international deliberations on selecting and developing indicators for sustainable development, particularly with respect to discussions on this issue taking place in the EU and ICES.

### **Italy**

In 2000, Italy began a process of rationalisation and harmonisation of the existing surveys of the fishery sector. The purpose in this process was to address concerns about the availability and use of disparate statistical sources for the sector. The review resulted in the definition of a sample survey on fish catches and their relative values and costs. One of the objectives in the new process is to satisfy the EU legislative requirements and, more generally, to meet national and international information needs. It is particularly noteworthy that the programme on systematic monitoring of fishery indicators in Italy is targeted towards an evaluation of economic and management features of fisheries – it does not aim to estimate and assess biological resources.

The methodology of the survey has been developed by Istituto Ricerche Economiche Pesca e Acquacoltura (IREPA Onlus), in collaboration with the National Institute of Statistics (ISTAT).<sup>2</sup> ISTAT and IREPA also provide other fisheries statistics in support of the survey. In the future the Ministry for Agricultural and Forestry Policy will be responsible for the surveys and for the publication of statistics.

### **Policy issues**

The aim of the statistical survey is to gather information for evaluation of economic and management performance of the fisheries. This includes evaluation of:

- fishing effort and activity;
- landings and prices by group of species; and
- economic and social performance.

### **Concepts and framework**

The survey is based on a stratified sampling method with more than 750 vessels monitored each week. Data collection is very complex due to the high number of species caught, the length of the coastline (8 000 km) and the vast number (800) of landing points.

The National Fleet Register contains basic vessel data on all Italian fishing vessels. The Fleet Register is held at the General Directorate for Fisheries and Aquaculture of the Ministry of Agricultural and Forestry Policies (Direzione Generale Pesca del Ministero delle Politiche Agricole e Forestali). Data on high sea and tuna fishing vessels are collected by other methods.

### **Data availability**

Data are collected by use of three specific questionnaires:

1. an annual questionnaire to record technical, dimensional and vessel – management information on the sample units and relevant socio-economic aspects (number of shipowners, their ages, their property quotas and relationships between them);
2. a quarterly questionnaire to record data on fixed and variable costs, and on social aspects of property and crew;

3. a weekly questionnaire to record information reporting activity such as fishing time and area, average number of crewmembers, gears used, quantities, prices and revenues – as per species or group of species – and trade channel for sales.

### **Proposed indicators**

Based on the sample survey results, a range of economic and social sustainability indicators for Italian fisheries are being developed. These indicators are primarily related to catches, costs and earnings at a highly disaggregated level in terms of regions, gear types and species. One of the key advantages in such a cross-sectional approach to viewing the data is that it allows a more complete interpretation of the impact of management changes on fishers' behaviour and returns, particularly in fisheries characterised by multi-species and multi-purpose fleets.

The key data collected relate to: fishing effort (measured in terms of fishing days per year); catches; earnings; and prices. From this data a wide range of indicators can be developed. These include:

- catches, earnings, costs, value added and gross profit per unit of capacity;
- catches, earnings, costs, value added and gross profit per fisher;
- capital, costs and gross earnings per ton of catch; and
- capital per unit of earnings and gross profit.

Analysis of these indicators, in conjunction with data on the biological state of the fish resources, can provide valuable guidance to fisheries managers in deciding on the future settings for key parameters of the management system. A case study of the approach as applied to the fishing sector in Sicily is available on the OECD Fisheries website and is summarised in Box II.2.

### **Japan**

People in fishing communities often depend heavily upon the given natural resource. Biological sustainability and the socio-economic and cultural sustainability are closely connected. The Japanese case study, *Socio-economic Criteria for Monitoring Sustainable Fisheries Management and Development in Japan*, gives a brief overview of socio-cultural aspects of fisheries and explores criteria for guiding and monitoring the development of small-scale fishing communities. These fishing communities are examples of a distinctive form of local adaptation in remote areas. Such adaptive ways of life have evolved over generations and could be considered cultural assets.

### **Policy issues**

Socio-cultural aspects of fisheries need to be understood and incorporated into sustainable fisheries management and development. Fish harvesting, dealing, processing, marketing, and retailing make up a major part of the basic economic activities of fishing communities. For example, in the town of Ikituki in the Ikituski Islands, Nagasaki prefecture fisheries' workers and their families make up 25% of the town's population and fisheries is the basis for a large part of the regional economy. Fluctuations in the fish production have a direct impact on the regional economy as well as on social activities and cultural life.

Fisheries management failure does not only negatively affect the fishing industry, but also the fishing communities at large. In some cases out-migration and the death of

### Box II.2. **Economic and social sustainability indicators for the Sicilian fishing sector**

Marine compartments in Sicily represent the most important productive area of the Italian fishery sector. This is due both to the high number of people employed and fishing companies present along the 1500 km of the region's coastline and to the high levels of production. However, the biomass of a number of fishing stocks is below equilibrium levels, resulting in a potentially critical economic situation for stakeholders. The wide range of fishing traditions and ecological conditions of different fishing areas require the implementation of a range of management measures. In the Mediterranean fishery, most of the fishing gears target different species (apart from tuna, swordfish, clam and red shrimps) and therefore management actions on a species specific basis can generally be carried out.

Small vessels represent the most important segment of the fleet in Sicily, totalling 2 982 vessels in 2000 (equal to 8 524 GRT and to 63 235 kw). In addition, there are 611 bottom trawlers as well as 200 multipurpose vessels that have other licences in addition to bottom trawling. There are also 447 multipurpose vessels that possess more than two fishing licences (excluding the bottom trawling licence) and 89 pelagic seiners.

The regional administration analysed the major economic and social characteristics of the two greatest segments of Sicily's fleet (small-scale fishery and bottom trawler) in order to assess the major problems and weaknesses of the sector. The analysis was conducted for the period 1998 to 2000.

It was found that the structure of the small-scale fishery has led to poor economic management of the production units resulting in high costs per unit of product and unsatisfactory yields. Often, especially for small vessels, yields provide enough to sustain the vessel owner and his family, but leaving nothing to re-invest. The small-scale segment is also characterised by a high degree of obsolescence – the mean age of vessels is greater than 27 years. The combination of declining catches and declining revenue, coupled with constant effort has contributed to the poor economic position of the sector (see table). The composition of species caught has also changed with a shift towards lower value small pelagics.

#### **Key economic indicators in selected segments of the Sicilian fleet**

Percentage change 1998-2000

Indicator	Small-scale segment	Bottom trawl segment
Catches	-10.3	-10.1
Prices	4.8	18.5
Earnings	-6.1	6.5
Costs	4.4	n.a.
Labour costs	-0.3	n.a.
Gross value added	-9.2	n.a.
Gross profit	-14.4	6.5

n.a. Not applicable.

Source: OECD.

The situation in the bottom trawl segment of the fleet is less critical, but still raises concerns about overfishing. Production has decreased at the same time that effort (measured in days of fishing) has increased (see table). Prices have increased strongly and, as a consequence, earnings and profits have also increased.

**Box II.2. Economic and social sustainability indicators  
for the Sicilian fishing sector (cont.)**

The conclusion from the study was that the intensity of catches has compromised the economic sustainability of the fleet. This is particularly the case for the small-scale sector where the most appropriate measure identified (at least for the short term) was to control fishing days in order to allow fishing stocks to recover and to restore economic conditions adequate to the amount of capital invested and to companies' profit. It was advocated that fisheries managers allow fishers to directly manage small fishing areas with homogeneous fishing gear types. The study also called for the introduction of total allowable fishing days allocated directly to vessels.

Source: Italy case study (available at [www.oecd.org/agr/fish](http://www.oecd.org/agr/fish) under "Documentation" section).

communities could be the ultimate result of such failures. Thus, there is an urgent need to examine all human aspects of fisheries, in particular the socio-economic and cultural ones.

### *Concepts and framework*

There are two major reasons why socio-economic aspects of fisheries so far have not been successfully incorporated into current management and development regimes. First, socio-cultural aspects of fisheries are not well understood or appreciated. Second, culture is generally complex and difficult to characterise and there is no standardised method for designing culturally relevant indicators. Culture actually play a critical role in social patterns of resource use, food access and food production. To facilitate such an understanding, the paper introduces a concept of "natural resource community" that is defined as "a population of individuals living within a bounded area whose primary cultural existence is based on the utilisation of renewable natural resources".

Small-scale fisheries are an example of such a society that has distinctive cultural characteristics, such as access to fishing rights, information control, various fishing methods, marketing strategies, and egalitarian principles among crews, kin-based crew recruitment and mutual assistance. For the people involved, fishing is a way of life that for generations has been passed down from father to son within a family business framework. People's identity is based on their participation in the production process. In other words, loss of fishing opportunities means loss of identity, social ties, and, at the extreme, loss of communities. Characteristics of small-scale fisheries has been described as the "complex cultural systems that have evolved from long standing and complex interplay of local resources, physical environments, social organisation, value systems, and information".

In relation to the social pillar of the sustainable development paradigm, the study notes that it is necessary to ensure "self-sustaining improvements in productivity and quality of communities and societies including access to basic needs such as education, health, nutrition, shelter and sanitation; as well as employment and self-sufficiency". Following this definition, a fisheries development plan should be based, at least in part, on the basic needs of people at the community level.

Fishers very often have profound knowledge of local resources, called Traditional Ecological Knowledge (TEK), and their own perception of sustainability. The value of TEK was discussed at the 1992 Earth Summit, and has been applied to a number of projects,

incorporating TEK and the local population into new management and development regimes.

### **Data availability**

It is likely that data will have to be collected on a case by case basis, but this is not discussed in any detail in the case study.

### **Proposed indicators**

To make fisheries more sustainable, it has been agreed that socio-cultural aspects of fisheries need to be incorporated into current management and development regimes. The issue is how this is to be done. Japan's case study explores socio-economic criteria and suggests two areas of concern: 1) the basic needs of people and their quality of lives; 2) the incorporation of local people's perception of sustainability. In this context, fisheries development should be considered as community based socio-economic development.

## **Korea**

### **Policy issues**

Korea has embarked upon a process of exploring the development and use of sustainability indicators to assist in the integrated management of fisheries. The process seeks to identify meaningful sustainability indicators that can be agreed upon covering all the dimensions of sustainability (such as ecological, socio-economic, community, and institutional sustainability). The impetus for this work arises largely from the recent introduction of TACs in selected fisheries. Since 1999, five species (the common mackerel, sardine, horse mackerel, Spanish mackerel and queen crab) have been selected as sampled species for TAC determination and have been investigated in order to assess their stocks using the allowable biological catch (ABC) by the National Fisheries Research and Development Institute. Limited entry in the form of licence permission systems has historically been the main fishery management tool in Korea.

### **Concepts and framework**

The framework for the sustainability indicators being considered as part of this process revolves around the use of bioeconomic models. The development of a bio-economic model is a multidisciplinary task, combining biological components of catch and effort with economic components, revenues and costs. From the bioeconomic models, indicator estimates based on sustainable yield concepts, including maximum sustainable yield (MSY), maximum economic yield (MEY), open access equilibrium (OAE) and dynamic MEY, can be derived. In the pilot study, six specific species are considered (anchovy, squid, horse mackerel, sardine, common mackerel and Spanish mackerel). The indicators are therefore model based estimates of *ex ante* values for key parameters in the fisheries. They therefore can provide a benchmark against which to evaluate the impacts of various management options within the model after their implementation in the fishery.

### **Data availability**

Firstly, very few indicators are compiled in the field of fisheries. In spite of much statistics compiled, there has been very little effort to generate economic and social indicators. Secondly, biological and ecological data and statistics are in a poor condition. In particular for ecological data such as the effects of gear on habitats, biodiversity, data on

fishing pressure in the fished area is not produced and seems not likely to be produced in a foreseeable future. Thirdly, a problem lies in the designation of statistical agency. The Ministry of Maritime Affairs and Fisheries (MOMAF) and other fisheries institutions play very limited roles in producing approved (official) statistics. The concept of sustainable development is deeply involved in the biological and ecological characteristic of fisheries and so it will need more specific expertise. Therefore, most of the ecological data and information will need to be generated by fisheries-oriented institutions. Fourthly, they are *ex post* rather than *ex ante*, measures of what has happened rather than what will happen. Finally, the indicators that are available are not likely to be the indicative of fisheries sustainability.

### **Proposed indicators**

As noted above, it is proposed that the range of biological and bioeconomic indicators (including MSY, MEY, OAE, and dynamic MEY) derived from the modelling process be used to assess the appropriateness of management policy settings, particularly with respect to TACs. The likely impacts of changing policy settings, institutional structure, fleet characteristics, and so on can then be assessed in either an *ex ante* or an *ex post* manner.

### **Spain**

Spain has been undertaking a project developing economic indicators that can be used to help control fishery activity and applying them to Mediterranean fisheries. The country paper includes a general discussion of the use of indicators, the relationship between economic and environmental indicators and the requirements to be fulfilled for indicators to be useful management instruments. This project has been conducted under the responsibility of the Socio-economic Subcommittee of Scientific Advisor Committee of General Committee of Mediterranean Fisheries by Spanish and Moroccan researchers.

### **Policy issues**

For the improvement of the socio-economic conditions of the fishing industry there is a need for information on the socio-economic impacts of changes in the resources (stocks) and the development of fishing effort across countries, areas, gear types and fisheries – effort being understood as capital/investment and labour/employment measures. Alternative policies for the transition from unsustainable to sustainable fisheries should be assessed with regard to profit (revenues and costs) and employment implications.

### **Concepts and framework**

A previous study was presented to the Working Party on Fisheries Economics and Statistics (WPFES) of the General Fisheries Commission for the Mediterranean (GFCM) in 1998. As a result of this WP activity an advisory group composed of experts from national administrations was set up. This advisory group has contributed to further development of indicators for the Mediterranean Sea fisheries.

The economic indicators should complement the tools used in biological assessment of resources, to clarify the consequences for society of resource degradation. The decision-maker's regulations (on fishing schedules, licenses, taxes, etc.) are usually aimed at specific fleet groups. Therefore, a proper fleet segmentation is essential in the construction of indicators. For this reason the concept of "Operating Unit" has been developed. In the

Mediterranean Sea context, an important issue was to reach agreement on the number of segments that should be established.

### **Data availability**

Several methodological and data difficulties have arisen during this project. In particular, capital and production costs were difficult to handle, from both a methodological and a practical point of view. This report gives an overview of data sources and the algorithms for the indicators; i.e. describes how basic data are being used to calculate the value of each indicator.

To demonstrate the usefulness of indicators to fisheries management a pilot study was developed for the Western Mediterranean Alboran Sea fisheries. This sea is one of the most productive areas of the Mediterranean, and is jointly exploited by Spain and Morocco (see Box II.3).

### **Indicators**

There are two main types of indicators, **national indicators** that give general information about the country and its fishing industry, and, **local operating unit indicators** that give area and vessel group specific information. The former includes indicators for landings – quantity and value, per capita consumption of fish, trade balance, employment, fisheries contribution to GDP and aquaculture production, and the latter includes indicators for physical productivity and capacity, effort, fish prices, fixed and operational costs and profit. The 15 indicators make it possible to compare economic and social conditions across fisheries and areas in Spain and Morocco.

### **United States**

#### **Policy issues**

In the United States, Federal marine fisheries legislation mandates the consideration of the importance of fishery resources to fishing communities in order to provide for the sustained participation of such communities, and to the extent practicable, minimise adverse economic impacts on such communities. Thus, the magnitude of both community engagement in, and dependence on, fisheries are important policy issues.

#### **Concepts and framework**

A fishing community is one which is substantially dependent on or substantially engaged in the commercial, recreational or subsistence harvesting or processing of fishery resources to meet social and economic needs. This includes fishing vessel owners, operators and crew and United States fish processors that are based in such a community. For a fishing community, the diversity of species and catch methods available for harvest and use is an important component of sustainability and of community social and economic stability.

### **Data availability**

Information used to identify communities involved with fisheries differs between commercial, recreational and subsistence fisheries. While unified and uniform data sets would be the optimal choice for managers of these fisheries, historical practice and policy decisions have left the National Marine Fisheries Service (NMFS) with a patchwork of data sets. In the commercial fisheries, Federal and state fishing permits, fish-processing permits, vessel registrations, and landings data can be combined to identify communities in which landings occur and harvests are processed. Importantly, the homeports of vessels

### Box II.3. **Economic indicators in the Alboran Sea: results of a pilot study**

The Sea of Alboran is one of the most productive fishing areas of the Western Mediterranean. Two countries share the exploitation of these highly productive waters: Spain and Morocco. Although the Spanish and the Moroccan coastlines enjoy an unequal degree of development, the long fishing tradition, tourist development and unemployment exert a high pressure on the environment on both coastlines.

The northern coast suffers from pollution caused by tourists. Tourist areas are densely populated and their inhabitants have a liking for larvae (called whitebait), which exerts pressure on resource stock despite regulations forbidding the catch and sale of larvae. The southern coast faces quite a different problem in that fishing is virtually the only source of employment. Nevertheless, both areas face similar management challenges (although in different degrees of intensity) in dealing with a strong pressure on and competition for resources. Excessive fishing effort has reduced sardine and anchovy catches in recent years.

Data for each of the 15 indicators was collected for 1998 across 9 vessel groups and 16 geographical areas. Analysis of the national indicators for both countries reveals quite different structures of fishing activity even though they are based on a similar resource. The socio-economic differences between the countries help explain the diversified position on fishing that each country carries into its management regimes. The key findings from the pilot study are summarised below.

#### **Physical production indicators**

In terms of the average production of vessels in each port, it was clear that bigger vessels obtained a higher level of productivity. It was also found that productivity is higher in the ports located in the eastern area of the Alboran Sea.

#### **Economic productivity indicators**

With respect to the value of production per local operating unit, it was found that differences between ports were more significant than the differences between countries. This was also the case with the value of production per unit of capacity (in terms of GRT). However, when value is considered in terms of power of vessels (that is, horsepower per vessel), there is a considerably higher productivity in the Spanish fleet, particularly among small trawlers, longliners and dredgers.

#### **Employment indicators**

The outcome of Man Productivity (MP), expressed as the average value at first sale per employed fisher (in USD), are generally far better for Spain. Undoubtedly, this is due to the lower number of employees per vessel in the Spanish purse seiners and trawlers. Salary costs are significantly higher in Spain, although part-time activities attract very low wages. In Morocco, the lowest salaries are paid in ports found in areas with insufficient road communication and in the artisanal fisheries.

#### **Capital and profit-related indicators**

Of most concern, however, is the finding that profits are negative for most segments of the fleet in both countries. Gross estimated profit (GEP) varies across ports and between fleet segments within ports. While GEP is higher in the Spanish ports, many of the segments have GEP close to zero. In terms of net estimated profit (NEP) almost all segments, both in Spain and in Morocco, have negative NEP.



**Box II.3. Economic indicators in the Alboran Sea: results of a pilot study (cont.)**

The pilot study case for the Alboran Sea provided detailed indicators on the economic, social and capital structure of the fisheries in the two countries. It has also allowed assessment of the difficulties suffered by each segment. The tentative conclusion from the pilot study was that there are fewer differences between the costs and investment structures than expected. However, the negative earning performance of the respective fleets highlights concerns over the capacity and effort of the fleets to ensure sustainable livelihoods for the respective societies. By undertaking the analysis at a very high level of disaggregation in terms of fleets segments and ports, decision-makers have objective data to assess the impact of decisions on different sectors of the industry in both countries.

Source: Spain case study (available at [www.oecd.org/agr/fish](http://www.oecd.org/agr/fish) under "Documentation" section).

must also be identified since many vessels land in other ports during the course of their fishing year. Federal and state data on commercial vessel crews and operators are based on information gleaned from vessel permits and logbooks. Similarly information on processing plant employment relies on self-reporting by plant owners and operators.

The Marine Recreational Fisheries Statistics Survey (MRFSS) consists of an intercept survey of fishermen at dockside and fishing sites and a telephone survey of coastal county households. The intercept survey collects data on species composition, catch rates, fish lengths and weights, and some economic and demographic data.

Since the data sets described above have been developed for purposes other than assessing the sustainability of fishing communities, verification of estimates through ethnographic and economic fieldwork is considered both important and necessary. NMFS and regional fishery management councils have commissioned ethnographic studies of fisheries to assist management decision-making for particular fisheries during the past twenty years, but comprehensive national or regional data bases have yet to be developed – other than in Alaska.

**Proposal for indicators**

The USA has proposed a considerable number of indicators at the community level, including on labour market, personal income, community isolation, public investment in physical and cultural infrastructure, community housing, demographics and families (in addition to Fisheries data on harvest, processing, and private and public community services).

**3. Survey of social and economic indicators developed in other international organisations****FAO**

The Food and Agriculture Organization of the United Nations (FAO) has developed a set of technical guidelines on the development of sustainable development indicators for marine capture fisheries (FAO, 1999). These guidelines provide general information about principles and practical approaches for the development and use of indicators in fisheries. In particular, they describe how to develop and implement a sustainable development reference system (SDRS) as a coherent approach to selecting indicators, reference points and the framework within which to use them, as well as techniques for visualisation, communication and reporting. It is intended that the guidelines be used by governments in

developing indicators that can track the progress of their fisheries towards sustainable development and the performance of their management schemes and fisheries policies against stated objectives. They can also be used to facilitate reporting at an international level and in regional fisheries bodies.

The SDRS is the basic framework presented in the guidelines and is used as a method to set objectives and organize the related indicators and their respective reference points. While a specific SDRS is not recommended, a number of options are described, with the use of a particular SDRS being dependent on the size and complexity of the fishery system to which it is to be applied. The choice of framework may also reflect policy priorities in particular fisheries and countries.

The guidelines also present a number of broad suggestions for criteria against which social and economic indicators could be developed and used in an SDRS. These criteria are presented in Table II.4, which also includes several criteria relating to governance. Table II.4 also presents some broad types of indicators that can be used in evaluating objectives that may be set under each criteria. Not all of these indicators will apply in a particular jurisdiction or circumstance and others may be needed depending on the particular objectives set for each scale, which will reflect regional, national and fishery priorities and policies.

As a follow-up to its indicators work, the FAO has been undertaking a pilot case study for the Penang (Malaysia) coastal fisheries. The objectives in the case study are to develop a SDRS for this set of fisheries and to test the relevance, comprehensiveness and practicability of the FAO guidelines on indicators. The FAO has, in co-operation with member countries,

**Table II.4. Examples of economic and social criteria and potential indicators**

Criteria	Example of indicator	Structure	Reference point
Harvest	<ul style="list-style-type: none"> <li>• Landing</li> <li>• By-catch</li> </ul>	<ul style="list-style-type: none"> <li>• By species; age groups</li> <li>• By area</li> <li>• By fishery sub-sector</li> </ul>	<ul style="list-style-type: none"> <li>• MSY</li> <li>• Historical level</li> <li>• Policy target level</li> </ul>
Harvest capacity	<ul style="list-style-type: none"> <li>• GT (decked vessels)</li> <li>• No of boats (undecked ves.)</li> <li>• Total effort (see below)</li> </ul>	<ul style="list-style-type: none"> <li>• By fleet type</li> <li>• By fishery segment</li> <li>• Age composition of vessels</li> <li>• Fishing mortality/species</li> </ul>	<ul style="list-style-type: none"> <li>• Capacity or effort of MSY</li> <li>• Policy target level</li> </ul>
Harvest value (in constant prices)	<ul style="list-style-type: none"> <li>• Total deflated value (landed price)</li> </ul>	<ul style="list-style-type: none"> <li>• By species groups</li> <li>• By sub-sector and fishery</li> </ul>	<ul style="list-style-type: none"> <li>• Selected historical level</li> </ul>
Subsidies	<ul style="list-style-type: none"> <li>• Tax rebates</li> <li>• Grants</li> </ul>	<ul style="list-style-type: none"> <li>• By sub-sector</li> <li>• By fleets/fishery</li> </ul>	<ul style="list-style-type: none"> <li>• Historical level</li> <li>• Zero level</li> <li>• Target level</li> </ul>
Contrib. to GDP	<ul style="list-style-type: none"> <li>• Fisheries GDP/nat. GDP</li> </ul>	<ul style="list-style-type: none"> <li>• By species groups</li> </ul>	<ul style="list-style-type: none"> <li>• Historical level</li> </ul>
Exports	<ul style="list-style-type: none"> <li>• Export/harvest value</li> </ul>	<ul style="list-style-type: none"> <li>• By species groups</li> <li>• By fishery segment</li> </ul>	<ul style="list-style-type: none"> <li>• Historical level</li> </ul>
Investments	<ul style="list-style-type: none"> <li>• Market or replacement value</li> <li>• Depreciation</li> <li>• Fleet age composition</li> </ul>	<ul style="list-style-type: none"> <li>• By fleet type</li> <li>• By fishery</li> </ul>	<ul style="list-style-type: none"> <li>• Historical level</li> </ul>
Employment	<ul style="list-style-type: none"> <li>• Total employment</li> </ul>	<ul style="list-style-type: none"> <li>• Sub-sector</li> <li>• Fleet/fishery</li> </ul>	<ul style="list-style-type: none"> <li>• Historical level (?)</li> <li>• Realistic policy target</li> </ul>
Net returns	<ul style="list-style-type: none"> <li>• (Profit + rent)</li> <li>• Net return/investment</li> <li>• Value of entitlements</li> </ul>	<ul style="list-style-type: none"> <li>• By sub-sector</li> <li>• By fishery</li> </ul>	<ul style="list-style-type: none"> <li>• Historical level</li> <li>• MEY</li> </ul>
Effort (mainly at fishery level)	<ul style="list-style-type: none"> <li>• No of vessels; fishing time</li> <li>• Amount of gear used</li> <li>• Employment</li> </ul>	<ul style="list-style-type: none"> <li>• By fishery segment</li> <li>• In physical or monetary terms</li> </ul>	

Source: FAO, 1999.

also conducted a pilot study on the Mediterranean Alboran sea fisheries activities examining in particular (fleet segmentation and socio-economic indicators (see section on Spain above). Based on the same methodology this pilot study is being followed by a study on the Gulf of Gabès (Tunisia) fisheries. It is also likely that similar work is going to be organized for the Adriatic Sea fisheries (through the ADRIAMED project).

The Regional Technical Consultation (RTC) on Indicators for Sustainable Fisheries Management in the ASEAN Region was held in Haiphong, Vietnam from 2 to 5 May 2001. This was at the invitation of the Ministry of Fisheries, Vietnam, the Food and Agriculture Organization of the United Nations (FAO), the Southeast Asian Fisheries Development Center (SEAFDEC) and the Assessment of Living Marine Resources in Vietnam (ALMRV).

The Consultation discussed the status of ASEAN region fisheries and their management with the aim of providing a basis for the identification of practical indicators for management of sustainable fisheries in the region. The Consultation identified potential applicable indicators taking into consideration the experiences from participating organisations. The outcome of the Consultation offers the basis for policy considerations on indicators for sustainable fisheries management and provides a basis for technical preparation for the ASEAN and SEAFDEC Conference on Sustainable Fisheries for Food Security in the New Millennium: "Fish for the People", scheduled for 19 to 24 November 2001.

The Consultation identified a possible classification of indicators encompassing various disciplines for future consideration, including a number of economic and social indicators (Table II.5).

Table II.5. **Indicators proposed in the FAO Regional Technical Consultation**

Economic and social indicators	Possible analytical categories
1. Value of landings	(sector, <sup>1</sup> area, fleet, fishery)
2. Export (Q, V)	(sector, species)
3. Imports (Q, V)	(sector, species)
4. Per capita consumption	(sector, area)
5. Investment (number of new boats)	(sector, area, fleet, fishery)
6. Number of fishers	(sector, area, fleet)
7. Employment	(primary/secondary) (sector, area)
8. Profitability (e.g. operational margin)	(fleet, area)
9. Cost per trip	

1. Sector is defined for the fishing sector as a whole e.g. small scale, marine, inland and commercial fisheries, etc.

Source: FAO, 1999.

The Consultation concluded that the adoption of indicators for the sustainable development of fisheries is an on-going process, and that the Conclusion and Recommendations from this meeting should be used as a basis for further technical and policy preparation both for the ASEAN/SEAFDEC Millennium Conference and their own national activities.

## ICES

Fisheries management in the the International Council for Exploration of the Seas (ICES) area has encountered a range of problems including collapses or near collapses of fish stocks, persistence of overcapacity in the fishing fleets and limited acceptance of the fisheries policies among both the fishers and the general public. Facing these problems

ICES has recognised the need to develop methods and approaches for evaluation (via indicators) of management regimes and alternative management strategies of fisheries systems.

### ***Policy issues***

In order to develop the scientific basis for sustainable use and protection of the marine environment including living marine resources there is a need for ICES to:

- evaluate the potential of new management regimes and strategies that are robust, cost effective, and sustainable; and
- develop and improve fisheries assessment tools that utilise environmental information, consider biological and socio-economic interactions, and address issues of uncertainty, risk, and sustainability.

### ***Concepts and framework***

In 1999 the Working Group on Fisheries Systems (WGFS) was established to respond to these tasks within the ICES strategy. However, since members of this working group mainly are from universities and independent research institutes, funding of this work has been more difficult than for the major ICES committees.

The terms of reference (TOR) for the WGFSs first year of operation included to:

- develop a framework and methodology for the analysis of fishery system performance; and
- test and refine this framework and methods using designated case studies;
- explore the applicability of frameworks such as the FAO “Sustainable Development Reference System”.

The TOR for the second year of operation included to:

- review the progress in implementation of case studies (North Sea demersal fisheries and New England Scotian Shelf fisheries) and adapt work plan for these case studies;
- specify and refine methods to be used in case studies;
- develop criteria for performance evaluations of fisheries management based on literature reviews.

The WGFS reported to the Resource Management Committee at the 2000 and 2001 Annual Science Conferences (see ICES 2000, 2001).

The ICES strategy identifies the need to “Evaluate the potential of new management regimes and strategies that are robust, cost effective and sustainable”. Thus, robustness, cost effectiveness and sustainability are the key criteria for performance evaluation. The WGFS define robust management regimes as those that are strong and resilient enough to handle a wide variety of situations and high degree of risk and uncertainty in biological, economic and social environments. They are able to learn from changing situations and surprises, resolve conflicts and adapt accordingly. Cost effectiveness relates to objectives being achieved in the lowest cost manner. Costs include Costs of management, Information Costs, Decision-Making Costs, Operational Costs and Monitoring, Control and Enforcement (MCE) Costs. Operational costs are the costs to the fishing industries caused by management. Sustainability is understood to include ecological, social and economical sustainability of the management system.

### ***Performance evaluation framework***

The performance of fisheries management systems is evaluated within a framework that is an expanded version of the International Whaling Commission (IWC) framework for management evaluation. This comprises the processes in and interactions between four subsystems: the knowledge production system, which produces the cognitive basis for management, the management decision system which includes the policy making and measures decisions, the implementation system and the adaptation system which includes the adaptation of the fleet to management measures.

### ***Data availability and indicators***

The WGFS has been working on data collection and analysis of two major ICES fisheries and fisheries management systems, North Sea Cod and Georges Bank Cod.

Researchers participating in the WGFS have developed research proposals for these two fisheries and management systems. During the winter 2001-2002 intersessional work will be undertaken on performance criteria and preliminary performance evaluations will be produced on basis of available literature on these two cases.

## **4. Key issues emanating from the survey**

The aforementioned survey of the developments and use of economic and social fisheries in OECD member countries and other international organisations has revealed that there are many directions for work. Many OECD member countries place a particularly high priority on the need for social and economic indicators and have devoted considerable resources to the development of this stream of information. However, few of these initiatives have reached the stage where economic and social indicators are produced and used on a regular basis – the evolution of such indicators for fisheries is still very much in its infancy. The survey has also highlighted a number of key issues that help to explain this and that need to be considered when developing an OECD-wide approach to the use of economic and social indicators for fisheries.

### ***Diverse policy objectives of member countries***

Table II.6 provides a summary of the key policy issues being addressed by member countries and international organisations in developing indicators for fisheries. It is clear that a number of OECD member countries consider the development of indicators to measure national progress towards sustainable development to be of a relatively high priority. However as seen in the review of national developments and in Table II.6, there is a significant degree of diversity across OECD countries regarding the key policy issues to which current efforts to develop sustainability indicators are being applied.

In a number of countries the policy priority is the assessment of regional impacts of fisheries policy changes, particularly with respect to the impact on local and regional communities. In the United States, this is being primarily driven by legislative imperative, while in Japan there is increasing concern about the impact of structural change on smaller communities that are dependent on fishing (a direct consequence of community based management systems). Other countries are focussed on the economic performance of their national fleets and of the various fisheries within their EEZs. Countries such as Spain, Australia, Korea and Italy are investing considerable effort in developing an improved understanding of the economic performance of their fishing sectors, primarily at the individual fishery level.

Table II.6. **Summary of policy issues addressed in the survey of current indicators work**

Entity	Policy issues						
	Market prices		Economic performance	Government financial transfers	Management costs	Social	Others
	Raw fish	International trade					
Australia			(F)			F	F
Denmark							F
Italy	F, N		F, N			F, N	F, N
Japan						R	R
Korea			F				
Spain	F (N)		F (N)			F (N)	F (N)
USA	R					R	R
OECD <sup>1</sup>		(N)		N		N <sup>2</sup>	
FAO	F	F	F			F	F
ICES			F		F		F

N: National level; R: Regional level; F: Fishery level.

1. See OECD (2001d).

2. Employment.

3. Includes proposals, case studies and established programmes.

Source: OECD Secretariat.

The diverse policy priorities result in a wide range of approaches to developing indicators being adopted within member countries. At the broader OECD level, such diversity makes inter-country comparisons based on existing national approaches problematic. Most of the indicators are being developed at the fishery level with a wide range of techniques: there is very little commonality. While this reflects the different policy imperatives in member countries, it may also be feasible to develop a broad set of national level indicators within which the range of national interests can be accommodated and into which the various national sets of priority indicators can feed. If it is deemed necessary to develop an OECD-wide set of indicators, this will need to be done at a relatively aggregate level, focussing on those economic and social policy issues that are common across countries. The indicators can then provide a basis for more detailed examination of key issues in individual countries. The methodologies, concepts and definitions used to elaborate indicators must be well identified in order to allow correct comparisons.

However, there would necessarily be a lack of a framework at the OECD level within which the indicators could be assessed. Reporting of trends in these variables on their own would take the form of information transmission rather than being targeted at any particular policy objective. For example, it is difficult to determine if an upward trend in employment for a particular country is a positive or negative contribution to sustainable development without an understanding of the underlying policy objectives and needs of the country. If the objective were to reduce effort in a fishery, then an upward trend in employment may be counterproductive to achieving sustainable development. For other areas, the objectives may be much clearer and unequivocal. For example, the objective in relation to government financial transfers (other than management costs) could be to reduce such transfers to zero over time in the interest of appropriate resource allocation and the economic well-being of fisheries.

### **Diverse approaches to indicator frameworks**

The diverse policy objectives and priorities of OECD countries are reflected in the range of approaches being taken to the development of indicator frameworks. There is very little

commonality amongst the countries with respect to frameworks and the various approaches clearly reflect the policy processes and demands faced by the individual countries. It is noteworthy that none of the countries has pursued the PSR framework as a means of organising and analysing sustainable development indicators for fisheries. Instead, the countries have pursued quite distinct approaches depending on their policy needs.

Some countries (such as Australia) have developed measures of economic returns to their fisheries and have been able to employ them (to varying degrees) in assessing the economic performance of their fleets and the effectiveness of their fisheries management systems. These indicators are primarily an *ex post* evaluation of performance and represent an attempt to identify emerging pressures on both the fishing sector and the management systems. Australia has also been developing a National Reporting Framework that provides a process and procedure for developing sustainability indicators rather than specifying and enforcing a particular set of indicators over the wide range of fisheries situations.

Other countries (such as Spain, Italy and Korea) are embarking on ambitious programs of developing objectives and targets for fisheries management based on the use of bioeconomic models. Such an approach differs from the former in that it aims to set targets and then measure progress towards those targets.

The advantage of the second approach is that it allows the establishment of target or threshold values for key variables against which progress can be assessed through the use of indicators. Without such targets, the value of indicators can be diminished in that it may not be necessarily obvious as to what the indicators are being measured against. That is, in an *ex post* approach to the evaluation of fisheries performance, it may not always be feasible to clearly (or quantitatively) define the benchmarks or reference points against which progress should be measured – the emphasis is more on providing guidance to potential improvements in management. However, the use of bioeconomic modelling to establish such targets can be very resource intensive and the use of such modelling itself has a number of advantages and disadvantages that would need to be taken into account when applying the modelling results to policy development.

### **Data availability**

Based on the country survey there appears to be a significant difference across countries with respect to both the available data and the institutional capacity to provide relevant data to support the development of sustainability indicators. However, there are benefits and costs that need to be considered when developing indicators. Obtaining data for use in indicators is not costless and there needs to be careful consideration as to whether or not there are net benefits associated with the use of the indicators for which the data are collected. Policy makers will need to ensure that the resources that are employed in developing, implementing and interpreting a given set of indicators are outweighed by the benefits that may accrue from improved decision making in fishery policy and management. However such a trade off is often not explicitly considered before developing indicators.

### **National versus regional indicators**

Fisheries systems differ across countries with respect to the characteristics of fisheries and management systems and the social and cultural environment within which fisheries sectors operate. The range of national situations reviewed in this survey highlights the fact that the use of micro-indicators at the fishery and community/regional level within a national context has been the preferred national approach to date. Clearly a uniform

international approach to indicators at the macro or national level for the purpose of undertaking cross-country comparisons would be very difficult to achieve. As a result, there is little common ground across countries at the level of micro-indicators that can sensibly be used for the purpose of international comparisons.

### Notes

1. Refers to those fisheries under the jurisdiction of the Commonwealth government and excludes fisheries under State government jurisdiction.
2. The programme is partially funded by the FIFG programme under the technical assistance measure.

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## PART III

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PART III  
*Chapter 1*

# Australia

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## Summary

Australia has the third largest fishing zone in the world, but annually ranks about 50th in terms of its commercial fisheries production. In 2000-2001 the gross value of Australian fisheries production increased by an estimated 4% to AUD 2.48 billion. This is largely attributed to an AUD 57 million increase in the value of the Northern Prawn Fishery, an AUD 53 million increase in abalone production, and an increase in value of tuna production in all but one of the Commonwealth tuna fisheries. Commonwealth managed fisheries accounted for AUD 480 million of fisheries production, while State wild-capture fisheries accounted for AUD 1 796 million. Aquaculture continues to grow in importance to the Australian fisheries industry, accounting for around 30% or AUD 746.2 million of the gross value of fisheries production in 2000-2001.

The long-term status of Australian fisheries has remained steady since 1992. However, the number of stocks classified as under fished or fully fished has declined since 1992, while the number of overfished stocks has increased. In 2000-2001, 11 stocks were classified as overfished, 11 as fully fished, none as under fished and 35 as uncertain. Further research is still needed to accurately determine the status of many Australian fisheries, and the Commonwealth Government actively supports this research.

Australia continued work on a wide variety of environmental policies during 2000 and 2001. Significant progress was made in the creation of a South East Regional Marine Plan (SERMP) under Australia's Oceans Policy, as well as work being undertaken on strategic assessments and accrediting of By-catch Action Plans (BAP) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999). In 2001, the Commonwealth Government made a commitment to develop a new National Coastal Policy in cooperation with the States and the Northern Territory, to achieve a more integrated, better-planned and resourced approach to coastal management within and across all levels of government. Two new Marine Protected Areas (MPAs) were also founded in 2000, with work continuing on development of more MPAs.

## 1. Legal and institutional framework

Management of Australia's fisheries resources changed little from 1998-1999 to 2001. Fisheries management in Australia is a mix of Commonwealth and State/Territory responsibilities. Australia is continuing to strive for integrated, cooperative management of fisheries resources to ensure they are managed in an ecologically sustainable way.

Arrangements between the Commonwealth and States to establish agreed fisheries jurisdictional arrangements (otherwise known as Offshore Constitutional Settlement – OCS arrangements) have been in place for a number of years. In general, States have jurisdiction over localised inshore fisheries [out to 3 nautical miles (nm)], with the Commonwealth having jurisdiction of offshore fisheries (3 nm out to 200 nm) or fisheries extending to waters adjacent to more than one State. OCS arrangements are utilised to provide a more efficient and cost effective management of the fishery. OCS arrangements and associated

Memorandum of Understanding (MOU) are in place between the Commonwealth, Queensland, Western Australia, the Northern Territory, Tasmania, South Australia and Victoria for specific fisheries.

The Australian Fisheries Management Authority (AFMA) manages fisheries under Federal jurisdiction in accordance with the provisions of the *Fisheries Management Act 1991*. Principal management instruments include input controls (such as limited entry, seasonal and area closures, gear and mesh size restrictions), and output controls [such as Individual Transferable Quotas (ITQs) as part of a Total Allowable Catch (TAC)].

AFMA places emphasis on a partnership approach between fisheries managers, scientists, fishing operators, environmentalists/conservationists, recreational interests, other stakeholders and the general public. Implementation of the partnership model is facilitated by way of Management Advisory Committees (MACs) or Consultative Committees (CCs). The MAC for a fishery will typically consist of the AFMA manager for that fishery, industry representatives, a research scientist, a conservation member and, where relevant, a member representing State or Territory governments and a recreational fishery or charter boat fishery representative. CCs are generally similar to MACs, but are used for smaller or developing fisheries. By 2000, MACs or CCs had been established for all Commonwealth managed fisheries except for the Coral Sea and South Tasman Rise. Both the MACs and CCs draw on scientific advice provided by Fisheries Assessment Groups (FAGs). FAGs provide assessments of the status of target, by-product and by-catch species, and assessment of the broader marine ecosystem. In 2000, 9 FAGs covered 11 Commonwealth managed fisheries, 10 other Commonwealth fisheries are yet to establish FAGs.

## 2. Capture fisheries

### **Policy changes**

The Australian Government released the first policy statement for Commonwealth fisheries in 1989, called "*New Directions for Commonwealth Fisheries in the 1990s*". Since then there has been significant developments in natural resource management and Commonwealth policy structures that are posing new challenges for Commonwealth fisheries management and policy development. In June 2000 the Commonwealth Government announced that a review of the Commonwealth Fisheries Policy would be conducted to determine how to respond to these challenges. Results of the review are expected in July 2002.

### **Performance**

The value of Australian wild capture fisheries production increased by an estimated 2.6% (AUD 44 million) to AUD 1.73 billion in 2000-2001. The value of production for Commonwealth fisheries increased overall but decreases were noted in the South-East Trawl, Great Australian Bight, East Coast Tuna Purse Seine and Pole fishery, and in the "other Commonwealth fisheries". A slight decrease in the value of State fisheries was evident due mainly to decreases in prawns, rock lobster, scallops and "other molluscs". The gross value of fisheries production increased in jurisdictions managed by New South Wales, Victoria, Queensland, South Australia, Tasmania, Northern Territory and the Commonwealth. Western Australia was the only state to show a decline in the value of their fisheries production in 2000-2001.

From 1999-2000 to 2000-2001, there was a slight increase (0.7%) in the volume of Australian fisheries production. Production of oysters, squid, abalone, other molluscs, crabs, prawns, other crustaceans and other fish increased from 1999-2000 to 2000-2001, the

most notable being a 57.8% increase in the quantity of squid produced. Decreases in production were apparent for scallops (-26.8%), rock lobster (-17.2%) and tuna (-6%).

No new figures have been published on the numbers of people employed in the marine fishing sector of the Australian seafood industry since 1997-1998. It is assumed that numbers employed will be relatively constant. Approximately 4 756 people were employed in the aquaculture sector in Australia in 2000-2001. New employment figures are due to be released in November 2002.

Table III.1.1. **Employment in the Australian Fishing Industry**

Species	Employment (September 1998) <sup>1</sup>	% total
Rock lobster	2 303	24
Prawn fishing	1 638	17
Finfish trawling	1 247	13
Line fishing	903	9
Other marine fishing	3 462	36
<b>Total (capture fisheries)</b>	<b>9 553</b>	<b>100</b>

1. Does not include processing and wholesaling.

Source: ABARE Australian Fisheries Statistics 1999.

### **Status of fish stocks**

Of the 67 target species for which 2000-2001 statistics are available, 11 can be classified as overfished, 11 as fully fished, none as under fished and 35 being given an uncertain classification (Table III.1.A1.4). Lower priority species, and by-catch species have not been classified. The number of overfished stocks has increased from 5 in 1992, to 11 in 2001. Those that were classified as overfished in 1999 – namely southern bluefin tuna (SBT), eastern gemfish, school shark, the two Northern Prawn Fishery tiger prawn species, southern Scallop and sandfish (a *bêche-de-mer* or “sea cucumber”) – remain overfished. These fisheries now have recovery plans in place. Additional species classified as overfished in 2000-2001 are orange roughy, blue warehou, redfish and tropical rock lobster.

The number of stocks classified as under fished or fully fished has declined since 1992. The current high proportion of stocks classified as uncertain is cause for concern. These stocks require assessments that establish their status more reliably. The status of most of the species caught incidentally to target species is uncertain, even those that contribute substantially to the market value of a fishery.

During 1999-2001, AFMA closed the Central Zone Bass Strait Scallop fishery, to protect the known remaining sizeable bed of adult scallops, pending indications of stock recovery outside the area. In recent years catches of the long-lived species, orange roughy have been declining and catches have not been able to fill quotas in most regions. Redfish catch rates were at a 15 year low in 2000. Since 1992, only two overfished stocks have shown improvement-gummy shark and redfish.

Like most countries Australia faces numerous challenges in managing its fisheries resources. Many stocks are vulnerable to overfishing because of their low productivity, the intensive harvesting by well developed commercial and recreational fisheries, and the difficulty in managing a wide variety of fisheries with differing management requirements. Australia is active in conducting research and assessments to aid in achieving ecologically sustainable fisheries and recovery of fisheries resources.

## **Management of commercial fisheries**

### **Management instruments**

Management instruments for fisheries under Commonwealth Government jurisdiction are outlined in Table III.1.2.

### **Access arrangements for foreign fleets**

Australia does not permit foreign access to its waters.

### **Management of recreational fisheries**

Recreational fishing in Australia is defined as fishing that is not for commercial purposes, and excludes traditional indigenous fishing. The Commonwealth has responsibility for fishing rights, but the day-to-day management of recreational and charter fishing is undertaken by the States. AFMA in accordance with provision under the *Fisheries Administration Act 1991* has the responsibility to determine and allocate all fishing rights, including those for recreational fishing.

The main forms of management action within Australia's recreational fisheries are:

1. controls on the types and amounts of gear that may be used;
2. the size (minimum and/or maximum), sex and/or number of fish that may be landed of a given species;
3. seasonal and/or area closures, and
4. prohibition on the sale of fish.

Such restrictions are enforced through fisheries officers in the field and are the subject of extensive education and awareness programs. While some States of Australia have imposed licensing systems in inland and/or marine waters for recreational fishers, these schemes are simply revenue collection processes for both cost recovery of management and fishery enhancement. The recreational licenses do not limit the total number of anglers.

Australia has undertaken a major National Recreational and Indigenous Fishing Survey (NRIFS) to gain some measure of recreational fishing catch in Australia. The Survey contacted more than 42 000 Australian households (randomly selected), these households were asked a series of questions regarding their fishing/boating activities and demographic profile. Nine thousand of the initial 42 000 intended to fish in the following 12 months. These were defined as "fishing households" and encouraged to participate in an ongoing diary survey. A survey kit consisting of a fishing diary, fish species identification booklet and a letter of appreciation from the agency was posted to each fishing household. The initial results of the Survey will be presented at the 3rd World Recreational Fishing Conference that is being hosted in Darwin, Australia in May 2002.

### **Aboriginal fisheries**

In line with the Torres Strait Treaty, ratified between Australia and Papua New Guinea in 1985, and the *Torres Strait Fisheries Act 1984*, all fisheries in the Torres Strait Protected Zone (TSPZ) are continuing to be managed to maximize the opportunities for Islander participation and to acknowledge and protect the traditional way of life and livelihood of the indigenous inhabitants of the region. Protection of traditional rights includes the continued protection of traditional (subsistence) fishing and traditional right of free movement.

Table III.1.2. **Management Instruments for Australian Commonwealth Managed Fisheries (2000-2001)**

Fishery	Management instruments	Changes in 2000-2001
Northern Prawn	Input controls (limited entry, seasonal closures, permanent area closures, gear restrictions, and operational controls). By-catch Action Plan (BAP) applies <sup>1</sup>	None. Revision of BAP began at end of 2001
Southern Bluefin Tuna	Output controls (ITQs) managed under the Convention for the Conservation of Southern Bluefin Tuna with Japan and New Zealand with national catch allocation. BAP applies	None (Australian Allocation tonnes 5 065 tonnes). BAP released October 2001
South East Trawl	Input controls (limited entry, mesh size, area and boat length restrictions) and output controls (direct limits on catches) TACs and ITQs apply to 20 species. BAP applies	BAP released in May 2001
Southern Shark	Input controls (mesh size and configuration, net length, limited entry and area closures) and output controls (ITQs and basket limits on scalefish quota species and state managed scalefish species) TACs apply. BAP applies	ITQs introduced on school and gummy shark on 1 January 2001. BAP released in May 2001
Eastern Tuna and Billfish	Input controls (limited entry with vessel size restrictions in some areas, gear restrictions and closures). BAP applies	BAP released October 2001
South East Non-Trawl	Input controls (limited entry, mesh size, gear and net configuration restrictions and area closures) and output controls (basket limits on catches, ITQs on 16 species) TACs apply. BAP applies	BAP released May 2001
Bass Strait Central Zone Scallop	Input controls (limited entry, size limits, seasonal and area closures) and output controls (bag and trip limits). BAP applies	BAP released May 2001
Torres Strait Protected Zone Joint Authorities	Licensing with transferable licences for non-traditional inhabitants (includes regulations that limit vessel size). Input controls (limited entry, size limits, gear restrictions, closures) and output controls of a TAC and ITQs	Draft BAP developed in August 2001
Great Australian Bight Trawl	Input controls (limited entry, limited cod end mesh size, area restrictions for vessels over 40 m long, seasonal closures in marine mammal protection area, demersal trawling prohibited in benthic protection strip area) and output controls with a TAC applying. BAP applies	BAP released in May 2001
Sub Antarctic Exploratory Fisheries (Macquarie Island; Heard and McDonald Islands)	All managed under Convention for Conservation of Antarctic Marine Living Resources (CCAMLR). Input controls (limited entry, closures) and output controls with a TAC applying. BAP applies	BAP released in May 2001
Southern Squid Jig	Input controls (limited entry). BAP applies	BAP released in May 2001
Southern/Western Tuna Fisheries	Input controls (limited entry, area restrictions). BAP applies	BAP released October 2001
Christmas Island and Cocos (Keeling) Islands	Tuna input controls (limited entry, fully transferable fishing permits inshore, non transferable fishing permits offshore). Trawl and aquarium fish input controls (limited entry, area restrictions) and output controls (catch limits) a TAC applies	Single demersal and midwater trawl fishing permit granted as part of an exploratory trawl fishing program in November 2001
Coral Sea	Input controls (limited entry) and output controls (catch limits for sea cucumber fishery)	None
Jack Mackerel	Input controls (limited entry, geographic zones, mesh size restrictions in some sectors of trawl fisheries, trigger catch levels in certain zones)	None
Norfolk Island	Offshore input controls (limited entry, area restrictions) output controls (3 year exploratory trawl program with strict conditions including operational commitment and a TAC)	None
North West Slope Trawl	Input controls (limited entry, cod end mesh size restrictions)	None
South Tasman Rise	Allocated TAC (shared with NZ under a MOU), Australia has input controls (limited entry, and compliance requirements)	New MOU under which Australia is allocated TAC of 1800 tonnes, New Zealand allocated remaining 600 tonnes. Australia gets 75% of TAC and New Zealand gets 25%. The TAC can change by agreement
Western Deepwater Trawl	Input controls (limited entry, mesh size restrictions)	None

1. In fisheries where a by-catch of threatened or endangered species occurs, the recent introduction of By-catch Action Plans (BAPs) (required for all Commonwealth managed fisheries) should protect these species adequately from the impact of fishing. For example, Northern Prawn Fishery vessels must now use turtle excluder devices (TEDs) and by-catch reduction devices (BRDs).

Source: Australian Fisheries Management Authority.

In recognition of the importance of the region's fisheries resources to the Torres Strait Islander people, in April 2001 it was agreed by the Commonwealth and Queensland Governments that the Chair of the Torres Strait Regional Authority (TSRA) should be appointed as a full member to the Torres Strait Protected Zone Joint Authority (PZJA). The PZJA is the decision making body for all Torres Strait fisheries. Legislative amendments to enact this appointment are due to be passed in mid 2002.

A decision on the application of native title to marine areas was handed down by the Australian High Court in October 2001. The decision in *Commonwealth vs. Yarmirr*, recognised that native title could exist over territorial seas (i.e. 12 nm from the low water mark), only where it is consistent with the common law rights to fish, navigate and the international law right of innocent passage. The Commonwealth Government is currently considering its response to the decision.

### **Monitoring and enforcement**

The major new programs, regulations or initiatives to assist monitoring and compliance of Commonwealth Fisheries in 2000-2001 are outlined below.

1. Compliance operational plans were completed for the Northern Prawn, Southern Bluefin Tuna, South-East Non-Trawl, Southern Shark and Southern and Western Tuna and Billfish Fisheries, with draft plans for the South-East Trawl Fishery and the high seas. These plans will form the basis for overall tactical and strategic compliance management strategies.
2. Risk assessments were completed for the Northern Prawn, Southern Bluefin Tuna, South-East Non-Trawl, Southern Shark and Southern and Western Tuna and Billfish Fisheries, with draft risk assessments for the South-East Trawl and Heard Island and McDonald Islands Fisheries.
3. Field officers were deployed on patrols on the AFZ and Torres Strait Protected Zones. A total of 64 vessels were apprehended for fishing in Australian waters, including apprehension of the FFV South Tomi in the AFZ adjacent to Heard Island and McDonald Islands.
4. Australia participated in development of the Patagonian toothfish catch documentation scheme introduced by CCAMLR. This is an initiative under the International Plan of Action on illegal, unregulated and unreported (IUU) fishing.
5. Standard catch and effort logbooks were developed for all Commonwealth tuna fisheries and for the Southern Squid Jig fishery. Draft logbooks were developed for the Torres Strait Tropical Rock Lobster, Torres Strait Spanish Mackerel and Torres Strait Line fisheries. New logbooks were introduced for the Northern Prawn, Torres Strait Prawn and North West Slope Trawl fisheries. Collection of catch and effort data entered in logbooks on a shot-by-shot basis continues to be the primary source of data for AFMA.
6. Observer manuals were developed for the Heard Island and McDonald Islands, Maquarie Island, Cocos (Keeling) Islands Trawl, South-East Trawl and Norfolk Island fisheries. The manuals will be used by observers placed on domestic and foreign vessels to monitor compliance in these zones.
7. A risk assessment was completed for meeting Australia's obligations under United Nations Fish Stocks Agreement (UNFSA) when the Agreement enters into force.



### **Multilateral agreements and arrangements**

In February 2000, Australia and New Zealand signed and exchanged copies of the second Arrangement between the Government of Australia and the Government of New Zealand for the Conservation and Management of Orange Roughy on the South Tasman Rise. This Arrangement took effect from 1 March 2000 and is of indefinite duration.

Australia agreed to the text of the *Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific* in September 2000 and signed the Convention in October 2000. Australia has not yet ratified the Convention.

## **3. Aquaculture**

### **Policy changes**

Management and regulation of aquaculture on a day-to-day basis is still primarily a State responsibility. Currently no aquaculture activities exist in Commonwealth waters. However, the Commonwealth does play a role in aquaculture development, especially in the coordination of government policy over national issues such as quarantine, disease outbreak controls, product quality, labelling, trade and taxation. The Commonwealth Government also continues to contribute to funding for education and research.

Since 1999 the Commonwealth Government has continued to be actively involved in encouraging aquaculture to expand and become an internationally competitive and sustainable industry. At the August 1999 workshop, "*Aquaculture Beyond 2000 – Changing Direction*", the Australian aquaculture industry expressed its commitment to implementation of an Aquaculture Action Agenda to achieve a target of AUD 2.5 billion in annual sales by 2010. The Commonwealth Government together with State and Territory Governments and the aquaculture industry continued development of the Action Agenda during 2000 and 2001.

Australia remains a member of the Network of Aquaculture Centre in Asia-Pacific (NACA) and has participated extensively in various workshops and conferences as part of the network throughout 2000-2001.

During 2000 and 2001 Australia continued to implement the five year National Strategic Plan for Aquatic Animal Health (AQUAPLAN), which was introduced in 1999. AQUAPLAN is a comprehensive plan of initiatives ranging from border controls and import certification through to enhanced veterinary education and improved capacity to manage incursions of exotic diseases. AQUAPLAN was jointly developed by State, Territory and Commonwealth Governments, and private industry sectors.

### **Production facilities, values and volumes**

The value of Australian aquaculture industry continued to grow strongly, increasing by AUD 68 million (9%) in 2000-2001. Most of the increase in value can be attributed to the rapidly growing tuna sector.

In 2000-2001, aquaculture production was 43 602 tonnes valued at AUD 746.2 million. Aquaculture now accounts for 30% of the annual value of Australia's fisheries. Eighty-five % of the value of Australian aquaculture was derived from four sectors: oysters (pearls and edible), salmon and trout, southern bluefin tuna and prawns.

Table III.1.3. **Gross value of Australian aquaculture by sector 1999-2000 and 2000-2001**

Common name	Species name	1999-2000 AUD '000	2000-2001 AUD '000
Atlantic Salmon	<i>Salmon salar</i>	84 845	95 338
Trout	<i>Oncorhynchus mykiss</i> <i>Salmo trutta</i>	12 941	12 838
Silver Perch	<i>Bidyanus bidyanus</i>	3 074	2 554
Barramundi	<i>Lates calcarifer</i>	8 495	8 445
Southern bluefin tuna	<i>Thunnus maccoyii</i>	202 000	263 793
Other Fish	Native species	3 392	3 944
Prawn	<i>Penaeus monodon</i> , <i>Penaeus japonicus</i> , <i>Penaeus esculentus</i>	51 851	49 534
Yabbies	<i>Cherax destructor</i>	3 701	3 394
Marron	<i>Cherax tenuimanus</i>	1 257	1 397
Other Crustaceans	Native species	863	1 116
Edible Oysters	<i>Saccostrea commercialis</i> , <i>Crassostrea gigas</i> , <i>Ostrea angasi</i> , <i>Saccostrea amasa</i> , <i>Saccostrea echinata</i>	53 328	57 486
Pearl Oysters	<i>Pinctada maxima</i> , <i>Pinctada margaritifera</i> , <i>Pinctada albina</i> <i>albina</i> , <i>Pteria penguin</i>	190 468	226 537
Mussels	<i>Mytilus edulis</i>	5 287	6 077
Other Molluscs	Native species	3 500	4 177
<b>Total</b>		<b>687 150</b>	<b>746 202</b>

Source: ABARE Australian Fisheries Statistics 2001.

## 4. Fisheries and the environment

### *Environmental policy changes*

#### *Fisheries Action Program*

Environmental degradation and declining fish populations have reduced the productivity of many of Australia's fisheries, affecting both commercial and recreational fishers. The Fisheries Action Program aims to help rebuild Australia's fisheries to more productive and sustainable levels. In 2000-2001, the Program provided AUD 3.2 million to implement a broad range of fish protection, enhancement and sustainable use projects. The Program continues to foster working relationships and an integrated approach between industry, community, research and education institutions, and Governments.

Projects are encouraging a "whole of environment" approach through fisheries habitat restoration and protection. Other projects encouraged the collection of information on the condition of fish habitat and the status of fish stocks. Projects are contributing to regional inventory documents on the status and management of fisheries resources. The development of voluntary codes of practice encourages responsible and sustainable fishing practices.

A key focus of the Program is increasing awareness and to engender "ownership" and stewardship amongst industry and the community of the issues affecting the condition of fish habitat and the status of fish stocks. Dissemination of information on fisheries resource issues occurred through newsletters, publications, interpretive signage and interactive displays, community forums, workshops, presentations, displays and media releases.

#### *National Coastal Policy*

In the 2001 election statement, "A Better Environment", the Commonwealth Government made a commitment to develop, with the States and the Northern Territory, a new National Coastal Policy. The central elements of the new National Coastal Policy will

be to achieve a more integrated, better planned and resourced approach to coastal management, within and across all levels of government and stakeholders. It will have an improved focus on improving water quality in coastal and estuarine waters; conserving and restoring important coastal and estuarine habitats and biodiversity; and protecting the economic base of coastal areas, particularly for fisheries and tourism.

### ***Australia's Oceans Policy***

The Commonwealth Government released *Australia's Oceans Policy* in December 1998. At the core of the Oceans Policy is development of Regional Marine Plans (RMP), based on large marine ecosystems. The South-eastern region of Australia was chosen for development of the first RMP. The Plan will seek to maintain ecosystem health and to provide for economic development and employment opportunities. Development of the South-East Regional Marine Plan (SERMP) began formally on the 14 April 2000. Throughout 2000 and 2001 significant progress was made in developing the plan with the formation of the South-east Regional Marine Planning Steering Committee; completion of various description, scoping and assessment papers of the South-east marine region; and extensive stakeholder consultation and communication. A draft SERMP is expected to be developed and released for public comment in the 2002–2003 period. Initial scoping for the development of the second RMP for the Northern Region of Australia has also begun.

### ***National Representative System of Marine Protected Areas (NRSMPA)***

The development of a National Representative System of Marine Protected Areas (NRSMPA) is a key component of Australia's Oceans Policy. The NRSMPA is a national system of Marine Protected Areas (MPAs), which aims to contain a comprehensive, adequate and representative sample of Australia's marine ecosystems. The NRSMPA consists of MPAs in Commonwealth, State and Territory waters and some associated intertidal areas. The following Commonwealth MPAs have been declared since the launch of the Oceans Policy in 1998:

- Macquarie Island Marine Park (27 October 1999);
- Tasmanian Seamounts Marine Reserve (19 May 1999);
- Lord Howe Island Marine Park (21 June 2000);
- Cartier Island and Hibernia Reef (21 June 2000).

Significant progress has been made towards the declaration of an MPA in the Heard and McDonald Islands region. A number of other marine areas will soon be undergoing conservation assessment to determine whether they meet the NRSMPA guidelines.

### ***Environment Protection and Biodiversity Conservation Act 1999***

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999) came into force on 1 July 2000. Under the EPBC Act 1999, Commonwealth fisheries are subject to strategic environmental assessments. Each fisheries' management arrangements are being assessed in terms of their environmental performance, and once accredited, each fishery will be considered to be managed in an ecologically sustainable way. In 2001 a number of Commonwealth fisheries began the process of environmental assessment and two (Bass Strait Central Zone Scallop and Heard and McDonald Islands) are at the formal assessment stage. All strategic assessments are due for completion by the end of 2002.

### ***Incidental catch of seabirds in longline fisheries***

On 2 August 1998, the Commonwealth Government released the Threat Abatement Plan (TAP) for the Incidental Catch (or By-catch) of Seabirds during Oceanic Longline Fishing Operations. Preparation of the TAP was required under what is now the EPBC Act 1999, as this activity was listed as a Key Threatening Process under the Act. The primary objective of the plan is to reduce the by-catch of seabirds in longline fisheries through implementation of mitigation measures to reduce seabird by-catch; development of new measures; education; and collection of information upon which to base future decisions.

Building upon the TAP in mid-2000, the Commonwealth initiated the negotiation of a regional agreement to conserve seabirds under the Convention on Migratory Species. The Agreement on the Conservation of Albatrosses and Petrels has been signed by a number of range States and has thus far been ratified by Australia and New Zealand, with a number of other countries currently pursuing ratification of the Agreement through their domestic processes.

The Commonwealth is also preparing a National Plan of Action for Seabirds (NPOA-Seabirds) as part of Australia's commitment to the United Nations Food and Agriculture Organisation's *International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries*. The NPOA-Seabirds will build upon and extend Australia's seabird by-catch reduction efforts.

### ***By-catch Action Plans (BAPs)***

The Commonwealth Policy on Fisheries By-catch was launched in June 2000, with a commitment to develop By-catch Action Plans (BAPs) for all Commonwealth managed fisheries (by 31 March 2001). The aim of a BAP is to ensure that by-catch species and populations are maintained and that there is a reduction in waste. All fisheries subsequently had BAPs approved by the AFMA Board during 2001. Each BAP was developed in line with the *Fisheries Management Act 1991* to ensure that the unique biological, social and economic nature of each fishery was recognised. All BAPs have to be accredited under the EPBC Act 1999, so that an individual fishers catching of by-catch species does not constitute an offence. To gain accreditation, a specified plan or management regime (including BAPs) must require persons engaged in fishing to take all reasonable steps to ensure listed species (e.g. sea horses and other syngnathids, seals, specific sharks, turtles, albatross, petrels) are not killed or injured and that the fishery is not likely to adversely affect the population of listed species. Review of all BAPs is scheduled for the second quarter of 2003.

### ***National Plan of Action for the Conservation and Management of Sharks***

Concern over the sustainability of shark resources is growing both domestically and internationally and there are a number of activities being pursued to address these concerns. In December 2001, Australia released a comprehensive Shark Assessment Report, which provides the basis for the development of Australia's National Plan of Action for the Conservation and Management of Sharks. This is in accordance with the requirements of the agreed United Nations Food and Agriculture Organisation's *International Plan of Action for the Conservation and Management of Sharks*. The Assessment report raises a number of issues relating to the management and conservation of sharks, including the need for the improved recording of all shark catches and the need for greater consistency between jurisdictions in the management of shark stocks.

### ***Response to shark finning***

In October 2000, following a scientific review of shark finning in Australia's fisheries, the Commonwealth Government implemented an interim ban on shark finning at sea in Commonwealth managed tuna longline fisheries. This is a precautionary measure, pending the development of a longer-term management arrangement. The interim ban will be reviewed as part of the development of the National Plan of Action for the Conservation and Management of Sharks (NPOA-Sharks).

### ***International Plan of Action to Combat Illegal, Unregulated and Unreported (IUU) Fishing***

In May 2000, the Australian Government in cooperation with the FAO hosted an "Expert Consultation on Illegal, Unreported and Unregulated (IUU) Fishing" in Sydney. The expert consultation produced a draft International Plan of Action to combat IUU fishing. The final plan was adopted by consensus of the FAO Committee on Fisheries in March 2001, and endorsed by the FAO Council in June 2001.

### ***Marine pests***

Following the establishment of the National Taskforce on the Prevention and Management of Marine Pest Incursions in 1999, Australia has implemented a national system for the management of ballast water to minimise introduction and translocation of marine pests. This includes mandatory ballast water management arrangements for international ships entering ports. Management strategies to control the introduction and translocation of marine pests by other vectors such as fouled ship hulls, fishing and aquaculture gear, etc. are also being addressed. Australia has also initiated national baseline surveys of ports and harbours to accurately monitor the impacts of marine pest species and facilitate future management approaches.

### ***The Marine Stewardship Council***

The Marine Stewardship Council (MSC) is an independent international body set up to promote sustainable and responsible fisheries and fishing practices worldwide. The MSC was originally established in 1996 by the World Wide Fund for Nature and Unilever – one of the world's largest buyers of frozen fish.

The MSC has established a broad set of principles and criteria for sustainable fishing, against which independent certification companies may certify fisheries on a voluntary basis. The principles and criteria were developed through an international round of consultative workshops with fisheries stakeholders.

On 3 March 2000, product from the Western Rock Lobster fishery in Western Australia was the first seafood product certified by the MSC. The Western Rock Lobster fishery is the most valuable fishery in Australia and usually represents about 20% of the total value of Australia's fisheries. The Southern Fishermen's Association on the Lakes and Coorong located at the end of the Murray River in South Australia are currently seeking certification, with a Pre-Assessment underway.

### ***Sustainable development initiatives***

Australian fisheries are developing a National ESD Reporting Framework to assist with reporting on ecologically sustainable development (ESD). This Framework helps fisheries identify issues (components) of sustainable development, develop operational objectives,

determine appropriate indicators and performance measures, evaluate performance and develop management responses. The National ESD Reporting Framework was tested during 2000 and 2001 by applying it to nine case study fisheries throughout the country and as a result a "How To Guide" has been finalised. This "How To Guide" will help fishery managers apply the National ESD Reporting Framework to their particular fishery, including all social, economic and ecological components of sustainable development. Work is now proceeding to extend reporting into assessment. This will include a manual on current practice in fisheries management from a sustainable development perspective as well as techniques for integrating the social, economic and environmental components of sustainable development.

The major driving force for sustainable development in Australian fisheries over the last 3 years has been a change in environmental legislation, the EPBC Act 1999, which brings many fisheries under Federal environmental legislation. This focus on the environmental side of sustainable development has meant that economic and particularly the social dimensions have lagged behind to some extent. As a result a project has been developed, and funding is being sought from the Fisheries Research and Development Corporation (FRDC) to investigate the social components of sustainable development in greater detail. In addition, Environment Australia's National Oceans Office is developing regional marine plans that will examine sustainable development at the marine region scale, and fisheries will be an important part of this larger scale process.

## 5. Government financial transfers

### Transfer policies

Estimates of transfers to the fishing industry from the Commonwealth government in 1999/00 and 2000-2001 are shown in Table III.1.4.

Table III.1.4. **Commonwealth Government transfers to commercial fishing 1999-2000 and 2000-2001**

	1999/00 AUD million	2000/01 AUD million
Market price support	None	None
Direct payments	n.a.	2.14
Cost-reducing transfers <sup>1, 2</sup>	97.43	98.01
General services	44.9	47.1
Cost recovery charges		

n.a. Not applicable.

1. Does not include any payments made under the Agribiz package.

2. Does not include payments made under the shipbuilding bounty.

Source: ABARE Fisheries Subsidies 2001.

### Social assistance

The Commonwealth Government continues to fund the Fisheries Action Program. The key aims of this program are to develop awareness of fishery issues, encourage participation in habitat rehabilitation and the enhancement of sustainable resource use. The program provided AUD 3.2 million funding in 2000-2001 to implement a broad range of fish protection, enhancement and sustainable use projects.

### **Structural adjustment**

The Southern Shark Fishery (SSF) industry development program was completed in mid 2002. In the year 2000-2001, AUD 1.739 million was paid out to 40 SSF permit holders to leave the fishery. Operators who left the fishery had the option of selling or leasing their shark quota.

The South East Non Trawl Fishery (SENTF) industry development program was completed by 4 May 2001. A total of AUD 345 766 was spent in 2000-2001, with eight operators submitting a tender to sell their blue-eye trevalla quota. The Commonwealth subsequently accepted six of the tenders. The 18 500 units (around 18 tonnes) of blue-eye trevalla quota purchased under the program was then redistributed to 45 SENTF operators on a pro rata basis according to their 1998-99 catch history.

## **6. Post-harvesting policies and practices**

### **Policy changes**

#### **Food safety**

There are general requirements in the Australian Food Standards Code that all foods offered for sale should be safe for human consumption. Furthermore, Australian Government agencies (including the Department of Agriculture Fisheries and Forestry – Australia, the Department of Health and Aging, and the Australia and New Zealand Food Authority) are working on the development of primary production standards. The first of these standards is concerned with the safety of seafood. It has been envisaged that this standard will be completed in the 2002-2003 period.

#### **Information and labelling**

There are general provisions for the labelling of all foodstuffs. A nutrition information panel is required on all packaged goods. Country of origin labelling is presently something of a contentious issue. However, it is likely that this requirement will be in the Food Standards Code. There is also a current proposal for the inclusion of health claims on labels, which may affect seafood products (e.g. consumption of omega 3 fatty acids is beneficial to cholesterol levels).

The Marine Stewardship Council (MSC) also promotes sustainable harvest fishery products i.e. Western Australian rock lobster. It is an independent international body set up to promote sustainable and responsible fisheries. By opting to use the MSC logo, producers of fish products give consumers the option to buy products that have been derived from sustainable, well-managed sources.

#### **Processing and handling facilities**

State and Territory Governments are responsible for processing, handling and distribution industries and for collection of information on these industries.

## **7. Markets and trade**

### **Markets**

#### **Trends in domestic consumption**

The most recent data available on domestic consumption of seafood in Australia is from 1998-1999. Seafood consumption at this time is estimated to have been 206 283 t

edible weight, supplied from domestic commercial production, home production and imports. Australia's estimated population in 1998-1999 was 18.854 million. Estimated apparent per capita consumption of seafood was therefore 10.94 kg (edible weight basis), consisting of 8.08 kg of fish, and 2.86 kg of crustaceans and molluscs.

Table III.1.5. **Estimated supply, utilisation and consumption of seafood, Australia 1998-1999**

		Fish			Crustaceans and molluscs	Total
		Australian	Imported	Total		
<b>Supply</b>						
Net change in stocks	Tonnes	99	n.a.	99	n.a.	99
Commercial production	Tonnes	71 598		71 598	39 946	111 544
Estimated home production	Tonnes	12 888		12 888	5 368	18 256
Imports	Tonnes		84 040	84 040	25 791	109 831
Total	Tonnes	84 387	84 040	168 427	71 105	239 532
<b>Utilisation</b>						
Exports	Tonnes	16 002	116	16 118	17 131	33 249
Apparent total consumption	Tonnes	68 385	83 924	152 309	53 974	206 283
Apparent per capita consumption	Kg	3.63	4.45	8.08	2.86	10.94
Imports (including home production)	%			55.2	47.8	53.2
Imports (excluding home production)	%			60.3	53.1	58.4

n.a. Not applicable.

Source: ABS 2000a.

### Promotional efforts

The Export Market Development Grants (EMDG) is the Australian Governments' financial assistance program for aspiring and current exporters, including fisheries exporters. The Scheme aims to encourage small and medium sized Australian businesses to develop export markets, including developing markets for fisheries and aquaculture products. Grants are available to any Australian individual, partnership, company, association, co-operative, statutory corporation or trust that has carried on export business during a defined year.

Seafood Services Australia Ltd (SSA) was established in October 2001. SSA works with the seafood industry in Australia to enable the industry to make the most of its opportunities and to adapt promptly and flexibly to changing business environments.

Australia's Supermarket to Asia (STA) initiative aims to promote the export of all food products, including fisheries products, to Asia. The STA council provides advice and support to Australian food exporters, including information on food market profiles and market access in Asia. The STA initiative aims to increase export opportunities by building demand chains and increasing food exports to Asia, which as a region is a major source of fisheries exports.

### Trade

#### Exports

Australia exported nearly AUD 2.2 billion worth of fisheries products in 2000-2001 an increase of nearly 9% on 1999-2000. Approximately 80% was edible products (AUD 1.7 billion). Due to the large increase in export unit values of some fisheries products, the value of edible fisheries exports rose by nearly 12%. Rock lobster was the most valuable export product with



AUD 533 million in exports in 2000-2001. Other valuable products were pearls, tuna, prawns and abalone. Most export products increased in value, with only a few decreasing in value, namely fillets, canned fish, rock lobster, pearls and "other" non-edible product. The volume of seafood exported from Australia increased slightly (1%) in 2000-2001 to 64 700 tonnes, with the principal export products being rock lobster, prawns, tuna and other fish. Australia's biggest export markets were in order, Japan, Hong Kong, Chinese Taipei and the United States. Singapore and China were also important markets for Australian seafood products.

Tuna has been one of the main products responsible for the expansion in exports. Based on the development of southern bluefin tuna farming, rising tuna catches off the east coast of Australia and the depreciation of the Australian dollar relative to the US dollar and the Japanese yen, tuna production has risen significantly and tuna exports have risen from only AUD 6.6 million (2000-2001 dollars) in 1990-1991 to AUD 332 million in 2000-2001.

### **Imports**

Australia imported AUD 1.15 billion of fisheries products in 2000-2001. Around three quarters (AUD 0.87 billion) consisted of seafood – mainly finfish, prawns, mussels and scallops. The remaining quarter (AUD 0.28 billion) was non-edible fisheries products, consisting principally of pearls, but also fish meal, ornamental fish, marine fats and oils and other marine products. In terms of value, the main products imported in 2000-2001 were canned fish (AUD 189 million), frozen fillets (AUD 186 million), pearls (AUD 183 million), and prawns (AUD 176 million).

Imports provide up to 60% of all commercially sourced seafood consumed in Australia. Traditionally, imported seafood met demand from those segments of the Australian market that the domestic market could not supply. However, recently imports have become increasingly competitive in other market segments.

In terms of volume, more than twice as much seafood is imported than is exported. However, the value of the seafood exports is approximately double that of imports. Continuing its steady uptrend, the quantity of seafood imported in 2000-2001 increased by 3% on the previous year. Higher import unit values for prawns, and canned crustaceans and molluscs accounted for most of the increase in value of seafood imports. Seafood products imported in the greatest quantities were canned fish (40 597 tonnes), frozen fillets (37 007 tonnes), "other" fish chilled or frozen (11 517 tonnes), and fresh chilled or frozen prawns and lobster (10 852 tonnes and 10 356 tonnes respectively).

By value, nearly half of Australia's seafood imports are sourced from two countries, Thailand (28% or AUD 244 million) and New Zealand (18% or AUD 153 million). Australia also sources a large amount of seafood products from Vietnam, the United States, South Africa, India, Malaysia, Indonesia and Canada.

### **Policy changes**

Exports of Australian seafood continue to be subject to significant tariffs in many important export markets. Multilateral efforts to reduce the level of tariffs applying to seafood trade are currently being sought through APEC and the WTO. The only tariff applying to imports of seafood into Australia is a 5% tariff on imports of canned tuna.

Australia is continuing to review its quarantine (biosecurity) requirements for the importation of aquatic animals and their products using import risk analysis (IRA). The IRA process considers pests and disease agents that may cause harm to animal and plant life

and health or cause environmental damage, and is consistent with rights and obligations outlined by the World Trade Organization agreement on the application of sanitary and phytosanitary measures (SPS agreement).

Import risk analyses for prawn (shrimp) product, bivalve mollusc product, freshwater crayfish product and freshwater finfish products are presently being conducted. Following a comprehensive IRA of marine finfish in 1999, a review of the requirements applying to whole round finfish species susceptible to viral haemorrhagic septicaemia virus is underway to address new research findings.

Interim requirements for the importation of whole green prawns and other raw prawn products were introduced in 2001 following a preliminary assessment of the biosecurity risks. The measures are directed at providing protection against the whitespot syndrome virus and the yellowhead disease virus.

## 8. Outlook

It is expected over the next five years that the real value of Australian wild capture fisheries will increase at a moderate rate. However, the value of Australian aquaculture is expected to grow strongly. Demand for Australian fisheries exports in major Asian markets is expected to remain strong in line with assumed increases in economic growth. The gross value of Australian seafood exports in real terms is projected to increase during the next 5 years.

Australia will continue to pursue reductions in tariffs applying to seafood through multilateral arrangements such as APEC and WTO. There may also be an increasing focus on negotiation of improved access for Australian seafood on a bilateral basis.

Environmental factors will have an increasing influence on both the production and consumption of seafood in Australia in the medium term. Australian fisheries are now facing stricter environmental assessment requirements after the introduction of the EPBC Act 1999 and removal of the general export regulation exemption for fish species. By-catch reduction will be a major issue over the coming years, with both positive and negative cost effects on commercial fisheries.

The potential for consumer choice to influence the sustainable management of commercial fisheries is receiving increasing attention. It is expected that the international certification process for commercial fisheries developed through the Marine Stewardship Council will be applied to more fisheries, however, the extent of consumers' willingness to pay for certified product is uncertain.

With regard to the stock status of some Australian fisheries (for species including school shark, SBT and eastern gemfish) it is likely that an overfished classification is likely to remain in the near future. There is a need to improve management to ensure the sustainability of these stocks and the viability of the associated fisheries. While the need to manage target species will continue, there is a broader requirement to take into account the longer-term management implications for industry, the community and the ecosystem. There will be an increasing emphasis on ecosystem-based management and fishery-status assessment, together with recognition of social and socio-economic characteristics of the fishing industry, and the links between the industry and fishing dependent communities. This will have significant implications for the way Commonwealth fisheries and resources are managed in future.

## ANNEX 1

Table III.1.A1.1. **Gross value of fisheries production by Commonwealth Fishery or State sector 1999-2000 and 2000-2001**

Fishery	1999-2000 AUD '000	2000-2001 AUD '000	% change
Northern Prawn	107 362	164 668	53.4
Torres Strait	35 334	35 744	1.2
South East Trawl	72 059	65 079	-9.7
South East Non-Trawl	5 593	5 787	3.5
South Tasman Rise	835	2 325	178.4
Great Australian Bight	6 847	5 755	-15.9
Southern Shark	9 522	12 781	34.2
East Coast Tuna Longline	57 569	66 849	16.1
East Coast Tuna Purse Seine and Pole	6 964	2 821	-59.5
Southern Bluefin Tuna	56 517	62 134	9.9
Bass Strait Central Zone Scallop	0	0	0
Southern and Western Tuna	29 061	34 462	18.6
Other Commonwealth Fisheries (North West Slope, Western Deepwater, Southern Squid Jig, Jack Mackerel, Macquarie Island, Coral Sea, Cocos and Christmas Islands, Heard and McDonald Islands, East Coast Deepwater, and Norfolk Island).	22 565	21 154	-6.3
<b>Total Commonwealth Fisheries</b>	<b>410 227</b>	<b>479 558</b>	<b>16.9</b>
State Fisheries (excluding Tuna)	1 818 230	1 796 133	-1.2
State Prawns	294 891	282 626	-4.2
Rock lobster	546 330	473 362	-13.4
Crab	49 752	54 655	9.9
Other crustaceans	7 163	8 066	12.6
Abalone	220 631	273 350	23.9
Scallops	45 441	44 200	-2.7
Oysters	53 328	57 486	7.8
Squid	5 385	5 683	5.5
Other molluscs	221 974	203 140	-8.5
<b>Total (including aquaculture)</b>	<b>2 376 921</b>	<b>2 480 375</b>	<b>4.4</b>

Source: ABARE Australian Fisheries Statistics 2001.

Table III.1.A1.2. **Gross value of wild catch fisheries by State for 1999-2000 and 2000-2001**

State	1999-2000 AUD '000	% total	2000-2001 AUD '000	% total
New South Wales	86 133	4.9	91 779	5.1
Victoria	90 009	5.2	107 283	6.0
Queensland	228 335	13.1	247 502	13.8
Western Australia	545 459	31.3	432 007	24.1
South Australia	183 962	10.6	206 527	11.5
Tasmania	167 489	9.6	194 607	10.9
Northern Territory	32 028	1.8	34 207	1.9
Commonwealth	410 227	23.5	479 558	26.7
<b>Total</b>	<b>1 743 643</b>	<b>100</b>	<b>1 793 533</b>	<b>100</b>

Source: ABARE Australian Fisheries Statistics 2001.

Table III.1.A1.3. **Quantity of Australian fisheries production by State for 1999-2000 and 2000-2001**

In tonnes

Harvested species		NSW	Vic	QLD	WA	SA	Tas	NT	Commonwealth	Australia
Tuna	1999/00	34	0	0	34	7 780	0	9	13 473	16 201
	2000/01	28	0	0	17	9 051	0	12	12 159	16 105
	% change	-17.6	0.0	0.0	-50.0	16.3	0.0	33.3	-9.8	-0.6
Other fish	1999/00	11 464	4 396	13 542	16 326	8 497	15 744	3 696	44 833	118 499
	2000/01	11 106	4 494	14 661	14 905	12 130	13 445	4 678	44 661	120 080
	% change	-3.1	2.2	8.3	-8.7	42.8	-14.6	26.6	-0.4	1.3
Prawns	1999/00	3 647	124	9 041	4 663	2 416	0	0	7 830	26 721
	2000/01	2 600	172	9 441	2 976	2 988	0	0	11 375	29 552
	% change	-28.7	38.7	4.4	-36.2	23.7	0.0	0.0	45.3	10.6
Rock lobster	1999/00	117	573	572	14 606	2 719	1 482	0	359	20 428
	2000/01	105	587	512	11 348	2 563	1 519	0	276	16 910
	% change	-10.3	2.4	-10.5	-22.3	-5.7	2.5	0.0	-23.1	-17.2
Crab	1999/00	611	20	3 712	790	647	76	996	12	6 864
	2000/01	505	20	4 171	984	740	101	1 123	10	7 654
	% change	-17.3	0.0	12.4	24.6	14.4	32.9	12.8	-16.7	11.5
Other crustaceans	1999/00	109	123	70	273	28	2	2	251	858
	2000/01	91	134	86	280	25	1	85	293	995
	% change	-16.5	8.9	22.9	2.6	-10.7	-50.0	4 150	16.7	16.0
Abalone	1999/00	325	1 417	0	333	929	2 565	0	0	5 569
	2000/01	305	1 409	0	316	920	2 709	0	0	5 659
	% change	-6.2	-0.6	0.0	-5.1	-1.0	5.6	0.0	0.0	1.6
Scallops	1999/00	0	292	3 912	3 454	0	4 554	2	22	12 236
	2000/01	0	810	4 905	3 166	0	47	1	31	8 960
	% change	0.0	177.4	25.4	-8.3	0.0	-99.0	-50.0	40.9	-26.8
Oysters	1999/00	5 252	0	159	0	1 887	4 748	0	0	12 046
	2000/01	5 141	0	91	0	2 202	5 200	0	0	12 634
	% change	-2.1	0.0	-42.8	0.0	16.7	9.5	0.0	0.0	4.9
Squid	1999/00	207	84	226	63	400	416	5	1 294	2 694
	2000/01	177	99	233	46	488	114	1	3 094	4 252
	% change	-14.5	17.9	3.1	-27.0	22.0	-72.6	-80.0	139.1	57.8
Other molluscs	1999/00	1 213	1 106	16	875	1 586	363	342	158	5 659
	2000/01	1 347	1 265	34	1 223	1 775	322	201	211	6 378
	% change	11.0	14.4	112.5	39.8	11.9	-11.3	-41.2	33.5	12.7
<b>Total</b>	<b>1999/00</b>	<b>21 978</b>	<b>8 169</b>	<b>31 250</b>	<b>41 480</b>	<b>27 226</b>	<b>29 951</b>	<b>5 053</b>	<b>68 232</b>	<b>228 209</b>
	<b>2000/01</b>	<b>21 405</b>	<b>9 078</b>	<b>34 135</b>	<b>35 353</b>	<b>33 362</b>	<b>23 459</b>	<b>6 101</b>	<b>72 110</b>	<b>229 841</b>
	<b>% change</b>	<b>-2.6</b>	<b>11.1</b>	<b>9.2</b>	<b>-14.8</b>	<b>22.5</b>	<b>-21.7</b>	<b>20.7</b>	<b>5.7</b>	<b>0.7</b>

Source: ABARE Australian Fisheries Statistics 2001.

Table III.1.A1.4. **Stock Status and reported landings for the main target species fished in Commonwealth fisheries 1997-2000<sup>1</sup>**

UF – Under fished.<sup>2</sup> FF – Fully fished.<sup>3</sup> OF – Overfished.<sup>4</sup> U – Uncertain.<sup>5</sup> S – Status not assessed.

Commonwealth fishery	Common name	Stock status				Reported landings 1999/00 (tonnes)	Reported landings 2000/01 (tonnes)
		97	98	99	00		
Bass Strait Central Zone Scallop Fishery	Southern scallop	U	U	OF	OF	0	0
Eastern Tuna and Billfish Fishery	Albacore	U	U	U	U	363	398
Eastern Tuna and Billfish Fishery	Bigeye tuna	U	U	U	U	678	998
Eastern Tuna and Billfish Fishery	Skipjack tuna	U	U	U	U	4 492	1 549
Eastern Tuna and Billfish Fishery	Striped marlin	U	U	U	U	2 604 <b>(billfish)</b>	2 573 <b>(billfish)</b>
Eastern Tuna and Billfish Fishery	Swordfish	U	U	U	U	<i>As above</i>	<i>As above</i>
Eastern Tuna and Billfish Fishery	Yellowfin tuna	U	U	U	U	1 307	1 927
Great Australian Bight Trawl Fishery	Bight redfish	U	U	U	U	328	398
Great Australian Bight Trawl Fishery	Deepwater flathead	U	U	U	U	Not available	Not available
Great Australian Bight Trawl Fishery	Orange roughy	U	U	U	U	822	296
Northern Prawn Fishery	Blue endeavour prawn	S	S	S	S	972 <b>(all endeavour)</b>	868 <b>(all endeavour)</b>
Northern Prawn Fishery	Red endeavour prawn	S	S	S	S	<i>As above</i>	<i>As above</i>
Northern Prawn Fishery	Blue-legged king prawn	S	S	S	S	12 <b>(all king)</b>	7 <b>(all king)</b>
Northern Prawn Fishery	Red-spot king prawn	S	S	S	S	<i>As above</i>	<i>As above</i>
Northern Prawn Fishery	Brown tiger prawn	FF	OF	OF	OF	2 195 <b>(all tiger)</b>	2 116 <b>(all tiger)</b>
Northern Prawn Fishery	Grooved tiger prawn	FF	OF	OF	OF	<i>As above</i>	<i>As above</i>
Northern Prawn Fishery	Red-legged banana prawn	S	S	S	S	2 222 <b>(all banana)</b>	6 286 <b>(all banana)</b>
Northern Prawn Fishery	White banana prawn	FF	FF	FF	FF	<i>As above</i>	<i>As above</i>
South East Fishery (trawl and non-trawl sectors)	Blue-eye trevalla	FF	FF	U	U	617	732
South East Fishery (trawl sector)	Blue grenadier	UF	UF	UF	FF	9 493	7 561
South East Fishery (trawl and non-trawl sectors)	Blue warehou	U	FF	FF	OF	600	398
South East Fishery (trawl sector)	Eastern school whiting	FF	U	U	U	385	680
South East Fishery (trawl sector)	Gemfish (eastern)	OF	OF	OF	OF	447 <b>(all gemfish)</b>	455 <b>(all gemfish)</b>
South East Fishery (trawl sector)	Gemfish (western)	FF	U	U	U	<i>As above</i>	<i>As above</i>
South East Fishery (trawl sector)	Jackass morwong	FF	FF	FF	FF	822	919
South East Fishery (trawl sector)	John dory	U	FF	U	U	159	143
South East Fishery (trawl sector)	Mirror dory	U	U	U	U	276	239
South East Fishery (trawl sector)	Ocean perch	FF	FF	FF	FF	363	373
South East Fishery (trawl sector)	Orange roughy	FF	FF	FF	OF	4 015	4 179
South East Fishery (trawl and non-trawl sectors)	Pink ling	U	U	U	U	2 039	1 696
South East Fishery (trawl sector)	Redfish	FF	FF	FF	OF	1 009	775
South East Fishery (trawl sector)	Royal red prawn	U	U	U	U	450	283
South East Fishery (trawl sector)	Silver trevally	U	U	U	U	72	121
South East Fishery (trawl sector)	Spotted warehou	U	U	U	U	2 849	3 792
South East Fishery (trawl sector)	Tiger flathead	FF	FF	FF	FF	3 485	2 645
Southern and Western Tuna and Billfish Fishery	Albacore	U	U	U	U	2 859 <b>(all fish)</b>	4 305 <b>(all fish)</b>
Southern and Western Tuna and Billfish Fishery	Bigeye tuna	U	U	U	U	<i>As above</i>	<i>As above</i>
Southern and Western Tuna and Billfish Fishery	Striped marlin	U	U	U	U	<i>As above</i>	<i>As above</i>

Table III.1.A1.4. **Stock Status and reported landings for the main target species fished in Commonwealth fisheries 1997-2000<sup>1</sup> (cont.)**

UF – Under fished.<sup>2</sup> FF – Fully fished.<sup>3</sup> OF – Overfished.<sup>4</sup> U – Uncertain.<sup>5</sup> S – Status not assessed.

Commonwealth fishery	Common name	Stock status				Reported landings 1999/00 (tonnes)	Reported landings 2000/01 (tonnes)
		97	98	99	00		
Southern and Western Tuna and Billfish Fishery	Swordfish	U	U	U	U	<i>As above</i>	<i>As above</i>
Southern and Western Tuna and Billfish Fishery	Yellowfin tuna	U	U	U	U	<i>As above</i>	<i>As above</i>
Southern Bluefin Tuna Fishery	Southern bluefin tuna	OF	OF	OF	OF	5 263	5 282
Southern Shark Fishery	Gummy shark	FF	FF	FF	FF	2 198	2 579
						<b>(school and gummy)</b>	<b>(school and gummy)</b>
Southern Shark Fishery	School shark	OF	OF	OF	OF	<i>As above</i>	<i>As above</i>
Southern Shark Fishery	Saw sharks	S	S	S	S	497	679
						<b>(other sharks)</b>	<b>(other sharks)</b>
Southern Shark Fishery	Elephant fish	S	S	S	S	31	32
						<b>(other)</b>	<b>(other)</b>
South Tasman Rise Trawl Fishery	Orange roughy	S	S	U	U	346	762
						<b>(all fish)</b>	<b>(all fish)</b>
South Tasman Rise Trawl Fishery	Smooth oreo, spiky oreo	S	S	S	S	<i>As above</i>	<i>As above</i>
Torres Strait Bêche-de-mer Fishery	Sandfish	OF	OF	OF	OF	98	83
						<b>(other)</b>	<b>(other)</b>
Torres Strait Trochus Fishery	Trochus	S	S	S	S	<i>As above</i>	<i>As above</i>
Torres Strait Mackerel Fishery	Spanish mackerel	U	U	U	U	392	301
Torres Strait Pearl Fishery	Pearl oyster	U	U	U	U	0	0
Torres Strait Prawn Fishery	Blue endeavour prawn	FF	FF	FF	FF	1 191	1 131
Torres Strait Prawn Fishery	Brown tiger prawn	FF	FF	FF	FF	531	581
Torres Strait Prawn Fishery	Red-spot king prawn	FF	FF	FF	FF	79	64
Torres Strait Tropical Rock Lobster Fishery	Tropical rock lobster	UF	FF	U	OF	359	276
Coral Sea Fishery	Multiple spp.	S	S	S	S	4 538	5 491
						<b>(other fisheries)</b>	<b>(other fisheries)</b>
Heard Island and McDonald Islands Fishery	Mackerel icefish	U	U	FF	FF	<i>As above</i>	<i>As above</i>
Heard Island and McDonald Islands Fishery	Patagonian toothfish	U	U	FF	FF	<i>As above</i>	<i>As above</i>
Jack Mackerel Fishery (Management Zone A)	Jack mackerel	U	U	U	U	<i>As above</i>	<i>As above</i>
Macquarie Island Fishery	Patagonian toothfish	U	U	U	U	<i>As above</i>	<i>As above</i>
North West Slope Trawl Fishery	Prawns	U	U	U	U	<i>As above</i>	<i>As above</i>
North West Slope Trawl Fishery	Scampi	U	U	U	U	<i>As above</i>	<i>As above</i>
Southern Squid Jig Fishery	Arrow squid	U	U	U	U	<i>As above</i>	<i>As above</i>
Western Deepwater Trawl Fishery	Big-spined boarfish	U	U	U	U	<i>As above</i>	<i>As above</i>
Western Deepwater Trawl Fishery	<b>Ruby snapper</b>	U	U	U	U	<i>As above</i>	<i>As above</i>
Western Deepwater Trawl Fishery	Orange roughy	U	U	U	U	<i>As above</i>	<i>As above</i>
Western Deepwater Trawl Fishery	Smooth oreo, spiky oreo	U	U	U	U	<i>As above</i>	<i>As above</i>

1. Data provided from 1997-2000 for all species, as this information has not previously been published.
2. *Under fished* – refers to a fish stock that has potential to sustain catches higher than those currently taken. The classification is not applied to stocks that are subject to limited catches while rebuilding from overfishing.
3. *Fully fished* – refers to a fish stock for which current catches and fishing pressure are close to optimum.
4. *Overfished* – refers to a fish stock for which the amount of fishing is excessive or from which the catch depletes the biomass; or a stock that reflects the effects of previous excessive fishing. [It is important to recognise the distinction between *overfished* stocks and *overfishing*. A management regime might curtail overfishing, but it can still be some time (perhaps many years for some species) before a stock recovers, so an overfished classification persists.]
5. *Uncertain* – refers to a fish stock that may be under fished, fully fished or overfished, but for which there is inadequate information to determine its status.

Source: BRS Fishery Status Report 2002 (in press).

Table III.1.A1.5. **Gross value of Australian exports by product type 1999-2000 and 2000-2001**

Product	1999-2000 AUD '000	2000-2001 AUD '000	% change
Fish – Live	25 593	41 585	62
Tuna – Fresh, chilled or frozen	205 693	264 486	29
Other fish – Fresh, chilled or frozen	40 622	44 320	9
Fillets – Fresh, chilled or frozen	41 635	25 334	-39
Fish – Canned	4 666	4 482	-4
Fish – Dried, salted or smoked	14 019	15 703	12
Other fish products	62 854	82 443	31
Rock lobster	577 657	532 648	-8
Prawns	243 789	291 048	19
Abalone	223 415	249 277	12
Scallops	42 012	53 405	27
Oysters	2 884	6 283	118
Crabs	23 451	33 015	41
Other crustaceans or molluscs	29 870	72 748	144
Marine fats and oils	1 260	3 766	199
Fish meal	9 302	23 603	154
Pearls	436 361	419 396	-4
Ornamental fish	1 817	2 169	19
Other non-edible product	3 036	2 950	-3
<b>Total exports</b>	<b>1 987 937</b>	<b>2 168 661</b>	<b>9</b>

Source: ABARE Australian Fisheries Statistics 2001.

Table III.1.A1.6. **Amount of Australian exports of edible fisheries product by product type 1999-2000 and 2000-2001**

Product	1999-2000 (tonnes)	2000-2001 (tonnes)	% change
Fish – Live	n.a.	n.a.	n.a.
Tuna – Fresh, chilled or frozen	10 221	12 171	19.1
Other fish – Fresh, chilled or frozen	8 079	7 463	-7.6
Fillets – Fresh, chilled or frozen	4 925	3 308	-32.8
Fish – Canned	847	762	-10
Fish – Dried, salted or smoked	394	291	-26.1
Other fish products	3 117	4 106	31.7
Rock lobster	15 490	13 345	-13.9
Prawns	11 630	12 124	4.2
Abalone	3 808	3 543	-7
Scallops	1 655	2 145	29.6
Oysters	152	246	61.8
Crabs	2 292	2 677	16.8
Other crustaceans or molluscs	1 300	2 525	94.2
<b>Total exports</b>	<b>63 910</b>	<b>64 707</b>	<b>1.2</b>

n.a. Not available.

Source: ABARE Australian Fisheries Statistics 2001.

Table III.1.A1.7. **Total Australian edible fish exports (excluding live) by destination, 1999-2000 and 2000-2001**

	1999-2000 AUD '000	2000-2001 AUD '000	% change
China	40 461	49 399	22.1
Chinese Taipei	208 916	179 526	-14.1
France	16 598	6 869	-58.5
Germany	2 218	1 732	-21.9
Greece	1 712	4 423	158
Hong Kong, China	333 018	430 938	29.4
Indonesia	1 772	2 691	51.9
Italy	2 235	4 092	83.1
Japan	655 339	731 275	11.6
Korea, Rep. of	1 581	2 596	64.2
Malaysia	8 064	9 143	13.4
New Zealand	7 046	8 287	17.6
Singapore	52 695	53 136	8.4
South Africa	2 187	2 981	36.3
Spain	17 050	28 238	65.6
Thailand	7 891	17 503	122
United States	141 225	128 157	-9.3
Vietnam	642	723	12.6
Other	11 918	13 486	13.2
<b>Total</b>	<b>1 512 568</b>	<b>1 675 192</b>	<b>10.8</b>

Source: ABARE Australian Fisheries Statistics 2001.

Table III.1.A1.8. **Gross value of imports by product type 1999-2000 and 2000-2001**

Product	1999-2000 AUD '000	2000-2001 AUD '000	% change
Fish – Live	54	22	-59.3
Fresh or chilled whole fish	23 583	25 550	8.3
Frozen whole fish	16 987	17 313	1.9
Fresh or chilled fillets	3 265	1 497	-54.2
Frozen fillets	174 865	185 530	6.1
Other fish products	17 180	16 960	-1.3
Canned fish	158 374	188 628	19.1
Smoke, dried or salted fish	28 496	23 164	-18.7
Other fish preparations	40 471	50 542	24.9
Fresh chilled or frozen prawns	147 543	175 607	19
Fresh chilled or frozen lobster	11 134	9 416	-15.4
Fresh chilled or frozen scallops	25 928	28 388	9.5
Fresh chilled or frozen oysters	5 213	4 414	-15.3
Fresh chilled or frozen mussels	7 563	7 038	-6.9
Fresh chilled or frozen other	48 686	48 849	.3
Canned	14 911	17 552	17.7
Extracts and pastes	336	587	74.7
Other crustaceans and molluscs (edible)	56 020	69 215	23.6
Pearls	224 539	182 905	-18.5
Fish meal	21 116	33 374	58.1
Ornamental fish	2 268	2 838	25.1
Marine fats and oils	7 443	9 540	28.2
Other marine products	55 168	52 897	-4.1
<b>Total imports</b>	<b>1 091 141</b>	<b>1 151 828</b>	<b>5.6</b>

Source: ABARE Australian Fisheries Statistics 2001.



Table III.1.A1.9. **Amount of imported edible fisheries product by product type 1999-2000 and 2000-2001**

Product	1999-2000 (tonnes)	2000-2001 (tonnes)	% change
Fish – Live	n.a.	n.a.	n.a.
Fresh or chilled whole fish	4 219	4 504	6.8
Frozen whole fish	5 808	6 764	16.5
Fresh or chilled fillets	718	261	-63.6
Frozen fillets	37 901	37 007	-2.4
Other fish products	6 247	5 713	-8.5
Canned Fish	33 027	40 597	22.9
Smoke, dried or salted fish	4 706	2 941	-37.5
Other fish preparations	9 521	10 852	14
Fresh chilled or frozen prawns	10 600	10 356	-2.3
Fresh chilled or frozen lobster	654	421	-35.6
Fresh chilled or frozen scallops	1 665	1 856	11.5
Fresh chilled or frozen oysters	660	596	-9.7
Fresh chilled or frozen mussels	2 284	1 772	-22.4
Fresh chilled or frozen other	12 699	11 517	-9.3
Canned	1 987	1 892	-4.8
Extracts and pastes	70	123	75.7
Other crustaceans and molluscs (edible)	7 097	7 238	2.0
<b>Total imports (edible)</b>	<b>139 865</b>	<b>144 409</b>	<b>3.2</b>

n.a. Not applicable.

Source: ABARE Australian Fisheries Statistics 2001.

Table III.1.A1.10. **Value of import of edible fisheries products (excluding live) by destination, 1999-2000 and 2000-2001**

	1999-2000 AUD 000	2000-2001 AUD 000	% change
Argentina	3 416	1 659	-51
Canada	23 636	26 001	10
Chile	22 682	20 153	-11
China	13 812	22 426	62
Chinese Taipei	17 664	23 329	32
Denmark	10 526	12 566	19
Germany	3 669	3 002	-18
Hong Kong, China	3 943	3 436	-13
India	14 506	35 420	144
Indonesia	16 802	28 886	72
Italy	5 586	5 747	3
Japan	20 832	19 300	-7
Korea, Rep. of	8 002	12 067	51
Malaysia	28 488	34 138	20
Norway	7 217	7 285	1
New Zealand	146 293	153 232	5
Philippines	1 308	1 609	23
Singapore	8 859	9 003	2
South Africa	34 023	36 844	8
Spain	1 772	2 878	62
Thailand	238 069	243 645	2
United Kingdom	7 410	6 958	-6
United States	38 044	42 579	12
Vietnam	32 056	43 526	36
Other	71 939	74 563	4
<b>Total</b>	<b>780 553</b>	<b>870 251</b>	<b>11</b>

Source: ABARE Australian Fisheries Statistics 2001.

PART III  
*Chapter 2*

## Canada

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## Summary

Commercial landed value rose by more than 11% from 1999 to 2000, reaching CAD 2.1 billion in 2000. However, the overall volume of Canadian commercial landings remained stable, just above 1 million tonnes.

Many groundfish stocks on the Atlantic Coast, including the northern cod, remain at or near record low levels, with limited prospects for improvement in the near term due to low recruitment and high mortality. However, the reductions in harvest, combined with improving ocean conditions, have reversed declines in most Pacific salmon stocks.

Aquaculture operations across Canada employ over 14 000 people. In 2000, 22.8% of the total value harvested from living aquatic resources came from aquaculture, mostly Atlantic salmon. In 2001, Canada exported fish and seafood products to more than 90 countries, totalling CAD 4.2 billion. The value of exports to European, Central and South American countries increased, while exports to Japan decreased by 20%.

Fisheries management policies have been undergoing significant renewal over the last two years in an effort to address excess participation and low profitability in some fisheries, threats to conservation, and demands for increased fisheries access. The Pacific New Directions initiative for the renewal of Pacific fisheries management is under way, while on the Atlantic coast the Atlantic Fisheries Policy Review (AFPR) aims to define principles that will guide fisheries management direction in the long term. Other policy work has included making changes to existing governance structures to promote increased Aboriginal participation in fisheries management processes. A National policy framework is being developed that synthesizes all of these initiatives and will ensure consistency in the approach.

Following the 1999 *Marshall* decision by the Supreme Court of Canada, the Government launched the *Marshall* strategy to increase access of aboriginal people in communities affected by the decision to the commercial fisheries. Fisheries and Oceans Canada (DFO) is responsible for the negotiation of multi-year agreements that provide immediate access to commercial fisheries, along with vessels, gear and training. In the course of negotiations in 2001 and 2002, DFO signed one to three year agreements with 30 of the 34 First Nations involved, of which 22 agreements provided increased access to the fishery. This access is being provided through voluntary withdrawal of non-native fishers to provide for the assignment of licences to First Nations, or through additional licences where the resource conditions permit.

The Government of Canada has proposed legislation on species at risk in 2001. Also with an objective to conserve and protect, DFO was tasked, under the 1997 Oceans Act, with developing a national system of marine protected areas (MPAs). Since 1998, Fisheries and Oceans Canada has announced twelve Areas of Interest for establishing MPAs on Canada's Pacific and Atlantic coasts with additional areas, including the Arctic, currently under consideration.

DFO has been working on implementing the objectives of its 2001 Sustainable Development Strategy, through initiatives to:

- expand science peer review and advisory processes to include conservation and sustainable resource use issues;
- improve fish habitat management by targeting a net gain in the natural productive capacity of habitats; and
- by experimenting with new technologies to map Canada's offshore lands, which is deemed essential to apply the ecosystem-based approach to sustainable development of offshore resources.

In Canada, government financial transfers have taken the form of licence retirement, fisheries adjustment, and regional economic development initiatives designed to promote the restructuring of Canada's fisheries. Past overcapacity in the fish processing sector prompted the federal Government, in 1999, to impose a moratorium on federal public investment support for projects deemed to increase capacity in primary fish processing.

## 1. Legal and institutional framework

Under the Canadian Constitution, the federal Government has exclusive jurisdiction over all matters concerning the sea coast and its fisheries, including the management of virtually all commercial fisheries (the provinces, however, do have responsibilities for allocation of some freshwater fisheries). While the federal Government has jurisdiction over the harvesting sector of the commercial fishery, the provincial Governments have primary jurisdiction over the processing sector. DFO is the federal department charged with carrying out federal obligations in fisheries and oceans related matters.

Fisheries management in Canada is conducted through various means: by allocating quotas to fleet sectors, which then fish competitively; or, by giving specific percentages of the quota to individuals or businesses in the form of Individual Quotas (IQs), Individual Transferable Quotas (ITQs) or Enterprise Allocations (EAs). Other fisheries are managed by other means, such as controlling effort, escapement, or by-catch. The overall goals are conservation and sustainable use, self-reliance in the fishing industry, a stable access and allocations approach, and shared stewardship of the resource.

The independent Fisheries Resource Conservation Council (FRCC) makes public recommendations to the Minister of Fisheries and Oceans on such issues as total allowable catches (TACs) and other conservation measures for the Atlantic fishery. The Council also provides advice in the areas of scientific research and assessment priorities. Since April 1997, the Pacific Resource Conservation Council has been providing advice on Pacific salmon conservation measures.

Canada's *Oceans Act*, which came into force in 1997, represents a pivotal step in establishing Canadian ocean jurisdiction and in consolidating federal management of oceans. The Act responds directly to many of the objectives outlined in Agenda 21, the Agenda set out at the 1992 Earth Summit. The *Oceans Act* calls on the federal Government to work with all coastal and marine interests to develop a comprehensive strategy for the management of Canada's oceans, based upon the principles of sustainable development, integrated management, and the precautionary approach. Related Ministerial responsibilities, such as the provision of hydrographic services, marine scientific services and coast guard services are also identified in the Act.

Over the years, the federal Government has delegated certain responsibilities related to fisheries to the provinces, through regulations under the Fisheries Act. Responsibility for aquaculture in Canada is shared between the federal, provincial and territorial governments. DFO is the lead federal agency for aquaculture development, and supports sustainable aquaculture development through a regulatory framework that includes environmental and habitat protection, navigational safety, fisheries conservation and protection, and fish health. The Department regulates the location and some operational aspects of aquaculture sites through the issuance of permits under the *Navigable Waters Protection Act (NWPA)* and the *Fisheries Act*, both of which trigger environmental assessments pursuant to the *Canadian Environmental Assessment Act*. DFO also reviews the proposals to determine potential impacts to fish and fish habitat. Provincial and territorial governments are generally responsible for issuing aquaculture leases and licenses.

DFO works closely with provincial and territorial governments, through the Canadian Council of Fisheries and Aquaculture Ministers (CCFAM), formalised in 1999 under an Agreement on Interjurisdictional Cooperation with Respect to Fisheries and Aquaculture. Under the Agreement, all Canadian jurisdictions committed to work according to a national agenda in a true spirit of co-operation and partnership. The Council currently features six intergovernmental task groups addressing issues of strategic importance to Canada's fisheries and aquaculture sectors:

- the Aquaculture Task Group, led by Nova Scotia, is working in the following areas: Canadian Action Plan for Aquaculture, site access, and research and development; it is also monitoring implementation of the Canadian Code of Conduct for Aquaculture and the National Aquatic Animal Health Programme;
- the Capacity Management Task Group, led by DFO, is working in support of Canada's contribution to the International Plan of Action on Management of Fishing Capacity; it is currently undertaking assessments of capacity in key fishing fleets;
- the Freshwater Fisheries Task Group, led by Manitoba, is developing a national Freshwater Fisheries Strategy to set out cooperative approaches for governments in fish habitat management, fisheries management, science, and legislation and regulations;
- the Introductions and Transfers Task Group, led by Saskatchewan, has completed a National Code on Introductions and Transfers of Aquatic Organisms and is now examining issues related to live bait, food fish and aquarium fish;
- the Recreational Fisheries Task Group, led by Ontario, is implementing two national initiatives to promote sustainable recreational fishing – the Sport Fishing Canada website and National Fishing Week; and
- the Oceans Task Group, led by British Columbia, is working on priority areas for intergovernmental collaboration in support of Canada's Oceans Strategy.

The CCFAM Emerging Fisheries Task Group was sunset in 2001, following completion of a national Policy on Emerging Fisheries Development under the leadership of Newfoundland and Labrador. In addition to the CCFAM Task Groups, other federal-provincial-territorial ministerial fora exist to promote the exchange of information and to facilitate coordination of approaches to regional fisheries issues. These include the Canada-British Columbia Council of Fisheries Ministers, and the Atlantic Council of Fisheries and Aquaculture Ministers.

## 2. Capture fisheries

### *Performance*

Commercial landed value rose by more than 11% from 1999 to 2000, reaching CAD 2.1 billion in 2000. The total landed value for salmon nearly doubled to CAD 47 million, followed by the value of shrimp and scallop, which increased nearly 50% from 1999 to 2000. However, the overall volume of Canadian commercial landings remained stable, just under 1 million tonnes. Although there was no variation in total volume, total value rose, indicating that several commercial species increased in value. Indeed, the landed value per tonne for Atlantic snow crab, clams, oysters, Pacific salmon and hake rose significantly in 2000. Landed value on the Atlantic coast rose by CAD 181 million in 2000 to reach almost 1.8 billion, while it increased on the Pacific coast by CAD 32 million, to 348 million. Preliminary information indicates that commercial fishing volume may have increased, and that landed value may have decreased in Canada in 2001.

### *Status of fish stocks*

On the Atlantic Coast, many invertebrate resources are in a healthy condition. Several stocks such as the northern and Gulf shrimp and snow crab in the Gulf of St. Lawrence and on the Scotian Shelf are currently near or at historic high levels. Landings of northern shrimp have experienced a significant increase in recent years and are expected to remain at a high level in 2002. Coastwise, landings in the lobster fishery are declining slowly, but remain well above the average of the previous century. The catches of Atlantic lobster have been above the long term average throughout the 1990s, by a factor of two, and are expected to remain above the long term average in 2002. On a localized basis, the state of lobster resources is highly variable.

Among pelagic species, herring stocks off the Atlantic Coast of Nova Scotia and southern New Brunswick are in relatively good condition, but with the exception of several spawning components, those in the Gulf of St. Lawrence and off Newfoundland are in the low range. A large incoming yearclass of mackerel is expected to promote substantial growth in that migratory resource over the next several years.

Many groundfish stocks on the Atlantic Coast, including the northern cod, remain at or near record low levels, with limited prospects for improvement in the near term due to low recruitment and high mortality, causing the continuation of low TACs or moratoria on fishing for certain stocks. Notable exceptions include haddock and yellowtail stocks on the Scotian Shelf and Georges Bank, which have shown improved growth and recruitment in recent years.

On the Pacific Coast, herring stocks that support highly valuable fisheries were generally at or above long-term average conditions in the 1998-2000 period. Several groundfish stocks were below average conditions, with serious conservation concerns for several rockfish species in the Strait of Georgia, and Pacific cod at its historic low.

The outlook for Pacific salmon stocks was generally poor through the 1990s, due to a combination of excessive harvesting, poor ocean conditions, and low marine survival. Loss of freshwater habitat remains a problem for some stocks as well. Severe conservation concerns, particularly for some stocks of coho and chinook, and disappointing returns for the large sockeye stocks in the Fraser Rivers, led to closure of many commercial fisheries for salmon along the BC coast. Commercial fisheries for coho were closed along much of

the Pacific coast, and commercial fisheries for chinook were closed in many southern waters. Other salmon fisheries likely to take an incidental catch of depressed coho stocks were either closed or operated with severe restrictions on fishing times and methods.

Severe restrictions were also placed on many high-value recreational fisheries, particularly in more southerly portions of British Columbia coastal waters. Some Pacific salmon stocks are still in the recovery stage and conservation measures will continue to be in place where these stocks of concern are prevalent. The reductions in harvest, combined with improving ocean conditions, have reversed declines in most salmon stocks. Many stocks have begun to show signs of recovery, in some cases strongly, although only in the more northern areas are stocks of salmon generally near long-term average strength.

### **Management of commercial fisheries**

#### **Management instruments**

Fisheries management policies have been undergoing significant renewal over the last two years in an effort to address excess participation and low profitability in some fisheries, threats to conservation, and demands for increased fisheries access.

The goal of DFO to develop a standardized method to co-manage Canada's commercial fisheries has led to the development of Integrated Fisheries Management Plans (IFMP), starting in 1999. An IFMP is required for all fisheries and sets out harvest levels (*i.e.*, for all users of the resource, including aboriginal, commercial, recreational and international), conservation requirements and certain allocation processes for participants. The integrated fisheries management planning process provides a forum for consultation and industry input regarding the management of the fishery.

The objective-based fisheries management (OBFM) approach is an evolution of DFO's IFMP process. It was pilot-tested in 2001. The goals include:

- adopting clear and measurable fisheries management objectives specific for each fishery;
- introducing risk management principles in developing fisheries management strategies;
- operationalizing the precautionary approach;
- introducing ecosystem concerns into the fisheries management process; and
- advancing the development of stakeholder partnerships.

This proactive approach will enhance conservation and stock rebuilding and provide for adaptive responses based on performance and rational feedback. It also complements larger policy renewal initiatives, such as the Atlantic Fisheries Policy Review (see below). Pacific fisheries management renewal has taken the form of a series of discussion and policy papers, under the name of Pacific New Directions initiative, built on principles around conservation, sustainable use and improved decision-making. On the Atlantic Coast, the Atlantic Fisheries Policy Review (AFPR) was set up to summarize fisheries management objectives, clarify direction where there are conflicting goals and commit to principles which will guide fisheries management direction in the long term. Key policy areas under review by the AFPR include conservation, economic and social viability, the approach to access and allocation, and governance. Other policy work has included making changes to existing governance structures to promote increased Aboriginal participation in fisheries management processes. A national policy framework is being developed that synthesizes all of these initiatives and will ensure consistency in the approach. A clear policy framework will also direct operational change.

The Government of Canada is developing a National Plan of Action to reduce the incidental mortality of seabirds in the longline fishery. The Canadian Code of Conduct for Responsible Fishing Operations, an industry-driven initiative that has been ratified by nearly three quarters of all commercial fishing organisations in Canada, includes articles referring to responsible and sustainable fishing practices and to the minimization (to the extent practicable) of unintended by-catch (see also Section 7, *Post harvesting policies and practices*). A Selective Fishing Policy has been approved on the Pacific coast that states that all fisheries will have to develop action plans for addressing by-catch, including seabirds. Plans for the future are based on a combination of encouraging voluntary and regulatory measures to reduce by-catch and improving information on by-catch levels.

### **Access arrangements for foreign fleets**

In April 2002, Canada and the United States (US) agreed in principle to amend the 1981 Canada-US Pacific Albacore Tuna Treaty to limit access by their respective fleets to the other's Exclusive Economic Zone (EEZ) to fish albacore tuna. Under the current Treaty, Canadian and US fishermen have unrestricted access to the other country's EEZ to fish for albacore tuna and to land it at designated ports in each country. The amendments providing for a limitation regime are expected to come into force in 2003 at the earliest.

The 1994 Procès-Verbal, which implements a 1972 treaty between Canada and the French territories of Saint-Pierre-et-Miquelon, will continue to provide France with fixed percentages of TACs for stocks found in both the Canadian and French maritime spaces (cod, redfish, squid, American plaice, witch flounder and Iceland scallops) until 2007. Two other arrangements for access of foreign fleets to fish in Canadian waters involve Canadian companies contracting with foreign vessels to harvest specific allocations of fish, subject to meeting the requirements for access to Canadian waters and ports of the Government of Canada. A Canadian company has contracted Russian vessels to harvest a developmental silver hake quota. Vessels from Latvia, Poland, Estonia and the Faroe Islands were also contracted in 2001 in an experimental Greenland halibut (turbot) fishery in NAFO Division 0A. 2002 is expected to be the last year that foreign vessels will be permitted in the 0A fishery and 2004 will be the last year for foreign participation in the developmental silver hake fishery.

### **Management of recreational fisheries**

Based on the 2000 Survey of Recreational Fishing in Canada, recreational fishing is a CAD 4 billion activity annually. As part of the Canadian economic and social fabric, recreational fishing plays an important role in defining the "quality of life" in many urban, rural and coastal communities. It also contributes to the economic development of many of these communities, and represents an opportunity to directly engage citizens in fisheries resource management. On a broader level, it also presents opportunities to promote a broad public awareness of the importance of the sustainable use and conservation of Canada's valuable fishery resources. In 2001, Canada developed a Recreational Fisheries Operational Policy. The themes of partnership, citizen-engagement and community stewardship will play a prominent role in DFO's involvement with recreational fisheries.

### **Aboriginal fisheries**

Two major programmes are in place with regard to Aboriginal fisheries: the Aboriginal Fisheries Strategy (AFS) and the *Marshall* strategy. The AFS programme responds to the 1990 Supreme Court of Canada Sparrow decision that defined Aboriginal peoples' right to fish for



food, social and ceremonial purposes. In response to evolving objectives in government and new legal and fisheries management issues, the strategy is being redesigned to incorporate a longer-term vision. The renewed approach will focus on more structured relationships including co-management approaches aimed at building fishing capacity, and incentives to support Aboriginal communities' participation in fisheries management.

In the 1999 decision in *R. v. Marshall*, the Supreme Court of Canada affirmed that Mi'Kmaq, Maliseet and Passamaquody First Nations enjoy a Treaty right to pursue a moderate livelihood from hunting, fishing and gathering, stemming from Peace and Friendship Treaties of 1760-61. There are 34 First Nations affected by the *Marshall* decision, representing approximately 28 000 people.

Following the *Marshall* decision, the Government launched the *Marshall* strategy involving DFO and Indian and Northern Affairs Canada. DFO is responsible for the negotiation of multi-year agreements that provide immediate access to commercial fisheries, along with vessels, gear, and training. These initiatives are being undertaken in a manner that preserves a stable fishery for the benefit of all commercial fishers and in which the principles of sustainable development and conservation are respected.

In the course of negotiations in 2001 and 2002, DFO signed one to three year agreements with 30 of the 34 First Nations involved, of which 22 agreements provided increased access to the fishery. This access is being provided through voluntary withdrawal of non-native fishers to provide for the assignment of licences to First Nations, or through additional licences where the resource conditions permit. Negotiations are ongoing with the remaining First Nations that either have not signed agreements or have only signed one-year agreements under the longer-term response. While the target for signing fisheries agreements with First Nations is March 31, 2004, the Department has until March 31, 2006 to deliver on commitments for commercial access, vessels, gear, and training.

### **Monitoring and enforcement**

#### **Radarsat trials**

DFO has participated in trials of satellite surveillance technology, as a method of enhancing the more traditional monitoring systems provided through ship and aerial surveillance operations within the Canadian 200 mile economic zone and the fishing grounds outside the zone, in the areas of the Flemish Cap, as well as the Nose and Tail of the Grand Banks. The data gathered with the Canadian Radarsat, when integrated with the vessel reporting by Vessel Monitoring System (VMS), vessel name and GPS position, provides a good synoptic picture of vessels operating in an area. While there remain some significant limitations to the application of these technologies for real-time fisheries surveillance in a highly mobile marine environment, DFO will continue to monitor developments in this technology and its applicability to fisheries enforcement activities.

#### **Innovation projects**

DFO has established a centre of expertise approach intended to constitute a focal point to ensure a consistent and strategic national approach to operational modernization. Centres of expertise are being developed for the following areas of innovation: mobile data collection, transmission, and access; integrated data management; hail-out/voice recognition and text to speech technology; electronic vessel logs; electronic vessel monitoring systems; and, data sharing. Centres are being established across the country,

promoting cooperative and participative innovation and development of selected processes and technologies. For monitoring and enforcement purposes, it is anticipated that this approach will lead to improved information management and an increased focus on promoting knowledge management as a fundamental departmental resource.

### **Multilateral agreements and arrangements**

On December 11, 2001, the United Nations Fish Stocks Agreement (UNFA) entered into force. Canada ratified UNFA in 1999. UNFA provides a framework for the management and conservation on the high seas of straddling fish stocks and highly migratory fish stocks. Canada signed the Western and Central Pacific Highly Migratory Stocks Convention (WCPFC) on August 2, 2001. Canada's main fisheries interests in the Convention are in northern albacore tuna stocks. Signature of the Convention is in line with a key component of Canada's international fisheries policy – promotion of the provisions of UNFA. The WCPFC is to date the most faithful implementation of UNFA in a regional fisheries management organisation.

## **3. Aquaculture**

### **Policy changes**

Recognizing the significant socio-economic benefits associated with aquaculture development, and the need to ensure the responsible and sustainable development of the aquaculture industry, the Minister of Fisheries and Oceans launched a CAD 75 million Programme for Sustainable Aquaculture in 2000. Through this programme, the Government of Canada invests CAD 15 million annually in science, research and development, human health and the development of improved departmental policy and regulatory frameworks for aquaculture development.

In 2001, as the lead federal agency for aquaculture development, DFO approved an Aquaculture Policy Framework (APF) consisting of principles to guide departmental decision-making and ensure that the department's actions support the social, economic and ecological aspects of sustainable aquaculture development. In addition to affirming DFO's important regulatory responsibilities the APF commits DFO to a number of "enabling" actions, namely making further investments in science to support regulatory decision-making and industry competitiveness, improving the site application process and through proactive planning, identify suitable sites for aquaculture development, and identifying opportunities to engage Aboriginal groups in aquaculture development.

### **Production facilities, values and volumes**

Aquaculture operations across Canada employ over 14 000 people directly and indirectly. In 2000, 22.8% of the total value harvested from living aquatic resources came from aquaculture. The predominant species cultured in Canada are Atlantic salmon, rainbow and sea trout, mussels, oyster, scallops, and clams.

In 2000, Canadian aquaculture production of finfish and shellfish increased to 124 thousand tonnes and sales reached an all-time high of CAD 612 million. Finfish, mostly Atlantic salmon, accounted for CAD 559 million in sales, 91% of the total, while molluscs accounted for CAD 52 million, or 8.5%. New Brunswick and British Columbia accounted for 83.6% of total national sales.

## 4. Fisheries and the environment

### **Environmental policy changes**

The Government of Canada has proposed legislation on species at risk; the legislation is called SARA (Species at Risk Act). This Act is an essential part of the Government's obligation to protect species. This legislation would provide a framework for protecting species at risk under federal jurisdiction as well as safety net provisions to protect provincially regulated species if needed. DFO would bear primary responsibility for protecting aquatic species listed under SARA.

The federal Government has taken legislative and policy steps to address marine pollution under the *Fisheries Act*. The Act contains habitat protection provisions that prohibit any project or activity that would cause harm to fish and fish habitat, unless authorised by the Minister of Fisheries and Oceans. The pollution prevention provisions, administered by Environment Canada, prohibit the discharge of deleterious substances to waters, unless authorised by a regulation under the *Fisheries Act* or other federal legislation.

Canada's current legislative framework provides governments with habitat management tools such as environmental assessment, land-use planning, guidelines, by-laws, and codes of practice. Programmes range from monitoring and assessment of watersheds, to protecting and restoring damaged habitat, and preventing pollution from contaminants. Canada's National Fish Habitat Management Programme aims to protect and conserve fish habitat in support of Canada's coastal and inland fisheries resources.

Under the Oceans Act, DFO is tasked with developing a national system of marine protected areas (MPAs). The department, in collaboration with provinces and territories and other key interests, is establishing MPAs in order to:

- proactively conserve and protect the ecological integrity of marine habitat;
- contribute to the social and economic sustainability of coastal communities by providing for uses compatible with the reasons for designation; and
- to further knowledge and understanding of marine ecosystems.

Since 1998, Fisheries and Oceans Canada has announced 12 Areas of Interest for establishing MPAs on Canada's Pacific and Atlantic coasts with additional areas, including the Arctic, under consideration.

### **Sustainable development initiatives**

The Department's legal mandate, policies, and programmes reflect specific objectives as well as general principles of sustainable development found in Chapter 17 of Agenda 21, established at the 1992 Earth Summit. Furthermore, sustainable development became an integral element of Canadian Government policy in 1995. Since then, federal Government departments have been required to prepare three-year strategies, indicating how they plan to work toward sustainable development. DFO has been working on implementing the objectives of its 2001 Sustainable Development Strategy.

The following are the four themes DFO will focus on to support sustainable development for the years 2001 to 2003:

- new forms of governance and shared stewardship;
- knowledge and technology for sustainable development;
- sustainable operations; and
- managing for progress and performance.

Following are some recent initiatives in support of sustainable development goals.

### ***Science peer review and advisory processes***

The science review and advisory processes of DFO have been expanded in two important ways. First, the subjects for consideration have been expanded to include issues such as the conservation of marine ecosystems and the sustainable use of aquatic resources. Topics now include *among others*, species-at-risk, ecosystem management objectives, siting and management measures for marine protected areas, ecosystem impacts of aquaculture and fishing, and the impacts of offshore hydrocarbon exploration.

Second, meetings have become more fully engaged and include academics, external technical experts, fishers, NGOs, First Nations, coastal residents, and other stakeholders in peer review and advisory processes. Concomitantly, users' knowledge, including local and traditional environmental knowledge, is now contributed and considered, along with the more formal Western science material, in evaluations of the status of stocks, species, and ecosystems, and consequences of management options.

### ***Policies and plans***

The overall policy objective of fish habitat management is to achieve a "net gain in the natural productive capacity of habitats for the nation's fisheries resources to benefit present and future generations of Canadians". This is to be accomplished through the pursuit of three supporting goals: conservation of current productive capacity, restoration of damaged habitats, and development of fish habitat. In response to the Global Programme of Action (GPA) for the Protection of the Marine Environment, Canada released its National Programme of Action for the Protection of the Marine Environment (NPA), in June 2000. The NPA is an intergovernmental partnership aimed at preventing marine pollution from land-based activities and protecting habitat in the near shore and coastal zones of Canada.

### ***Research and technologies***

Canada has been experimenting with new technologies to map Canada's offshore lands and the Great Lakes. This is accomplished through the production of high-resolution images that display the shape of the sea floor, sediment cover and benthic habitat (the flora and fauna at the bottom of an ocean, sea or lake). This knowledge is essential to apply the ecosystem-based approach to sustainable development of offshore resources.

The Environmental Science Strategic Research Fund, launched in 2000 by DFO, co-ordinates and funds research on the capacity of habitats to sustain fish production and the impacts on aquatic ecosystems from activities such as physical disruption, the introduction of contaminants, and the introduction of exotic species.

### ***National Round Table on the Environment and the Economy***

The National Round Table on the Environment and the Economy (NRTEE) is an independent advisory body, created in 1994, that provides decision makers, opinion leaders and the Canadian public with advice and recommendations for promoting sustainable development. The members include representatives from business, labour, academia, environmental organisations and First Nations.

In September 2000, NRTEE launched its Environment and Sustainable Development Indicators (ESDI) Initiative, to develop and promote a focussed set of national indicators that are credible, relevant and well-accepted, linking economic activity to its long-term effects on the environment. A three-phase process has been planned, that will take place over three years: determine the approach for measuring indicators; develop specific indicators; and test and disseminate the proposed indicators.

The development of indicators was divided among cluster groups according to themes. The NRTEE/ESDI Cluster Group on Renewable Marine and Forest Resources considered the prospects for developing sustainable development indicators in three areas of marine resources:

- fish stocks exploited for commercial purposes;
- vulnerable, threatened and endangered species; and
- the overall health of the aquatic ecosystem.

The discussions surrounding specific indicators in these areas are ongoing but have been inconclusive to date.

## 5. Government financial transfers

### *Transfer policies*

In recent years, the federal Government, the principal source of programme assistance in the fisheries sector in Canada, has phased out all transfers aimed at price and vessel support. Ongoing financial transfers to the industry have been designed to promote the transition towards responsible fisheries practices and to reduce dependence on the fishery. These transfers have taken the form of licence retirement, fisheries adjustment, and regional economic development initiatives designed to promote the restructuring of Canada's fisheries.

Financial transfers resulting from user charging, alternate service delivery, and partnering initiatives introduced in recent years continue to flow from the fisheries sector to Government in 1999. Such initiatives provide fleets a greater say in decision-making processes as well as a greater share of costs for co-management, such as fisheries science, management, harbours, and conservation and protection.

The federal Government provides general services to the fishing sector in the form of fisheries management, fisheries research, harbour services and aquaculture development. Preliminary estimates of Government expenditures on these services in 2000 are: CAD 180 million for fisheries management; CAD 85 million for fisheries research (capture fisheries and aquaculture); CAD 88 million for harbour services; and CAD 2.7 million for aquaculture development. Expenditure levels in 1999 were CAD 160 million for fisheries management, CAD 71 million for fisheries research, CAD 60 million for harbours, and CAD 2 million for aquaculture development. The total expenditure for general services is estimated to be CAD 356 million in 2000, 22% higher than in 1999, when it reached CAD 293 million. The increase in general services mainly reflects increased funding to strengthen scientific research capacity and heightened enforcement activities, as well as major repairs and maintenance of federally maintained small harbours.

### **Social assistance**

Assistance in the form of employment insurance for fishers increased from CAD 231 million in 1999 to 250 million in 2000 (including both marine and freshwater fisheries) as expanding incomes caused the number of eligible fishers to increase.

### **Structural adjustment**

To address permanent restructuring requirements, the Atlantic Groundfish Strategy (TAGS), the Pacific Salmon Revitalization Strategy (PSRS), and the Canadian Fisheries Adjustment and Restructuring (CFAR) programme, were put in place in the mid to late 1990's to permanently remove fishers from the industry. These programmes have now come to an end. The Government also put in place adjustment programmes for older workers. Government expenditures to remove fishers from capture fisheries through these licence retirement and older worker adjustment programmes totalled CAD 188 million in 1999, decreasing rapidly as some reduction targets were met, dropping to 29 million in 2000.

## **6. Post-harvesting policies and practices**

As an export-oriented fishing nation, Canada devotes considerable effort to the safety and wholesomeness of its fish products. Canada's National Fish and Fish Products Inspection and Control System is carried out by the Canadian Food Inspection Agency (CFIA) and covers all Canadian fish and fish products intended for export or interprovincial trade and all imports of fish products into Canada.

The FAO Code of Conduct for Responsible Fisheries (the FAO Code) provides an important reference tool for the management and prosecution of fisheries on an international basis. In Canada, the harvesting sector of the Canadian fishing industry has, as its commitment to sustainable fisheries, already developed a Code of Conduct for Responsible Fishing Operations (the Canadian Code).

A draft post-harvest code has also been developed in collaboration with industry and the next step will be consultations to arrive at a consensus code for ratification. One issue of particular concern to the Canadian industry is how companies can attest to whether or not imported supplies of raw material come from responsible fisheries. The solution lies in international action within FAO, namely the Committee for Fisheries, to ensure the development and promulgation of international standards and processes to verify that raw material can be certified as caught in compliance with the FAO Code prior to processing as product of Canada.

The proposed post-harvest code, together with the harvesters' Canadian code, will be a tangible demonstration, both domestically and internationally, of a commitment by all fishing industry sectors to the principles of conservation and sustainable use of marine resources, consistent with FAO Code principles.

### **Policy changes**

Since conservation and sustainable development of the fisheries resource and industry are primary objectives of Fisheries and Oceans, past overcapacity in the fish processing sector prompted the federal Government to develop policies to encourage the rationalization of the sector. Since 1999, there has been a moratorium on public investment support for primary fish processing projects to avoid the extra pressure that processing over-capacity can place on the supply of raw resources. Public investment in the

fish processing industry has been restricted to initiatives involving research and development, market penetration, value-added secondary processing, and aquaculture, as well as the rationalization/consolidation of processing facilities.

## **7. Markets and trade**

### **Markets**

#### ***Trends in domestic consumption***

During the period 1989-1999, per capita domestic consumption of fish and fish products remained relatively static. Per capita consumption was 9.59 kilograms in 1989 and 9.97 kilograms in 1999. A moderate increase in shellfish consumption during this period was offset by a decrease in consumption of processed sea fish.

### **Trade**

#### ***Volumes and values***

In 2001, Canada exported fish and seafood products to more than 90 countries, totalling CAD 4.2 billion. The US remains the destination of choice for Canada's seafood products. Canada's fish and seafood exports to the US rose to CAD 3.1 billion in 2001, an increase of 5.7% over 2000. The value of exports to European countries increased by 16.6% and exports to Central and South American countries increased by 23%, but exports to Japan decreased by 20%. Despite the decrease in exports to Japan, Japan remains Canada's top overseas destination, accounting for almost 10% of all exports of Canadian fish and seafood products.

Canada's imports of fishery products totalled CAD 2.17 billion in 2001, up from CAD 2.1 billion in 2000. The value of imports rose only slightly for groundfish and shellfish, at 4% and 1% respectively. Growth in the value of imports of freshwater fish was higher at 10%, while the value of imports of pelagic fish decreased by 2%. Fresh and frozen shellfish remain the leading import items, representing 42% of the total value of imports of fisheries products in 2001, with a value of CAD 915 million.

#### ***Policy changes***

In addition to the World Trade Organization Doha Development Agenda established in 2001, Canada is involved in free trade negotiations with the countries of the Americas, the Central America Four, CARICOM and Singapore. In addition, following the launch of bilateral free trade negotiations between Canada and Costa Rica on June 30, 2000, agreement has been reached on phased tariff elimination for all industrial goods, including fish.

With regard to the Most-Favoured-Nation (MFN) rates of duty on fish and fish products, there were no changes in the Customs Tariff in 2000 or 2001. Fish, crustaceans, molluscs, and other aquatic invertebrates of Chapter 3 of the Schedule to the Customs Tariff are largely duty-free and, in those instances where duties are levied on fish of Chapter 3, fish oils of Chapter 15 or fish preparations of Chapter 16, implementation of the MFN rate reductions resulting from the WTO Uruguay Round of Multilateral Trade Negotiations was completed in 1999. Canada has no tariff rate quotas on fish or fish products.

## 8. Outlook

Preliminary information indicates that both commercial fishing volume and value in Canada may have decreased in 2001. DFO will continue to monitor the status of fish stocks closely and adjust TACs as necessary to ensure that conservation objectives are met. The Department will continue to make progress on its Atlantic and Pacific fisheries management policy renewal agenda, as well as on its sustainable development initiatives. DFO will also continue to pursue long term agreements with First Nations to provide access and build capacity for Aboriginal involvement in commercial fisheries.



PART III  
*Chapter 3*

## **Czech Republic**

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## Summary

The Czech Republic is a land-locked country which means that its fishery production is concentrated on fresh water fish in ponds and fish farms. Carp is the main fish produced, and, over the 3-4 vegetation periods, grew to live weights of 1.8-2.5 kg which prevail in typical sales. Carp lives in ponds accompanied by other herbivore fish, tench, cisco and predator fish. Production of rainbow trout and other salmon fish plays only a limited role because of limited resources of good quality water for their production and also with regard to competitive import prices. Intensity of production in ponds has increased in realistic volumes with regard to the requirements of domestic market as well as export possibilities.

Production of market fish in the year 2000 reached a total of 19 475 tons while in the year 2001, it reached a total of 20 098 tons (both live weight). Consumption of fresh water fish is traditionally highest during the Christmas period. Total consumption of fish is approximately 5 kg per capita per year of which 1 kg is fresh-water fish and 4 kg is sea fish.

Pond management cannot be, from a larger point of view, limited only to a purpose-oriented production of fish as it ensures also a range of non-production functions as, for example, regulation of ground water in soil, retention of water in the region, landscape development, use for irrigation, supplies of water for the industry, fire-control, water management, sport and recreational purposes.

To maintain a functioning ecosystem, fishermen take into consideration the conditions established by the bodies of nature conservation, the fact which has impact on the weight increments of fish and lower market production in the given localities.

## 1. Legal and institutional framework

The Decree No. 326/2001 of the Coll. that implements §18, Letter *a), d), g), h), i) and j)* of the Act No. 110/2001 of the Coll., On foodstuffs and tobacco products. The Decree concerns changes in the Annex and relates to meat, meat products, fish, other water animals and products of them, eggs and products of them.

The Act No. 154 from May 17, 2000, On breeding, breed development and registration of farm animals and on the amendment of some related acts (Breeding Law). For fish, the Act No. 246/1992 of the Coll., On protection of animals against cruelty, is also enforced. This act is developed by the Decree No. 245/1996 of the Coll. that regulates the conditions for protection of animals during slaughtering and also with regard to fish production.

- The Act No. 254/2001 of the Coll., On water and on the amendments of some related acts (Water Law).
- The Decree No. 103/1963 of the Coll. that implements the Fishery Law, as amended.
- The Decree No. 296/2001 of the Coll. that establishes the way of keeping economic records on ponds and records on economic results in the fishery areas, details of selection procedure for the performance of fishery law in the fishery areas and a professional

capability of fishery managers that amends the Decree of MZLVH No. 103/1963 of the Coll. that publishes the implementing regulations to the Fishery Law, as amended.

- The Decree No. 471/2000 that implements some provisions of the Act No. 154/2000 of the Coll., including the Annex to the Decree No. 471/2000 of the Coll.
- The Decree No. 33/2001 of the Coll., On professional capability for the performance of some professional activities in the field of breeding and breed development of farm animals.
- The Decree No. 357/2001 of the Coll., On labelling and keeping records on horses, pigs, runners and game in farm production and on keeping records on poultry, breeding fish and bees.

The above listed legislation defines the whole sector of fishery in the Czech Republic.

## 2. Fishery

The Czech Republic is a land-locked country so that no principles concerning sea fishery are applied.

Production of fresh-water fish is undertaken by specialised producers in ponds and other facilities. Most producers in the sector are members of the In-Pond Fishery Production Association of the Czech Republic.

Recreational fishery falls under the responsibility of the Ministry of Agriculture of the Czech Republic and is managed mostly through recreational associations (for example, the Czech Fishery Union and the Moravian Fishery Union) to which the fishery areas are assigned.

Annual production of market fish at present is approximately 20 000 tons. As a consequence of the transformation process and liberalisation of foodstuff prices, production of fish in the previous years registered certain fluctuations, market fish harvesting fell from the maximum level of 20 800 tons in the year 1992 to 19 500 tons in the year 2000.

Volume of fish harvesting is influenced also marketing. In the last years, the volume of harvested fish has stabilised.

Table III.3.1. **Use of the fresh-water market fish, produced**  
'000 tons of live weight

	Production of market fish <sup>1</sup>	Use		
		Sales of live fish on domestic market	Fish intended for processing	Exports of live fish
1990	19.3	9.1	3.8	2.7
1991	18.7	9.1	2.2	4.6
1992	20.8	9.9	2.3	5.6
1993	20.1	9.2	1.6	9.3
1994	18.7	9.4	1.6	8.4
1995	18.7	9.7	1.7	7.8
1996	18.2	8.5	1.9	8.2
1997	17.6	7.6	1.4	7.0
1998	17.2	7.5	1.6	8.8
1999	18.8	8.5	1.8	8.0
2000	19.5	8.5	2.1	9.2

1. Aside from the annual production of market fish, beginning stocks were taken into consideration (the supplies of the last year), a volume of the imported market fish and losses which together represent the total balance.

Source: Pond fishery of the Czech Republic.

### 3. Fisheries and the environment

Fisheries in the Czech Republic are operated within the framework of the law.

- Act No. 102/1963 of the Coll., on fishery, as amended.
- Act No. 17/1992 of the Coll., on environment.
- Act No. 114/1992 of the Coll., on protection of environment and landscape.
- Act No. that is amending the Act No. 102/1963 of the Coll., on fishery, as amended.

### 4. Government financial transfers

Direct payments in the year 1999 totalled CZK 9 303 000 while in the year 2000, they came to CZK 9 309 705.

The fishery sector received state support in the form of subsidies to carry out fish utility control and testing of utility qualities, heredity control, publishing the results of breeding work and guidance activities. The subsidies cover a part of the costs connected with the above mentioned activities (in CZK) including the maintenance of fish genetic resources.

### 5. Policies and procedures associated with fishery

Issues concerning food safety, information and labelling are based on the Act No. 110/1997 of the Coll., On foodstuffs, that stipulates requirements for food safety and is compatible with EU requirements.

### 6. Processor utilities

A number of processing facilities within the association has stabilised and reached a total of 12. Five processing facilities, members of the Fishery Association, possess certificates for their produced assortment covering exports into EU countries. Two more companies deal also with the all-year-round processing of fresh-water fish. A process of specialisation is taking place in the variety of produced fish products.

### 7. Markets and trade

Table III.3.2. **Live fish, HTS No. 0301**

Tons

	Imports		Exports		Balance	Average import price in CZK/year		Average export price in CZK/year	
	Total	of which: Carp	Total	of which: Carp		Total	of which: Carp	Total	of which: Carp
1997	359	93	7 201	5 961	6 842	88.13	63.44	107.41	64.14
1998	555	181	8 519	7 395	7 964	78.39	62.41	98.76	53.72
1999	426	34	7 833	6 810	7 407	82.32	59.00	99.35	49.94
2000	432	37	9 434	8 189	9 002	95.16	47.31	84.20	38.82
2001	272	26	4 823	4 070	4 551	114.43	50.55	112.00	46.61

Customs statistics: year 2001 January-September.

Source: Custom statistics.

Table III.3.3. **Consumption of fish**  
Kg/citizen/year

Kind	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>Total fish</b>	<b>6.0</b>	<b>5.4</b>	<b>3.8</b>	<b>4.6</b>	<b>4.5</b>	<b>4.8</b>	<b>4.9</b>	<b>5.2</b>	<b>5.5</b>	<b>5.3</b>	<b>5.2</b>	<b>5.3</b>	<b>5.4</b>
<i>of which: Fresh-water fish</i>	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.0	0.9	0.9	1.0	1.0	1.0

Source: OECD.

PART III  
*Chapter 4*

## European Community

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## Summary

Over the period 1999-2000 the European Community's work on the Common Fisheries Policy (CFP) focused on:

- consolidation of the Community system of management and control of fishing activities;
- adoption of regulations on the Financial Instrument for Fisheries Guidance (FIFG) and on a new common organisation of the market for fishery and aquaculture products;
- the continuity of fishing activities inside and outside Community waters consistent with responsible and sustainable fishing;
- consolidation of the role of marine and aquaculture research;
- the launching of the consultation process on the Common Fisheries Policy (CFP) after the year 2002.

Discussions on the Common Fisheries Policy continued throughout 2001. The scope of this report is confined to actions taken in 2001.

## 1. Legal and institutional framework

Sole jurisdiction over the conservation and management of marine fish stocks was vested in the European Community by its member States (Articles 33-41 of the Treaty of Amsterdam). The Community therefore has responsibility for the adoption of all relevant rules and regulations in this area – which are then applied by the member States – and for entering into external arrangements with third countries or qualified international organisations.

The Community's jurisdiction extends to fishing activities in national waters and on the high seas. However, measures relating to the exercise of jurisdiction over fishing vessels, the right of such vessels to fly the flag, the registration of fishing vessels and the right to impose penal and administrative sanctions fall within the competence of the member States, provided that they comply with Community law. Community law also provides for administrative sanctions.

Council Regulation (EEC) No. 3760/92, instituting a Community system of fishing and aquaculture, is the legal basis for the Common Fisheries Policy (CFP).

Vessels not flying the flag of one of the member States of the European Community are prohibited from entering the Community fishing zone. Access is permitted only in accordance with the terms of bilateral fishing agreements concluded by the European Community with third countries.

Responsibility for a number of areas not directly related to the conservation and management of fishery resources – research, technological development and development co-operation, for example – is shared.

The process of consultation over the future of the Common Fisheries Policy resulted in the presentation of a Green Paper on the Future of the Common Fisheries Policy which provided a basis for discussions with the relevant parties in the fisheries sector.<sup>1</sup> The Green

Paper discusses a number of objectives and options relating to all aspects of the Common Fisheries Policy, ranging from fleet policy to environmental considerations.

## 2. Capture fisheries

### Status of fish stocks

**Landings** for the period 1999-2000-2001 of species subject to a TAC are shown in Tables III.4.A1.1, Table III.4.A1.2 and III.4.A1.3 (Annex 1).

The Council adopted Regulation (EC) No. 2742/1999<sup>2</sup> setting out the total admissible captures (TAC) and fishing quotas for 2000. For the first time this Regulation the fishing opportunities for Community vessels in the waters of certain non-member States (Estonia, Latvia, Lithuania, Poland, Russia, Norway, Iceland, the Faroe Islands and Greenland), as well as the fishing opportunities for non-member State vessels in Community waters, including the 200-nautical-mile zone off the coast of the French department of Guyana, that until now were covered by separate regulations. This Regulation therefore also provides for:

- highly migratory fish species whose TACs are adopted within the framework of international fisheries organisations responsible for tuna conservation such as ICCAT and IATTC;
- TACs adopted by CCAMLR and not allocated to CCAMLR members, in which the Community's share remains undetermined.

The Council amended Regulation (EC) No. 2742/1999 on six occasions in 2000 in order to:

- adjust the allocation of anchovy stocks in the Bay of Biscay (Regulation (EC) No. 1446/2000);<sup>3</sup>
- enable the exploitation of new fishing opportunities, adapt the terms for fishing in French Guyana, and improve the implementation of quotas in the Baltic, Skagerrak and Kattegat (Regulation (EC) No. 1447/2000);<sup>4</sup>
- establish the fishing opportunities for Community vessels in the waters of the Faeroes and Estonia and define the areas where Norwegian vessels may fish for blue whiting (Regulation (EC) No. 1696/2000);<sup>5</sup>
- take account of the outcome of discussions with third countries concerning certain species and to define the areas in which herring may be taken in the north-east Atlantic (Regulation (EC) No. 2517/2000);<sup>6</sup>
- ensure adequate protection for stocks of bluefin tuna (Regulation (EC) No. 2579/2000);<sup>7</sup>
- transfer Baltic herrings and sprat to the Community (Regulation (EC) No. 2765/2000).<sup>8</sup>

The Council also adopted Regulation (EC) No 2848/2000 fixing fishing opportunities and associated conditions for 2001.<sup>9</sup>

In 1999 and 2000, in the area of technical measures, the Council on several occasions amended Regulation (EC) No. 850/98 on the protection of juveniles of marine organisms. In addition, it extended the period of validity of derogation to certain technical measures for the conservation of fishery resources in the Mediterranean, in accordance with the provisions of Regulation (EC) No. 1626/94, until 31 December 2002.<sup>10</sup>

During 2000 and 2001, serious concerns were expressed in scientific and political fora about safe biological limits, the threat of collapse and the need to establish recovery plans for certain fish stocks in Community waters. As a result, additional technical measures for the recovery of certain stocks in danger of collapse and the associated conditions for the control of activities of fishing vessels were adopted in 2000 and 2001.



### **Irish Sea cod**

Council Regulation (EC) 2549/2000 of 17 November 2000, establishing additional technical measures for the recovery of the stock of cod in the Irish Sea (ICES division VIIa).

### **North Sea cod**

Commission Regulation (EC) 259/2001 of 7 February 2001 establishing measures for the recovery of the stock of cod in the North Sea (ICES sub-area IV) and associated conditions for the control of activities of fishing vessels.

Commission Regulation (EC) 2056/2001 of 19 October 2001 establishing additional technical measures for the recovery of the stocks of cod in the North Sea and to the West of Scotland.

### **Northern stock of European hake**

In November 2000, the ICES indicated that the northern stock of European hake was at serious risk of collapse. Following that declaration, at the Council meeting of 14 and 15 December 2000, the Commission and the Council noted the urgent requirement to establish a recovery plan for this stock of hake.

Commission Regulation (EC) 1162/2001 of 14 June 2001, establishing measures for the recovery of the stock of hake in ICES sub-areas III, IV, V, VI and VII and ICES divisions VIIIa, b, d, e and the associated conditions for the control of activities of fishing vessels.

### **Control and inspection**

With regard to control policy, in June 1999 the Council adopted Regulation (EC) No. 1447/1999 establishing a list of types of behaviour which seriously infringe the rules of the Common Fisheries Policy.<sup>11</sup> This Regulation aims to draw up a list of types of behaviour for which increased transparency regarding follow-up by national authorities is required.<sup>12</sup> Such failures to comply with Community obligations concern not only co-operation with supervisory authorities and observers, but also the conditions required for the conduct of fishing operations, means of control or the landing and sale of products.

In addition, in December 1999 the Commission adopted Regulation (EC) No. 2737/1999 amending Regulation (EEC) No. 2807/83 laying down detailed rules for recording information on member States' catches of fish.<sup>13</sup> This Regulation is primarily designed to extend the application of provisions relating to log books and landing declarations for fishing activities in the Mediterranean.

As a contracting party to the North East Atlantic Fisheries Commission (NEAFC), the European Community took part in developing a control and enforcement scheme for fishing vessels operating in the NEAFC area and a programme aimed at promoting compliance with NEAFC recommendations by vessels of non-contracting parties. In order to ensure that these measures would be implemented at Community level, on 19 December 1999 the Council adopted Regulation (EC) No. 2791/1999 laying down certain control measures applicable in the area covered by the Convention on future multilateral co-operation in the north-east Atlantic fisheries.<sup>14</sup>

In 2001, the European Commission published a report on the monitoring of the implementation of the Common Fisheries Policy<sup>15</sup> "responding to obligations laid down in Article 35 of Control Regulation and providing a detailed account supporting the analysis

and suggestions for improvements in the area of monitoring, control and enforcement outlined in the Green Paper on the Future of the Common Fisheries Policy”.

On 28 May 2001, the Council adopted Decision 2001/431/EC on a financial contribution by the Community to certain expenditure incurred by the member States in implementing the control, inspection and surveillance systems applicable to the Common Fisheries Policy.<sup>16</sup> Under this Decision, the European Community can make a financial contribution to eligible expenditure incurred by member States between 1 January 2001 and 31 December 2003 and aimed at contributing to the following actions:

- introduction of computer systems and networks;
- trial use and implementation of new technologies;
- training of control agents;
- introduction of new inspection schemes and observers within the RFOs in which the European Community is a contracting party;
- acquisition or modernisation of inspection and control equipment;
- implementation of a system for the assessment of eligible expenditure.

Further to this Decision, on 27 December 2001 the Commission adopted Decision 2002/5/EC on the eligibility of expenditure to be incurred by certain member States in 2001 in implementing the control, inspection and surveillance systems applicable to the Common Fisheries Policy,<sup>17</sup> together with Decision 2002/6/EC on the eligibility of expenditure on a number of operations to be incurred by certain member States in 2002 for the implementation of the control, inspection and surveillance systems applicable to the Common Fisheries Policy.<sup>18</sup>

Moreover, on 12 November 2001, the Commission submitted to the Council and the European Parliament a Communication on behaviour which seriously infringed the rules of the Common Fisheries Policy in 2000.<sup>19</sup> This Communication was based on data supplied by member States and responds to the obligation set out in Commission Regulation (EC) No. 2740/1999.<sup>20</sup> This action aims to guarantee increased transparency so that fishermen's confidence in the supervisory authorities and the comparability of each national system's effectiveness are ensured.

The European Community signed several bilateral agreements regarding the satellite surveillance of fishing vessels with a number of third countries (Norway, Greenland, Faeroe Islands, Angola, Madagascar, and Seychelles).

### **Bilateral agreements and arrangements**

In 1999 and 2000, the European Community took part, as a contracting party, in various meetings of regional fisheries organisations such as the International Baltic Sea Fishing Commission (IBSFC), the North Atlantic Salmon Conservation Organisation (NASCO), the Northwest Atlantic Fisheries Organisation (NAFO), the North-East Atlantic Fisheries Convention (NEAFC), the International Commission for the Conservation of Atlantic Tunas (ICCAT), the Indian Ocean Tuna Commission, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) and the General Fisheries Council for the Mediterranean (GFCM).

In 1999 it also took part, as an observer, in the work of the Inter-American Tropical Tuna Commission (IATTC).<sup>21</sup> Pending the accession of the European Community to the IATTC, the Council authorised the provisional accession of Spain to the IATTC and decided

to proceed with provisional implementation of the Agreement on the International Dolphin Conservation Programme (IDCP).<sup>22</sup> This agreement puts in place a monitoring and verification system that makes it possible to determine whether tuna fishing activities in the Eastern Pacific are dolphin safe. In 2000, the Community took part in negotiations within the IATTC to bring the basic convention into line with the Law of the Sea and continued its work towards joining that organisation.

In 2000, the European Community followed the proceedings of the multilateral high-level conference to establish a new organisation for the management of tuna stocks in the western central Pacific and took steps towards joining this future organisation also. The European Community also monitored preparatory work aimed at establishing a future fisheries organisation in the south-west Indian Ocean.

The Council adopted Regulations implementing two ICCAT recommendations, the first laying down control measures to ensure compliance with the measures adopted by that RFO and the second on a system for the statistical monitoring of trade in bluefin tuna.<sup>23</sup> In 2001, the Council adopted Regulation (EC) No. 1036/2001 prohibiting imports of bigeye tuna originating in Belize, Cambodia, Equatorial Guinea, Honduras and Saint Vincent and the Grenadines.<sup>24</sup>

In July, the Council adopted Regulation (EC) No. 1721/1999<sup>25</sup> laying down certain control measures in respect of vessels flying the flag of non-contracting CCAMLR countries, including the compulsory inspection of vessels voluntarily calling at ports of contracting parties. In 2001, the Council adopted Regulation (EC) No. 1035/2001 establishing the catch documentation scheme for *Dissostichus spp.* previously adopted by the CCAMLR.

In July 2000, the Council adopted a Decision on the acceptance, by the European Community, of the amendment to the Agreement establishing the General Fisheries Commission for the Mediterranean with a view to establishing an autonomous budget for that organisation.

In 1999, the Council adopted the decisions and regulations relating to the renewal of the protocols appended to the fishing agreements with Angola and the Seychelles.

In 1999 and 2000, the Council authorised Spain and Portugal to extend their fishing agreements with South Africa until March and April 2000 and until March and April 2001 respectively.<sup>26</sup>

In 2000, the Council adopted the decision on the renewal of the protocol appended to the fishing agreement with Mauritius and adopted decisions regarding the provisional implementation of the protocols to the fishing agreements with Angola, Ivory Coast, Equatorial Guinea and Greenland.

### 3. Aquaculture

The new Financial Instrument for Fisheries Guidance (FIFG) for the period 2000-2006 was adopted in 1999.<sup>27</sup> This new instrument includes measures aimed at promoting the development of aquaculture. In particular, it promotes the use of techniques that substantially reduce environmental impact. Where investments concern the use of such techniques, the contribution of the private beneficiary may be restricted to 30% in Objective 1 regions and 50% in other areas, instead of 40% and 60% respectively.

Another important event for aquaculture in 2000 was the adoption of Commission Regulation (EC) No. 2722/2000, which allows the aquaculture sector to receive funding from the FIFG eradicate pathological risks.

The new Common Market Organisation<sup>28</sup> includes some aspects of interest for the aquaculture sector such as the possibility of establishing and promoting Producer Organisations (POs). These POs can take measures aimed at ensuring the best marketing conditions for their products. Moreover, the current FIFG can provide financial support to set up such POs.

The reform of the Advisory Committee for Fisheries and Aquaculture (ACFA) in 1999<sup>29</sup> greatly contributed to improved dialogue between the Commission's departments and the aquaculture sector since the new structure of the Committee includes one working group focused on aquaculture issues.

Concerning the environmental aspects, Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy was adopted in 2000. This directive provides a general framework for the protection and management of waters. In 2000, the Commission also submitted to the Council and the European Parliament a Communication on Integrated Coastal Zone Management: *A Strategy for Europe* [COM(2000)547 final]. This Strategy aims to promote a collaborative approach to the planning and management of coastal zones. It is expected to improve the implementation of a wide range of European Union legislation and policies in coastal zones. The Strategy includes a proposal for a European Parliament and Council Recommendation to member States.

Concerning health issues, a reformulation of Community legislation on food hygiene, aspects of animal health relating to the sale of products of animal origin, and official controls on food of animal origin was adopted by the Commission and forwarded to the Council and the European Parliament during 2000 [COM(2000)438].

### **Production facilities, values and volumes**

The values and volumes of EU aquaculture production for the years 1999-2000 are reported in Table III.4.A2.1 (see Annex 2).

## **4. Fisheries and the environment**

In 1999, the Commission adopted a Communication on Fisheries management and nature conservation in the marine environment<sup>30</sup> which identifies the interactions between fishery activities and marine ecosystems and sets priority objectives such as stricter nature conservation measures in the marine environment, increased vocational training and an improvement in the contribution of scientific research in this area.

In 1999, the Commission also adopted its second report to the Council and the European Parliament on the implementation of the statement of conclusions from the intermediate ministerial meeting on the integration of fisheries and environmental issues.<sup>31</sup> This second report outlines the main steps by the Community, such as the incorporation of the precautionary approach in fisheries management, the review of the CFP monitoring system and the revision of the Regulation on technical measures for the conservation of fisheries resources.

The European Community progressed in the field of environmental integration by analysing the current situation and outlining a policy to materialise the objectives and

principles of environmental integration in the field of fishing. This process will culminate in the reform of the Common Fisheries Policy. Important policy documents that describe how environmental concerns will be addressed by the future CFP include the above-mentioned report and the following:

- report on “Integrating environmental issues and sustainable development into the Common Fisheries Policy” (Santa Maria da Feira report);<sup>32</sup>
- communication on “Elements for a strategy for the integration of environmental protection requirements into the Common Fisheries Policy”;<sup>33</sup>
- communication on the “Biodiversity Action Plan for Fisheries”;<sup>34</sup>
- council conclusions of 25 April 2001 on the integration of environmental concerns and sustainable development into the Common Fisheries Policy.<sup>35</sup>

After the 7th Session of the Commission on Sustainable Development (United Nations) in April 1999 on the oceans and seas, in 2000 the European Community took part in the Informal Consultative Process on Oceans and the Law of the Sea (ICP).

The European Commission played an active role in two technical consultations organised by the FAO in 2000 and 2001 on the suitability of the CITES criteria for listing commercially-exploited aquatic species. In October 2001, the European Community took part in the Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem.

## 5. Government financial transfers

In June 1999, the Council adopted regulations on the revision of Community Structural Funds,<sup>36</sup> including the Financial Instrument for Fisheries Guidance (FIFG), under Regulation (EC) No. 1263/99 of 21.06.1999).

The Council subsequently established detailed rules and arrangements for Community structural assistance in the fisheries sector (Regulation EC No. 2792/99 of 17.12.1999).

The new Regulation lays down conditions for aid to the fleet. The general principle is that government aid should help to reduce fleet capacity. In order to obtain approval for government aid, the member States of the European Community must put in place permanent arrangements for monitoring fleet renewal and modernisation. Government aid for fleet modernisation or renewal can be granted only if it complies with the objectives of the Multi-Annual Guidance Programmes.

In April 1999, the European Commission adopted the annual report to the Council and the European Parliament on the results of the Multi-Annual Guidance Programmes (MAGPs) up to the end of 1997. According to the report, the fishing capacity of the Community fleet fell by 2% in tonnage and 3% in power in 1997. The report shows that the overall targets set for 2001 under MAGP IV (1997-2001) are already well on the way to being met.

MAGP IV was due to end in 2001 but has been extended for a further year. This time is being used by the European Commission to propose new directions for the reform of the Common Fisheries Policy. One of the major objectives proposed will be to introduce new measures that will achieve a better balance between fishing fleets and existing fish resources.

Data relating to the Community fleet for 1999-2000 are presented in an annex (Annex 3).

The management costs to the European Community in terms of management, control and research are also presented in an annex (Annex 4).

The budget allocated to the FIG for the period 2000-2006 amounts to EUR 3.7 billion. A provisional programme of allocation of this funding by objective has been established but will probably undergo major changes in the light of the discussions in progress regarding reform of the Common Fisheries Policy.

## 6. Markets and trade

### **Market trends**

The price trend continued to be positive for white fish as a result of a supply deficit from the Community fleet and increasing consumer demand; average prices rose steadily over the period 1999-2001 in contrast to the previous three-year period. The market situation improved considerably for pelagic species, with increased market prices as a result of an overall rise in demand.<sup>37</sup>

For 2002, the Council adopted the Commission proposal of raising guide prices with increases varying from 1% to 3% for most species, except for tuna destined for the processing industry where the 2001 price level was maintained.<sup>38</sup>

*White fish.* As a result of a general supply deficit and high consumer demand, prices for white fish continued to be pushed upwards with average increases for the period 1999-2001 of between 1% and 26% (with the exception of prices for hake, saithe, plaice and spotted dogfish).

*Pelagic fish.* An oversupply on the Community market in 1999 had a negative impact on the price of pelagic fish, particularly in the case of herring. For some species, recent indications show an improvement in the situation. Withdrawals were high in 1999 but dropped in 2000. Throughout 2001 pelagic species showed a marked improvement compared with previous years, with price increases between 4% and 64% for the period 1999-2001, compared with the period 1998-2000.

*Crustaceans.* As a result of a less favourable market situation due to buoyant supply and limited demand during 2001, current guide prices for crustaceans were maintained for 2002.

*Frozen products.* The prices for frozen fish also declined in 2001, which was mainly a reflection of lower prices on the international market and the unfavourable exchange rate between the Euro and the US dollar. The Council agreed on minor reductions for these species, with the exception of cuttlefish squid whose prices had fallen more sharply and therefore required a larger adjustment (4%-5%).

*Tuna for processing.* The average Community price for tuna for the canning industry continued to fall over the period 1999-2001, although there was a slight improvement in the situation in the course of 2001.

### **Aquaculture species**

*Salmon.* After a very strong year in 2000, characterised by relatively high prices, the situation changed in the following year. During the first nine months of 2001, the market remained stable but in the last quarter prices started a downward trend in spite of increased consumption.

*Sea-bass and sea-bream.* The market for these two species also showed a downward price trend, mainly due to oversupply.

### **Market policy**

Expenditure on price support with the Common Markets Organisation was budgeted at EUR 16.7 million for 2001 under the new rules, up 19% from EUR 14 million in 2000 before the new rules came into effect. However, the amount actually spent on price support in 2000 was EUR 9.5 million, down from EUR 11 million in 1999. According to estimates by the Commission, the budget allocation for price support for 1999 (EUR 20 million) amounts to less than 0.5% of the landings of the species covered and to less than 0.01% of the total value of landings in the Community.

Effective 1 January 2002, new EU labelling requirements regarding fishery and aquaculture products offered for retail sale in the EU will apply. Detailed rules are set out in EU Commission Regulation 2065/2001 of 22 October 2001.<sup>39</sup> The main objective is to provide consumers with information on the commercial designation and method of production of a fish species, and the area in which it is caught. The new labelling rules will strengthen the traceability of fisheries products, thereby facilitating the monitoring of fisheries products from the ship to the shop and enhancing the checks on the quality of such products.

### **Trade**

During the period 1999-2001 there was a steady rise in the Community's dependence on imported fish and fish products, from under 40% to nearly 60% of total human consumption. Demand for fish products remained steady within the Community and even increased in some countries.

### **Trends (imports and exports)**

As a result of the reduced catch opportunities in Community waters, there was a steady increase in imports from third countries between 1999 and 2001. The emergency conservation measures implemented in 2001 to protect cod<sup>40</sup> and Northern hake<sup>41</sup> were one of the factors contributing to the shortages in internal supplies. Demand for white fish was met with products such as Alaska pollack and hoki. These two species experienced a strong growth in imports between 1999 and 2001.

While the EU market is in deficit for most fish species, exports do not exceed imports for species for which there is no traditional consumer market in the European Union. Only three EU member States, namely Denmark, Ireland and the Netherlands, had positive trade balances in fishery products. In contrast to most species, greater quantities of mackerel and horse mackerel are exported than imported because there are no traditional markets for these species in the European Union.

### **Tariffs in trade policy**

The new "markets" Regulation<sup>42</sup> provides for a tariff regime that is more in line with the needs of the market. That means suspension of common customs tariffs duties for certain products intended for the processing industry for unlimited quantities. Suspension may be partial (a cut in customs duty) or total (duty reduced to 0%).

Through the reform, an unlimited amount of these products may be imported at a reduced duty rate or at no duty rate at all, for an indefinite period of time. In 1999, for example, the Community was allowed to import 75 000 tons of fresh, chilled or frozen cod at a reduced rate of 3%. From 2001, an unlimited amount of this fish may be imported at the reduced rate of 3%.

The duty on frozen fillets and frozen meat of Alaska pollack presented as industrial blocks has been reduced from 4% (in 1999) to 0%. Other species concerned by these tariff reductions are surimi and hoki or blue grenadier.

For deepwater prawns (*Pandalus borealis*) in shell, fresh chilled or frozen, the quota in 1999 was 12 000 tons of duty-free imports. As of 1 January 2001, an unlimited amount of imports will be allowed at no duty rate.

On 1 January 2001, a series of autonomous tariff quotas for fishery products became effective.<sup>43</sup> They were opened as a result of the reform of the EU Common Organisation of Markets for fishery and aquaculture products. These tariff rate quotas are opened for the period 1 January 2001 to 31 December 2003. Annual amounts of quota (in tons) are set for, among others, herring, cods, tubes of squid, tuna loins and cooked shrimps and prawns.

### **Anti-dumping and anti-subsidy**

During the period under review, trade defence instruments, in the form of anti-dumping and anti-subsidy measures, were still in place on salmon products from Norway to counter injurious imports.<sup>44</sup>

However, on the basis of the information received by the Commission within the framework of the EU-Norway Salmon Agreement during the period under review, and on information obtained from various other sources, the Commission considered that there were sufficient grounds for initiation of an "interim review"<sup>45</sup> of existing measures.

## **7. Scientific, technical and economic research**

The Council adopted Regulation (EC) No. 1543/2000<sup>46</sup> establishing a Community framework for the collection and management of the fisheries data needed to conduct the Common Fisheries Policy and a Decision on a Community financial contribution towards the expenditure incurred by the member States in collecting these data and for financing studies and pilot projects.

Scientific studies were promoted and financed to evaluate the impact of fishing on marine mammals and on possible by-catch mitigation measures. Scientific bodies were requested to analyse this information in order to produce scientific advice. Preliminary advice was issued in 2001 by the International Council for the Exploration of the Sea (ICES) and further advice is expected for 2002 both from ICES and from the Scientific, Technical and Economic Committee for Fisheries (STECF).

## **8. Outlook**

In its Green Paper on the Future of the Common Fisheries Policy (CFP), the European Commission presents a critical review of the past twenty years of the CFP before going on to argue in favour of an in-depth reform of the CFP for the period after 2002 that will achieve the objectives of conservation and sustainable exploitation of fishery resources. To meet these objectives, the Commission considers that the following actions might be envisaged:

- multi-annual, multi-species management that takes account of the entire ecosystem through application of the precautionary principle;
- reinforcement of monitoring and control resources;



- greater stakeholder involvement in policy-making through the creation of regional advisory committees;
- a sharp reduction in the fishing effort.

In terms of international relations, the Commission wishes to step up multilateral co-operation and to develop partnerships with developing countries.

### Notes

1. Green Paper on the Future of the Common Fisheries Policy, Office for Official Publications of the European Communities, Luxembourg.
2. OJ L 341, 31.12.1999.
3. OJ L 163, 04.07.2000.
4. OJ L 163, 04.07.2000.
5. OJ L 195, 01.08.2000.
6. OJ L 290, 17.11.2000.
7. OJ L 298, 25.11.2000.
8. OJ L 321, 19.12.2000.
9. OJ L 344, 30.12.2000.
10. Regulation (EC) No. 2550/2000; OJ L 292, 21.11.2000.
11. OJ L 167, 02.07.1999, p. 5.
12. On 21 December the Commission adopted Regulation (EC) No. 2740/1999 (OJ L 328 of 22.12.1999, p. 62) laying down detailed rules for the application of Regulation (EC) No. 1447/1999.
13. OJ L 328, 22.12.1999, p. 54; Corrigendum, OJ L No. 12, 18.01.2000, p. 37.
14. OJ L, 337, 30.12.1999, p. 1.
15. COM(2001)526 final, 28.09.2001.
16. OJ L 154, 09.06.2001, p. 22.
17. OJ L 3, 05.01.2002, p. 38.
18. OJ L 3, 05.01.2002, p. 45.
19. COM(2001)650, 12.11.2001.
20. This Regulation lays down detailed rules for the application of Council Regulation (EC) No. 1447/1999 establishing a list of types of behaviour which seriously infringe the rules of the common fisheries policy (OJ L 328, 22.12.1999, p. 62).
21. OJ L 155, 22.06.1999 (Decision 1999/405/EC).
22. OJ L 132, 27.05.1999.
23. Regulations (EC) No. 1351/1999 and (EC) No. 1446/1999 (OJ L 167, 02.07.1999).
24. Regulation (EC) No. 1036/2001 of 22.05.2001; OJ L 145, 31.05.2001.
25. OJ L 203, 03.08.1999.
26. Decisions 1999/544/EC and 1999/545/EC (OJ L 209, 07.08.1999), and Decisions 2000/686/EC and 2000/687/EC (OJ L 285, 10/11.2000).
27. Council Regulation (EC) No. 2792/1999 laying down the detailed rules and arrangements regarding Community structural assistance in the fisheries sector.
28. Council Regulation (EC) No. 104/2000 of 17 December 1999.
29. Decision of the Commission of 14 July 1999, 1999/478/EC.
30. COM(1999)363.
31. COM(1999)270.

32. Document 9386/00 PECHE 96 ENV 196.
33. COM(2001)143.
34. COM(2001)162, Vol. IV.
35. Doc. 7885/01 PECHE 78 ENV 188.
36. Council Regulation (EC) No. 1260/1999 of 21 June laying down general provisions on the Structural Funds.
37. Facts and figures on the CFP. Basic data on the Common Fisheries Policy – European Commission (2001), [http://europa.eu.int/comm/fisheries/doc\\_et\\_public/liste\\_public/facts/pcp\\_en.pdf](http://europa.eu.int/comm/fisheries/doc_et_public/liste_public/facts/pcp_en.pdf)
38. Council Regulation (EC) No. 2563/2001 of 19 December 2001 fixing for the 2002 fishing year the guide prices for the fishery products listed in Annexes I and II and the Community producer price for the fishery products listed in Annex III to Regulation (EC) No. 104/2000; OJ L 344, 28/12/2001.
39. OJ L 278, 23 October 2001.
40. Commission Regulations (EC) 304/2000, 259/2001 and 456/2001.
41. Commission Regulation (EC) 1162/2001.
42. Council Regulation (EC) 104/2000, Annex VI.
43. Council Regulation (EC) No. 2803/2000 of 14 December 2000.
44. The measures currently in force are the following:
  - definitive anti-dumping and countervailing duties imposed by Council Regulation (EC) No. 772/1999, as last amended by Council Regulation (EC) No. 1469/2001, which following a review repealed and replaced the anti-dumping and countervailing duties previously imposed by Council Regulations (EC) No. 1890/97 and No. 1891/97;
  - undertakings accepted by Commission Decision 97/634/EC, as last amended by Commission Decision 2001/644/EC, from a large number of exporter/producers from Norway to respect, *inter alia*, certain minimum import prices;

In parallel to the above-mentioned anti-dumping and countervailing duties and undertaking, an agreement was signed between the Commission and the Norwegian government (the so-called “EU-Norway Salmon Agreement”) providing for supporting measures to be managed within the framework of regular contacts between the signatories.
45. Notice of initiation of an interim review of the anti-dumping and countervailing measures applicable to imports of farmed Atlantic salmon originating in Norway; OJ C 53 Vol. 45, 28.02.2002.
46. OJ L 176 of 15.07.2000.

## ANNEX 1

Table III.4.A1.1. Catches by species in 1999

Species id.	Species name (EN)	Initial quota	Adapted quota	Total catches
ANE	Anchovy	45 898	45 898	35 928.00
ANF	Anglerfish nei	75 544	73 484	43 756.10
BFT	Northern bluefin tuna	16 136	16 136	14 640.20
B/L	Blue ling and ling	3 600	3 600	2 827.50
CAA	Atlantic wolffish			32.30
CAP	Capelin	59 340	48 945	3 837.00
CAT	Catfishes (wolffishes) nei	1 000	1 000	1 094.70
C/H	Cod and haddock	500	500	500.00
COD	Cod	328 523	329 257	213 295.80
D/F	Common dab/flounder	30 070	30 070	17 127.50
DGS	Picked dogfish	8 870	8 870	1 165.10
FLX	Flat fish	1 050	1 050	102.60
GHL	Greenland halibut	18 430	18 430	16 432.50
HAD	Haddock	116 985	116 991	86 328.10
HAL	Atlantic halibut	0	0	193.70
HER	Herring	884 237	886 174	683 489.70
HKE	Hake	64 110	64 110	43 634.20
HKR	Red hake			1 348.70
HKW	White hake			443.60
I/F	Industrial fish	800	800	114.00
JAX	Jack and horse mackerels	401 927	401 927	296 741.30
LEZ	Megrims	40 903	40 874	19 993.10
L/W	Lemon sole/witch flounder	12 000	12 000	6 418.80
MAC	Mackerel	355 295	355 295	322 963.30
NEP	Norway lobster	64 180	66 350	53 391.00
NOP	Norway pout	180 000	180 000	35 463.00
N/W	Norway pout and blue whiting	50 000	50 000	67 923.00
OTH	Other species	12 210	12 210	8 209.30
PEN	Penaeus shrimps	4 000	4 000	3 495.40
PLA	American plaice	0	0	1 885.90
PLE	European plaice	130 790	130 790	98 889.50
POK	Saithe	75 800	75 800	68 559.30
POL	Pollack	22 100	22 100	5 351.80
PRA	Northern prawn	17 335	17 335	8 654.70
RED	Atlantic redfish	95 920	95 920	38 121.30
RHG	Roughhead grenadier			6 326.50
RNG	Roundnose grenadier	6 650	6 650	175.60
SAL	Atlantic salmon	397 163	396 709	276 806.00
SAN	Sandeels	1 120 000	1 120 000	553 25.50
SKA	Skates			11 040.60
SOL	Common sole	37 012	37 008	33 038.00
SOX	Soles	2 000	2 000	904.20
SPR	Sprat	417 876	506 756	426 252.20
SRX	Skates and rays nei	6 060	6 060	5 266.20
SWO	Swordfish	11 509	11 509	7 476.80
T/B	Turbot/Brill	9 000	9 000	4 359.10
VFF	Fishes unsorted, unidentified			879.50
W/F	Whitefish	190	190	6.00
WHB	Blue whiting	496 000	496 000	413 158.40
WHG	Whiting	86 593	86 594	60 928.70
WIT	Witch flounder	0	0	1 748.90
YEL	Yellow tail flounder	120	120	1 130.70

Source: European Commission.

Table III.4.A1.2. **Catches by species in 2000**

Species id.	Species name (EN)	Initial quota	Adapted quota	Total catches
ANE	Anchovy	26 000	43 000	37 544.10
ANF	Anglerfish nei	62 030	64 116	37 248.30
ANG	American angler			3.30
BFT	Northern bluefin tuna	18 590	21 171	18 408.80
B/L	Blue ling and ling	3 600	3 600	2 569.40
CAA	Atlantic wolffish			90.80
CAP	Capelin	52 245	75 250	20 807.00
CAT	Catfishes (wolffishes) nei	1 000	1 000	583.30
C/H	Cod and haddock	500	500	444.80
COD	Cod	311 809	313 136	179 534.70
D/F	Common dab/flounder	30 070	30 070	13 729.40
DGS	Picked dogfish	8 870	8 870	1 381.50
FLX	Flat fish	1 000	1 000	232.70
GHL	Greenland halibut	19 255	19 255	18 215.40
HAD	Haddock	179 350	179 350	75 922.10
HAL	Atlantic halibut	200	200	205.20
HER	Herring	1 002 362	1 017 024	748 615.60
HKE	Hake	51 870	51 870	44 196.70
HKR	Red hake			1 593.30
HKS	Silver hake			4.50
HKW	White hake			802.10
I/F	Industrial fish	800	800	0.00
JAX	Jack and horse mackerels	359 400	375 505	251 261.30
LEZ	Megrimms	32 840	35 876	20 766.60
L/W	Lemon sole/Witch flounder	12 000	12 000	7 140.90
MAC	Mackerel	430 315	429 649	3 555 657.20
NEP	Norway lobster	62 540	62 540	49 546.20
NOP	Norway pout	180 000	180 000	140 307.20
N/W	Norway pout and blue whiting	50 000	50 000	47 048.00
OTH	Other species	12 210	12 210	9 115.60
PEN	Penaeus shrimps	4 000	4 000	2 561.90
PLA	American plaice	0	0	1 836.20
PLE	European plaice	125 640	125 886	100 186.60
POK	Saithe	101 960	101 902	65 262.40
POL	Pollack	21 950	21 950	5 521.00
PRA	Northern prawn	14 930	14 930	9 822.20
RED	Atlantic redfish	89 500	89 500	29 732.20
RHG	Roughhead grenadier			8 492.10
RNG	Roundnose grenadier	6 650	6 650	82.20
SAL	Atlantic salmon	430 837	437 587	325 461.00
SAN	Sandeels	1 120 000	1 120 000	591 230.30
SKA	Skates			14 745.60
SOL	Common sole	36 725	37 228	33 791.90
SOX	Soles	2 000	2 000	1 015.60
SPR	Sprat	466 520	475 170	394 966.50
SRX	Skates and rays nei	6 060	6 060	2 341.60
SWO	Swordfish	11 306	12 331	12 216.30
T/B	Turbot/Brill	9 000	9 000	5 342.70
TOP	Patagonian toothfish			308.60
VFF	Fishes unsorted, unidentified			603.80
W/F	Whitefish	190	190	1.30
WHB	Blue whiting	319 500	329 360	186 251.60
WHG	Whiting	66 205	66 102	52 737.80
WIT	Witch flounder	0	0	1 709.10
YEL	Yellow tail flounder	0	0	931.40

Source: European Commission.

Table III.4.A1.3. Catches by species in 2001

Species id.	Species name (EN)	Initial quota	Adapted quota	Total catches
ALB	Albacore	31 375	31 375	14 412.10
ANE	Anchovy	43 000	43 000	40 577.70
ANF	Anglerfish nei	54 130	57 184	33 170.50
ANG	American angler			8.90
BET	Bigeye tuna	26 672	26 672	2 140.80
BFT	Northern bluefin tuna	18 590	18 590	14 288.90
B/L	Blue ling and ling	3 600	3 600	1 983.50
CAA	Atlantic wolffish			6.80
CAP	Capelin	28 375	28 375	17 680.80
CAT	Catfishes (wolffishes) nei	300	300	943.50
C/H	Cod and haddock	500	500	480.70
COD	Cod	249 877	249 744	167 903.30
D/F	Common dab/flounder	27 060	27 060	12 772.80
DGS	Picked dogfish	8 870	8 870	1 117.30
FLX	Flat fish	1 000	1 000	163.60
GHL	Greenland halibut	21 306	21 298	19 738.30
HAD	Haddock	182 620	182 610	72 157.70
HAL	Atlantic Halibut	0	0	201.40
HER	Herring	1 030 780	1 026 852	750 194.50
HKE	Hake	35 463	35 325	23 379.60
HKR	Red hake			2 049.90
HKS	Silver hake			8.70
HKW	White hake			689.30
I/F	Industrial fish	800	800	384.00
JAX	Jack and horse mackerels	392 600	410 741	249 764.30
LEZ	Megrimms	28 860	31 001	16 450.30
L/W	Lemon sole/Witch flounder	10 800	10 800	5 458.10
MAC	Mackerel	630 713	629 613	482 660.30
NEP	Norway lobster	56 140	56 140	47 872.60
NOP	Norway pout	199 200	199 200	49 840.20
N/W	Norway pout and blue whiting	50 000	50 000	45 025.00
OTH	Other species	12 210	12 199	8 996.90
PEN	Penaeus shrimps	4 000	4 000	1 369.20
PLA	American plaice	0	0	1 956.70
PLE	European plaice	133 995	134 228	100 263.10
POK	Saithe	147 380	147 128	72 376.20
POL	Pollack	21 950	21 950	7 025.20
PRA	Northern prawn	15 345	15 345	8 154.20
RED	Atlantic redfish	60 483	60 334	26 783.20
RHG	Roughhead grenadier			6 874.90
RNG	Roundnose grenadier	2 350	2 350	18.30
SAL	Atlantic salmon	424 357	424 357	248 765.00
SAN	Sandeels	1 120 000	1 120 000	695 697.60
SKA	Skates			11 210.80
SOL	Common sole	33 690	35 939	30 562.50
SOX	Soles	2 000	2 000	929.30
SPR	Sprat	446 040	446 040	363 284.60
SRX	Skates and rays nei	4 848	4 848	2 448.50
SWO	Swordfish	11 306	11 306	8 856.90
T/B	Turbot/Brill	7 200	7 200	5 470.00
TOP	Patagonian toothfish			535.20
VFF	Fishes unsorted, unidentified			807.20
W/F	Whitefish	190	190	3.80
WHB	Blue whiting	351 860	373 576	222 955.20
WHG	Whiting	103 920	103 920	43 070.90
WIT	Witch flounder	0	0	1 900.30
YEL	Yellow tail flounder	260	260	988.20

Source: European Commission.

## ANNEX 2

Table III.4.A2.1. **Aquaculture production**

Species id.	Species	1999	
		Quantity (tons – live weight)	Value (1 000 ECU/Euro)
f21	Sturgeons, paddlefishes – nd (tons)	661	3 872
f53	Oysters – nd (tons)	156 283	256 120
f54	Mussels – nd (tons)	598 951	301 921
f56	Clams, cockles, arkshells – nd (tons)	64 516	164 572
bss	Seabass – <i>Dicentrarchus labrax</i> (tons)	36 307	211 398
ele	European eel – <i>Anguilla anguilla</i> (tons)	10 469	78 765
fcp	Common carp – <i>Cyprinus carpio</i> (tons)	17 849	24 669
sal	Atlantic salmon – <i>Salmo salar</i> (tons)	146 139	409 791
sbg	Gilthead seabream – <i>Sparus aurata</i> (tons)	47 199	228 835
trr	Rainbow trout – <i>Salmo gairdneri</i> (tons)	222 234	536 877
trs	Sea trout – <i>Salmo trutta</i> (tons)	3 044	10 214
<b>f00</b>	<b>Total fishery products – nd (tons)</b>	<b>1 336 035</b>	<b>2 377 347</b>
		2000	
f21	Sturgeons, paddlefishes – nd (tons)	782	5 624
f53	Oysters – nd (tons)	148 772	259 312
f54	Mussels – nd (tons)	547 907	373 953
f56	Clams, cockles, arkshells – nd (tons)	67 545	247 362
bss	Seabass – <i>Dicentrarchus labrax</i> (tons)	40 285	232 959
ele	European eel – <i>Anguilla anguilla</i> (tons)	10 561	91 574
fcp	Common carp – <i>Cyprinus carpio</i> (tons)	17 833	29 399
sal	Atlantic salmon – <i>Salmo salar</i> (tons)	147 343	495 241
sbg	Gilthead seabream – <i>Sparus aurata</i> (tons)	55 702	289 310
trr	Rainbow trout – <i>Salmo gardneri</i> (tons)	222 466	639 422
trs	Sea trout – <i>Salmo trutta</i> (tons)	2 813	11 485
<b>f00</b>	<b>Total fishery products – nd (tons)</b>	<b>1 294 855</b>	<b>2 853 813</b>

Source: Eurostat.

## ANNEX 3

Table III.4.A3.1. **GT statistics for 1999-2000**

	End 1999			End 2000		
	Number	GT	KW	Number	GT	KW
Kingdom of Belgium	128	22 838	63 453	127	23 054	63 355
Federal Republic of Germany	2 313	69 783	163 305	2 314	71 419	167 206
Kingdom of Denmark	4 229	98 532	368 409	4 151	101 658	372 021
Kingdom of Spain	17 301	538 037	1 380 843	16 661	525 554	1 332 431
Finland	3 763	21 310	203 613	3 684	20 742	198 703
French Republic	8 311	213 721	1 113 486	8 180	222 048	1 107 215
United Kingdom	7 904	248 581	970 109	7 665	245 783	952 637
Hellenic Republic	19 947	105 288	628 140	19 909	105 480	626 288
Ireland	1 212	60 050	194 509	1 193	60 414	193 931
Italian Republic	18 310	243 868	1 471 221	17 440	229 956	1 394 421
Kingdom of The Netherlands	1 074	190 349	489 348	1 079	209 945	508 498
Portuguese Republic	10 856	116 737	393 240	10,718	115 535	396 993
Sweden	1 970	47 642	230 286	1 942	48 555	236 967
<b>Total</b>	<b>97 318</b>	<b>1 976 736</b>	<b>7 669 962</b>	<b>95 063</b>	<b>1 980 144</b>	<b>7 550 666</b>

Source: European Commission.

## ANNEX 4

Table III.4.A4.1. **Management costs of the European Community**

EUR million

	1998				1999			
	Enforcement	Research	Management	Total	Enforcement	Research	Management	Total
EU member States	206	167.6	84.2	457.8	212.4	178.5	85.6	476.5
EU Commission	37.7	57	26.3	121	36.2	39.2	25.3	100.7
<b>Total</b>	<b>243.7</b>	<b>224.6</b>	<b>110.5</b>	<b>578.8</b>	<b>248.6</b>	<b>217.7</b>	<b>110.9</b>	<b>577.2</b>

Source: European Commission.



PART III  
*Chapter 5*

# Belgium

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## Summary

In 2001, total landings of fish by Belgian fishermen rose by some 500 tonnes to 27 000 tonnes (+2%), while landings in foreign ports, i.e. direct exports, remained the same at 8 900 tonnes or 33% of total catches.

The value of landings in Belgian and foreign ports totalled EUR 97 million, an increase of 9%.

The main species caught was sole, which accounted for 18% of catches and 45% of value. This high-quality species thus earned EUR 43 million (+21%). Plaice catches were worth EUR 14 million (-4%).

## 1. Legal and institutional framework

Belgium's fishing policy is pursued within the framework of the Common Fisheries Policy described in the chapter on the EU. In areas where supplementary measures have been introduced at national level, responsibility for the management of sea fishery resources lies with the federal government and relevant public authorities. The Minister for Agriculture and Small Business was responsible for fisheries policy until the end of 2001.

Responsibility for economic planning and structural aid was previously held by the Minister for the Environment and Agriculture for the Flanders Region. The promotion of fisheries was thus a regional policy matter. As from 1 January 2002, however, all aspects of fisheries policy are to be dealt with on a regional basis.

The Act of 12 April 1957 authorised the King to specify measures for the conservation of marine biological resources and was supplemented by the Act of 28 March 1975 on trade in agricultural, horticultural and sea fishery products.

The Act of 13 June 1969 set out provisions regarding Belgium's continental shelf. The country's fishing zone was established under the Act of 10 October 1978.

The Royal Order of 21 June 1994 laid down provisions regarding fishing licences, as well as temporary measures for the implementation of the EU fisheries conservation and management regime.

Since early 1988 a fishing licensing scheme has been in operation, thus restricting the number of fishing vessels.

Since 1 July 1999, all Belgian fishing vessel operators have had to demonstrate that a genuine economic link exists between the fishing vessel and the member State, inasmuch as the vessel's fishing activities relate solely to fishery-dependent communities and related industries (Royal Order of 3 February 1999).

The Belgian fleet is divided into two segments, i.e. fishing vessels with an engine rating not exceeding 221 kW and those with a rating exceeding 221 kW. Under the Royal Order of 13 May 1999, fishing licences and engine ratings may be combined, provided that the maximum fishing-vessel engine rating of 957 kW is not exceeded. Changing segments, however, is not permitted.

All fishing vessels must be equipped with an operational on-board satellite positioning system which meets relevant national and European standards, otherwise their fishing licence will be withdrawn.

To control the gross tonnage of the fleet, the Minister has reduced the coefficient used to determine gross tonnage for all categories of fishing vessel (Royal Order of 20 December 1999).

## 2. Catch sector

### *Performance*

The number of vessels landing their catches in Belgian ports in 2001 amounted to 123 units. The weighted average engine rating, however, rose by 1% to 553 kW, while the number of days at sea fell by 1% to 20 650 days. Landings per day at sea rose by 4% to 875 kg, bringing the total volume of fishery products caught by vessels registered under the Belgian flag and landed for sale in Belgian ports to 18 061 tonnes. As the average price for the catch mix rose by 6%, earnings amounted to EUR 68 million (+9%), representing EUR 3 300 (+10%) per day at sea.

Direct exports through landings in foreign ports remained the same at 8 900 tonnes. Overall landings amounted to approximately 27 000 tonnes (+2%). Almost a third of the fish caught by vessels registered under the Belgian flag was therefore sold in foreign ports.

Overall earnings in foreign ports amounted to some EUR 28 million (+8%). The overall value of fishery products caught by vessels registered under the Belgian flag and sold at auction amounted to EUR 96.6 million (+9%) in 2001.

Landings by foreign vessels in Belgian ports amounted to approximately 300 tonnes.

Landings of cod fell by 11% to 2 750 tonnes. The decline in landings did not push up cod prices, which fell by 4%. The value at auction accordingly fell by 15% to EUR 7.2 million.

The average price of sole, Belgium's most important species, rose from EUR 8.37/kg to EUR 9.14/kg.

Total landings of sole rose by 450 tonnes. With the increase in prices, earnings rose by EUR 7.4 million to EUR 43 million (+21%).

The volume of landed plaice fell by 5% to 8 200 tonnes. Prices rose from EUR 1.74/kg to EUR 1.76/kg. As supply was low in April, price formation was exceptional (EUR 2.37/kg).

## 3. Management of commercial fishing

In order to stagger landings the Minister decided to introduce temporary additional measures to conserve fish stocks at sea. These Ministerial Orders were decided upon after consultation with the Quota Commission of the shipowners' association.

Catches of sole, plaice and cod were limited by unit of time to ensure optimal distribution of catches throughout the fishing season. A cap has been placed on the maximum number of permitted days at sea. During the first quarter (reproduction), North Sea plaice are about to spawn and hence underweight, which makes fillets difficult to market and brings down prices. Fishing for this particular species is no longer possible, owing to the introduction of regulations concerning by-catches.

To optimise quota use, an average of one amendment per month is made to the additional measures.

The first stage of the cod recovery plan imposed by the European Commission began on 14 February 2001 and ended on 30 April 2001. The ban affected some of the major North Sea fisheries. The Minister took further steps by ordering the temporary withdrawal of specific categories of Belgian fishing vessels.

Fishing vessels with an engine rating in excess of 221 kW had to cease fishing for four weeks between 1 March and 30 April 2001. To offset their fixed costs during that time, a premium was granted to vessel owners. Crews were also granted a premium to compensate for loss of earnings over the same period.

### **Management of recreational fishing**

Recreational fishing is governed by the Royal Order of 11 March 1996 amending the Royal Order of 14 August 1989 providing for supplementary national measures for the conservation and management of fishing waters and the control of fishing activities.

The steady increase in the number of people practising sport fishing with large trawl nets has made it difficult to ensure sufficient protection for fish populations in Belgian territorial waters, distorted competition with professional fishermen and created tension between professional and recreational fishermen.

Vessels with an overall length of 8 m or less may only fish for shrimp with a single rod no more than 3 m in length or a single otter trawl with an upper bolt-rope no more than 4.5 m in length. In addition, shrimp-fishing is forbidden between 10.00 p.m. and 5.00 a.m. and catches may not be sold.

Since the 1998 fishing season, restrictions have also been placed on seashore fishing with passive gear.

## **4. Inspection**

The automatic vessel monitoring system (VMS) to track the position of fishing vessels has been installed on around 100 fishing vessels over 20 m in length between perpendiculars. Other inspection activities are summarised in the table below:

Table III.5.1. **Inspection activities**

	2000	2001
Inspections of wholesale fish markets	74	68
Inspections in other locations	16	24
Inspections at sea	314 fishing vessels	91 fishing vessels
Air-borne monitoring	328 fishing vessels	129 fishing vessels

Source: OECD.

## **5. Fisheries and the environment**

The maximum fishing effort in Western waters, set at 7.3 million kW days at sea, has been amply respected, as the Belgian fishing effort amounted to only 6.6 million kW days at sea.

In order to pursue efforts to protect North Sea nurseries containing spawn and fry, particularly of sole, the use of heavy gear to fish for sole in Belgian coastal waters has been banned since 6 June 1998.

Sole-fishing within the three-mile limit by vessels with a gross registered tonnage exceeding 70 GT was accordingly banned throughout the fishing season.

In June 1998 Belgium also initiated a restocking project whereby small farm-bred turbot were released into specific waters after being tagged for scientific research purposes. In 2000 a similar restocking project was launched with small farm-bred sole.

## 6. Markets and trade

### Markets

Per capita consumption of fresh fish in 2002 amounted to 6.9 kg, at an estimated cost of EUR 65. Per capita purchases of fishery products amounted to 1.8 kg of frozen fish, 0.5 kg of breaded fish, 1.7 kg of canned fish and 0.8 kg of fish salad. Some three-quarters of all fish purchases in volume terms are made in supermarkets (+4%).

### Trade

Belgium's self-sufficiency in fishery products is very low. Imports of fishery products in volume terms were eight times higher than landings by the Belgian fishing fleet. The balance of trade in fishery products for human consumption therefore showed a shortfall of 114 000 tonnes, which in monetary terms amounted to a deficit of EUR 527 million. The Netherlands remained the largest single source of imports.

Table III.5.2. **Imports and exports (2000-2001)**

	2001 imports		2001 exports	
	Volume tonnes	Value EUR millions	Volume tonnes	Value EUR millions
Fresh fish, chilled	58 675	280.9	36 127	164.9
Frozen fish	42 392	154.3	24 228	100.0
Salted, smoked, dried fish	5 209	46.5	1 389	13.4
Preserves	37 766	123.0	11 565	48.2
Crustaceans and molluscs	74 826	484.5	33 803	243.5
Fish meal	29 250	16.7	7 634	4.7
Fish oil	1 465	1.2	265	0.4
Other (freshwater fish)	3 743	12.3	1 693	5.0
Total (excluding meal and oil)	222 612	1 101.6	108 814	575.0
<b>Total</b>	<b>253 327</b>	<b>1 119.5</b>	<b>116 713</b>	<b>580.1</b>

Source: OECD.

## 7. Special topic: fishing capacity

Table III.5.3. **Belgian fishing fleet (2000-2001)**

Gross tonnage	2000		2001	
	Number of vessels	kW	Number of vessels	kW
< 50	14	3 136	15	3 320
50-99	39	8 352	36	7 689
100-149	18	4 855	21	5 599
150-249	13	8 864	12	8 423
250-	45	39 782	46	41 316
<b>Total</b>	<b>129</b>	<b>64 989</b>	<b>130</b>	<b>66 347</b>

Source: OECD.

## **8. Structure of the Belgian fishing fleet**

Approximately 92% of Belgian fishing fleet units are fitted with beam trawls for the direct harvesting of flatfish such as sole and plaice. Even shrimping boats use beam trawls. The fleet also includes bottom-fishing vessels.

A new fishing vessel may enter the fleet provided that its engine rating does not exceed the rated power withdrawn and that its gross tonnage does not exceed the gross tonnage withdrawn, multiplied by a factor of 0.3.

The maximum rated power per unit is restricted to 957 kW, while the maximum tonnage is 385 GT and maximum length 38 m.

PART III  
*Chapter 6*

## Denmark

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## Summary

As one of the world's major exporters of fish products, Denmark exported 1 127 747 tonnes of fish in 2001, valued at DKK 18.67 billion. Landings by the Danish fleet amounted to 1 462 774 tonnes in 2000 and 1 458 108 tonnes in 2001. As the processing industry depends on raw materials from abroad, imports amounted to 1 180 758 tonnes, valued at DKK 11.3 billion in 2001.

In 2001, the EC Council decided to extend the Multiannual Guidance Programmes (MAGP) for the fishing fleets. At the same time, aid for new vessels was restricted for fleet categories with a greater capacity than the MAGP targets.

Domestic legislation on fisheries and food was simplified and modernised in 1999 and national rules on capacity and recreational fishery have been changed. Other national measures include the use of acoustic alarms to reduce by-catches of harbour porpoise and the implementation of a comprehensive plan for fisheries in the biggest fjord, Limfjorden.

## 1. National legal and institutional framework

The fisheries sector in Denmark – excluding Greenland and the Faroe Islands – is managed within the framework of the EU's Common Fisheries Policy (CFP).

The responsible authority of monitoring and enforcing EU and national conservation policies is the Directorate of Fisheries, which is located within the Ministry of Food, Agriculture and Fisheries. The Directorate carries out inspection at sea and landing and covers verification of EU market standards. Inspection of veterinary standards lies with the Danish Veterinary and Food Administration.

National legislation aims at utilising fishing opportunities while ensuring that Danish quotas are not exceeded. Technical rules are determined on the basis of scientific advice and are assessed regularly.

In May 1999, nine laws were united under the Fisheries Act, covering protection of fish stocks, regulations on commercial and recreational fisheries, first stage marketing and duties. Apart from the adjustments necessitated by uniting laws, few substantial changes were made to the law, the most important being simplifications in the structure of advisory committees and the establishment of fish auctions as free trade. The 1998 Food Act restructured the food and veterinary inspection by 1 January 2000. National rules on capacity were renewed in 2001 – these are described in the special topic on capacity.

The National Strategy for Fisheries Research was adopted by the Government in October 1998. The central and main objective of this research is to assist in the maintenance of an economical and sustainable fisheries and aquacultural sector. The following two main themes are central to fisheries research in future years: 1) To support sustainable, effective and quality-oriented utilisation of resources along the chain of activities from harvest to rearing; and 2) manufacture and the development of better management systems to safeguard resources.



## 2. Capture fisheries

### **Performance**

Landings by the Danish fleet amounted to 1 462 774 tonnes in 2000 (equivalent to DKK 3 034 million) and 1 458 108 tonnes in 2001 (DKK 3 340 million). Approximately 95% was landed in Danish ports. Figures for landings in 2000-2001 of main species as well as aggregated figures for consumption landings and industrial landings can be seen in Table III.6.1. As EU and third country fishers account for an important share of landings in Danish ports, these shares – calculated from quantities landed – are shown as well.

In 2001 (end of year) the fishing fleet employed 6 347 people. The fishing sector, including aquaculture and trade, employed approx. 18 000 people.

Concerning the fleet, please see the special topic on capacity.

### **Status of fish stocks**

Please see EU chapter.

### **Management of commercial fisheries**

Two important changes have been or are to be made in the management of commercial fisheries. These are the introduction of acoustic alarms on fishing nets in order to limit by-catches of harbour porpoises and a fishery plan for the biggest fjord in Denmark, Limfjorden.

As a follow-up on the 1998 national plan for reducing by-catches of harbour porpoise, Danish fishery authorities will have an impact on the use of nets in certain areas of the North Sea that use the acoustic alarms (so-called “pingers”). The effects of these pingers will be monitored and if necessary, further steps will be taken. In other waters around Denmark, the fishery authorities will assess the by-catch problem in collaboration with environmental authorities and decide whether pingers or other measures should be introduced.

For the largest fjord in Denmark – Limfjorden – a fishery management plan has been adopted with the aim of restoring fish stocks and versatile fish life in the fjord. The plan is the result of a joint work project between the Ministry of Agriculture, Food and Fisheries and the Ministry of Environment together with the relevant regional authorities. A main consequence of the plan is to put further restrictions on mussel dredging in the fjord through reduction of the area where mussel fishery is allowed, and in gradually reducing the size of the fleet of mussel dredgers as fishermen are giving up business.

See the paragraph under Monitoring and Enforcement. The EU Council of Ministers has decided that the fishery on sandeel in an area off the coast of Scotland – mainly conducted by Danish fishermen – will be closed from 2000 to 2002. The aim is to secure the stock of sandeel available to natural predators, especially birds, and in this way to improve the health of the marine ecosystem. The effect on sandeel and predators will be closely monitored.

### **Management of recreational fisheries**

Recreational fishery is regulated by restrictions on the amount and kind of gear used. It is forbidden to sell fish caught in recreational fishery and there are no limits as to the value of catch. Apart from these regulations, national measures include release of fish and research, financed by fees on fishing permits.

Table III.6.1. Landings from Danish, other EU and third country vessels 2000-2001 divided by place of landing

Species	2000 place of landing											
	Denmark						Other nations					
	DNK quantity	DNK value	EU quantity	EU Value	3C quantity	3C value	DNK quantity	DNK value	EU quantity	EU Value	3C quantity	3C value
Cod	48 258	787 892	4 162	56 649	6 301	80 656	1 891	36 021	..	..	..	..
Plaice	21 935	275 508	1 029	2 966	24	148	849	10 597	..	..	..	..
Herring	117 567	146 587	98 942	117 042	71 884	146 798	27 965	24 353	..	..	..	..
Mackerel	18 582	80 913	15 529	61 049	2 093	6 851	13 060	67 116	..	..	..	..
Deepwater shrimps	3 571	54 143	0	0	2 734	52 338	2 150	68 113	..	..	..	..
Norway lobster	4 680	321 744	89	6 026	84	5 495	51	3 169	..	..	..	..
Blue mussel	131 042	120 918	..	..	..	..	..	..	..	..	..	..
Other species	37 867	530 322	14 509	99 544	9 614	91 667	1 788	38 801	..	..	..	..
<b>Total consumption</b>	<b>383 502</b>	<b>2 318 026</b>	<b>134 260</b>	<b>343 276</b>	<b>92 734</b>	<b>383 954</b>	<b>47 755</b>	<b>248 170</b>	..	..	..	..
Industrial landings	1 079 272	716 337	113 816	75 102	144 917	88 099	33 638	52 259	..	..	..	..
<b>Total landings</b>	<b>1 462 774</b>	<b>3 034 363</b>	<b>248 076</b>	<b>418 378</b>	<b>237 651</b>	<b>472 053</b>	<b>81 393</b>	<b>300 429</b>	..	..	..	..
Species	2001 place of landing											
	Denmark						Other nations					
	DNK quantity	DNK value	EU quantity	EU Value	3C quantity	3C value	DNK quantity	DNK value	EU quantity	EU Value	3C quantity	3C value
Cod	39 724	694 150	6 215	83 906	5 303	68 102	1 045	19 816	..	..	..	..
Plaice	24 493	328 050	1 069	1 629	173	1 769	1 095	14 098	..	..	..	..
Herring	114 775	268 591	75 564	155 792	63 064	259 838	17 521	50 570	..	..	..	..
Mackerel	21 757	135 884	12 615	71 489	2 587	17 473	9 614	61 978	..	..	..	..
Deepwater shrimps	2 951	38 971	0	0	2 608	44 412	2 380	71 618	..	..	..	..
Norway lobster	4 422	336 261	50	3 716	46	3 433	26	1 739	..	..	..	..
Blue mussel	145 509	146 597	0	0	..	..	..	..	..	..	..	..
Other species	37 955	592 656	12 177	102 975	10 784	86 583	9 954	34 622	..	..	..	..
<b>Total consumption</b>	<b>391 586</b>	<b>2 541 159</b>	<b>107 690</b>	<b>419 508</b>	<b>84 566</b>	<b>481 611</b>	<b>41 635</b>	<b>254 439</b>	..	..	..	..
Industrial landings	1 066 522	798 850	106 555	80 265	158 184	118 242	24 487	69 228	..	..	..	..
<b>Total landings</b>	<b>1 458 108</b>	<b>3 340 009</b>	<b>214 245</b>	<b>499 772</b>	<b>242 751</b>	<b>599 853</b>	<b>66 123</b>	<b>323 668</b>	..	..	..	..

Note: Quantity is landed weight in tonnes. Value are in DKK 1 000.

The table includes landings for transit in Denmark, i.e. landings from foreign vessels into Denmark bought by foreign buyers.

The table does not include landings from Danish lakes.

The value of Danish industrial landings includes bonus payments of DKK 34 893 in 2000 and DKK 52 076 in 2001.

Other species includes other fish, molluscs and crustaceans.

.. Not available.

Source: Danish Directorate of Fisheries Sales Note Register.

The ban on selling fish caught in recreational fishery was introduced with the 1998 Saltwater Fisheries Act, forbidding the sale of saltwater fish. When fisheries legislation was simplified and renewed in the 1999 Fisheries Act, sale of freshwater fish from recreational fishery was banned as well. The use of gear has been restricted further as to the use of nets (amount of nets and mesh size). Local committees have been set up to assess the need for specific, more restrictive local rules.

For the type of recreational fishery called “trolling”, new rules were introduced in December 1999. Trolling is now forbidden within 100 metres from the coastline and specific rules concerning the use of rods, bait etc. have been introduced.

### **Monitoring and enforcement**

As part of the Cod-recovery Plan, Denmark has introduced national legislation (Regulation No. 64 af 1. februar 2001 om auktionspligt m.v. ved første markedsføring af torsk), which means that the first marketing of all cod either caught in the North Sea and Skagerrak, or landed in Skagen or in any Danish port facing the North Sea and Skagerrak shall take place through public auctions (in Denmark or abroad). These rules came into force on 12 February 2001 for all landings of cod both from Danish and foreign vessels.

### **Multilateral agreements and arrangements**

Please see EU chapter.

## **3. Aquaculture**

### **Policy changes**

Except fully recirculated eel farms, all Danish fish farms have to be officially approved in accordance with the Danish Environmental Protection Act. In order to meet the environmental requirements, there are strict limits on feed use and specific requirements regarding feed conversion ratio, water use, rinsing and outlets, and removal of waste and offal. The feed limits are assigned to each facility on an annual basis by the local authorities. When stipulating these requirements, broad environmental considerations are taken into account.

An *ad hoc* advisory board has in 2000-2001 been working on recommendations for freshwater fish farming and the related public administration, aimed at meeting the stringent environmental requirements as well as providing the economic basis for appropriate adjustments and investments in the fish farms.

A ban on establishing and extending marine fish farms, issued in 1996 by the Danish Environmental Protection Agency, has been lifted in 2001. At the same time, an *ad hoc* advisory board, similar to the one for freshwater fish farming, has been established with similar purposes for marine fish farming in Denmark.

### **Production facilities, values and volumes**

Aquaculture production in Denmark is mainly concentrated on rainbow trout (*Oncorhynchus mykiss*), farmed in freshwater ponds and in off-shore or land based marine aquaculture. In addition, eel is farmed in recirculated freshwater tanks; mussels, oysters and crayfish are produced in small quantities. Turbot fry is produced mainly for export and further culture. A variety of other species are raised primarily for restocking.

In 2000, the production in freshwater ponds was 33 417 tonnes, virtually unchanged since 1990, while the number of freshwater fish farms was reduced by 1/4 to 388. The total marine fish production from 39 farms was 7 826 tonnes, also roughly unchanged during 10 years. After several years of continued increase, eel production stagnated in 2000 at 2 674 tonnes, and in 2001 fell to 2 098 tonnes. The number of eel farms dropped from 30 in 1999 to 15 in 2001. In recent years, the sale of juvenile fish for restocking purposes has represented an increasing share of total turnover.

Approximately 1 000 people are directly employed in production, mainly in traditional fish farming. Also, a significant number of persons are employed upstream and downstream or in associated industries such as smokehouses.

#### 4. Fisheries and the environment

A committee has been established to study the impact on fishery resources of other human related activities other than fishing. members represent industries, research institutions, professional organisations, other NGO's, and a number of specialists from universities, etc. The work covers the impacts of i.a. pollution, habitat changes, eutrophication, top predators and climate. The committee has concluded its work and the final report is expected to appear before the end of 2002.

#### 5. Government financial transfers

##### *Transfer policies*

Most subsidies take place within EU schemes. The structural scheme is cofinanced by the Community and Danish public funds whereas aid in the framework of market organisation is entirely financed by the Community. The following table shows the financing plan for structural aid from the EC for the Danish fisheries sector. Actual expenditure is decided on the basis of the annual budget and may be lower.

Table III.6.2. **National aid and aid from the Financial Instrument for Fisheries guidance for the period 2000-2006**

EUR million

	Total investment including private contributions, FIFG and national aid	FIFG	National
1. Decommissioning	33.5	16.8	16.8
2. Renewal and modernisation	471.0	70.6	23.5
3. Aquaculture, processing, fishing ports etc.	442.1	82.8	43.3
4. Innovative actions, marketing, pilot projects	66.0	30.5	16.0
5. Technical assistance	7.5	3.8	3.8
<b>Total</b>	<b>1 020.2</b>	<b>204.5</b>	<b>103.4</b>

Source: OECD.

National support schemes include financial assistance for young fishers, fisheries consultants and the Product Development Law, providing assistance for research and development within agriculture and fisheries.

##### **Social assistance**

No support schemes are directed specifically towards the fishing industry.

## 6. Post-harvesting policies and practices

### Policy changes

For changes in EU regulations, please see the EU chapter.

### Food safety

Food safety was an important topic that was in focus in Denmark in 2000 and 2001. Also the Commission of the European Communities has concentrated on food safety in the White Paper on Food Safety presented by the Commission in January 2000. Furthermore, the Danish Food Act provides for publication of the results of food control according to the guidelines issued by the Danish Veterinary and Food Administration.

### Information and labelling

The new EU legislation on origin of fish was implemented in 2001.

### Structures

No reforms concerning the efficiency of distribution and marketing have been made.

### Processing and handling facilities

Between 1998 and 1999, a further concentration in the processing and handling facilities took place and average sales increased. The structure of the processing industry and trading firms and their development between 1998 and 1999 is shown in the table below. It should be noted that "business units" refers to local economic units within a firm.

Table III.6.3. **Danish processing industry and trading firms in 2000 and 2001**

	No. Business units		DKK Million			
	1998	1999	Sales		Average sales	
			1998	1999	1998	1999
Smoking and drying	68	63	1 336	1 391	19.6	22.1
Canning and filleting	107	101	6 654	6 532	62.2	64.7
Fish meal and oil	10	9	2 929	2 085	292.9	231.6
Wholesale trade	561	549	16 627	17 300	29.6	31.5
Retail trade	353	332	521	540	1.5	1.6

Industry grouping according to the Danish DB93 nomenclature, which conforms to the EU classification NACE.

Smoking and drying: DB93 152020, canning and filleting: DB93 152010, fish meal and oil: DB93 152030, wholesale trade: DB93 511610 and 513810, retail trade: DB93 522300.

Source: Yearbook of Fishery Statistics 1997-2000.

## 7. Markets and trade

### Markets

According to estimates, domestic consumption of fish has increased since 1996. This is the result of promotional efforts, supported under the FIG scheme. Using popular actors, the campaign involved TV commercials as well as activities aimed directly towards consumers. At the same time, activities strengthening vertical co-operation in the sector and availability of fish in supermarkets contributed to the effect. With these good results the campaign closed by the end of 1999.

## Trade

Denmark is a major exporter of fish products in the world. Now this industry depends on raw materials from abroad, and imports are large as well.

Table III.6.4. **Imports and exports of Danish fish products**

	2000			
	Imports		Exports	
	Tonnes	DKK million	Tonnes	DKK million
Unprocessed	408 365	5 642 697	325 945	6 793 474
Semi-processed	64 943	1 671 246	161 559	5 113 296
Processed	53 188	1 875 433	109 407	3 274 209
Fish meal and oil	543 938	884 298	466 485	1 641 314
<b>Total</b>	<b>1 070 434</b>	<b>10 073 674</b>	<b>1 063 397</b>	<b>16 822 293</b>

	2001			
	Imports		Exports	
	Tonnes	DKK million	Tonnes	DKK million
Unprocessed	445 617	6 489 335	372 058	7 389 823
Semi-processed	71 655	1 923 679	183 176	5 669 607
Processed	55 810	1 852 157	122 810	3 777 874
Fish meal and oil	607 675	1 041 588	449 704	1 839 529
<b>Total</b>	<b>1 180 758</b>	<b>11 306 759</b>	<b>1 127 747</b>	<b>18 676 832</b>

Fish products for consumption: unprocessed: HS codes 0301, 0302, 0303, 0306 and 0307, semi-processed: 0304 and 0305, processed: 1604 and 1605.

Fish meal and oil: both unprocessed and processed is included in the figures above.

Source: Yearbook of Fishery Statistics 1998-1999 and Statistics Denmark 2000-2001.

Concerning trade policy, please see EU chapter.

## 8. Outlook

Two major legislative initiatives are to be concluded in the coming year. One is the implementation of the new market organisation, which takes place in an EU setting. The other is the national implementation of the new FIG scheme. The new law on structural adjustment will be read in Parliament during spring 2000. The proposal includes subsidies for adjusting the fishing effort (DKK 250 million), for modernising the fleet and constructing new vessels (DKK 701 million), for aquaculture, processing, marketing, and protection of aquatic resources (DKK 939 million), for coastal fisheries, socio-economic measures, enhancing sales, pilot projects etc. (DKK 346 million) and finally for technical assistance (DKK 56 million).

## 9. Special topic: fishing capacity

### Basic statistics

Capacity is measured according to size (tonnage) and the power of its engines. National fleet capacity is the sum of individual vessels' capacities.

By 31st December 2000, 6 549 persons were employed on Danish fishing vessels. (For 2001, the number is 6 347). Of these, 51.5% were employed on vessels of a length below 12 meters (51.4% for 2001). On vessels between 12 and 20 meters, the average crew consisted of 2.44 persons (2.40 persons for 2001), and on vessels above 20 meters the average was 4.58 persons (4.54 persons for 2001).

Table III.6.5. **Fishing capacity**

Tonnes	Number of vessels		Tonnage (GT/GRT)		Engine power kW		Insurance value (1 000 DKK)	
	2000	2001	2000	2001	2000	2001	2000	2001
0-4.9	2 409	2 335	3 781	3 681	42 540	42 086	154 294	147 395
5-9.9	560	548	3 940	3 848	33 846	33 594	294 383	291 457
10-14.9	181	179	2 255	2 235	18 878	18 731	154 828	157 067
15-19.9	389	367	7 299	6 880	60 562	57 030	548 174	530 179
20-39.9	181	190	5 377	5 635	32 398	33 658	318 170	350 285
40-59.9	148	146	7 155	7 076	37 328	36 158	438 442	432 846
60-79.9	44	45	2 960	3 056	13 398	13 350	169 232	184 378
80-99.9	14	18	1 273	1 609	5 064	6 480	68 950	82 450
100-149.9	33	34	3 935	4 069	12 918	13 009	193.707	198 676
150-199.9	32	31	5 601	5 444	17 301	16 923	284 314	293 339
200-249.9	44	41	9 967	9 294	26 111	24 105	457 111	438 804
250-299.9	30	29	8 150	7 907	18 067	17 544	300 903	336 928
300-499.9	60	59	22 951	22 484	46 660	45 945	1 124 927	1 125 079
500+	21	20	17 559	17 023	30 886	29 485	877 551	846 700
<b>Total</b>	<b>4 146</b>	<b>4 042</b>	<b>102 205</b>	<b>100 241</b>	<b>395 957</b>	<b>388 098</b>	<b>5 384 985</b>	<b>5 415 584</b>

Source: Danish Directorate of Fisheries Vessel Register.

Please note that for fishing vessels without any information about crew number, a crew of one has been estimated.

### ***Policies to manage fishing capacity***

General policies on fishing capacity are laid down by the EU. The Multi-Annual Guidance Programme (MAPG) sets targets for the development of the fleet, while the Financial Instrument on Fisheries Guidance provides funding for the necessary restructuring.

Danish policies aim at adjusting capacity while renewing the fleet. National legislation comprises the departmental order on capacity and Law on structural adjustment. By 1 February 1998, the departmental order was changed to allow for more flexible rules. Under the new rules, fishermen can take out more vessels and pool the capacity into one new vessel – or even split up the capacity from one big vessel onto more, smaller vessels. Finally, a certain pool of capacity has been withheld to enable young fishermen to set up business. The capacity rules have been amended in 2001 in order to simplify the system.

### ***Evaluation of impacts of capacity management policies***

Capacity management has been successful in Denmark – to the extent that capacity targets have been more than fulfilled. However, as a consequence of the policy the fleet needs modernising. This is a goal for the future.

### ***Implementing the FAO Plan of Action***

Steps to implement the FAO Plan of Action will take place within the CFP.

Sources: Directorate of Fisheries (1999); Fiskeristatistisk Årbog 1998.

Ministry of Food, Agriculture and Fisheries (1999), Fødevareministeriets årsrapport 1998. Politik, produktion og forbrug.

## ANNEX 1

### *Government Financial Transfers*

Concerning market organisation, please see EU chapter, “Concerning structural adjustment”, paragraph on Government Financial Transfers.



PART III  
*Chapter 7*

# Finland

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## Summary

The overall number of fishing licenses issued in 2000 was 409 200 and in 2001, 411 900, yielding about FIM 37.8 million and FIM 38.4 million, respectively. The latter was about FIM 1.5 million more than in 1999.

The total commercial marine catch in 2000 was 110 041 tonnes. The value of this catch was FIM 140.3 million. The catch was 103 666 tonnes in 2001 with a value of FIM 137.2 million.

Aquaculture production in 2000 was 15 400 tonnes, which was 50 tonnes less than in 1999. In 2001 the production was 15 739 tonnes.

The national government appropriation for different subsidy measures was FIM 31.8 million in 2000 and FIM 40.6 million in 2001 including Aland County. The total appropriation is FIM 54.8 million in 2000 and FIM 66.7 million in 2001 when also the share of Community's co-financing is included (FIFG).

The total amount of insured capital in 2001 fisheries decreased by about 2.6% compared to 1999. The governmental share of indemnification also decreased by 1.6%.

## 1. Government action

### *Resource management, national measures*

The resource management of Finland is harmonised with the Common Fisheries Policy of EU. Finland implements the Community Legislation concerning fishing vessel register, professional fishing register, catch register etc.

The Finnish fishing vessel register includes all the vessels that are engaged in commercial maritime fishing. The register is obligatory according to EU regulations. The register of commercial fishers is maintained in connection with the fishing vessel register.

The catch register is also maintained in accordance with the control system applicable to the EU Common Fisheries Policy.

In 2000 a total of 321 500 ordinary fishing licenses (FIM 90 each per year and FIM 25 per 7 days) were issued yielding FIM 27.8 million. In 2001, the figures were 316 100 licenses (FIM 90 each per year and FIM 25 per 7 days) and FIM 27.3 million. The revenue was used to finance management of fisheries organisations, fishing areas, fish stocks, scientific research and extension work in the field of fisheries. Compared with the year 1999 there was a decrease of 3 000 ordinary fishing licenses. The revenue also decreased by FIM 0.4 million.

In addition to ordinary fishing licenses recreational fishery licences (fishing allowed with one rod) were also issued (150 FIM each per year and FIM 35 per 7 days). The revenue from 87 700 licenses totalled FIM 10.0 million in 2000 and 95 800 licenses totalled FIM 11.1 million in 2001. These were refunded to the private water owners. The increase from the year 1999 was 15 100 licenses and FIM 1.9 million.

## Recreational fisheries

The number of fishermen engaged in recreational fishing has remained for many years at a level of about 2 million. The maritime catch from the year 2000 was 11 604 tonnes and the freshwater catch was 29 348 tonnes. Thus the total recreational fisheries catch was 40 952 tonnes. The theoretical value of the above mentioned catch would be FIM 295.4 million, but the recreational catch is not marketed. The value is calculated according to the commercial fisheries as if the recreational catch were sold.

In 1998, the catch was 16 050 tonnes (maritime) and 32 100 tonnes (fresh water) and the value FIM 320 million.

## Financial support

### National financial support in the mainland

New marketing loans intended for fish handling, freezing and storage, plant and equipment as well as transport facilities, are no longer granted by private banks under the scheme of interest rebates paid by the Government. The old loans amounted to FIM 385 000 (year 2001). This was FIM 663 000 less than in 1999. The rate of interest for the beneficiary was 6.50%. In 2000 only FIM 2 820 and in 2001 only FIM 6 040 was paid.

Fishers will no longer receive new fishing loans from private banks for fishing vessels, gear and equipment. The rate of interest of old loans for the beneficiary was 4.5%. In 2000 only FIM 7 215 and in 2001 only FIM 19 950 was paid. The old loans amounted to FIM 1.7 million (2001), about FIM 2.0 million less than in 1999.

As before, the fishery insurance system was maintained by six fishery insurance associations plus one private insurance company in the Aland County. The main part of indemnification comes from the government. Only commercial fishers are entitled to insure their vessels, gear and equipment under this scheme, which applies to the Baltic Sea region. The insurance system will be aligned with the common market organisation system of the European Union.

The overall coverage of current insurance decreased from FIM 313.5 million (1999) to FIM 304.8 million (2000) but increased slightly again to FIM 305.5 million in 2001. The number of accidents decreased from 1 131 (1999) to 884 cases (2000) and decreased further to 811 cases in 2001. The total claims, though, increased considerably in 2000 from FIM 10.6 million to FIM 11.9 million. The 2001 figure was again lower (FIM 9.7 million). At the end of 2000 and 2001, the situation was as follows (see Tables III.7.1 and III.7.2).

Table III.7.1. **National insurance scheme 2000**

Number of units insured	3 227
Trawlers	183
Small boats	844
Others (mainly gear)	2 200
Total claims from accidents	FIM 11.9 million
Total indemnification	FIM 10.3 million
Government's share	FIM 7.5 million

Source: OECD.

Table III.7.2. **National insurance scheme 2001**

Number of units insured	3 000
Trawlers	171
Small boats	850
Others (mainly gear)	1 979
Total claims from accidents	FIM 9.7 million
Total indemnification	FIM 8.6 million
Government's share	FIM 6.1 million

Source: OECD.

Transport of fish from sparsely populated areas into marketing areas was subsidised by FIM 1.45 million in 2000 and by FIM 987 500 in 2001.

For the promotion of the use of Baltic herring and farmed rainbow trout, a total amount of FIM 1.8 million was spent in 2000. This was FIM 0.4 million more than in 1999. In 2001 FIM 3.067 million was spent for this purpose.

A Producer Organisation (PO) was established in 2000 for Baltic herring although no financial support was used for this purpose. In 2001 only FIM 20 000 was used for the withdrawals of Baltic herring from the market.

Export of fishery products was not subsidised as this measure is not allowed in the EU.

Losses to salmon fisheries were no longer compensated. The compensation scheme was established in 1996 due to a new national regulation introducing considerably large closed seasons. This subsidy measure is being examined by the European Commission awaiting a resolution on whether or not it is compatible with the common market.

### ***National financial support in the Aland County***

The economic assistance programme of Aland County is by and large the same as in other parts of Finland and was as follows:

- Transporting catches from the archipelago to the mainland was subsidised by FIM 1.4 million in 2000 and FIM 1.189 million 2001 (in 1999 FIM 2.0 million).
- The fishery insurance system was subsidised in 2000 by FIM 296 000 and in 2001 by FIM 427 000. The latter was still FIM 349 000 less than in 1999.
- New interest rebates on fishery loans were no longer subsidised.
- There were no Producer Organisations (PO) in the Aland County in 2001. Thus the aid measures compatible with marketing system in this sector were not in use.
- Losses to salmon fisheries were no longer compensated. The compensation scheme in 1996 was established due to a new national regulation introducing considerably large closed seasons. This subsidy measure is being examined by the European Commission waiting for the resolution whether it is compatible with the common market.
- However, the damages to salmon fishery caused by seals were further compensated in 2000 by FIM 320 000. There was no compensation in 2001. The 1999 figure was FIM 280 000.

### ***Co-financing (under FIFG) including the Aland County***

As an EU member State, the fishery sector in Finland receives economic assistance according to the financial instrument on fisheries guidance (FIFG). The previous structural assistance programme (1995-1999) ended on 31.12.1999. The new programme (2000-2006)

began on 1.1.2000. However, there were no payments during the first year of the new programme.

Structural assistance in the sector according to the old programme was paid for permanent withdrawal of vessels, construction and modernisation of vessels, protection and development of aquatic resources, aquaculture, fishing port facilities, processing and marketing, and sales promotion. See Tables III.7.2 and III.7.3 for further details.

Table III.7.3. **Co-financed structural assistance in 2000 (old period)**

FIM million

	Community	National	Total
Permanent withdrawal	0.0	0.0	0.0
Construction and modernisation	1.9	1.2	3.1
Protection of aquatic resources	0.7	0.8	1.5
Aquaculture	3.0	2.1	5.1
Fishing port facilities	6.2	6.8	13.0
Processing and marketing	8.0	4.7	12.7
Sales promotion	2.7	2.7	5.4
Technical help	0.5	0.6	1.1
<b>Total</b>	<b>23.0</b>	<b>19.0</b>	<b>42.0</b>

Source: OECD.

The new structural program assistance pays for the permanent withdrawal and transfer of vessels, construction and modernisation of vessels, development of aquatic resources, aquaculture, fishing port facilities, processing and marketing, inland water and winter fishery, small scale coastal fishery, social-economic measures, sales promotion, operations by members of the trade and technical support. See Table III.7.4 which provides further details.

Table III.7.4. **Co-financed structural assistance in 2001 (old period)**

FIM million

	Community	National	Total
Permanent withdrawal	0.0	0.0	0.0
Construction and modernisation	0.35	0.25	0.6
Protection of aquatic resources	1.25	1.25	2.5
Aquaculture	2.1	1.4	3.5
Fishing port facilities	9.8	11.9	21.7
Processing and marketing	2.1	1.6	3.7
Sales promotion	0.65	0.65	1.3
Technical help	0.3	0.3	0.6
<b>Total</b>	<b>16.6</b>	<b>17.3</b>	<b>33.9</b>

Source: OECD.

The above mentioned structural aid programmes amounted to FIM 42.0 million in 2000 (FIM 60.3 million in 1999). The national share of that was FIM 19.0 million (FIM 25.6 million in 1999) leaving the share of the Community to FIM 23.0 million (FIM 34.6 million in 1999). The 2001 figures totalled FIM 54.9 million, national FIM 26.1 million and Community FIM 28.8 million, respectively.

The Community initiative PESCA finished on 31.12.1999. After that new aid decisions are no longer made. The total assistance was FIM 9.1 million in 2000 and FIM 10.7 million in 2001 (the figure of 1999 was FIM 6.0 million). The Community's share of that was FIM 4.6 million and FIM 5.4 million, respectively (in 1999, FIM 1.4 million).

Table III.7.5. **Co-financed structural assistance in 2001 (new period)**

FIM million			
	Community	National	Total
Permanent withdrawal	0.0	0.0	0.0
Modernisation of vessels	0.4	0.6	1.0
Development of aquatic resources	0.05	0.05	0.1
Aquaculture	1.8	2.3	4.1
Fishing port facilities	1.0	1.2	2.2
Processing and marketing	3.3	4.1	7.4
Inland water and winter fisheries	0.55	0.65	1.2
Small scale coastal fisheries	0.02	0.02	0.04
Social-economic measures	0.0	0.0	0.0
Sales promotion	0.55	0.55	1.1
Operations by members of trade	1.3	1.3	2.6
Technical help	0.3	0.5	0.8
<b>Total</b>	<b>9.5</b>	<b>11.5</b>	<b>21.0</b>

Source: OECD.

### **The total financial support**

The total amount of financial support from the government including national schemes and co-financing in Finland also including Aland County, was about FIM 54.8 million in 2000 and about FIM 66.7 million in 2001 (in 1999, FIM 78.3 million). The national share of the figures were FIM 31.8 million (2000) and FIM 40.6 million (2001) and FIM 37.6 million (1999).

### **Structural adjustment**

The restructuring process in 2000-01 has been carried out according to the structural policy of the EU. Finland is implementing the Community's fourth multi-annual guidance programme of fishing fleets for the years 1997-2002 (MAGP IV). The target reduction rates (rr) for the Finnish fleet per each fishery is as follows:

- 4L1: small scale coastal fishery segment for vessels under 12 m (rr = 0%);
- 4L2: pelagic segment targeting Baltic herring and sprat (rr = 0%);
- 4L3: benthic segment targeting cod and salmon (rr = 24%); and
- 4L4: passive gear segment targeting salmon (rr = 36%).

Finland has already managed to fulfil these requirements. The decommissioning scheme (vessel scrapping with community aid) of the fleet was carried out in 1997 by 575 GT and 2 480 kW. In 1998, the figures were 250 GT and 1 570 kW and in 1999, 25 GT and 205 kW respectively. In 2000 and 2001, the decommissioning scheme was no longer in use. The capacity of the segments has developed according to Table III.7.6.

Table III.7.6. **Status of the Finnish fishing fleet, by fleet segment**

Segment	1.1.1997	31.12.1997	31.12.1998	31.12.1999	31.12.2000	31.12.2001
4L1	9 925 GT 140 156 kW	9 937 GT 141 061 kW	9 580 GT 139 144 kW	9 135 GT 135 117 kW	8 662 GT 131 211 kW	8 399 GT 129 577 kW
4L2	9 681 GT 55 013 kW	11 153 GT 59 417 kW	10 428 GT 55 665 kW	9 818 GT 53 276 kW	9 759 GT 52 213 kW	9 236 GT 48 476 kW
4L3	731 GT 2 100 kW	449 GT 1 287 kW	449 GT 1 287 kW	449 GT 1 287 kW	449 GT 1 287 kW	449 GT 1 287 kW
4L4	2 975 GT 20 998 kW	2 678 GT 18 749 kW	2 111 GT 15 051 kW	1 916 GT 13 788 kW	1 746 GT 12 488 kW	1 678 GT 11 661 kW
<b>Total</b>	<b>23 312 GT</b> <b>218 266 kW</b>	<b>24 217 GT</b> <b>220 515 kW</b>	<b>22 568 GT</b> <b>211 146 kW</b>	<b>21 319 GT</b> <b>203 469 kW</b>	<b>20 616 GT</b> <b>197 199 kW</b>	<b>19 762 GT</b> <b>191 001 kW</b>

Source: OECD.

### Bilateral arrangements

The European Commission negotiated, as previously, the fishing arrangements for the Baltic Sea fishery. Table III.7.7 shows the quotas given to Finland and reciprocal access to Community quotas in 2000-01. Regarding the reciprocal access there were no allocations made between Finland, Sweden, Denmark and Germany.

Table III.7.7. **The Finnish quotas in third country waters**

Waters	2000	2001
<b>Finland in Estonian waters</b>	176 tonnes of cod 2 526 salmon (individuals)	– 2 619 salmon (individuals)
Reciprocal access	2 000 tonnes of Baltic herring 4 000 tonnes of sprat 600 tonnes of cod	2 000 tonnes of Baltic herring 4 000 tonnes of sprat 800 tonnes of cod 2 000 salmon (individuals)
<b>Finland in Latvian waters</b>	54 tonnes of cod 4 490 salmon (individuals)	54 tonnes of cod 4 490 salmon (individuals)
Reciprocal access	1 000 tonnes of Baltic herring 8 000 tonnes of sprat 2 100 tonnes of cod 1 000 salmon (individuals)	1 000 tonnes of Baltic herring 8 000 tonnes of sprat 1 300 tonnes of cod 3 000 salmon (individuals)
<b>Finland in Lithuanian waters</b>	48 tonnes of cod 1 010 salmon (individuals)	48 tonnes of cod 1 310 salmon (individuals)
Reciprocal access	500 tonnes of Baltic herring 4 000 tonnes of sprat 1 000 tonnes of cod 500 salmon (individuals)	500 tonnes of Baltic herring 4 000 tonnes of sprat 1 300 tonnes of cod 500 salmon (individuals)

Source: OECD.

There have not yet been any fishing arrangements between the EU and the Russian Federation.

### Trade regime changes: new developments or changes

As an EU member State, Finland applies the common custom policy concerning tariffs, tariff quotas, import quotas and licensing.

## 2. Aquaculture

### **Production facilities**

In 2001 the total number of fish farms was 599 (617 in 2000). There were 184 sea farms and 416 inland farms (190 and 427 in 2000). Of this amount, 247 were engaged in rainbow trout production for human consumption. In 2000 the corresponding figure was 242. The average production per marine rainbow trout farm was about 63.5 tonnes in 2001 (63 tonnes in 2000). The largest production facilities are mostly marine net cages and they are usually situated in the coastal archipelago area. The rest of the farms produce juveniles for stocking and breeding purpose.

### **Production**

Fish farm production for human consumption consists mainly of large-size rainbow trout. Production in 2001 was about 15 492 tonnes (15 251 tonnes in 2000) with a value (without value-added tax) of some FIM 246 million (FIM 286 million in 2000). For other fish species the corresponding figures were 247 tonnes and a value of FIM 5 million (in 2000: 149 tonnes and FIM 3 million). Of this amount 181 tonnes, value FIM 4 million (79 tonnes, value FIM 2 million in 2000), were for whitefish (*Coregonus*) production.

The production of rainbow trout juveniles of different ages was in 2001 about 50 million individuals (19 million juveniles). The corresponding number of rainbow trout juveniles in 2000 was FIM 63 million (29 million juveniles). Fish farming also produced smolts and other species for stocking purposes. In 2001 the total number of fish for stocking and breeding was 41.1 million juveniles. The figure from the year 2000 was 46.8 million.

### **Marketing**

The competition between farmed rainbow trout and imported farmed salmon and rainbow trout from Norway continued to be severe. The import price has been low for some years, causing problems concerning profitability of the domestic production of farmed rainbow trout. This has been the case although a minimum import price was introduced by the European Commission.

## 3. Capture fisheries

### **Fleet**

The Finnish fishing vessel register is managed according to the European Commission Regulation (2090/98). The segmentation by each fishery is managed according to the European Commission Decisions (130/98 and 448/99). The registered fishing fleet at the end of 2001 consisted of 3 622 units (3 791 in 1999). There were 183 (208 in 1999) pelagic trawlers engaged in Baltic herring fishery and 3 (also in 1999) bottom trawlers in cod fishery. The number of passive gear vessels engaged in salmon fishery and bottom gillnet fishery of cod was 61 (70 in 1999). The rest of the vessels, 3 375 (3 509 in 1999) were used in small scale coastal fishery (Baltic herring, salmon and brackish water species). The segmentation was greatly revised from the one of 1995-96 due to the new multiannual guidance program IV. See Table III.7.6. for more detailed information.



### **Production**

The total marine commercial catch in 2000 was 110 041 tonnes and its value FIM 140.3 million (the 1999 corresponding figures were 107 704 tonnes and FIM 134.1 million). Of this amount no less than 80 697 tonnes (value = FIM 62.5 million) was Baltic herring and 23 134 tonnes (value = FIM 11.5 million) was sprat. The total marine commercial catch for human consumption was about 30 000 tonnes in 1999. The catch used for other purposes was about 77 700 tonnes.

The 2001 total marine commercial catch was 103 666 tonnes (value = FIM 137.2 million). Of this amount 81 916 tonnes (value = FIM 68.2 million) was Baltic herring and 15 742 tonnes (value = FIM 3.9 million) was sprat.

## **4. Outlook**

The Baltic herring catches remain the most significant in Finnish fishery, not only for human consumption, but also for industrial fisheries. The latter, however, is generally forbidden in the EU, but in the Baltic Sea, this fishery can be conducted according to the Council Regulation (EU) 1434/98.

The European Union has partly prohibited [Council Regulation (EU) 1239/98] the use of driftnets following the UN resolution in order to protect marine mammals and other endangered species. The Baltic Sea is, however, excluded from the prohibition because of almost non-existent by-catches.

Seals in the Baltic Sea cause from year to year more severe losses to salmon and whitefish catches and thus to the fishermen. Finland will implement in 2002 a new two-year public aid scheme to compensate these losses. This scheme has already been approved by the European Commission.

At the moment there is one Producer Organisation (PO) in Finland for Baltic herring (capture fisheries).

PART III  
*Chapter 8*

**France**

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## 1. Legal and institutional framework

In 2000, the French authorities had to cope with the consequences of the damage caused both by the shipwreck of the oil tanker *Erika* and by the storm. In addition, efforts were continued to adapt and modernise sea fishing and aquaculture activities, in order to consolidate this economic sector which had been severely damaged by the 1993 crisis, and to secure its sustainable development within the European Union.

In the second half of 2000, France held the rotating presidency of the Council of Ministers of the European Union. The achievements of that presidency included laying the initial groundwork for a **multi-year approach** to setting Total Allowable Catches, the first steps towards imposing quotas on **deep-sea species** (species that are sensitive and important for biodiversity), and the start-up of plans to restore cod and hake stocks to Community waters.

The institutions and fisheries policy are shaped by the 1997 Act on Sea Fisheries and Marine Farming. This legislation provides for an appropriate legal, economic and social framework which properly takes account of the different facets of fisheries policy: resource management, the status of fishermen and fishing enterprises, organisation of the sector and the marketing and sale of fishery products. The law stipulates how to manage resources and organise the sector. It also made it possible to modernise the legal and fiscal status of fishing enterprises, adapt marine farming activities and modernise social relations.

Against this background, the Ministry of Agriculture, Food, Fisheries and Rural Affairs is responsible for administering the sea fisheries and aquaculture sectors. Within this Ministry, the Directorate for Sea Fisheries and Aquaculture is responsible for determining policy directions in those areas, and it implements regulations relating to relevant activities and public intervention. It is supported at the level of the regions and *départements* by regional or *départemental* directorates for maritime affairs (DRAM, DDAM), regional surveillance and rescue operations centres (CROSS, for the surveillance of sea fisheries) and the department for computer technology (DSI, which monitors statistics relating to fishermen and vessels), administered by the Ministry of Equipment, Transport, Tourism and the Sea.

Lastly, the Directorate for Sea Fisheries and Aquaculture, on behalf of the Ministry of Agriculture, Food, Fisheries and Rural Affairs, is responsible for supervising the *Institut Français de Recherche pour l'Exploitation de la Mer* (IFREMER). These supervisory duties are shared with the Ministry of Equipment, Transport, Tourism and the Sea and the Ministry responsible for research.

The sector's participation and involvement in resource management is ensured in particular by the National Committee of Sea Fisheries, an inter-trade organisation representing all stakeholders in the sector. It is mandatory that the National Committee be consulted over any national or Community measure regarding fisheries conservation or management, the conditions applicable to professional fishing or the working of inter-trade relations *per se*. In this respect, like the regional committees, the Committee can issue licences endorsed by the government for certain fisheries.

The regional and local sea fishery committees, for their part, provide the industry with technical assistance and information and play an active part in drawing up measures taken at the national level with regard to the regional committees (issuing of licences) and social action (accident prevention, occupational training, assistance to families in distress).

There are 39 local committees at the level of individual ports (or groups of ports) which have a significant level of activity, 14 regional committees and one national committee.

With regard to the French fishing fleet, a vessel registered under the French flag is allowed to take catches included in national quotas, or will be licensed to fish, only if there exists a genuine economic link with the territory of the Republic of France, and if the vessel is operated and monitored from a permanent establishment located on French soil. Furthermore, as part of the management of access to fisheries resources and the organisation of fishing activities, the vessel must have an operating licence issued by the French authorities.

## 2. Sea fisheries

### Production

Total turnover in the French sea fisheries sector (continental France and overseas *départements*) amounted in 2000 to EUR 1.15 billion (1.033 of which for continental France), representing 651 728 tonnes of fish, crustaceans and shellfish (excluding marine farming).

In 2001, total turnover in the French sea fisheries sector (continental France and overseas *départements*) amounted to EUR 1.18 billion (1.067 of which for continental France), representing 633 875 tonnes of fish, crustaceans and shellfish (excluding marine farming), breaking down as follows:

- 396 113 tonnes of fish (excluding tropical tuna), worth EUR 787 million;
- 110 775 tonnes of crustaceans, shellfish and seaweed, worth EUR 268 million;
- 125 366 tonnes of tropical tuna, worth EUR 116 million.

Table III.8.1. **Main species in value**  
EUR million

Sole	76.4	Hake	39.7
Albacore	64.8	Bass	38.4
Angler fish	61.9	Skipjack tuna	35.5
Prawns	49.4	Bluefin tuna	30.3
Scallops	49.4	Cod	30.2

Source: OECD.

### Employment

In 2000, there were 28 623 professional fishermen (on board for at least one day), of which 3 187 sailors in overseas *départements* and territories.

Not counting sailors on board for less than three months, there were 23 070 fishermen active in 2000, including those involved in shellfish farming and inshore fishing (4 479 fishermen).

In 2001, there were 28 924 professional fishermen (on board for at least one day), of which 3 375 seamen in overseas *départements* and territories.

Not counting sailors on board for less than three months, there were 23 242 fishermen active in 2001, of which 2 821 in overseas *départements* and territories, including those involved in shellfish farming and inshore fishing (5 010 sailors).

### **Resource management**

Each year the French authorities allocate the fishing quotas awarded to France under the EU Common Fisheries Policy (CFP) to producers' organisations. Quotas are awarded when consumption rates exceed 70%. Criteria for assigning quotas are the past catch records of the fleets of producers' organisations and socio-economic factors. Criteria for apportioning quotas amongst organisations are past catch records, market trends and socio-economic factors.

In addition, outside the framework of the CFP, special measures are taken to ensure the rational and sustainable management of the resource, thereby allowing access to fisheries to be restricted. Examples include the introduction of catch quotas (as in the case of scallops in French territorial waters) and the issuing of licences by the government or by the sea fisheries trade association. These licences apply to the harvesting of certain species (shellfish, crustaceans, diadromous species) or to certain regions (Corsica, the Mediterranean).

### **Improving the selectivity of fishing gear**

IFREMER, working with the industry, has helped preserve biodiversity and endangered species (cod, hake) by introducing fishing gear that is more selective. Trials have been conducted, involving, *inter alia*, trawlers in the English Channel in 2001 and prawn trawlers in the Bay of Biscay in 2002.

### **Research and technical support relating to sea fisheries**

IFREMER (*Institut Français de Recherche pour l'Exploitation de la Mer*) is a public agency involved in industrial and commercial activities and placed under the supervision of the Ministries responsible, respectively, for research, sea, ecology and fisheries. It has a staff of 1 380 employees (excluding affiliates and other companies in the IFREMER group) and an annual budget of nearly EUR 150 million, funded largely by government subsidies, in addition to its own resources.

The Institute's activities are divided amongst eleven themes, seven of which fall under the two priority areas—the coastal environment and living resources – to which IFREMER devotes nearly half of its resources. IFREMER has six operational divisions, of which three are concerned in particular with sea fisheries and aquaculture: Living Resources; Coastal Environment; and Marine Technology and Information Systems. Actions related directly to fisheries are primarily the responsibility of the Living Resources Division and the Marine Technology and Information Systems Division.

The Living Resources Division (DRV) is divided into four departments. The research conducted by the DRV's Fishery Resources Department focuses primarily on matching harvesting to fish population dynamics with a view to ensuring sustainable development. The work of the Aquaculture Resources Department aims to establish scientific bases for the development of forms of productive aquaculture that take account of consumers' expectations with regard to product quality, and that help to preserve the coastal environment.

Working in partnership with industries in the sector, the Product Enhancement Department is helping to develop technological processes that can improve the processing

of raw materials, and that can offer new product outlets (harvesting of new species, exploitation of certain fish parts, extraction of molecules for use in the pharmaceutical or cosmetics industries).

Lastly, the Marine Economy Service analyses market prospects together with economic and financial performance in the sector.

The Fisheries Technology Service within the Marine Technology and Information Systems Division is responsible for the development of fishing technology. It works in close collaboration with the Living Resources Division on projects concerning fishery resource management and product development, and it also works with the Coastal Environment Division with regard to studies on the environmental impact of fishing techniques. It provides information to the industry and encourages industrial transfers of the results of its work.

In addition to its research activities, IFREMER provides technical assistance to the shellfish farming industry in the areas of breeding and pond design.

Lastly, some of the activities for which the Coastal Environment Division is responsible are of paramount importance to the sea fishery and aquaculture economy—namely, those involving the monitoring of the quality of the marine environment. Three sampling networks managed by the IFREMER are used to monitor the quality of seawater and the water used by fish farmers: the microbiological monitoring network (REMI), the phytoplankton monitoring network (REPHY) and the national network for the surveillance of pollutants and general parameters relating to the quality of the environment (RNO).

The funding allocated to research can be estimated on the basis of appropriations for IFREMER activities as reported in the Institute's cost accounting figures. Funding can thus be estimated at EUR 43.6 million (FRF 286 million) in 1999 and 2000.

Lastly, other institutions – *Institut de Recherche pour le Développement* (IRD), the *Muséum National d'Histoire Naturelle* (MNHN), the CNRS and CEMAGREF – also participate in research and training in the maritime sector. In particular, the IRD conducts research into tropical tuna, and the MNHN conducts research into species found in the French Southern and Antarctic Territories.

### **Management, surveillance and inspection**

In accordance with the Common Fisheries Policy and specific regulations with regard to inspection, responsibility for the surveillance and inspection of fishing activities lies with several administrations reporting to different Ministerial departments, namely: Defence (French Navy and the national *Gendarmerie*), Economy and Finance (Customs) and Capital Works and Transport (regional and *départemental* directorates for maritime affairs).

The total funding allocated to fisheries management, inspection and surveillance activities amounted to EUR 13 million in 2000. Of this total, staffing costs accounted for EUR 9.3 million, of which 15% for the Ministries' central staff, 25% for OFIMER and 60% for regional and *départemental* directorates for maritime affairs, in respect of their activities relating to sea fisheries and aquaculture.

The balance consisted of routine operating expenses and capital spending by the agencies concerned.

It has not been possible to assess the cost of the participation of customs authorities, the French navy and the marine *gendarmerie* in inspection and surveillance activities.

### **Financial transfers and withdrawals from the fleet**

As part of the implementation of Multi-annual Guidance Programmes (MGPs), financial measures to reduce fishing activities have been introduced in order to reduce the capacity of the French fishing fleet. France's share of the cost of these measures to reduce fishing activities amounted to EUR 1.7 million in 2000 and EUR 5.7 million in 2001. The growth in these expenditures led in 2001 to a withdrawal of 169 vessels from the fleet, representing a rated power of 19 730 kW.

National expenditure (excluding government support to match Community aid) primarily concerned management and surveillance, research, technical support and marine training, unforeseen aspects of resource exploitation (compensation for unemployment caused by bad weather) and interest-rate subsidies on loans to the fishing industry.

### **Bilateral arrangements**

The fishing agreement with Korea was renewed in 1998 for the period covering October 1999 to September 2000. This agreement provided for allocation of a quota of 3 300 tonnes of tuna, harvested by 78 vessels (surface liners) in the Exclusive Economic Zones (EEZs) of Wallis and Futuna and French Polynesia. The arrangement was suspended in 2001. The agreement between France and Japan with regard to New Caledonia and Wallis and Futuna was suspended in 1998 and 1999. This suspension ended in December 1999, and the arrangement allowed renewed access for six Japanese vessels to the EEZs of New Caledonia and Wallis and Futuna for the 2000 fishing year. It was suspended again in 2001.

## **3. Aquaculture**

### **Fish farming**

This encompasses salmon farming, pond farming and sea farming. The aggregate production of these sectors in 2000 was approximately 600 000 tonnes, corresponding to turnover of EUR 221.8 million.

### **Salmon farming**

Rainbow trout is the species with the greatest production in France, with 41 000 tonnes in 2000. There were 635 firms employing 1 580 persons at 818 production sites. Turnover amounted to EUR 133.8 million.

Aquitaine and Brittany alone accounted for 47% of total French production.

Large companies (producing over 500 tonnes) are few in number (1.5% of firms), but they account for 40% of aggregate French production. Medium-sized firms (100 to 500 tonnes) make up 15.3% of the total but account for another 40% of the production. Small firms (of less than 100 tonnes) are most numerous (84% of the total); they are spread throughout the country and account for 20% of French production.

Eighty per cent of the trout marketed is for consumption, 12% for recreational fishing and 8% to replenish river stocks.

Sales of "trout portions" (140 to 270 g) have declined from 65% in 1991 to 16% in 1998. Larger fish that are suitable for making fresh or smoked filets, or fish steaks, are on the rise and currently account for a majority of total production.

### ***Marine fish farming***

Marine fish farming, which began in the 1970s, now involves 52 producers at 60 sites, employing 512 persons and producing a total of about 5 800 tonnes. The turnover amounts to approximately EUR 46.8 million.

The three main species are sea bass, with over 3 000 tonnes, sea bream, with 1 200 tonnes, and turbot, with 910 tonnes. Farming operations generally specialise in either fry rearing or fish grow-out.

Sea bass and sea bream are raised in basins in the North Sea or along the Atlantic coast, or in floating cages on the high seas, in the Mediterranean. Turbot are produced in basins.

The production is sold essentially in the form of whole fish. On average, sea farming companies export half of their production. Fry exports account for roughly 60% of production.

Industry professionals have devised specifications that have led to adoption of a quality charter process to identify and capitalise on marine aquaculture products. Their slogan is "Quality – French Aquaculture". A "Red Label" was also obtained for farmed sea bass.

### ***Pond farming***

This is a traditional activity that produces approximately 12 000 tonnes. The bulk of the output is sold on the restocking market (6 760 tonnes), the second-highest use being human consumption (2 570 tonnes).

The main species sold are carp (53%), roach, tench and pike. Pond farming operations cover an area of 112 000 hectares, 61% of which is used for fish farming, with 39% set aside for recreational fishing. Of the 15 regions with strong fish farming potential, Centre, Rhône-Alpes and Lorraine are in the forefront. Production is carried out essentially as part of multi-activity operations by 6 000 operators. Production turnover amounts to EUR 41.16 million.

Pond farming is an essentially extensive activity, with fish feeding on the plant and animal plankton present naturally in the environment. In most pond farms, no additional feed is supplied, although certain farmers may fertilise their ponds or provide cereal-based feed supplements.

### ***Organic production***

The release in August 2000 of dedicated specifications is what prompted recognition of organic production.

### ***The feeding of farmed fish***

Salmonids and the species farmed at sea are carnivores and naturally consume fish and shellfish. A decree of the Ministry of Agriculture, Food, Fisheries and Rural Affairs of 15 November 2000 banned the use of meat-and-bone meal made from land animals in the feeding of farmed fish. Depending on the species, the feed given to farmed fish consists of 40 to 50% fish meal, 10 to 20% fish oil and 20 to 39% proteaginous plants and cereals, along with mineral and vitamin supplements.



## Shellfish farming

### Oyster and mussel farming

Marketed French production in 2000 has been estimated at 203 500 tonnes, including 135 000 tonnes of cupped and flat oysters and 68 000 tonnes of mussels. Oyster farming turnover amounted to EUR 225.2 million, and that of mussel farming to EUR 88.1 million.

In 2001, there were 52 600 concessions in the public maritime domain, representing 18 100 hectares for oyster farming and 1 570 km of rows of bouchot poles. Firms also operated 5 530 parks, having a total surface area of 2 540 hectares, on private property.

France exported 5 800 tonnes of oysters and imported 2 700 tonnes in 2000, yielding a balance of EUR 11.7 million. For mussels, however, imports (47 800 tonnes in 2000) far exceeded exports (5 500 tonnes), resulting in a trade deficit of EUR 53.2 million.

Oyster farming methods vary, depending on the regions, traditions and foreshore profiles. On the foreshore, oysters are farmed using the flat method or in raised pouches laid out on tables. In deep-water parks, oysters are hung from ropes anchored to devices that can be floating (long lines) or fixed (Thau pond tables).

The bulk of French mussel production consists of bouchot mussels, *i.e.* mussels farmed on wooden poles (Normandy, Brittany, Vendée). Another technique is long-line farming in high water (southern Brittany, Mediterranean).

### Other shellfish production

This involves primarily clams, steamers and winkles, representing respectively 1 466, 1 408 and 550 tonnes.

### Seaweed farming

Seaweed farming produced 13 752 tonnes in 2000, representing a value of EUR 2.9 million. *Laminaria digita* and *hyperborea* account for most of the production (10 290 tonnes)

Table III.8.2. **Summary of aquaculture production in France**

	Production (tonnes)	Turnover (EUR millions)	Jobs	Number of firms
Salmon farming	41 000	133.8	1 580	635
Marine fish farming	5 800	46.8	512	52
Pond farming	9 330	41.16		6 000
Shellfish farming	203 000	310.8	16 500	3 500
Seaweed farming	13 752	2.9		

Source: OECD.

## 4. Marketing and international trade

### Domestic market

Since 1995, reforms have been introduced to improve marketing conditions, including reform of the common organisation of the EU market. These reforms consist in tailoring production to market demand and modernising the sector by encouraging professional organisations to undertake joint marketing actions by developing supply forecasts and operator networking at the initial sale, identifying consumer expectations.

In 2001, production was down slightly on 2000 (by 2.7%). However, because of higher average prices, aggregate turnover improved (up by 3.1%).

### **Foreign trade**

The French consume 29 kg of seafood products per capita per year. National production, which is roughly 0.7 million tonnes, about 0.4 of which is exported, is insufficient to meet domestic demand, much of which is covered by imports. In 2000, the overall deficit was about EUR 2 billion.

France imports fresh and frozen shellfish, fresh fish and prepared fish. In 2000, each of the three groups represented, respectively, EUR 733, 667 and 646 million. Salmon, shrimp and cod contribute heavily to the trade deficit, with respectively EUR 486, 428 and 218 million.

The main families of exports are, in decreasing order of value, prepared fish and fresh fish. In 2000, they each brought in over EUR 275 million. Of the species generating a trade surplus, three were supplied in whole or in part by farming: bass, oysters and trout.

Eighty-five per cent of French exports are to other European Union countries; in contrast, the Union accounts for only 41% of French imports. France's most important trading partners are Spain, the United Kingdom and, to a lesser extent, Norway.

PART III  
*Chapter 9*

## **Germany**

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## Summary

In the period under review (2000 and 2001) the German fisheries sector was chiefly marked by two developments: decreasing landings (194 000 tons in 2000 and 177 000 tons in 2001) and partly considerable price increases. Particularly the quotas assigned to the sector fishing for cod and saithe did not suffice for fishing activities all year round. However, some considerable price rises compensated for these smaller landings. Hence, the value of landings (EUR 185 million in 2000, EUR 190 million in 2001) achieved the level of the previous years. Particularly herring and shrimp fisheries succeeded in increasing prices.

The German per capita fish consumption grew from 13.7 kg in 2000 (based on catch weight) to 14.0 kg in 2001. In Germany, pollack, herring, tuna, salmon and redfish are especially popular. In the period under review Germany's dependence on imports kept increasing. The most important supplier countries were Norway, Russia, and China. Once again Denmark was the most important supplier country within the Community. Germany's own production, i.e. yields from capture fisheries and aquaculture, amounted to only 23%.

## 1. Capture fisheries

### *Performance*

The German fishing fleet consists of around 2 300 fishing vessels with a total tonnage of 71 000 GRT and an engine power of 168 000 kW. Only 13 of these vessels are engaged in deep-sea trawler fisheries. The remaining vessels are active in cutter deep-sea and coastal fisheries. Many of these vessels are open vessels catching one day at a time only. The fleet's development is subject to the fleet structure programmes adopted by the European Community. Most probably capacities will be further reduced moderately.

On an international scale Germany does not form part of the major fishing nations. The landings of German fishing vessels, amounting to about 194 000 tonnes (landing weight) in 2000 and to 177 000 tonnes in 2001, were on the decline. The decreased landings can mainly be attributed to fewer catches in shrimps and shellfish fisheries. Yet at the same time, thanks to price increases for herring, mackerel and horse mackerel, the value of landings increased from EUR 185 million to more than EUR 190 million. Frozen produce, amounting to 100 000 tons, constitutes the main share of fish landed by the vessels of the deep-sea trawler fishery sector. These vessels predominantly caught pelagic species like herring, mackerel and horse mackerel as well as, to a lesser extent, redfish, cod, and saithe. In doing so, shipowners co-ordinated their vessels' operational plans to optimise the utilisation of the catch quotas assigned to them. In spite of considerably increased vessel operational costs due to, *inter alia*, increases in diesel oil prices, shipowners make a more positive assessment of the overall situation than in the previous years.

Cutter and coastal fisheries faced quota problems in the year under review. Thus, the catch quota assigned for cod and saithe did not suffice to secure fishing activities all year round. Therefore, some fishing vessels had to remain idle over longer periods. However, increasing prices for the above fish species ensured acceptable operating results. The price

of herring, which had hardly been covering costs for some time, increased considerably in 2001. If the price remains at this level there would be a good basis to increasingly use the herring resources in the Baltic Sea which have hardly been used so far. In shrimp fisheries, fishing enterprises benefited from the trilateral agreements concluded by the producer organisations of the main producers from Denmark, the Netherlands and Germany which have made arrangements for both production and selling prices. Hence, over the past five years, proceeds increased by around 40% in this sector. These arrangements are also useful with regard to a responsible resource management, as they do not try and compensate for the decline in sales caused by price reductions by increasing catches. In 2001 shellfish fisheries production decreased by about 50% to 15 000 tons. At the same time, however, prices more than doubled, so that, on the whole, its turnover reached approximately the 2000 turnover figures once again.

### **Management of commercial fisheries**

During the period under review, 2000/2001, there were no substantial changes in fisheries management in Germany. New fishing vessels are still only authorised to fish quota species if their tonnage (GRT) and engine power (kW) does not exceed tonnage and engine power of the old vessels they are replacing. This ensures that the capacity of the fishing vessels fishing quota species does not grow.

Following a hearing of fishing associations, the available catch quotas are distributed among the enterprises engaged in deep-sea trawler and cutter fisheries. As a rule, enterprises active in deep-sea trawler fisheries obtained individual catch licences to fish individual stocks in different sea areas and/or joint catch licences for several enterprises, enabling the fleet to operate more flexibly. Enterprises engaged in cutter deep-sea and coastal fisheries were allowed to fish species whose quota utilisation was not expected, without any quantity restrictions. In order to manage the small quotas of plaice, saithe, sole, hake, anglerfish and cod both individual catch licences and catch licences for certain groups of vessels were granted or maximum catch levels over certain periods established.

### **Management of recreational fisheries**

The number of active anglers in Germany is estimated at 1.5 million, showing an upward trend. A basic precondition for being able to acquire an angling licence which, in turn, is a prerequisite to line-fishing is to prove extensive knowledge of fishery biology, hydrology as well as animal welfare and water conservation. As there are no comprehensive catch records, information on the catches made by anglers is based on estimates amounting to almost 20 000 tons (about 13 kg per angler). Catches may not be commercially marketed.

The *Länder* (federal states) have adopted different rules governing closed seasons and minimum sizes of the fish concerned. Moreover, usually there are water-related restrictions on fishing gear and catch levels in place.

## **2. Aquaculture**

As there are no laws and regulations requiring enterprises engaged in inland fisheries, in contrast to marine fisheries, to report their production quantities to the fisheries authorities on a regular basis, there are only estimates of this sector's annual production. These estimates point to a consistent production amounting to about 45 000 tons with a total value of more than EUR 150 million. The approximately 1 200 full-time and 25 000 part-time holdings managed a fishing area of about 285 000 ha. They mainly

produced trout (20 000 tons) and carp (15–20 000 tons) in traditional ponds. Some of them also produced highly priced fish species like eel, wels catfish and sturgeon in highly intensive recirculation systems. Catches of the lake and river fisheries accounting for 3 000 to 4 000 tons also contributed to the total volume of catches. These enterprises alone managed a fishing area of 245 000 ha.

### 3. Government financial transfers

Structural support in Germany is guided by EU legislation. In 1999, new laws and regulations applicable to the 2000-2006 period of support were issued [Regulations (EC) No. 1260/1999, No. 1263/1999 and No. 2792/1999] or operational programmes drawn up.

Table III.9.1. **Available funds (2000-2006)**

	EU ('000 EUR)	National ('000 EUR)
Adjustment of fishing effort, renewal and modernisation of fishing fleet	39 856	12 556
Inland fisheries	0 994	0 261
Aquaculture	30 615	8 762
Processing and marketing	82 647	21 729

Source: OECD.

Table III.9.2. **Balance of trade for fish and fishery products, 2000 and 2001**

	Imports		Exports		Balance of trade	
	Quantity ton	Value EUR 1 000	Quantity ton	Value EUR 1 000	Quantity ton	Value EUR 1 000
2000	793 160	2 402 312	328 165	999 782	-464 995	-1 402 530
2001	808 227	2 530 752	358 239	960 163	-444 988	-1 570 589

Source: OECD.

The new programmes have become operational so that increasing financial transfers can be expected for 2001/2002. Government financial transfers for the years 2000 and 2001 are listed in Table III.9.3.

The Länder are responsible for the implementation of the support programmes. For this purpose, each Land issued directives governing support which were co-ordinated with the European Commission. The Federal Government has only an accompanying function.

In Germany, the persons engaged in fisheries are subject to the unemployment, social and pension schemes. Self-employed entrepreneurs are responsible for their own social security. Those engaged in fisheries have no special social security schemes.

The structural measures of the EU member states are based on Regulation No. 2792/1999. Within this framework no new programmes were drawn up or amendments to existing programmes made. The European Commission reports on structural measures taken in the EU.

### 4. Post-harvesting policies and practices

Since 1 January 2002, under EC legislation the marketing of a large number of fisheries products as well as of crustaceans and molluscs has been subject to the indication of the species' commercial name, production method and fishing grounds. This is why the Federal Government drafted a fish labelling bill in 2001 and submitted it to the law-making

Table III.9.3. **Government financial transfers associated with Germany's fishery policy and the EU common fisheries policy: 2000 and 2001**

DEM million

	2000			2001		
	Contribution		Total	Contribution		Total
	National	EU		National	EU	
<b>Marine capture fisheries</b>	7.1	11.4	18.5	7.9	3.2	11.1
<b>Direct payments</b>						
Payments for temporary withdrawal of fishing vessels	0.5	0.0	0.5	1.7	0.0	1.7
Payments for permanent withdrawal of fishing vessels	0.0	0.0	0.0	0.0	0.0	0.0
Other measures	0.4	0.8	1.2	0.0	0.4	0.4
<b>Cost reducing transfer</b>						
Support for purchase of new or second hand vessels and for modernisation of vessels						
Grants	3.1	10.6	13.7	1.5	2.8	4.3
Loans	2.3	0.0	2.3	4.1	0.0	4.1
Interest subsidies	0.8	0.0	0.8	0.6	0.0	0.6
<b>Aquaculture</b>	1.3	5.4	6.7	0.5	5.5	6.0
Cost reducing transfer	1.3	5.4	6.7	0.5	5.5	6.0
<b>Market and processing</b>	13.9	24.5	38.4	6.6	39.8	46.4
Cost reducing transfer	13.9	24.5	38.4	6.6	39.8	46.4
<b>Total</b>	<b>22.3</b>	<b>41.3</b>	<b>63.6</b>	<b>15.0</b>	<b>48.5</b>	<b>63.5</b>

Source: OECD.

bodies to transpose the EC rules into national law. The bill aims at regulating competencies as well as control mechanisms and sanction possibilities. In addition, it is to provide authorisation to adopt implementing regulations.

Germany is politically willing to include in the EC Organic Farming Regulation provisions relating to aquaculture. Therefore an exchange of views involving various interest groups was initiated in 2001 to establish an eco-label for fisheries products. The ongoing talks aim at developing criteria for a uniform label for organically farmed produce from aquaculture and inland fisheries, preparing possible provisions harmonised at EU level in this field.

## 5. Markets and trade

### Markets

#### Trends in domestic consumption

The BSE crisis on the beef market in 2000 and the occurrence of foot and mouth disease in 2001 led to an increase in fish sales in Germany due to a decline in the demand for meat products. Thus, per capita consumption in Germany rose from 13.7 kg in 2000 (basis catch weight) to 14.0 kg in 2001. In 1999 it was still at 12.7 kg. The most popular fish species among consumers continue to be pollock, herring, tuna, salmon and red fish. Tinned fish and marinades (mainly herring and tuna) take a top position in the range of products, followed by deep-frozen fish, fresh fish, crustaceans and molluscs.

Forty two per cent of fish was bought by consumers at discounters, while supermarkets/consumer markets ranked second, where consumers bought 37% of fish and fishery products, followed by specialised fish shops with 7% and weekly markets and home

delivery services with 14%. The sale of fresh fish took mainly place through specialised fish trade and is gaining importance in supermarkets/consumer markets. Fishery products like marinades and canned fish, deep-frozen products as well as smoked products were mainly purchased at supermarkets/consumer markets.

### **Promotional efforts**

Under the aegis of the Federal Market Association a communication campaign was launched with the aim of promoting the sale of prawns for the years 2000 and 2001. This campaign was financed by a national parafiscal levy (DEM 386 023) and the EU (financial instrument for fisheries guidance in the amount of DEM 315 837). The campaign is aimed at propagating the common shrimp in trade, gastronomy and among consumers and at providing general information about this healthy product from the sea.

### **Trade**

#### **Volumes and values**

The supply of the Federal Republic of Germany with fishery products was mainly ensured by import trade. Domestic production, i.e. yields from capture fisheries and aquaculture, had a share of only 14% in the total market volume. Accordingly, the German balance of trade for fish and fishery products showed a deficit for 2000 and 2001 as set out in the Table III.9.2.

The dependence on imports was particularly high for frozen white fish fillets and herring serving as raw material in the fish processing industry. The demand for tinned tuna and salmon was also met to a high degree by imports. The price increases had an unfavourable impact on raw material markets which was intensified by the devaluation tendencies of the Euro against the dollar in 2000. Additional price increases arose from higher ocean freight rates and carriage costs.

The most important supplier countries outside the European Community were Norway, Russia and China with supplies of China increasing in particular. Within the Community Denmark was the most important supplier country.

With the coming into force of the Common Fish Market Organization on 1 January 2002 autonomous tariff suspensions apply, *inter alia*, to frozen meat and fillet of pollack and New Zealand groundnose grenadier as well as to cod. Moreover, Community tariff quotas and GATT quotas exist for major fishery products. In addition, a great number of tariff quotas have been established within the framework of bilateral or regional trade agreements.

## **6. Outlook**

Both at Community and international level the German Government will continue to champion fisheries that are more oriented to the criteria of sustainability. Furthermore, it advocates a liberal importation system to ensure the supply of the German market and the competitiveness of the German fish processing industry.



PART III  
*Chapter 10*

**Greece**

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## 1. Capture fisheries

Table III.10.1. **Capture fisheries**

Legal actions	Number	Date	Official Journal (OJ)	Subject
Ministerial Decision	290 339	29-12-2000		Amendment of Reg (EC) 1626/94 on determining of Technical measures to preserve fisheries resources in the Mediterranean
Law	2 732	1999	OJ 154 A/30-7-99	Professional organisations and regulation of Fisheries issues
Ministerial Decision	277297/294849	1999	OJ 1098 B/9-6-99	Regulation of large open – sea vessels catch for the year 1999
Ministerial Decision	280 060 173 385	2000	OJ 301 B/10-3-00	Regulation of large open – sea vessels catch for the year 2000
Presidential Decree	31	2000	OJ 23 A/15-2-00	Prohibition of fisheries in sea waters of the area Fenari Rodopis
Joint Ministerial Decision	264 885	20-9-2001	OJ 1291 B/8-10-01	Joint ventures
Joint Ministerial Decision	264 886	20-9-2001	OJ 1307 B/10-10-01	Breaking of fishing vessels and transportation to a third country/ other adjustment
Joint Ministerial Decision	265 679	18-12-2001	OJ 1769 B/31-12-01	Building of new vessels/ modernisation of existing vessels

Source: OECD.

## 2. Aquaculture

References mentioned in the *Review of Fisheries 1999* are still applicable. In addition, the following are applicable:

- By L. 2732/1999, issues on aquaculture installations planning and issues on devolution of authority concerning approval of environmental aspects of such installations, are, among others, regulated.
- By circular of the Minister of Agriculture, No. 258169/4-10-2000, renting of new sea areas and issue of installation licenses are suspended for the “new marine Mediterranean species” (Pargo, bream, putazzo puntazzo, dentex, white seabream, etc.), because of the significant discrepancy observed between the number of installations and their approved capacities, in relation to the yielded production, which is on a relatively low level.
- Following Reg (EC) 2792/99, on Community structural aid for the fisheries sector and the European Commission Decision No. (2000) 3405/28-11-2000 on approval of the Community Support Framework for Greece, for the period 2000-2006, Greece has drawn-up and submitted, for approval, to the EU Services , a draft “OPERATIONAL FISHERIES PROGRAM 2000-2006”.

### 3. Post-harvesting policies and practices

#### **Policy changes**

##### **Food safety**

There are no changes in national level regulations for food safety in the years reviewed. Any changes in Community level will be reported by the Commission of the European Union.

##### **Information and labelling**

No national measures have been developed in the field of labelling.

##### **Structures**

No structural or institutional reforms have been made in the fields of distribution and marketing. During 1999 and 2000, structural assistance to the sector continued within 2nd Community Framework of Support, financed by FIG (Financial Instrument for the Fisheries Guidance). In the year 2000, preparation of the 3rd Community Framework of Support, also financed by FIG, has been started.

##### **Processing and handling facilities**

No changes in the structure of processing, handling and distribution industries at a domestic level.

### 4. Markets and trade

#### **Markets**

##### **Trends in domestic consumption**

A recent study, conducted during 2000 in Greece, entitled "Study on the consumption of fishery products in Greece", showed *inter alia* the following points:

- 12% of Greek households do not consume fishery products.
- An increase per capita consumption is awaited, with the exception of a scenario where an increase of fishery product prices is combined with a reduction of the mean size of the households.
- Monthly expenses for fishery products, both for household and outdoor consumption, reaches 1/5 of the expenses dedicated to food; it reaches EUR 3.5 for preserved products and EUR 12.5 for A' and B' category fish and aquaculture products.\*
- The frequency of fish consumption per capita is once weekly for household and once monthly for outdoor consumption.
- Summer and spring are the periods with the highest levels of consumption.
- Increase of urbanisation may lead to a reduction in the number of households consuming fishery products, while households already consuming these products may tend to increase their consumption.
- Increase of urbanisation tends to affect positively consumption of fresh fish of A' category and aquaculture fish, while negative trends are expected in preserved fish.

\* Fish in Greece is generally classified to categories A' and B' according to their commercial value. It has nothing to do with sanitary classification. High value fish are considered as A' category (such as demersal species), while fish of lower value which are destined to popular consumption (such as small pelagics) are considered as B' category. This classification is established in the cast of mind of the consumers.

### Promotional efforts

Two promotional efforts have been conducted in Greece during 1999-2000 by organised professionals of the sector, aiming at increasing awareness and promoting these products to the public. The promotional campaign used TV, radio, press and outdoor messages and had a cost of EUR 1 100 000 for aquaculture products, while promotion for mussels reached a cost of EUR 730 000.

### Trade

#### Volume and values

Volumes and values of fish products traded in 1999 and 2000, classified according to combined nomenclature code are shown in the following tables.

Table III.10.2. **Imports and exports, 1999**

NC code	Imports		Exports	
	Value ('000 EUR)	Quant. (t)	Value ('000 EUR)	Quant. (t)
0301	9 738	279	9 471	1 907
0302	57 442	14 916	199 905	40 253
0303	34 528	21 000	7 622	3 299
0304	13 886	5 849	1 056	215
0305	36 040	9 455	10 393	4 418
0306	20 366	5 753	6 012	704
0307	60 969	32 362	19 783	21 567
1504	1 131	1 882	585	557
1604	31 778	9 436	7 169	2 315
1605	6 550	2 608	13 569	2 367
<b>Total</b>	<b>272 427</b>	<b>103 541</b>	<b>275 565</b>	<b>77 603</b>

Source: OECD.

Table III.10.3. **Imports and exports, 2000**

NC code	Imports		Exports	
	Value ('000 EUR)	Quant. (t)	Value ('000 EUR)	Quant. (t)
0301	6 367	2 715	4 720	6 178
0302	51 949	29 081	189 997	47 974
0303	37 262	18 985	6 519	3 452
0304	17 052	6 057	1 402	194
0305	30 873	7 810	4 436	2 179
0306	24 653	2 817	3 920	508
0307	63 093	30 615	13 908	21 763
1504	1 477	3 011	0	0
1604	30 599	8 769	6 680	2 087
1605	7 616	2 980	11 384	1 871
<b>Total</b>	<b>270 941</b>	<b>112 838</b>	<b>242 967</b>	<b>86 207</b>

1. Figures represent trade with both EC and Developing Countries.

2. The National Statistical Service of Greece provides data. Year 2000 data are final ones, although not cross-checked.

Source: OECD.

### Policy changes

No bilateral trade agreements at a national level have been concluded.

PART III  
*Chapter 11*

## **Ireland**

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## Summary

In 2000 landings of fish (quota and non quota species) by Irish registered vessels into Irish and foreign ports totalled 317 000 tonnes (live weight), with a total value of IEP 217 million. The main species involved in Ireland's catch are outlined in Table III.11.1.

The overall value of Irish seafood exports in 2000 was IEP 261 million, an increase of 15% from 1999.

In relation to aquaculture, production in 2000 amounted to 51 246 tonnes.

## 1. Legal and institutional framework

In Ireland, the legal framework for the regulation of fisheries is exercised at national Government level in accordance with the provisions of the Common Fisheries Policy. The Department of Communications, Marine and Natural Resources is responsible under the Sea Fisheries Acts for the formulation and implementation of policies for, among other areas, the sea fisheries, aquaculture and recreational fisheries sectors. A number of State Agencies reporting to the Department have certain responsibilities in relation to research and the management, conservation and protection of fisheries resources. These include the Sea Fisheries Board (An Bord Iascaigh Mhara), the Marine Institute and the Central and Regional Fisheries Boards (7). Policies in the sector are implemented in the context of the EU's Common Fisheries Policy.

## 2. Capture fisheries

### *Fleet*

The Irish fleet at the end of 2000 comprised some 2 000 vessels. Its full time commercial fleet comprised some 300-400 vessels out of this in 2000.

The objectives for the Irish fishing fleet for the period 1997-2001 were agreed in the context of the fourth Multi-Annual Guidance programme (MGP IV). The programme sets the fleet capacity/effort objectives which are to be achieved in respect of the Irish fishing fleet by the end of 2001. The Fourth Multi-Annual Guidance Programme provides that member States can achieve the fleet objectives either through reductions in fishing effort or reductions in fleet capacity. In the context of the Irish decision, it has been agreed that Ireland will meet its objectives for both the Pelagic and Beam Trawler segments through reductions in fishing effort.

### *Landings (including crustaceans and molluscs)*

The total value of all sea fish (excluding salmon) landings by Irish registered vessels for 2000 was as follows:

Table III.11.1. **Total value of sea fish (excluding salmon)**

Species	Landings (tonnes)	Value (EUR million)
Demersal	37 000	65
Pelagic	211 000	66
Shellfish	69 000	86
<b>Total</b>	<b>317 000</b>	<b>217</b>

Source: OECD.

For 2000 the main demersal species harvested were Cod, Haddock, Megrim, Monk, Plaice, Ray and Whiting. The main pelagic species were Blue whiting, Herring, Horse Mackerel and Mackerel. The main shellfish species were Blue Mussel, Edible Crab, Nephrops and Whelk.

### *Management of commercial fisheries*

The control and management of fisheries resources in Community waters which come within the Irish exclusive economic zone (EEZ) are effected in the context of the EC's Common Fisheries Policy which provides for detailed regulations governing, among other matters, catch and effort limitation, technical conservation measures, the processing and marketing of fisheries and aquaculture products, fisheries research and relations with third countries and international fisheries organisations.

A number of fisheries are subject to quotas and require seasonal and/or output management controls to ensure that they operate to maximise their benefit to the sea fishing sector and in accordance with national obligations. The Department implemented and developed fisheries and quota management regimes in consultation with the Marine Institute, BIM, technical staff and the industry within the context of the Common Fisheries Policy.

To facilitate management of these fisheries, Statutory Instruments restricting the amount of fish held on board vessels or landed during specific periods are made from time to time under section 223A of the Fisheries (Consolidation) Act, 1959. These Orders are made by the Minister following consideration of technical and administrative advice.

### *Pressure stock licence fisheries*

Pelagic fisheries also require detailed fisheries management so as to maximise the benefit to the sector from the fishery within the overall quota constraint. On the basis that pelagic quotas can be caught in a very short period of time by a small number of vessels, management initiatives were necessary to ensure that the fishery provided the maximum level of benefit from a national perspective to the catching and processing sectors. In addition to seasonal and output controls (vessel catch limits), additional input controls were employed in the herring, mackerel and horse mackerel fisheries. These input controls regulate the vessels which may participate in the fishery. In 2000 as in previous years the

herring, mackerel and horse mackerel fisheries were controlled in this way by the issue of pressure stock licences. During 2000 the following licences were issued:

Table III.11.2. **Number of licences issued**

	2000	1999
Celtic Sea Herring licences	246	256
North-western Herring licences	134	117
Mackerel licences	122	116
Horse mackerel licences	23	21
Tuna licences	18	18

Source: OECD.

### 3. Aquaculture

#### *Strategic approach*

The strategic objectives being pursued are:

- To increase employment, output value and exports in the Irish aquaculture sector on a sustainable basis.
- To create a sustainable structure/basis (critical mass) for further expansion of the sector.
- To secure improved competitiveness, technology, quality, value added and diversification in the sector.

There are currently over 3 000 people employed in the Irish aquaculture sector and aquaculture production is worth approximately IEP 67 million per year to the economy. The sector now accounts for 30% of total fish production in Ireland, reflecting the importance of aquaculture as a developing food source in the global economy. Given the growing market for seafood, aquaculture has considerable potential for further growth in jobs and economic activity in coastal communities and is increasingly important as a raw material supplier to the fish processing sector, with significant added value and export opportunities.

There have been significant levels of investment in the development of the Irish aquaculture industry in recent years and this continued in 2000. In the period 1994 to 1999 total investment in excess of IEP 30 million was made and as part of the Government's National Development Plan 2000-2006, further investment of almost IEP 60 million is envisaged resulting in a projected doubling of production.

Aquaculture production in Ireland in 2000 amounted to 51 246 tonnes with a value of EUR 96 million approximately.

### 4. Fisheries and the environment

There is increased consideration of environmental issues in the formulation of policies. The Common Fisheries Policy, the primary objective of which is to conserve fish stocks at an optimal level, is also increasingly required to ensure that measures are consistent with the protection of the marine environment.

### 5. Processing, handling and distribution

Most processing, handling and distribution activity is geared to the export market, particularly for herring and mackerel where products are sold to Europe, Southeast Asia and Africa. Irish processors produce and market a wide range of branded consumer products based



on whitefish, shellfish and salmon. BIM work with processing companies to maximise product and marketing opportunities for Irish fish on domestic and export markets. In Ireland 50% is added to the value of the primary product through processing. Through investment in the sector the amount of added value is expected to increase. The development of the seafood industry is a Government priority and a provision of IEP 171 million has been allocated for its development in the National Development Plan 2001-2006.

## 6. Government financial transfers

In the period covered by the review, changes in Government financial transfers were relatively minor.

## 7. Markets and trade

### Exports

Total Irish seafood exports in 2000, including direct exports from Irish vessels landing into foreign ports, reached a value of IEP 261 million. In terms of volume, seafood exports amounted to 216 027 tonnes which is an increase of 7% compared with 1999.

The export performance varied among the main product categories. In terms of product categories exports of freshwater fish increased in volume and value to 17 517 tonnes and IEP 53 million respectively. Exports of salmon also increased to 12 014 tonnes (IEP 42 million).

In 2000 export of pelagic products declined in volume but increased in value. Exports of mackerel and horse mackerel amounted to IEP 53 million while exports of herring in all forms amounted to IEP 16 million.

Exports of herring roe increased in volume to 725 tonnes valued at IEP 2.7 million. The volume of tuna exports declined by 12% from the 1999 level to 2 849 tonnes while the value increased to just under IEP 6 million.

In the year 2000, there was an unusually high tonnage of whitefish exports recorded at 28 875 tonnes and valued at IEP 34 million. This increase reflects the continuing buoyancy in demand for whitefish species on European markets.

The year 2000 was good for Irish shellfish exporting companies. The value of total shellfish exports increased by 7.3% in value to IEP 81 million with volumes up to 29 858 tonnes compared with 1999.

Fishmeal and oil exports increased sharply in 2000 to 13 834 tonnes and the value was up 40% from 1999 to IEP 5 million.

Table III.11.3. **Trends in Irish seafood exports in 1999-2000**

	1999		2000	
	Tonnes	IEP '000	Tonnes	IEP '000
Freshwater fish	16 391	43 600	17 517	53 465
Demersal	14 866	30 496	28 875	34 458
Pelagic	136 278	74 558	125 942	86 920
Shellfish	27 120	75 576	29 858	81 083
Fishmeal/oil	6 815	3 525	13 834	4 938
<b>Total</b>	<b>201 479</b>	<b>227 756</b>	<b>216 026</b>	<b>260 864</b>

Source: OECD.

### ***Market spread***

The European Community accounted for 78% of Irish seafood exports in 2000 and the unit value of these exports increased by 5%.

## **8. Outlook**

The need to ensure sustainable development of fisheries is considered to be the highest priority. A range of measures involving even closer international co-operation and collaboration will be necessary. Ireland will be playing its part at EU level in the conservation of fisheries and marine life. Ireland is particularly anxious to secure improved monitoring and control measures to help protect and develop stocks. Ireland will be working towards this in the context of the evolving CFP which comes under review in 2002.

PART III  
*Chapter 12*

**Italy**

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## Summary

Italian fishing areas are scattered along the 8 000 km coastline while production is landed in more than 800 landing sites. The fleet is widely distributed and therefore not concentrated. The fishing sector appears highly fragmented in many regions along the coast and there are many large structural and technical differences in vessels registered in different geographical areas. The Italian fishing fleet is broken down into the following eight segments: bottom trawlers, purse seiners, midwater pair trawlers, dredges, multi-purpose trawling vessels, small-scale fisheries, tuna fisheries and swordfish fisheries. Flexibility and diversification in fishing gear are typical of the Italian fishing fleet and this ensures stability in the volume of catch per vessel, and therefore, stability of income.

The contraction of both fleet and activity could not therefore fail to influence the landing levels. Nevertheless, the contraction of landings was proportionally higher than that of effort (capacity and activity). As a result, there was a decline, in unitary terms, of the average annual (-5%) and daily (-3%) yield. In 2001, on average, a boat landed 20 tonnes of products, whereas in 2000 and in 1999 it landed 21 tonnes.

The age of vessels in the Italian fleet averages around 25 years, and 76% of the vessels were built before 1986. Only 9% of the fleet was constructed in the past ten years. The modernisation of the fleet, combining the restructuring of hulls and gears and effort reduction, are among the main objectives adopted in Italy over the 1992-2001 period. New entries to the sector are not encouraged.

### 1. Legal and institutional framework

Act 41, which came into force in 1982, represents the normative reference which, in line with EU regulations and structural interventions, has directed the sector evolution using Triennial Plans as planning documents. The authority responsible for monitoring and enforcing EU and national conservation policies is the General Directorate for Fisheries and Aquaculture, which is part of the Ministry of Agriculture and Forestry Policies.

The management of the sector has been affected by a twofold programming level. On the one hand, the national programming activity takes the Triennial Plan as its reference operating document. On the other hand, the EU activity finds its main intervention instruments in the functioning of structural funds.

During 2000, the VI Triennial Plan for Fishery and Aquaculture 2000/2002 (OJ No. 172 – 25.7.2000) was adopted as the main planning instrument of the sector. This adoption has been followed by a process of administrative devolution aimed at strengthening the autonomy of local authorities. Under this process, as a prerogative of the central administration, the Ministry of Agriculture and Forestry Policies retained its power to direct, co-ordinate and plan, and also to manage the fleet and the national sea fishery resources. Local authorities, instead, have been entrusted with all competencies in fishery matters previously managed by DG Fishery and Aquaculture: development and protection of aquatic resources, aquaculture, fishing harbour maintenance, processing, trading and inland waters fisheries.

Under D.L. 143/97, administrative competencies were entrusted to the regions with repercussions in terms of management of the resources allocated with the Structural Funds and the VI Triennial Plan. Therefore, in order to ensure effectiveness and efficiency of public expenditure and to safeguard the principle of consistency in planning, close co-operation between central administration and local authorities was called for.

With reference to the national normative, the year 2001 saw the issue of the legislative decree No. 226 of May 18, 2001: *National guidance and modernization law for the fishery and aquaculture sector*. In this text, the role of the fishery entrepreneur is considered equivalent to that of the agriculture entrepreneur. The former is defined as someone that “performs an activity aimed at capturing or harvesting aquatic organisms in marine, brackish and freshwater environments, in addition to related activities, including also the implementation of interventions of active management, aimed at the productive valorisation and at the sustainable exploitation of aquatic ecosystems”.

## 2. Capture fisheries

### **Performance**

In 2001 the Italian fishery fleet operating in the Mediterranean Sea produced a total of 337 000 tonnes. In comparison to 2000, this represents a decrease of 14%. The value of production for 2001 amounted to ITL 2 813 billion (EUR 1 453 million), 9% less than in 2000.

In the last six years, the capture level achieved by the Italian fleet has shown a consistent decline, from 449 000 tonnes in 1996 to the present 337 000 tonnes, with a peak of 465 000 tonnes obtained in 1998. The reduction of landings is primarily due to the shrinking of the “structural” component of the fishing effort, and, to a lesser extent, to a decline of the unitary productivity that can be related to the status of the resources.

In economic terms, the situation appears less negative, thanks to the markedly increasing trend of prices determined partly by the reduction of the supply and partly by the BSE crisis that pushed food consumption increasingly towards fish products. As a consequence, the price level has shown an increase of 17% in the last two years. Between 1999 and 2000 the average price increased by 8%, and between 2000 and 2001 it showed a further increase of 9%. On account of this positive price trend, in 5 regions out of 12 an increase of revenues has been recorded, with a peak of 21% in E. Romagna.

Analysis of data disaggregated by fishing gears shows that for all segments a reduction in production has been recorded. In particular, the contraction of landings is more marked for the purse seiner fleet (-35%) and for the small scale fishery boats (-29%), whereas the contraction for the trawler fleet is around 12%. It is important to note that all segments have been affected by the reduction of the fleet and, with the exception of midwater pair trawlers, also by the reduction of the overall activity.

At a unitary level, the revenues by boat have shown non homogeneous trends for each segment: trawls, dredges and multipurpose vessels show an increase. In particular, the average annual revenue of trawlers and dredges reached the highest levels of recent years. Conversely, the values are decreasing for midwater pair trawlers, purse seiners and small scale fishery.

The reduction in domestic production, combined with a constantly increasing demand, leads to an erosion of the market quota satisfied by national supply and favours imports. As a matter of fact, owing to landing trends, it is more and more profitable to enhance local fish products, a route followed by many operators which has influenced the price increase of production.

In conclusion, from 2001 data it emerges that at a macroeconomic level, a relevant decline has been recorded in structural and productive components of the fishing sector. Conversely, at a microeconomic level, the situation of small enterprises is characterised by different trends that vary with a “leopard skin pattern” following various geographical areas and different technical segments. Finally, the continuous and constant decrease of the unitary production testifies that in some areas there is a reduction in the biomass.

### **Status of fish stocks**

In Italy, the status of fish stock of commercial value is currently assessed by means of surveys carried out by a number of institutes working in close co-operation on four main groups of resources: bivalvular molluscs, large pelagic species, small pelagic and demersal species.

Bivalvular molluscs, object of management innovations which involved fishers' organisations, show a positive upturn in several marine areas. In those basins in which active management measures have been undertaken by Management Consortium, an increase in the existing biomass of average size clams was recorded.

Over the last few years, there have been considerable fluctuations in the catch of large pelagic species. A much higher demand of tuna led to an increase in its capture level.

Over the years, the biomass of small pelagic species available in the Mediterranean sea are subject to marked fluctuations. As a fishing area, the Adriatic Sea shows a remarkable concentration of small pelagic species, therefore, most professional fishers operate there. Being a highly productive basin, it abounds in zooplankton on which anchovies, sardines and mackerel feed.

The species with the highest commercial value is Anchovy (*Engraulis encrasicolus*). Data collected with different methodologies (eggs-larva, eco-survey and population dynamics) have shown a marked increase in the biomass estimated at over 300 000 tonnes out of the biomass available in the Adriatic Sea.

The most abundant among the small pelagic species is the Pilchard, *Sardina pilchardus*; this species shows less and less pronounced fluctuations still linked to climatic and environmental factors. The catch segment amounts to 10%-15% of the biomass estimated with different surveys.

Assessment of demersal resources has been carried out by means of trawl surveys. An approach based on direct evaluations represents a reliable instrument to highlight the spatial distribution and fluctuations in the health of resources. Moreover, estimates of biological parameters and the population structure of fish stocks are currently produced. Data on the fluctuations which define the population dynamics in connection with different death causes are also performed on a continual basis.

Only about thirty species out of over a hundred caught by trawlers in the Italian seas are important in terms of biomass and economic value. Ten species have been the object of major studies: Hake (*Merluccius merluccius*), Red mullet (*Mullus barbatus*), Greater forkbeard (*Phycis blennoides*), Blue whiting (*Micromesistius poutassou*), Norway lobster (*Nephrops norvegicus*), Giant red shrimp (*Aristeomorpha foliacea*), Blue and red shrimp (*Aristeus antennatus*), Deepwater rose shrimp (*Parapenaeus longirostris*), Common octopus (*Octopus vulgaris*), Horned octopus (*Eledone cirrhosa*).

### **Management of commercial fisheries**

During 2000 the VI Triennial Plan was adopted. It outlines the objectives of management in the fishery sector:

- Resources conservation and management policy.
- Fishing effort rationalisation.
- Decentralisation and updating of administration.
- Increase in domestic production within a framework of environmental sustainability.
- Employment safeguard.
- Strengthening scientific research in the fishing sector.

### **Management instruments**

As a result of a management strategy aimed at reducing pressure on catch and safeguarding operators' revenues, specific means of intervention have been devised. Studies on the evaluation of biomass proved that the biological structure of Mediterranean stocks is made up of species with a limited recruitment age and among which a short life cycle prevails. In terms of management, the best way to pursue stock recovery is through reduced fishing capacity accompanied by a decrease in the fishing activity over periods of time established by means of scientific research.

Within the framework of an action aimed at regulating the fishing effort and with reference to the reduction of fishing capacity, MAGP objectives fixed by Community rules have been pursued.

The fishing capacity of the Italian fleet has shown a considerable decline in the last two years. The swordfish driftnets plan and the clams plan are among the many causes of this decline. Above all, however, a determining factor was the strong increase in fuel prices in 1999 and 2000. This was the main reason that led many operators to leave the sector permanently, applying for the financial assistance available for the permanent withdrawal of vessels provided through by the FIFG in agreement with the objectives aiming at the reduction of the fleet indicated by the Common Fisheries Policy. Between 1996 and 1999, the size of the fleet in terms of gross tonnage was on average 227 000 GT, whereas in 2000 it decreased to 208 000 and, in 2001, it was slightly above 187 000 GT. In 2001 alone, there were applications for the scrapping of 1 100 vessels, corresponding to slightly less than 17 000 GT.

In addition to the measure of permanent withdrawal, it was deemed necessary to introduce measures concerning management techniques appropriate to the features of the biological structure of the resources available in the Mediterranean sea. Particularly, on the basis of data provided by scientific research, restrictions have been imposed on the fishing of demersal species in areas and over periods of major concentration of juvenile catch.

### **The temporary withdrawal in 2001**

In 2001, a new modality for the implementation of temporary withdrawal has been approved. Rules that allowed for the creation of measures called "fishing technical temporary withdrawal" in previous years, have confirmed their social validity after the modifications introduced by EEC Regulation No. 2792/99. In particular, Article 12 states that, in the presence of specific programmes for the conservation of aquatic resources, in order to promote the temporary interruption of the fishing activity member states may pass nationally financed accompanying social measures for fishers. Furthermore,

Article 16 allows for the possibility of offering to the fishers and boat owners indemnities for temporary withdrawal, only in the presence of specific circumstances, such as a non foreseeable event due to biological causes. Finally, in applying Article 12, Ministerial Decree of July 30, 2001 provided for the regulation of the fishery technical temporary withdrawal for 2001. In agreement with local consultative commissions, 30 consecutive days of compulsory technical temporary withdrawal have been set in relation to the maritime compartment of registration.

The Adriatic trawl and long-line fleet was stopped from 1-30 August 2001. In the Ionian Sea, only the Taranto and Gallipoli compartments have adhered to the temporary withdrawal in the period going from 15 September to 14 October. However, the real news concerned the Thyrrenian Sea where the temporary withdrawal has been compulsory in Lazio (from 27 August to 25 September), in Campania (from 15 September to 14 October) and in the Vibo Valentia compartment (from 7 September to 6 October). Furthermore, the vessels qualified for the Mediterranean fishery and the boats that fish for deep-water shrimps in the Ionian Sea and in the Thyrrenian Sea adhered to the temporary withdrawal, at the end of each fishing campaign, at the rate of two days for every five days of activity. In Sardinia, the technical temporary withdrawal for trawlers has been set for a period of 45 days starting from 15 September 2001. Finally, in Sicily, an apposite regional decree of 17 July 2001 provided for an obligatory technical temporary withdrawal for fishing vessels not exceeding 18 meters. Such temporary withdrawal had an overall duration of 45 days, of which 30 had to be consecutive and an additional 15 had to be distributed in the period between May and November at the rate of no more than 5 days per month. The 30 days technical temporary withdrawal had to be implemented in the period between 1 August and 31 October.

Furthermore, during 2001, the General Directorate for Fisheries and Aquaculture has completed the decentralisation process in order to transfer competences to the regions. In this sense, activity has involved the whole structure of the administration and, in contrast with previous experiences, it has become qualitatively different requiring an *ad hoc* training of the staff along with the introduction of professional profiles not currently available. At the same time, it was necessary to reorganise the administrative structure. In this sense, a reorganisation proposal has been predisposed. Owing to the new competencies assigned to the central administration, such rearrangement will require an increasingly strong development of the co-ordination activity between central and regional levels. In particular, considering that both the monitoring and the control activities fall under the duties of the General Directorate for Fishery and Aquaculture, the work programme has been handled by units specifically created to perform duties requiring statistical competencies besides administrative ones. The management of financial flows demanded an ever-growing attention to the budgetary time limits imposed by the new regulation and an increased assistance for the functioning of the Surveillance and Control Committee. In conclusion, the work programme was aimed at performing all duties imposed by the regulation and specified in the various documents approved by the Community.

### **Management of recreational fisheries**

The management of recreational fisheries required a rearrangement of the procedures concerning the issue of fishing licences. Working groups have been set up in order to examine the problems of this sector related to:

- status of recreational fishers;



- issue of licences; and
- equipment and recreational fishing seasons.

The conclusions drawn by these working groups have been evaluated by the Parliament. Consequently, within the limits of effectiveness of the VI Triennial Plan and following the principle of administrative simplification, appropriate guidelines for the implementation and authorisation modalities will be outlined.

### **Monitoring and enforcement**

The logbook (provided by Common Regulations EEC No. 2807/83 and 2847/93 and modified by Regulation EEC No. 2737/99) requires that common fishing vessels of more than 10 meters length keep note of any species kept on board in quantities greater than 50 kg of live weight. Thus, only boats that in a single trip catch large quantities of a single species are required to keep trace of catches in the logbook. In the Italian fishery, this is the case for only a limited number of boats. In the summer months, the General Directorate for Fishery and Aquaculture has distributed to the Harbour-Offices logbooks which are however not yet operational.

Another EU directive, consisting of Regulation No. 686/97 of the Council of April 14 1997, stated for fishing boats of specified length the obligation to implement a satellite based control system. Under the Ministerial Decree of 30/08/01, all units with an overall length of 24 meters were required to have a satellite based control system installed. The setting up of the “blue box” will improve the compliance with rules, safety of life at sea and prevent possible legal cases concerning the trespassing of the territorial waters limits of other countries.

## **3. Aquaculture**

The total surface of the extensive aquaculture marked a positive trend in the last ten years. Nevertheless, over the last four years, the output, marked by a low decrease of sea bass production and a small increase of mullet production, has remained stable. As for intensive technology, there is a higher number of sea bass and sea bream fish farms units, due to the realisation of mariculture plants in cages.

Aquaculture production in Italy has been growing steadily over the last decade and reached almost 264 000 tonnes in 2001 for a value of EUR 502 millions. The majority of the output is represented by mussels and clams, which together account for 72% by volume.

Farming of sea-bass and sea-bream have also been rising quickly reaching 17 300 tonnes in 2001. The Italian production of these valuable species increased as in most other Mediterranean countries, but imports and consumption have increased much faster than Italy's own production. In fact, even if Italian producers managed to increase output significantly, imports are still dominating the market and prices have continuously decreased.

## **4. Fisheries and the environment**

The VI Triennial Plan has confirmed the central role of environmental policy in fishing and aquaculture. In order to foster the sustainable exploitation of living aquatic resources a Subcommittee of the Management Board is to be established. Its task will be to identify sustainability indicators for fishing and aquaculture in an Economic, Social, Ecological and “Governance” perspective. Such indicators will be aimed at:

- identifying the appropriate behaviour for the preservation of resources;

- promoting certification processes;
- facilitating consumers' choices by improving communication mainly between producers and consumers;
- boosting enterprises to commit themselves to respecting the environment.

In this framework, even if only the Regions have been granted funds allocated by FIFG to support and enhance aquaculture, MIPAF and the Regions were bound to develop a strategy which, starting from the positive performance of quality products, could enhance those productions complying with the procedures of responsible behaviour provided for by FAO code of conduct.

## 5. Government financial transfers

### **Transfer policies**

In compliance with EU regulations, the government's policy on financial transfer is oriented to limiting, rather than promoting, the levels of effort in capacity and activity.

In 2001, direct payments for vessel decommissioning amounted to EUR 115 482 000.

### **Social assistance**

The contraction of both fleet and activity could not therefore fail to influence the landing levels. Nevertheless, the contraction of landings was proportionally higher than that of effort (capacity and activity). From this it derives a decline, in unitary terms, of the average annual (-5%). In 2001, on average a boat landed 20 tonnes of product, whereas in 2000 and in 1999 it landed 21 tonnes. Moreover, a data analysis by individual species does not highlight a shift in production towards species of higher economic value. All crustacean species are declining, and among fish species only European hake and red mullets show a slight increase.

As proved by unitary indicators of productivity, the contraction of production levels can be partly explained by the marked reduction of active fishing boats following the permanent withdrawal and partly to a slow yet progressive depletion of some biological resources.

## 6. Post-harvesting policies and practices

The promulgation of the *national guidance and modernization law for fishery and aquaculture* introduced specific innovation policies. They are the assimilation to the agriculture entrepreneur, associated to fiscal and social security benefits; the acknowledgement of the multi-functional role of the fishery enterprise, responsible for the preservation of aquatic ecosystems; the introduction of training and apprenticeship contracts; the acknowledgement of the legal status of fishery-tourism. Moreover, a series of measures has been devised in order to co-ordinate Administration and Category Associations, with the possibility of creating agreements for interventions of technological innovation and improving the quality and the "traceability" of the production process. Furthermore, the creation of fishing districts, already foreseen in the previous triennial plan as new forms for the management and organisation of production and distribution of products, was adopted on the basis of marine macro-areas identifiable by environmental social and economic homogeneity.

As for information and labelling, the regulation has been adapted to the principles of Art. 4 of Regulation No. 104/2000 of 17 December 1999 (OJ of the European Communities L. 17 of 21/01/2000). This regulation has established that producers shall comply with the following duties: as from 2 January 2002 all fishery products (including fillets, shellfish and crustaceans) live, fresh, refrigerated, frozen, dried, salted or pickled shall only be retailed provided that they bear a label containing details concerning the trading denomination of the species, the fishing method (sea fishing, fresh water fishing or aquaculture) and the fishing district.

## 7. Markets and trade

### **Trends in domestic consumption**

As for 2000, the apparent consumption calculated as the difference between exports on the one hand and home production and imports on the other hand, shows a slight decrease totalling around 1 249 000 tonnes equal to 21.66 kg per capita. In comparison with the previous year, the shrinkage of 3.2% is due to a decline in internal landings. In Italy in 2000, expenditure increased by around 4%. The different trend between consumption in quantity and expenditure confirms that consumers' habits are changing. Consumers are indeed turning to ready-to-use and better quality fish products. In 2000, the reported growth was pulled partly by fresh and defrosted fish and partly by deep-frozen packaged and ready-to-use products such as salted and smoked fish, crustacean and above all by molluscs (squids, cuttle-fish, common octopus and horned octopus).

As from November 2000, consumers' trends have undergone a sudden change due to the alarm caused by the spreading of BSE. In the short term, this has essentially resulted in a substitution of bovine consumption with fish products. This last change, along with a demand which, in the short term, can be considered a steady one, determined an increase in the production prices of fresh fish.

Such events made customers even more sensitive to the issue of food safety. Demand for healthy food has, since then, focused consumers' attention on packaged goods, whose label or trademark ensures market transparency and fulfils consumers' ever-growing concern in food safety.

### **Promotional efforts**

The main feature characterising the whole fishing industry in 2000 has most probably been the increase in the average unit price which, after years of gradual decrease, has been slowly rising towards the highest figures. Such price increase is partly due to the growth in the domestic demand for fish products and partly, especially for aquaculture products, to the adoption of initiatives aimed at acknowledging and qualifying products. To face the difficulties of the market, mainly due to the increasing competitiveness of foreign output, and in order to differentiate home products from foreign ones, Italian operators have set up initiatives and research aimed at making domestic products more easily identifiable. The first step taken has been the adoption of trademarks which have developed through the labelling of products either by directly marking the catch or the fish containers. Afterwards, an ever-increasing number of operators adopted the system of certification as a means to mark out both fish production processes and final output. Such steps permitted good profit margins which mainly concerned sales of processed or fish farming products. On the contrary, as for the market of fresh fish, inadequate transparency, lack of information regarding the origins and the quality of products are still causing consumers' mistrust.

**Volumes and values**

In 2000, foreign trade of fish products was characterised by a reduction of the deficit in volume and by an acceleration of the growth rate concerning the deficit in value. This case confirms the steady increase in average prices for imports which are becoming closer and closer to those of domestic production. The growth of purchase prices can be related to the weakness of the Euro in comparison with the main international currencies during 2000. Such worsening of the exchange rates may, therefore, account for the increase in monetary expenditure which occurred notwithstanding the reduction in the volume of imports.

More specifically, imports in volume have slightly declined while exports have undergone remarkable growth. In 2000, imports of live, fresh and frozen fish have decreased by around 3% totalling about 542 000 tonnes. Instead, a slight increase in the sector of preserved products has been recorded (+3%) for a total of 171 tonnes. On the whole, the volume of imports has decreased by 2% amounting to around 713 tonnes. Foreign sales have increased by 12.6%; the quantity of live, fresh and frozen fish exported amounted to 109 000 tonnes, valued at EUR 305 million, while exports of preserved products amounted to 22 000 tonnes valued at EUR 93 million. In 2000, a remarkable upturn of the export flows mainly concerned foreign sales of preserved products, rising from 16.3% to 19.0% in a single year.

As for the deficit of the balance of trade, it slightly improved in terms of quantity while, in terms of value, its performance was not as satisfactory. In the former case the deficit of the balance went from a total of 610 000 tonnes to a difference of 582 000 tonnes; as for the flows in value, these increased from 2 187 in 1999 to 2 288 in 2000.

PART III

*Chapter 13*

**The Netherlands**

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## 1. Legal and institutional framework

The Netherlands' resource management and conservation policy is carried out in accordance with the common fisheries policy of the European Union. The legal basis is the complete set of rules and regulations as agreed by the Council of Fisheries Ministers of the EU. In addition, the Dutch Fisheries Act of 1963 provides for regulations regarding inland fisheries. Currently, EU CFP is under review. The new policies are expected to take effect in 2003.

## 2. Capture fisheries

### *Performance*

The main species harvested by the Dutch fleet are, in order of economic importance: sole, plaice, cod, turbot, shrimp, dab, and lemon sole. In the pelagic fisheries, important species are herring, mackerel, horse mackerel, blue whiting and sardinella. The fleet consists of 400 cutters, 18 trawlers and 87 dredgers in 2001. Total landings for 2001 add up to EUR 425 500 000 in value. The annex presents data on the value of fisheries for the last few years.

The employment in the fisheries sector add up to approximately 15 665 in 2000. Of this number 2 765 are fishermen, 400 people are employed in auctions, 7 500 work in the processing industry and wholesale, and finally there are 5 000 retailers.

### *Management instruments*

In the period 2000/2001 no major changes were implemented in the management regime in the Netherlands.

The co-management system, which started in 1993, is still operational. A very large share of the fishermen in the cutter sector voluntarily joined this system, enabling them to optimise the economic use of their transferable quota (ITQs), by means of renting ITQs and days-at-sea within the co-management groups. Government and industry are currently evaluating the co-management system. This evaluation is planned to be done by the end of 2002.

### *Access*

Access arrangements for foreign fleets to the Dutch fisheries are ruled by the EU regulations. On the other hand, Dutch pelagic freezer trawlers make use of the opportunities created by EU fisheries agreement, especially the agreement with the Government of Mauritania which was renewed in 2001.

### *Management of recreational fisheries*

Recreational fisheries are regulated by restrictions on the amount and kind of gear used. It is forbidden to sell fish caught in recreational fisheries. No major changes were introduced in the management of recreational fisheries, except for a prohibition on life bait fisheries.

### **Monitoring and enforcement**

No national alterations were introduced in the monitoring and enforcement regulations. In 2001 a new control vessel was put into operation.

### **3. Aquaculture**

Aquaculture is concentrated on the production of shellfish. In particular mussels and Oyster in coastal estuaries and catfish, and some finfish inland waters. No major changes were introduced in the policies regarding aquaculture, nor were any major laws or regulations introduced which directly affected the aquaculture sector. However, the mussels and cockles production is under scrutiny, due to the fact that part of the production activities takes place in a national wetland area (the Waddenzee).

### **4. Fisheries and the environment**

During the reporting period, no major changes in policy were introduced other than the measures taken in the context of the EU.

### **5. Government financial transfers**

The following financial transfer instruments were used during the reporting period:

1. Structural adjustment: A decommissioning scheme for the removal of vessels from the fleet. In 2000-2001, twelve vessels were removed, for which a total of NLG 15.9 million was disbursed under the FIGF.
2. General services: this item consists mainly of research costs.

Neither Revenue Enhancing Transfers nor Costs Reducing Transfers took place in the Netherlands.

### **6. Post-harvesting policies and practices**

#### **Food safety information and processing industry**

New regulations for food safety are under development at the European level, after the creation of a European food safety Agency. Similarly, and in agreement with new European regulations, The Dutch food safety rules and regulations are in continuous process of being updated and renewed.

HACCP or similar systems, became mandatory in 1995 – though most industries have complied with the new regime, a small number of companies are still in the process of introduction and fully employing the HACCP procedures.

The Netherlands follows the product information requirements established by the EU- there are no additional requirements. No private initiatives regarding information or quality labels or eco labelling were initiated during the reporting period. However there will be one for aquaculture in the near future.

The Dutch processing industry is mainly focussed on flatfish. Supply is closely related to catch opportunities. No major structural changes took place in the processing industry.

### **7. Markets and trade**

#### **Domestic consumption**

Fish consumption in the Netherlands is still relatively low, compared to neighbouring countries. The Dutch eat fish once in two weeks time.

The domestic consumption increased slightly in 2001 compared to 2000. 42 550 tonnes of fish was consumed in 2001. This is an increase in volume of about 4%. The Dutch spent EUR 325 million in 2001 on domestic fish consumption. This is an increase of 9% compared to 2000.

### Trade

Imports in 2000 decreased 15% in volume compared to 1998 and the export increased in volume by 6%. In 2000 both the imports and exports grew in value compared to 1998 by 30% and 23%, respectively. Imports amounted to EUR 1 396 million in 2001, with shrimp, cod, plaice and salmon as the leading species; exports added up to EUR 1 965 million, with shrimp, plaice, sloe herring and mussels being the most important species.

Most of the imports proceed from Germany, Denmark, the UK and Belgium.

Eighty one per cent of the exports have the EU as point of destination; especially Germany, Belgium, France and Italy.

No major changes took place in the trade structure, and the trade regimes affecting fisheries products underwent no modifications other than under EU provisions.

## 8. Outlook

The Common Fisheries Policy of the EU will be evaluated in and a new CFP will have to be put into effect as of 2003. In this context, several key elements of the European policies will be scrutinised and might undergo minor or significant modifications, amongst them are the TAC and Quota regime, especially its institutional arrangements, and the EU fleet policy. In the country meetings on a new CFP have already taken place and a document "CFP 2001" was developed and sent to the Parliament in preparation for the debate in 2001. In 2002 a memorandum with regard to the green paper of the EC has been sent to the European Commission. This memorandum reflects the position of the Dutch Government on the CFP reform.

Table III.13.1. **Turnover at auctions**

In EUR million

	1998	1999	2000	2001
Urk	114	127	121	121
Harlingen	32	44	40	48
Lauwersoog	30	36	34	35
Den Helder	44	49	51	48
Den Oever	9	14	11	16
Scheveningen	21	20	21	19
Goedereede	34	34	34	34
Breskens	10	9	10	14
Vlissingen	29	31	34	33
Colijnsplaat	8	8	7	8
Ijmuiden	52	50	48	46
<b>Total</b>	<b>383</b>	<b>422</b>	<b>411</b>	<b>422</b>

Source: OECD.



Table III.13.2. **Turnover Dutch Fisheries**  
In EUR million

	1998	1999	2000	2001 (est.)
Cutter fisheries	275	303	289	302
High seas fisheries	112	108	112	119
<b>Total</b>	<b>387</b>	<b>411</b>	<b>401</b>	<b>421</b>
Mussel culture	44	54	72	0
Oyster culture	2	3	4	4
Cockel fisheries	27	22	6	0
Diverse fisheries	0.5	0.5	0.5	0.5
<b>Grand total</b>	<b>460.5</b>	<b>490.5</b>	<b>483.5</b>	<b>425.5</b>

Source: OECD.

PART III

*Chapter 14*

**Portugal**

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## Summary

To ensure that fisheries management is consistent with sustainable harvesting, sectoral policy continued to focus on two major policy issues, namely the social dimension and sustainable, balanced development in the industry.

The publication of fishing-gear regulations is particularly significant, owing to the impact they have had on the sector and to their enforcement, in particular the joint approach by the fisheries administration and Government to ensure sustainable resource use.

Following up efforts aimed at structural adjustment, a new legislative framework was established laying down rules for the management of structural funds until 2006, via the 3rd Community Support Framework (the MARE and MARIS programmes).

A sustainable development policy was implemented in line with the Fisheries-Environment Agreement, focusing on the interactions between the environment, resources and production systems.

With regard to social issues and the need to alleviate the adverse social and economic effects of restructuring in the fishing industry, mechanisms were put in place to compensate fishermen for loss of earnings while momentarily prevented from working by unforeseen circumstances.

## 1. Legal and institutional framework

There has been no change to the general fisheries regime. However, under the 3rd Community Support Framework, a new type of organisational structure for the management, monitoring, evaluation and inspection of initiatives launched under the Operational Programme for Fisheries (MARE) was established by Legislative Decree No. 54-A/2000 of 7 April 2000.

The technical, administrative and financial management of each operational and sectoral initiative is handled by a managing authority, whose responsibilities are defined in Article 29 of the above Legislative Decree. This is the managing authority required under Regulation (EC) No. 1260/99.

Similarly, changes to the organisational structure of the Regional Government of the Azores, embodied in Regional Decree No. 33/2000/A, were introduced as part of the follow-up and effective response to the new requirements of the 3rd Community Support Framework.

Further changes were necessary to the administration body of PRODESA, the Operational Programme for the Economic and Social Development of the Azores, bringing it into line with the new structure of the organisation with the appointment of a managing authority as required under Legislative Decree No. 122/2001 of 17 April 2001.

For the same reasons and within the framework of the 3rd Community Support Framework, Resolution No. 1195/2000, adopted on 3 August 2000 by the Regional Government of Madeira established a Management Unit to run the Multifund Operational Programme for the Autonomous Region of Madeira (POPRAM III).

## 2. Capture fisheries

### **Performance**

In 2001 fish landings totalled 182 632 tonnes, a slight decrease (2.8%) compared with 2000.

Landings of fresh and chilled fish amounted to some 146 082 tonnes, with a first-hand sales value of EUR 241 185 000. This was a 4% decrease in volume and a 0.8% increase in value in comparison with 2000.

Since 1999 there has been a decline in the volume of fresh and chilled fish, partly due to the end of the fisheries agreement with Morocco.

The decline in landings of fresh and chilled fish in national ports, confirmed in 2001, was mainly due to the decrease in fish landings by the multipurpose fleet and seine-netters.

The main species landed in the fresh and chilled fish category were sardine (44.6%), horse-mackerel (9.4%), octopus (5%) and black scabbardfish (4.6%). Sixty per cent of the latter catch came from the Autonomous Region of Madeira.

As for distant-water fishing by the Portuguese fleet, it should be noted that 40% of catches (15 000 t) came from NAFO areas. Redfish was the leading species there, accounting for 37.5% of the total catch.

The south-east and south-west Atlantic ranked second among distant-water fisheries in terms of catch volume, with a total of 5 400 tonnes.

In line with the downward trend in the national fleet that has been confirmed in recent years, the number of sea-fishing vessels registered as of 31 December 2001 was only 23 580, a year-on-year decrease of 5.8%.

As of 31 December 2001 the national registered fishing fleet comprised 10 532 vessels with a total tonnage of 118 306 GT and total engine power of 405 874 kW. Overall, the number of units in the fleet was 218 down on the previous year.

Vessels of under 5 GT accounted for around 86% of the total fleet as of 31 December 2001.

### **Status of fish stocks**

ICES fish stock assessments indicate a similar trend to previous years with regard to biomass, recruitment and fishing effort, namely a decline in the abundance of several of the stocks harvested by Portugal, in particular Norway lobster, anglerfish and megrim.

Hake is showing signs of recovery, however, due in part to protection (rest) measures and a decrease in the national TAC.

Species such as sardine, horse-mackerel and anchovy are showing signs of abundance variability, in particular sardine, with a high catch volume and uncertain stock status from the second half of the 1990s onwards, but there has been a slight improvement since 1998 owing to recovery in spawning-stock biomass and increased recruitment.

Landings of shrimp, a major species for crustacean trawlers, have been declining in volume over the past two years. This may be due to natural abundance variability (hydrological conditions and good recruitment) over time.

Several deep-water species such as the silver scabbardfish and some shark, which are important both to fisheries inland and in the autonomous regions, are stable and can therefore still be harvested, provided that selective longline gear is used.

As for molluscs, octopus is an important species for small-scale fishing and is caught with selective gear such as pots and traps. Natural abundance variability does not indicate any overfishing serious enough to jeopardise the resource.

Bivalve molluscs harvested in traditional coastal fisheries are showing signs of overfishing, hence the three-year closure of the northern area (1996-1999). Currently, biomass remains low everywhere and harvesting is subject to area-specific measures.

### **Management of commercial fisheries**

As part of the comprehensive, integrated management of resources and production with a view to ensuring the long-term sustainability of the industry, action was taken to establish appropriate and realistic management measures. They concern the on-board use of specific gear, a more equitable system of licensing, and the harvesting of marine animals and plants.

Over the reference period and in collaboration with the industry, an *ad hoc* working party began discussing draft regulations on various types of fishing gear with a view to radically overhauling fisheries legislation following the publication of domestic and Community legislation, in particular Regulation (EC) No. 850/98 and Regulatory Decree No. 7/2000 of 30 May 2000.

These joint discussions led to the creation of a new regulatory framework for fisheries and fishing gear, formalised in a set of ministerial orders issued on 22 November 2000.

A review of the legislation was also undertaken regarding minimum sizes for commercially important species, making it possible to harmonise the regulations applicable to non-maritime inland waters, maritime inland waters and the open sea, and leading to Ministerial Order No. 27/2001 of 15 January 2001.

In line with resource management policy, bans and fishing-area restrictions were imposed on drift-net fishing to protect breeding stocks, particularly in the “Beirinha” area (Algarve).

Other important developments included draft legal amendments relating to the management of various rivers, including regulations on fishing gear and rest periods. Studies of several estuaries were launched to assess whether the regulations needed to be amended to achieve more sustainable harvesting of these ecosystems.

### **Management instruments**

The “Action Plan for Sardine Fishing” for 1997-1999 was revised with a view to defining management measures to consolidate the stabilised harvesting status of sardine resources, without jeopardising fishing or any upstream or downstream activity. The revision did not prevent management measures from being taken for the fishery, proving that shared resource management is feasible.

In 2000, following completion of the 1997-1999 Action Plan, scientific data indicated an improvement in the status of sardine resources but recommended as a precautionary measure that the steps taken in previous years should continue; this gave rise to Ministerial Decree No. 236/2000 dated 28 April 2000.

In 2001, the fisheries administration and Producer Organisations decided to follow up the measures set in 2000 and impose further restrictions on sardine fishing in 2001/2002, in line with Ministerial Orders No. 69-A/2001 of 2 February 2001, No. 543-B/2001 of 30 May and No. 123-A/2002 of 8 February 2002.

These measures include strict requirements governing the harvesting, on-board handling, landing and marketing of sardine during specific periods, together with an annual restriction on the fishing effort and landing restrictions by group of vessels in each Producer Organisation.

National fisheries are managed via a licensing scheme, specifying which type of gear may be used.

Consequently the requirements for the renewal of fishing licences, approved by Orders in 2001 and 2002, and for the allocation and transfer of fishing gear, play a key role in diminishing fishing effort and encouraging fishermen to use more selective gear that is less detrimental to resources.

In order to integrate the management proposals presented by IPIMAR, the dredging of bivalve resources was monitored in each fishery and appropriate changes were made to the regulations.

Changes were made to the maximum volume of daily catches by species and by vessel, under Orders No. 737/2000 of 7 September 2000, No. 44/2001 of 19 January 2001, No. 543-C/2001 and 543-D/2001 of 30 May 2001.

With regard to Portugal's fishing quotas in the NAFO areas and in the Norway and Svalbard EEZs, maximum catches for each species subject to quota were allocated among vessels licensed to fish in 2001 on the basis of a percentage of the national quota, as specified under Order No. 4310/2001 of 1 March 2001.

Taking into account traditional fishing by vessels registered in ports on the mainland and in the autonomous regions, the swordfish quota for 2000 allocated to Portugal under Regulation (EC) No. 2742/99 of 17 December was shared out between the mainland and the regions and allocated to vessels licensed to fish for that species.

The inland fishery quota was shared out equitably, by capacity, among vessels licensed to fish in 2000.

To gain more insight into effective fishing practices, particularly inshore fishing, the "Blue Communities" survey project was launched in small fishing communities to draw up a demographic and occupational profile of those involved in fishing, their economic, social and living conditions and their expectations for the future.

The drive for sustainable fisheries and aquaculture saw the launch of the Operational Programme for Fisheries known as MARE (Programme for the sustainable development of the fishing industry) and the fishery component of the Regional Programmes for the Mainland (MARIS), as part of the Regional Development Programme for 2000-2006 and the 3rd Community Support Framework covering the same period.

The strategic objectives of the MARE and MARIS programmes are to make the industry more competitive and enhance the quality of fishery products through the renewal of production structures, the entrepreneurial fabric and the labour force. Their ultimate aim is sustainable development in the industry, which can only be achieved by striking a balance between fishing effort and resource availability.

### **Access arrangements**

Under the Common Fisheries Policy, 2000 and 2001 saw the follow-up and implementation, within the various Community bodies, of procedures linked to technical resource-management and resource-conservation measures. Portugal also continued to

participate in various international fishery organisations (NAFO, NEAFC, ICCAT, SEAFO and IOTC).

The amount of fishing by the Portuguese fleet in international waters over the reference period remained roughly the same as in 1998/99. The fleet operated under the rules approved by the organisations concerned. The quotas applying to catches of cod, redfish, swordfish and shrimp accessible to the Portuguese fleet have not been significantly reduced in the past few years by the relevant regional fishery organisations.

The NAFO quota for Greenland halibut was slightly higher than in 1999.

In the North Atlantic, the deep-sea fleet's annual licence for demersal species subject to quota was renewed so as to ensure complementarity between fisheries. The quotas allocated to individual vessels, which are transferable with prior authorisation from the government, remained unchanged.

The quotas for redfish in Greenland and the Irminger Sea and for Greenland halibut in NAFO areas were transferred from France and Germany to Portugal.

Given its commitment to the EU on the simultaneous ratification of the Agreement relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, Portugal adopted Ministerial Order No. 2/2001 of 26 January 2001, enabling it to ratify this international legislation.

### **Management of recreational fisheries**

The need to support marine species targeted by sport fishing, particularly in environmentally sensitive areas, gave rise to Legislative Decree No. 246/2000 of 29 September 2000. The aim is, first, to ensure the conservation of the more vulnerable resources and of marine biological resources in general through the prevention of overfishing and, second, to combat abuse committed under the pretext of recreational fishing.

Consequently the scope of the Fisheries-Environment Agreement No. 34-A/98 of 13 May 1998, and more specifically §8 on the regulation of human activities involving the recreational or commercial harvesting of aquatic resources in classified and adjacent zones, has been broadened to improve co-ordination, in particular by harmonising the legislation.

This defines the legal framework for the recreational fishing of marine plant and animal species in non-maritime inland waters under the jurisdiction of the maritime authorities, as defined under Article 2 of Regulatory Decree No. 43/87 of 17 June 1987, amended by Regulatory Decree No. 7/2000 of 30 May 2000.

Further Ministerial Orders will provide for the regulation of sport fishing by the relevant authorities, including rules governing access to resources, licensing, authorised gear and limits on catches or bans on the fishing of certain species in protected areas.

### **Monitoring and enforcement**

The General Fisheries Inspectorate, Portugal's fisheries authority, continued to co-ordinate monitoring and enforcement.

In addition to the legal and operational framework covering the fisheries sector, Legislative Decree No. 79/2001 of 5 March 2001 establishes the "Integrated system for the surveillance, taxation and inspection of fishing activities" (SIFICAP), providing continuity of enforcement for the policies already set out in the approved legal regime.

To develop and consolidate both SIFICAP and the Continuous Fishery Monitoring System (MONICAP), the General Fisheries Inspectorate has been authorised (by Cabinet Resolution No. 108/2000 of 13 July 2000) to purchase the continuous monitoring equipment known as “blue boxes” for installation on board fishing vessels, together with the computer and communications equipment, software and vehicles required for surveillance by aircraft and naval vessels, harbour-masters’ offices and the tax authorities.

By the end of 2001, 431 Portuguese vessels had been fitted with “blue boxes”, 378 of them registered on the mainland, 41 in the Azores and 12 in Madeira.

### **Multilateral agreements and arrangements**

Portugal, as a member of the EU, benefits from the fishing opportunities afforded by agreements between the European Union and third countries, in particular Mauritania, Senegal, Guinea-Bissau, Cape Verde and Angola. It also has quotas to fish in Norwegian waters under the Agreement creating the European Economic Area, in addition to the actual fisheries agreement.

The fisheries agreement with the Kingdom of Morocco ended on 30 November 1999, leaving a large share of the Portuguese fleet without alternative distant-fishing opportunities.

Owing to the temporary cessation of fishing by vessels operating under the agreement, and the need to minimise any social and economic repercussions, special steps to support this segment of the fleet have been envisaged for 2000 and 2001. They include the granting of monthly lay-up payments for vessel owners and compensation for loss of earnings for crews and land-based workers.

## **3. Aquaculture**

### **Policy changes**

To simplify and expedite the application and decision-making procedures for setting up, exploiting and transferring marine aquaculture and similar facilities, and to ensure the environmental compatibility of sectoral legislation, Regulatory Decree No. 14/2000 was issued on 21 September 2000, approving the new legal framework for aquaculture.

Once the Government had defined its major policy thrust for the sub-sector, Cabinet Resolution No. 174/2001 of 28 December 2001 introduced innovative development measures for aquaculture in Portugal, based on the example of the Mediterranean where there is substantially more sea fish-farming than freshwater production, and shellfish farming plays a key role.

Portugal also continued to work with the FAO on the Information System for the Promotion of Aquaculture in the Mediterranean (SIPAM).

### **Production facilities, values and volumes**

Data on aquaculture output for 2001 are not yet available.

The aquaculture production structure for the mainland and the autonomous region of Madeira in 2001 consisted of 1 451 operational establishments, 1 421 of which were licensed for sea/saltwater farming.

Aquaculture in 2000 saw a 20% rise in volume, due to the large increase in cockle output (+72.2%) from 1 400 to 2 400 tonnes.



It should, however, be pointed out that in 1999 the species was hit by very high mortality caused by eutrophication.

Portugal's aquaculture industry has grown substantially over the past few years. This can be put down to improvements in technical handling conditions but also the commercial availability of juveniles for the grow-out phase.

The rising number of semi-intensive units has encouraged fish-farmers not to restock with wild juveniles.

By purchasing juveniles from breeding units, fish-farmers have accordingly been able to raise output while at the same time protecting natural resources.

As for product quality and sanitation, inspections of depuration and shipping centres have become much stricter with regard to technical, operating and hygiene requirements.

#### **4. Fisheries and the environment**

Within the framework of integrated coastal-zone management, Portugal continued to discuss and draw up Coastal Zone Management Plans. These are key management instruments, devised to ensure compatibility between human activities and the need to manage and protect marine resources and conserve sensitive ecosystems, including estuaries and rivers.

Cabinet Resolution (RCM) No. 152/2001 of 11 October 2001, adopting a National Strategy for Nature and Biodiversity Conservation, approves strategic options for an integrated policy of sustainable development.

Cabinet Resolutions No. 37/2001 of 3 April and No. 173/2001 of 28 December 2001 concern a review of the Management Plans for two nature parks, one being the Formosa River and the other south-west and coastal Alentejo. The aim is to introduce an appropriate, effective conservation and management strategy for these areas in light of the experience gained in managing their natural assets.

With regard to the conservation and protection of living resources and the environment, the Ministry of the Environment has been contacted with a view to drawing up Management Plans and special regulations for marine reserves, in particular waters in the Arrábida Nature Park.

Crucial studies are to be conducted on interactions between fisheries and the environment, including IPIMAR projects and programmes, as part of the Action Plan for Marine Science and Technology approved by the Ministry for Science and Technology.

These projects focus on the hydro-climatic changes observed world-wide, in particular along the coast of the Iberian Peninsula, and on ocean monitoring systems to model and forecast bio-oceanographic conditions and their impact on resources.

In compliance with Legislative Decree No. 69/2000 of 3 May 2000 making it compulsory to conduct environmental impact assessments (EIA), procedures were put in place to assess the environmental impact (preliminary stage) of projects with implications for coastal zones, in particular port facilities and intensive fish-farms (new establishments exceeding specific limits on size or types of production).

## 5. Government financial transfers

### **Transfer policies**

Together with further structural adjustment, Portugal continued implementing Community and national programmes to assist the sector in 2000 and 2001.

Under the 3rd CSF, for instance, payments for projects approved up to the end of 1999 were made for the relevant period through the Programme for the Economic Development of Fisheries (PROPESCA) and the PESCA Community Initiative (ICPESCA).

The MARE programme\* (for the sustainable development of the fishery industry) and the MARIS programme (the fishery component of the Regional Programmes for the Mainland) translate into Portuguese law the provisions of the 3rd Community Support Framework for 2000/2006.

Structural assistance initiatives under the MARE programme, as set out in the table in annex, are based on the priorities selected for joint action. The table also gives details of the number of projects, their overall cost, relevant public spending and respective Community funding sources.

It should be noted that investment projects relating to priorities 1-4 are financed by the FIG.

Structural assistance for priority 1 receives national support on a grant basis, while support for priorities 2 to 4 take the form of form of grants or loans.

Initiatives for priority 5 receive ERDF funding in the form of venture capital and mutual guarantee schemes.

The MARIS initiatives fall into two categories:

- Fishing and processing structures: FIG co-financing in the form of loans or grants.
- Fishing-port facilities: ERDF funding.

Under Order No. 8-A/2000 of 2 February 2000 approving the new regulations for the SIPESCA fishery incentives scheme in 2000/2001, a total of EUR 2 805 000 in exclusively domestic funding was allocated for the period in question. The projects concerned vessel renewal and the modernisation of small vessels used for small-scale inland fishing, the aims being to improve safety and working conditions, maintain and conserve fish on board and optimise catches.

Exclusively domestic public expenditure on general services over the period amounted to EUR 53 148 000 and went to finance activities inherent to research (EUR 24 722 000), management (EUR 22 783 000) and inspection (EUR 5 043 000).

### **Social assistance**

Under the Wage Compensation Fund set up in 1999, those in the fishing industry who are temporarily unable to carry out their work due to exceptional circumstances are granted compensation for loss of earnings.

To supplement this support, which is limited to 30 days, and provide more appropriate cover for those in the industry, Legislative Decree No. 255/2001 of 22 September 2001 extends the compensatory mechanism to cover previously excluded situations, such as:

- A natural or unforeseen disaster causing insecurity at sea and necessitating port closure.

\* See Table III.14.1.

- An exceptional fishing ban aimed at conserving resources on public health or environmental grounds.
- Species migration, making fishing impossible for the specialised fleet operating exclusively in the relevant fishing grounds.

However, a number of structural policies to adapt the fishing fleet to available resources involve measures such as the permanent withdrawal of vessels, which have considerable social and economic repercussions.

Consequently, to minimise the adverse impact of restructuring in the sector, Ministerial Order No. 1261/2001 of 31 October 2001 approved the Individual Fixed Premium Scheme for fishermen who lose their employment because the vessels on which they are registered have ceased fishing (permanent withdrawal or incorporation into joint ventures).

### **Structural adjustment**

The structural measures and initiatives set out in the Operational Fishery Plan for 2000/2006 and the Fishery component of the Regional Operational Plans, together with other measures aimed at more rational fisheries management and the conservation of marine life will foster a more competitive environment within the framework of sustainable fishing.

## **6. Post-harvesting policies and practices**

### **Policy changes**

To ensure the market integration of fishery products and foster co-ordination and co-operation between production and the processing industry with a view to achieving responsible resource use and promoting quality, product diversification and consumer protection, practical initiatives have been envisaged aimed at:

- Bringing industrial units and factory ships into line with current standards to adapt them to resource availability and market requirements.
- Promoting action and market response by Producer Organisations.
- Promoting market integration and transparency via co-operation throughout the industry.
- Encouraging demand for processed products by promoting quality enhancement.

With regard to food safety, and on the grounds of public health, commercial transparency and consumer protection/information, Legislative Decree No. 132/2000 of 13 July 2000 lays down rules for the official inspection of foodstuffs.

With regard to consumer information and in compliance with Article 4 §2 of Regulation (EC) No. 104/2000, Ministerial Order No. 1378/2001 of 6 December 2001 publishes the list of the commercial designations accepted in Portugal as from 1 January 2002 for fishery and aquaculture products, with their scientific and regionally accepted names.

In addition, steps were taken to set up a consumer information scheme in compliance with the above Regulation, covering the inspection, monitoring and taxation of fishery and aquaculture products sold on the retail market.

Within the International Committee for *Sardina pilchardus*, efforts were made to protect the designation and distinctive features of this species of canned sardine, and more specifically its sale on all markets, particularly in the EU which has rules on the common market for such products.

In 2001, an assessment on the frozen fish market was conducted, focusing on its weak points, constraints and potential.

### **Processing and handling facilities**

With regard to the processing industry, the data available – from the mainland and the autonomous regions – restrict the scope for analysis to canning and semi-preserves.

Total output fell from 44 683 tonnes in 2000 to 38 236 tonnes in 2001, a decrease of 14.4%.

This was largely due to a decline in canned mackerel (52.7%), tuna (17.9%) and sardine (4.4%).

The downward trend can be put down to the adverse climate in the canning industry, mainly for tuna. This is due to competition from third countries but also to problems with the sourcing of raw materials and to certain structural issues, leading to the closure of some production units (mainland and Madeira).

The sardine market was also affected by this decline, for the reasons listed above but also because of plant restructuring and constraints stemming from keen competition on international markets.

## **7. Markets and trade**

### **Markets**

#### ***Trends in domestic consumption***

In the European Union, Portugal is the largest consumer of fish, with some 60 kg per head, well above the Community average.

Per capita consumption of cod is estimated to be around 30 kg per year (fresh fish equivalent).

Frozen fish and dried salted cod feature widely in consumption patterns, as do very fresh, high-quality fish sold at auction. Aquaculture also accounts for a large share of this second category.

#### ***Promotional efforts***

In a spirit of co-operation between associations and representatives of the industry, campaigns to promote the domestic consumption of canned fishery products and in particular sardines were conducted in several secondary schools and the hotel industry, the aim being to improve the image of Portuguese canned products in terms of quality and taste among younger members of the public.

### **Trade**

#### ***Volumes and values***

Portugal's trade balance for fishery products remained in the red from 2000 to 2001.

The volume of imports fell slightly by some 2 000 tonnes but rose in value by some EUR 87 000 across almost all product groups, but more specifically frozen fish and salted fish (cod).

Exports declined in both volume and value, by 3 000 tonnes and EUR 11 000 respectively, due partly to the fresh and frozen sub-sector and the canning industry, confirming the downward trend of the past few years.

Imports of fish, crustaceans and molluscs exceeded 322 000 tonnes, or EUR 1 046 million in value terms.

Some 50% of imports in volume terms consisted of cod for the processing industry (salted and frozen), frozen hake and shrimp and dried salted cod (62% of total imports in value terms).

Exports of fish, crustaceans and molluscs exceeded 95 000 tonnes, worth EUR 303 million.

Sardine accounted for 20% of those exports in volume terms.

Exports of fishery or related products and prepared and preserved fish totalled 18 500 tonnes, worth EUR 65 million.

### **Policy changes**

Cod is the main fishery product imported to Portugal, most of it destined for the processing industry.

Under the new provisions of the common organisation of the market for fishery and aquaculture products, Portugal's salting and drying industry may benefit from more advantageous conditions now that imports of fresh, chilled or salted cod (*Gadus morhua*, *Gadus ogac*, *Gadus macrocephalus*) are subject to a reduced rate of 3% for an indefinite period.

For wet salted cod, a zero-rated multi-annual quota of 10 000 tonnes has been set for 2001/2003.

## **8. Outlook**

Once a medium-term policy for the sector has been formulated, sectoral policy will be largely based on the following objectives:

- To ensure sustainable resource management: the authorities will create an environment in which measures can be taken with the involvement of the entire industry, a key factor if action is to be effective and successful.
- To develop the capacity for scientific research in the sector by guiding and supporting the development of information and innovation and promoting partnerships with the industry, so as to provide an appropriate environmental framework and regulate fishery and aquaculture activities.
- To promote diversification in fishery-dependent communities with measures to boost small-scale inshore fishing and foster social cohesion.
- For the distant-water fleet, to promote an active policy of co-operation with institutions and economic agents in third countries and, in compliance with international law, provide access to surplus resources on the high seas within the framework of regional fishing organisations.
- To develop alternative sources of supply by promoting aquaculture.
- To enhance the status of fish by guaranteeing food safety and informing consumers.
- To promote institutional co-operation both nationally, at Community level and internationally.

Table III.14.1. **Government Financial Transfers**

EUR

Priorities/measures	Fund	Number of projects	Project execution 2000/2001		
			Total cost	Public expenditure	Fund
ERDF			226 654	226 654	169 990
FIFG			22 224 500	21 590 232	16 264 029
<b>PRIORITY 1: Adjusting fishing effort</b>	FIFG	87	2 788 617	2 788 617	2 091 463
Measure 1: Scrapping		86	2 732 604	2 732 604	2 049 453
Measure 2: Transfer to third country/other use		1	56 013	56 013	42 010
Measure 3: Joint ventures			0	0	0
<b>PRIORITY 2: Renewal/modernisation of the fishing fleet</b>	FIFG	8	1 137 470	516 174	457 204
Measure 1: Construction of new vessels		4	883 667	407 788	362 366
Measure 2: Modernisation of existing vessels		4	253 803	108 386	94 838
<b>PRIORITY 3: Protection and development of aquatic resources</b>	FIFG	1	23 350	10 378	9 081
Measure 1: Protection and development of aquatic resources			0	0	0
Measure 2: Aquaculture		1	23 350	10 378	9 081
Measure 3: Fishing-port facilities			0	0	0
Measure 4: Processing and marketing			0	0	0
<b>PRIORITY 4: Other measures</b>	FIFG	1 642	17 551 528	17 551 528	13 163 630
Measure 1: Small-scale coastal fishing			0	0	0
Measure 2: Social and economic measures			0	0	0
Measure 3: Promotion and market research			0	0	0
Measure 4: Initiatives launched by the industry			0	0	0
Measure 5: Temporary withdrawal and other compensatory payments		1 642	17 551 528	17 551 528	13 163 830
Measure 6: Pilot projects and innovative action			0	0	0
<b>PRIORITY 5: Promoting conditions to make the industry more competitive</b>	ERDF		226 654	226 654	169 990
Measure 1: Structure to enhance competitiveness			226 654	226 654	169 990
<b>PRIORITY 6: Technical assistance</b>	FIFG	2	723 535	723 535	542 651
Measure 1: Technical assistance		2	723 535	723 535	542 651

Source: OECD.

PART III  
*Chapter 15*

**Spain**

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## Summary

The objective of Spain's policy initiatives is to find a way of managing fisheries that is consistent with sustainable exploitation of resources and ensures the continuation of fishing operations. In short, the objective is responsible fishing.

The main policies implemented in 2000 and 2001 can be summarised as follows:

- Law 3/2001 of 26 March 2001 on national sea fisheries, establishes a new regime for the conservation, protection and regeneration of fishery resources, and the regulation of professional and recreational fishing activities in waters under the sovereignty or jurisdiction of Spain, with the exception of *internal* waters which come under the sole jurisdiction of the Autonomous Communities. The Law also applies to Spanish ships operating in Community waters, those of third countries and on the high seas. Responsibility for monitoring breaches of the law and enforcing penalties lies with central government.
- Law 3/2001 also establishes the basic regulations governing the development of the fisheries sector and marketing of fishery products, which constitute a single, standard framework applicable throughout the country. These basic regulations may subsequently be developed and implemented as required by the Autonomous Communities, which have authority to impose sanctions for breaches of Law 3/2001 in such fields.
- Spain is continuing to ensure that fishing is a responsible economic activity, consistent with the comprehensive marine ecosystem-based approach. Hence the adoption of a raft of measures, including major initiatives to combat illegal fishing. Royal Decree 1797/1999 of 26 November 1999, for instance, on the monitoring of fishing operations by vessels from third countries, is an effective legislative instrument aimed at stepping up inspections of landings and transshipments of fish and detecting illegal fishing operations.
- As in previous years, there has been increased scientific research which aims to identify new fishing areas and new species with a view to diversifying the fleet's activity, and to monitor the fisheries currently exploited by the Spanish fleet.
- Royal Decree 3448/2000 lays down a new model for managing structural support in the fisheries and aquaculture sector, and for the processing and marketing of its products, thereby bringing the authorities into closer contact with the sector.
- In the 2000-2001 period, the number of vessels in the Spanish fishing fleet was reduced by 262. This represented a decrease in tonnage of 9 717 GRT.

## 1. Legal and institutional framework

### *Fisheries jurisdiction*

As Spain is a member of the European Union, the management and conservation of sea fishery resources is in line with EU regulations. Domestic policy in these fields therefore complies with the requirements of the Common Fisheries Policy (CFP). The Community



authorities also represent the EU and its member States in international fishery organisations dealing with the management and conservation of fishery resources.

As for the assignment of domestic responsibilities, the Spanish Constitution defines the respective jurisdictions of central government and the Autonomous Communities. Central government has sole jurisdiction over sea fishing, “subject to the powers that may be delegated to the Autonomous Communities regarding the management of the fisheries sector”. Central government therefore has full jurisdiction in matters relating to sea fishing and its supporting legislation and its implementation. With regard to the development of the fishing industry and commercial activity, however, central government only establishes “basic legislation”, i.e. the fundamental principles governing them. The regulatory framework in such areas is established by Law 3/2001, of 26 March 2001, on national sea fisheries. The Autonomous Communities, for their part, can adopt provisions that complement legislation in these two areas and proceed to implement them. Furthermore, the Autonomous Communities have sole jurisdiction over “fishing in *internal* waters, the harvesting of shellfish, and aquaculture”. Fishing in internal waters is thus the responsibility of the 10 coastal Autonomous Communities.

The supervision of control measures stipulated under Community regulations in the framework of the CFP is the responsibility of the EU Commission. The inspection and supervision of fisheries in waters and ports under Spanish jurisdiction is the responsibility of the Spanish authorities, in accordance with domestic and Community legislation. Central government authorities are responsible for the monitoring of capture fisheries in Spanish waters (i.e. the EEZ and the territorial sea) and operations by the national fleet in international waters.

In multilateral organisations that regulate fisheries in international waters where the EU is a contracting party and, like NAFO, have their own inspection arrangements, the European Commission is the competent inspection authority and can, where appropriate, assign this task to national vessels and inspectors.

## 2. Capture fisheries

### ***Manpower, structure and development of the fleet***

See tables on EU countries in the companion volume, *Country Statistics 1999-2001*.

Although the size of the fishing fleet as a whole decreased over this period, there was no significant change in its structure.

### ***Landings***

The Spanish fleet's catches and their value are shown in the companion volume, *Country Statistics 1999-2001*.

### ***Stock status***

Further to the latest assessments, the relevant working groups and scientific panels believe that in ICES areas off the Iberian Peninsula, the following marine stocks sought by Spanish vessels are exploited beyond safe biological limits: hake, angler fish, Norway lobster and blue whiting. The following stocks are found to have been exploited within reasonable limits: southern horse mackerel stock, mackerel, the anchovy stock in the Bay of Biscay (Gulf of Gascogne). ICES megrim stocks are found to be intensively fished, but spawning stock biomass is still above the precautionary biomass limit and recruitment has

been relatively stable. As for ICES sardine stocks, there are no points of reference; fishing mortality has declined since 1998, and spawning stock biomass is still low.

In the Mediterranean, pelagic fisheries consist mainly of sardine and anchovy. Between them, the two species comprise 44% of the total biomass evaluation – double the figure for the year 2000. Fifty-six per cent of the total biomass for 2001 consists of species of little or no interest to fishing. The GFCM's Scientific Advisory Committee has acknowledged that the anchovy stock is overfished in the Mediterranean. The 2001 evaluation of small pelagic species in the largest fishery, from the French border to *Cabo de la Nao*, shows an increase in the sardine biomass for fish over one year old, since recruitment was low in 2001. As for anchovy, the 2000 biomass has doubled, as recruitment was satisfactory in 2001. An assessment of the anchovy stock biomass was conducted in the Bay of Malaga, where the species usually congregates. The findings show a 260% increase on the previous year for the Alborán Sea as a whole (high seas off Malaga). Catch series and data for the northern Alborán Sea show that yields have increased for anchovy and remained stable for sardine.

### 3. Managing commercial fishing

#### **Management instruments**

For sea fishing, in accordance with the CFP, the Ministry of Agriculture, Fisheries and Food, which manages all fishing activity in Spanish waters (with the exception of internal waters), regulates: measures for the conservation and protection of resources; conditions governing fishing activity; registers of the active fishing fleet and special registers; *cedulas* (initial authorisation to engage in sea fishing) and fishing licences; measures for regulating fishing activity, monitoring and inspection of sea fishing activities etc. In this regard, Law 3/2001 of 26 March 2001 on national sea fisheries establishes a new regime for the conservation, protection and regeneration of fishery resources, and the regulation of professional fishing.

#### **Access**

For management purposes, Spanish sea fishing is divided into four distinct groups, depending on the zone of activity, i.e. fishing in national waters, fishing in Community waters, fishing in third country waters, and fishing in international waters whether regulated or not by multilateral organisations.

#### **Fishing in national waters**

The management of fishery resources in national fisheries has always been based on a system of direct control of fishing effort. Fishing vessels, registered and classified according to their method of fishing, may operate only in specific fishing areas with specified gear. To make the system more flexible where necessary, temporary changes in fishing methods are authorised.

Apart from the fishing control mechanisms introduced on 1 January 1996, fishing effort is still controlled using the TAC and quota system.

Where national fisheries are concerned, this system is confined to the Cantabrian and Northwest fisheries and the Gulf of Cadiz. It does not as yet apply to the Canary Islands or the Mediterranean Sea.

In line with Community regulations, fishing effort by vessels using bottom trawls, purse seines, fixed nets and surface long-lines has also been monitored on a monthly basis.

Of the more important developments to have occurred in 2000 and 2001 in this area, attention should be drawn to the following legislation:

- Royal Decree 431/2000 of 31 March 2000, amending Royal Decree 1315/1997 of 1 August 1997, establishing a protected fishing area in the Mediterranean Sea.
- With Royal Decree 1315/1997, Spain established a protected fishing zone in the Mediterranean Sea over which it retained sovereign rights for the conservation of living marine resources and the management and control of fishing activity, without prejudice to measures that the EU had adopted or might adopt concerning resource protection and conservation. In 2000, the method used to measure the zone was changed. It now starts at the outer limit of the territorial sea, rather than the inner limit which measured 12 miles as specified under international law.
- Royal Decree 410/2001 of 20 April 2001, regulating fixed-gear use in the Cantabrian and Northwest fisheries (national fishing zone). The fixed-gear methods used on the Cantabrian and Northwest coast are of great economic and social importance. They concern a large number of mostly small vessels. They have major implications for fishery resources in the area. Fixed-gear use was previously regulated by a range of disparate provisions, some of which required updating, hence this Royal Decree.

### **Marine reserves**

The national authority, Ministry of Agriculture, Fisheries and Food (MAPA), has maintained its decisive support for marine reserves of value to fishing and established two more, namely *Masía Blanca* as far as the Tarragona coast, in December 1999, and *Isla de la Palma* (Canaries), in 2001. Both reserves are in the waters regulated by central government and are managed by the General Secretariat for Sea Fishing (MAPA).

The General Secretariat has also continued to manage the seven other marine reserves (*Isla de Tabarca*, *Islas Columbretes*, *Cabo de Palos-Islas Hormigas*, *Cabo de Gata-Níjar*, *Isla de Alborán*, *Isla Graciosa* and *La Restinga-Mar de las Calmas*). This means shouldering the cost of surveillance, facilities, monitoring and information, in conjunction with the Autonomous Communities when reserves are jointly managed. The nine reserves cover a total of 95 817.6 ha, plus the 425 645 ha of the *Isla de Alborán* fishing reserve. The Autonomous Communities have also established another nine reserves of value to fishing, covering a total of over 25 000 ha.

By the end of 2001 all the marine reserves had their own surveillance facilities, with the exception of the most recent (*Isla de la Palma*) and *Cabo de Gata-Níjar*. Monitoring studies have shown that the former fisheries are recovering.

During this period, the General Secretariat undertook two socio-economic studies.

The General Secretariat held a meeting on marine reserves in *Cabo de Gata* in September 2001 which will be the subject of a publication. It has also published the proceedings of the first International Workshop on Marine Reserves, which it organised in March 1999. It has also commissioned two videocassettes on marine reserves and three publications on the reserves of *Islas Columbretes*, *Isla de Alborán* and *Isla Graciosa*.

Also of interest is the new Internet site on marine reserves and the launch of the new Ibero-American marine reserve network ([www.mapya.es/rmarinas/index.htm](http://www.mapya.es/rmarinas/index.htm)).

### **Geographic information system (GIS)**

The General Secretariat for Sea Fishing, with the assistance of the Spanish Institute of Oceanography (IEO), continued to establish its Geographic information system all along the south-east coast.

### **Fishing in Community waters**

Fishing activity in Community waters has proceeded in strict compliance with the standards of the EU's CFP.

The Spanish fleet's quotas and catches in these waters are shown in Table I of the companion volume, *Country Statistics 1999-2001*.

### **Bilateral agreements**

Bilateral fishing agreements with third countries are negotiated by the European Commission.

In 2000 and 2001 protocols were renegotiated in the framework of agreements with Angola, Cape Verde, Ivory Coast, Equatorial Guinea, Guinea-Conakry (year 2000), and with Cape Verde, the Comoros Islands, Gabon, Guinea-Bissau, Madagascar and Mauritania (year 2001), under which Spain obtained fishing rights.

The agreement with Cape Verde was suspended from 5 September 2000 until 1 July 2001, when the new protocol came into force.

The EU agreements with Equatorial Guinea and Senegal were suspended in June and December 2001, respectively. Tuna fishing vessels and surface long-liners operating under these agreements had licences with other countries. The remaining vessels have been moved – temporarily – to other fishing areas.

The EU agreement with Morocco expired at the end of November 1999 and was not renewed.

The only bilateral agreement in force to have been concluded directly between Spain and a third country is the agreement between South Africa and Spain, which is renewed annually with the authorisation of the EU Council.

In order to fish under the terms of agreements between the EU and third countries, every vessel must obtain a licence, in accordance with the provisions of these agreements. The annexes to the protocols of application of the agreements contain technical stipulations and economic provisos to be complied with by Community vessels obtaining licences under such agreements.

The technical stipulations in most of these agreements concern the following: authorised fishing gear and minimum mesh size, authorised fishing zones, temporary suspension to allow stocks to be replenished, mandatory employment of fishermen from the third country, on-board scientific observers, declaration of catches, inspection and control, etc. The satellite tracking system has been included in the protocol of application of the agreement with Angola that came into force in May 2000 and subsequently in the agreement with Madagascar that came into force in May 2001. Both are currently subject to a trial period during which domestic systems will be brought into line with Community systems.

The economic provisos in the agreements depend on the type of fishing.

Fishing agreements benefit both parties since surplus resources, which would otherwise be lost, can be put to use. This is actually set forth in Article 68 of the UNCLOS.

For the economies of the countries with which these agreements are made, the agreements mean that superior resources can be obtained through the system of access in exchange for private licences, since all agreements involve an important element of co-operation. Furthermore, the presence of the Community fleet provides a continuous transfer of know-how and training, which would otherwise be beyond the reach of these countries.

### ***Fishing in international waters***

All Spanish vessels operating in international waters must, without exception, obtain a temporary licence from the General Secretariat for Sea Fishing, authorising them to carry on their activity.

When a vessel has obtained a licence to fish in a zone regulated by a regional fisheries organisation (RFO), it must observe the resource management and conservation measures and the monitoring and inspection measures stipulated by that RFO. In certain cases licensing is subject to the observance of additional measures that are more restrictive than those imposed by the EU or the Spanish authorities. The object of all these measures is to adapt the fleet to available resources and to ensure responsible fishing.

Apart from the mandatory presence on board of international observers as required by RFOs such as NAFO, CCAMLR, IATTC, and ICCAT, the Spanish authorities require fleets operating in certain international zones to have scientific observers on board to monitor fisheries, assess stock status and obtain other biological and environmental data. The IEO (Spanish Institute of Oceanography) also conducts experimental fishing schemes when there is an opportunity to open new fisheries. Furthermore, Spain has set up two fishery offices, one in the Ivory Coast and another in the Seychelles, to monitor and inspect Spanish fisheries providing tropical tuna and similar species in the Atlantic and Indian Oceans respectively.

To improve the management of quotas assigned to Spain by certain regional organisations, the Spanish government annually issues resolutions setting out fishing plans and quotas by vessel or enterprise. Examples include swordfish fisheries in the Atlantic Ocean, to the north and south of 5° N, regulated by ICCAT, and NAFO fisheries.

Finally, in line with the Inter-American Tropical Tuna Commission and the Agreement on the International Dolphin Conservation Programme, Spain issued Royal Decree 942/2001 on 3 August 2001, establishing a programme to monitor and verify tuna catches in waters covered by the agreement.

### ***Management of recreational fishing***

Recreational fishing in Spanish waters is regulated by the central government, with the exception of the inland waters, regulated by the Autonomous Communities.

### ***Research***

Researchers from the IEO fisheries department have been regular participants in different international working groups that assess the stock status of hake, angler fish, megrim, sardine, mackerel, horse mackerel, cod, Greenland halibut and tuna, all species of great interest to our fleets; they have also monitored six experimental pilot schemes, proposed by the General Secretariat for Sea Fishing with a view to discovering new fishing zones. Studies have also been conducted on the effects of fishing on the ecosystem as a result of the incidental capture of reptiles, birds and mammals, and on the effects of reserves and artificial reefs.

Over the 2000-01 period, oceanographic programmes were conducted on Spanish oceanographic vessels, and foreign commercial and oceanographic vessels, at an average rate of 1 700 sea days per year. Oceanographic researchers have also participated as observers in several international oceanographic programmes. The main stocks reviewed are shown below:

Table III.15.1. **Main areas and fishery stocks researched by Spain in 2000/01**

Area	Stocks evaluated
Eastern Atlantic Ocean <sup>1</sup>	Hake, angler fish, megrim, Norway lobster, blue whiting, anchovy, sardine, mackerel and horse mackerel.
Mediterranean Sea	Hake, surmullet, shrimp and anchovy.
Waters off North-west Africa and the Canary Islands	Cephalopods, hake, shrimp, sardine and sparidae.
Mediterranean Sea, Atlantic Ocean and Indian Ocean	Bluefin tuna, white tuna, albacore, bigeye tuna, skipjack and swordfish.
North Atlantic and Arctic Oceans	Cod (Svalbard), redfish (Reikjanes Ridge), northern prawn.
Angola	Demersal crustaceans.
Falkland Islands	Cephalopods and hake.
Newfoundland	Cod, black halibut, American plaice, yellowtail flounder, redfish and northern prawn.

1. From western Scotland to the Straits of Gibraltar.

Source: OECD.

### **Monitoring and enforcement**

Law 3/2001 on national sea fisheries (26 March 2001) regulates the monitoring and enforcement of fishing activity in Spanish waters under the jurisdiction of central government via the adoption of measures relating to inspection and enforcement, both at sea and in port, by sea fishery inspectors with the status of government officials.

In 2000 and 2001 co-operative arrangements between the fishing authorities and the Spanish navy, on the one hand, and the *Guardia Civil del Mar* on the other, were strengthened to improve the efficiency and presence of naval inspection units in the national and international waters fished by the Spanish fleet.

In 2001 new units were put into service to step up inspection. They include an ocean-going patrol boat that can operate in any waters, a high-speed patrol launch for national fisheries and a new maritime surveillance aircraft.

The new Satellite Tracking Centre for fishing vessels began operating in 2000, in line with Community and domestic legislation. All Spanish vessels required to carry satellite-tracking devices were in compliance by 2001.

The main monitoring and enforcement activities conducted over the past two years are shown in Table III.15.2.

A major enforcement effort was undertaken regarding direct and additional catches of bluefin tuna by the Community fleet, for either direct capture or transfer to grow-out zones on the coast.

### **Inspection campaigns in the NAFO area**

In their capacity as inspectors designated by the European Commission, Spanish officials participated in the NAFO Inspection Scheme for vessels operating in the area.

Table III.15.2. **Tuna and bluefin tuna campaigns in the Mediterranean Sea**

Species and/or region	Activities
Albacore tuna fishing season	Patrol vessels helped to avoid conflicts between Community fleets using different gear (traditional long-line and pelagic vessels). No vessels were caught using or holding on-board drift nets exceeding the regulated length. Patrol vessels with Spanish and Community inspectors on board, which accompanied the tuna fleet during the 2000 and 2001 seasons, helped to avoid conflicts between Community fleets using different fishing methods (those using traditional gear using pole and trailing lines, and those using drift nets); technical and sanitary assistance was also given.
Inspection of tuna fishing in the Mediterranean Sea	Efforts were increased around the Balearic archipelago to monitor the activities of non-Spanish vessels fishing for swordfish with extra long drift-nets. Several maritime and aerial operations were carried out. In 2000-2001 there was increased surveillance, involving the use of boats and aircraft, of the protected fishing zone in the Mediterranean Sea. The object was to protect swordfish and bluefin tuna, which had been caught in the absence of controls in previous years by fleets from third countries or by vessels using unauthorised gear. The result of the surveillance was wholly satisfactory since the vessels referred to virtually disappear.

Source: OECD.

In compliance with the Scheme, details of Spanish vessels entering, leaving or moving in the NAFO area were recorded using the Hail reporting system. Inspections were also conducted at sea and on arrival in port.

### **Inspection campaigns in the NEAFC area**

Sea inspection campaigns were conducted by Spanish and European Commission inspectors in the NEAFC's international waters, under the Schemes for Contracting and non-Contracting Parties.

### **ICCAT inspections**

In line with the ICCAT mutual inspection programme, port inspections were conducted of landings by vessels that had caught or transported ICCAT-regulated species, in co-ordination with the tuna fishery inspection programmes.

### **Surveillance of EEZ and Spanish ports**

Throughout 2000 and 2001, waters under Spanish jurisdiction were permanently patrolled by air and sea in order to monitor the fishing activity of Spanish and Community fleets, particular attention being paid to zones and periods in which fishing was prohibited. Inspection was also carried out in all ports where fish was landed. Fishery regulations were enforced, particularly technical measures for the protection of resources.

### **Other port inspection programmes**

In accordance with the EU's various commitments and agreements with third countries or multilateral bodies, and with Spain's and other member countries' obligations, port inspection programmes were carried out in 2000 and 2001 which targeted:

- Freezer vessels from NAFO, NEAFC, Hatton Bank, Norwegian, Svalbard and Barents fishing zones.
- Vessels operating under the flags of other Community nations and landing in Spanish ports.

- Fishing vessels operating under agreements between the EU and third countries, notably Mauritania.
- Fishing and merchant navy vessels of third countries landing in Spanish ports.
- Vessels flying flags of convenience possibly fishing illegally on the high seas.

### **Multilateral conventions**

In 2000 and 2001, Spain continued to give active support to multilateral conventions and organisations for the management and conservation of living marine resources in which Spain or the EU are contracting parties or observers. It also took part in negotiations to establish new organisations in areas as yet not covered but of genuine interest to Spain, in particular the future organisations for fisheries in the south-west Atlantic, south-east Atlantic, south-west Indian Ocean and the western and central Pacific.

It also took part in the FAO Conference on Responsible Fisheries in the Marine Ecosystem, held in Reykjavik from 30 September to 5 October 2001.

Finally, attention should be drawn to the fact that Spain has finalised its domestic procedure to comply with the “Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks”, adopted in New York on 4 August 1995. To proceed with the joint ratification by the EU and its member States, all of the latter must first have finalised their domestic procedures.

## **4. Aquaculture**

### **Volume and value of production**

Data on output and values for 2000 and 2001 are shown in the companion volume, *Country Statistics 1999-2001*.

### **Aid to aquaculture**

In 2000, Regulation (EC) No. 2792/1999 on structural assistance in the fisheries sector for 2000/2006 came into force.

Support is targeted at capital investment:

- In production and management, including the construction, enlargement, equipping and modernisation of facilities for projects in joint fishing enterprises or other undertakings.
- To improve conditions of hygiene or human or animal health, to improve product quality or reduce pollution of the environment and, where relevant, to increase production itself.
- To develop or upgrade water circulation in aquaculture enterprises and on service vessels.

## **5. Fisheries and the environment**

### **Environmental threats exogenous to aquatic ecosystems**

IEO researchers continuously monitor seawater contamination from a network of points distributed throughout national waters, and also study red tides to control the effects of pollution on the molluscs in Galicia.



### **Impact of fishing activities on the environment**

To enforce the FAO's International Plans of Action for the conservation of sharks and the reduction of incidental catch of seabirds in longline fisheries, the Spanish government is working on two draft standards to be issued in 2002.

A group of Spanish scientists is studying the effects of fishing on the ecosystem as a result of incidental catches of reptiles, birds and mammals, and the effects of reserves and artificial reefs. Spain participates in the FAO working groups that follow up these questions, and implements all recommendations issued by multilateral fishing organisations with a view to minimising the negative impact of fishing on the environment. In this connection the arrangements for preventing the incidental catch of sea birds by vessels fishing in the regions of the Antarctic Ocean regulated by the CCAMLR and the programme to prevent the capture of dolphins in IATTC tuna fisheries should be mentioned.

Also worth noting is the approval in South Africa, in February 2001, of the Regional Agreement on the Conservation of Albatrosses and Petrels under the auspices of the Bonn Convention on the Conservation of Migratory Species of Wild Animals. The Agreement was signed by Spain in the early months of 2002.

## **6. Government financial transfers**

### **Total support**

The companion volume, *Country Statistics 1999-2001*, provides a summary of transfers made in 2000 and 2001.

Total aid granted under the Common Fisheries Policy by Spain and co-funded by the FIG for 2000-2001 (provisional data) amounted to ESP 67 003 million, or EUR 402 696 million.

For the year 2000 the figure was ESP 34 441 517 million, and for 2001 (provisional data, December 2001) ESP 32 561 798 million.

### **Support for production and factors of production**

Support for new vessels and modernisation are granted under Royal Decree 798/1995 and 3448/2000, in accordance with Council Regulations (EC) No. 3699/93 and No. 2792/99, laying down the criteria and arrangements regarding Community structural assistance in the fisheries and aquaculture sector and the processing and marketing of its products.

As in previous years, the object of support for the construction of new vessels was to replace old ones with newly built ones, mainly for safety reasons. It is granted subject to the condition that it does not increase the fishing capacity of the fleet as a whole. Thus, all new building projects include the obligation to break up one or more vessels of a tonnage and power equal to or greater than that of the vessel to be built.

Under the Order of 29 November 1999 and following the decommissioning of part of the fishing fleet owing to the non-renewal of the fishing agreement between the EU and the Kingdom of Morocco, support for temporary withdrawal was granted in 2000 and 2001 to the owners and fishermen of the 320 vessels affected. Total figures for this support are given in the companion volume, *Country Statistics 1999-2001*.

### **Structural adjustment**

In 2000 and 2001, support for structural adjustment was fully consolidated within the framework of the FIG. Royal Decree 3448/2000 introduces a new procedure for disbursing

aids for permanent withdrawal. In particular it brings the government and the industry into closer contact, since management of the fisheries sector has been decentralised and transferred from Community to national and in most cases even regional level. This new financing procedure has led to a significant increase in the amount of support granted. The imbalance between the number of applications for support received and the number approved has thus been considerably reduced.

Support for the permanent withdrawal of fishing vessels benefited 240 vessels, although there were 262 withdrawals in all, and the corresponding reduction in tonnage was 9 717 GRT.

## **7. Post-harvesting policies and practices**

### **Policy changes**

During the 2001 campaign – following the entry into force of the new set of basic market regulations (Reg. No. 104/2000) – producer organisations presented 27 programmes to promote rational and sustainable resource use, and market-oriented production to optimise catches.

To adapt domestic regulations to the new Community provisions, a Royal Decree is being drafted on the control of marketing arrangements. It will replace Royal Decree 1998/98 on the control of fishing activities.

### **Food safety**

Law 11/2001 of 3 July 2001, which established the Food Safety Agency, is based on a White Paper published by the European Commission in December 2000. This piece of legislation transposes into domestic law the Community regulations on food safety. It is backed up by consumer initiatives, in particular regarding legal action and prevention in the event of food-safety violations. They include the prevention of fraud and misleading or false information, and improvements to labelling and other quality-related information at each stage of the food chain.

The General Secretariat for Sea Fishing provides technical assistance on food safety to countries exporting fish to the EU, notably developing countries in Africa, to improve inspection and monitoring of fish at source in accordance with Council Directives such as 91/493/EEC.

The active principles of pharmaceuticals to be carried in first-aid kits on board all vessels have been defined to include the specifications set out in Annex II of Royal Decree 258/99.

### **Information and labelling**

Following entry into force of the new basic market regulations, and approval of Regulation (EU) No. 2065/2001 on consumer information, a Royal Decree has been drafted on the identification of fishery, aquaculture and seafood products, whether live, fresh, chilled or cooked, to replace the current Royal Decree 331/99.

Another similar Royal Decree is being drafted on the identification of frozen and deep-frozen fishery products.

With regard to consumer information, the General Secretariat for Sea Fishing has brought out the following publications in Spanish:

- January 2001 re-print of *A Fish Consumer Handbook* (ISBN 84-491.0351-7), by the SGCP (marketing branch), Ministry of Agriculture, Fisheries and Food (MAPA).

- Second edition of the *Technical Guide To The On-Board Handling Of Fishery Products*, Volume 1, Frozen Products, SGCP (MAPA).
- *Technical Guide to the On-Board Handling of Fishery Products*, Volume 2, Fresh Products, SGCP (MAPA).

These publications are helping to improve relations between fish producers and consumers. They are available from the headquarters of Delegation of Spain to the OECD.

## 8. Markets and trade

### Markets

#### *Changes in domestic consumption*

The consumption of fishery products rose in 2000/2001. It amounts to 31.3 kg per person per year. The breakdown is as follows:

- Fresh fish: +1.5%.
- Frozen fish: -1.4%.
- Crustaceans and molluscs: +9.8%.
- Preserves: +1.2%.

Fishery products accounted for 13% of household food purchases.

### Promotion work

The promotion programmes of FROM (fund for the regulation and organisation of the market in fish and marine culture products) for financial years 2000 and 2001 were conducted in accordance with Council Regulation (EC) No. 3699/93 of 21 December 1993. They consisted of measures to promote different species of fish caught, whether fresh, frozen or preserved, and measures to protect species, in particular the prevention of the catch, sale and consumption of alevin.

### Trade

#### *Volume and values*

Information on the volume and value of trade is contained in the companion volume, *Country Statistics 1999-2001*.

## 9. Outlook

Spain will be continuing its initiatives for stronger action against illegal fishing operations by stepping up port controls, adopting a national Action Plan based on that of the FAO, and introducing domestic legislation to limit the environmental impact of fishing.

In November 2002, an international conference on illegal fishing will be held in Spain, in conjunction with the FAO and the EU. Spain hopes that this will lend new impetus to efforts by the international community in this area and obtain the political support required to resolve ongoing issues, including those relating to ports and flags of convenience.

The Spanish government is currently drafting national action plans to enforce the FAO's International Plans of Action for the conservation of sharks and for reducing incidental catch of seabirds in longline fisheries.

PART III  
*Chapter 16*

**Sweden**

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## Summary

The fishing sector in Sweden is shrinking – landings, vessel numbers, profitability and numbers of fishermen are all decreasing. There are, however, some positive signs – the prices on fish for consumption have increased, the amount of fish used for reduction has declined, our exports of fish and fishery products have increased and the processing industry is doing quite well.

## 1. Legal and institutional framework

Sweden is a member of the EU and therefore the Common Fishery Policy (CFP) and its legislation is directly applicable. The general principles governing national fishery policy are established in a Parliamentary Act. This Act also authorises the Government to issue legal Acts in order to supplement the CFP and to regulate the fishing outside the CFP. The Government has delegated this authorisation to the National Board of Fisheries (NBF) together with some general principles and guidelines. The principal management instruments used are those stated within the CFP. As regards foreign access and foreign investments, the rules of the CFP are followed.

## 2. Capture fisheries

### Performance

Between 2000 and 2001 the value of Swedish landings increased while the quantity of landings decreased. During 2001 the Swedish vessels landed 298 000 tonnes of fish, the main part of it, 175 000 tons, was landed abroad. Table III.16.1 below gives an overview of the Swedish landings between 1999 and 2001.

Table III.16.1. **Landings of fish caught by Swedish vessels 1999-2001  
– Quantity and value**

	Landings in Sweden		Landings abroad		Total landings	
	'000 tonnes	SEK M/EUR M	'000 tonnes	SEK M/EUR M	'000 tonnes	SEK M/EUR M
2001	123	741/97	175	433/51	298	1 174/138
2000	146	683/80	186	272/32	332	995/112
1999	200	741/97	129	220/26	329	962/113

Source: OECD.

Close to 21 000 tonnes of cod with a value of SEK 349 000 (EUR 41 000) was landed in 2001, making cod the most important species in terms of value. For cod, prices have increased while catches have decreased. However this is not only a Swedish phenomenon. The same trend can be seen globally. Diminishing stocks and lower TACs are the main reasons for the decline in the amount of landed cod.

Herring for consumption is the second most important species in terms of value; 68 000 tonnes with a value of SEK 230 000 (EUR 27 000) were landed in 2001. During 2001 there was a growing demand for herring for consumption which led to higher prices.

The bulk of the catches are landed for reduction purposes. In 2000, more than 70% of the landed fish were used for reduction to meal and oil; in 2001 that figure had decreased to 60%. The species used for reduction were mainly herring and sprat. One of the reasons that the quantity of fish landed for reduction has decreased is that an increasing amount of sprat for consumption is exported to the Baltic States and Russia, while another is the increased demand for herring for consumption. Herring landed for consumption purposes more than doubled between 1999 and 2001.

Employment in the catching sector is decreasing. In 1999 there were 2 388 licensed fishermen in Sweden; at the end of 2001 that figure was down to 2 219. As regards the processing industry, the number of companies is fairly stable with a slight increase in the numbers employed. In 2001, there were about 2 100 people employed in the fish processing industry and there were 177 production units, most of them located on the West Coast.

The number of vessels in the Swedish fishing fleet is decreasing (Table III.16.2). Between 2000 and 2001 the number of vessels decreased by about 5%. The capacity, measured as gross tonnage (GT) and engine power (kW), is subject to the reductions foreseen in the MAGP (multi-annual guidance programme) of the CFP (Table III.16.3).

Table III.16.2. **Fishing fleet structure in 1999, 2000 and 2001**

	1999	2000	2001
Number of vessels	1 976	1 956	1 851
Total GT	46 000	48 779	45 915
Total kW	230 000	239 154	228 239

Source: OECD.

Table III.16.3. **Characteristics of the average vessel in the Swedish fishing fleet**

	1999	2000	2001
Tonnage (GT)	32	25	25
Engine power (kW)	112	122	123
Length (m)	10	10	10
Age (year)	25	21	22

Source: OECD.

As can be concluded from the figures, small coastal vessels dominate the fishing fleet and the average age is quite high. During this period, tonnage has been decreasing while engine power has been increasing.

### **Status of fish stocks**

See the EU chapter.

### **Management of commercial fisheries**

The National Board of Fisheries handles the management of commercial fishing. In addition to regulations decided by the NBF, the Swedish Fishermen's Federation imposes

supplementary regulations for its members. Fishing for deep-water prawns in the North Sea and the Skagerrak is one example of this voluntary regulation where the quota has been divided between vessels according to the number of crew members.

### **Management instruments**

For most fisheries there are national quotas, and technical restrictions relating to, for example, fishing technique, geographical areas, fishing seasons, maximum landings per vessel and week, minimum landing sizes or limits on by-catches. The technical restrictions are decided nationally or by the EU.

Vessels used in commercial fishing have to be licensed and at least one fisherman per vessel must hold a personal fishing license.

### **Changes in national regulations**

In 2000, as well as in 2001, the NBF revised regulations for cod fishing in the Baltic Sea, specifying maximum landings per week differentiated according to length and tonnage of the vessel. The regulations have continually been adjusted according to the Swedish share of the EU-quota of cod recommended annually by the International Baltic Sea Fishery Commission (IBSFC).

In 2001, the NBF also decided to limit the fishing period (days per week) for vessels longer than 24 meters fishing herring and sprat in the Baltic Sea. In late 2001, this regulation was supplemented by-catch limits per vessel and week according to tonnage for all vessels catching these species in the Baltic Sea and Skagerrak/Kattegat during 2002. The regulation also stipulates that a vessel fishing herring or sprat may not be used for catching other species under quota regulation (e.g. cod) at the same time (defined as a period of two weeks). The new regulation replaced a similar voluntary rationing system managed by the fishermen's federation. In 2001, it was also decided that vessel owners entering pelagic capacity have to withdraw at least 30% more capacity in kW and GT than is taken into the fleet. Before this change, the entry/exit ratio was one to one for pelagic vessels.

### **New forms of decision-making and co-management**

The Koster fjord, a traditional fishing area in the northern parts of Skagerrak, has been designated as a special area of conservation by the Swedish government. The area is now part of the European ecological network Natura 2000, which is based on EU-legislation aiming to promote the maintenance of biodiversity in the EU. In order to protect the sensitive seabed and reduce discards, new regulations have been implemented prohibiting trawling in some areas and the use of some types of gear. The regulation has formally been decided by the NBF, but is based on a proposal from a working group composed of fishermen and representatives from the local authorities, the county board administration, and the NBF.

Another model for decision-making and co-management is being tried in commercial fishing for vendace in the northern part of the Gulf of Bothnia. This stock is very weak and vulnerable, and the NBF called for additional conservation measures in 2000. However, it was decided to start a project to let the fishermen involved in this fishery handle and decide upon complementary management measures as an alternative to new regulations from the NBF. The fishermen are supported by the NBF, which is carefully following and monitoring the fishery. The NBF is also responsible for making sure the basic regulations are followed. The project will be evaluated in 2002.

### **Management of recreational fisheries**

The difference between a professional fisherman and a recreational fisherman is the possession of a professional fishing license. In public waters, professional fishermen may use all types and an unlimited number of gears if not otherwise stipulated in any conservation regulation. A recreational fisherman may, in public waters, use a limited number of gears and not all types. An example of the limitations is that the total length of the nets is not allowed to exceed 180 meters and the number of pots must not exceed six. There are no restrictions that concern the sale of the catches. In private waters there are no restrictions on the number and types of gears, if not otherwise stipulated in any conservation regulation.

In principle, all waters around the coast and in the lakes are privately owned up to 300 meters from the shoreline. A fisherman is allowed to fish in private waters only with the consent of the owner. Responsibility for conservation and management in these waters rests on the owners. Many private water-owners have, with state support, created fishing management areas with uniform fishing rules and marketing of recreational fishing opportunities for the public. There are, however, some important exceptions to the general rule of the owners' right to sole disposal of the waters. Angling is allowed along the coast and in the four big lakes. On the western and southern coasts, fishing is allowed in privately owned waters for the public with a limited number of other gears as well as for professional fishermen.

A survey of recreational fishing was made in 1999, encompassing 7 000 randomly selected residents and with a response rate of 70%. The results show that about 55% of the Swedish population expressed an interest in recreational fishing. The total days spent fishing was estimated to be 35 million and the total catch was 24 million kilos in inland water and 18 million kilos in the sea.

Technical regulations, mesh size, time and area closure etc applies equally for recreational and professional fishing.

### **Aboriginal fisheries**

The Lappish population living on reindeer breeding in the northern part of Sweden has special fishing rights in the areas allocated to their profession.

### **Monitoring and enforcement**

In 2000, a system of prenotification of landings of unsorted pelagic fish was introduced. The Coast Guards should be notified at least 4 hours before landing. Stricter rules concerning the fishery in ICES area IIIb was also introduced in 2000. Vessels with an overall length of at least 20 m, intending to fish in area IIIb, are required to send entry reports 1 hour before entering the area. Catches kept on board should be reported when leaving the area.

In 2000 and 2001 vessels fishing for mackerel, were required to report catches, exceeding 1 tonne, within 2 hours after each fishing effort and to check that the fishery was still allowed before making a new effort. The same system was applied for herring fishery in the North Sea in 2001.

## **3. Aquaculture**

### **Policy changes**

In 1998 a political will was expressed to investigate and describe the possibilities for further development of the Swedish aquaculture sector. For this purpose, a governmental



working group was set up in 1999 and their report was presented in June 2000. So far, however, there have been no substantial changes as regards policy or legislation.

### **Production facilities, values and volumes**

Tables III.16.4 to III.16.7 below give an overview of the present situation in the aquaculture sector.

**Table III.16.4. Number of farm sites 1999 and 2000**

Species	1999	2000
Rainbow trout	132	121
Eel	3	3
Arctic Char	21	18
Blue mussels	12	10
Crayfish	127	106
<b>Total</b>	<b>295</b>	<b>258</b>

Source: OECD.

**Table III.16.5. Production by species**

Tons

Species	1999	2000
Rainbow trout	4 458	4 452
Eel	253	311
Arctic Char	386	395
Blue mussels	954	443
Crayfish	9	7
<b>Total</b>	<b>6 060</b>	<b>5 608</b>

Source: OECD.

**Table III.16.6. Approximate number of individuals engaged in aquaculture**

Fish for release/restocking	1999	2000
Salmon	2 190	2 550
Trout	650	680

Source: OECD.

**Table III.16.7. Production value**

SEK M/EUR M

Species	1999	2000
Rainbow trout	106/12.5	103/12.1
Eel	14/1.6	14/1.6
Arctic Char	14/1.6	15/1.7
Others	9/1.1	4/0.5
<b>Total</b>	<b>143/16.8</b>	<b>136/15.9</b>

Source: OECD.

In 2000, gender-specific employment information within the sector was included for the first time in the annual statistics on Swedish aquaculture. The figures were divided into two categories: the number of employed men or women within aquaculture for consumption and the number of men or women employed within aquaculture for release/restocking (Table III.16.8). It should be noted, however, that the same people could appear within both consumption and release/restocking. The aquaculture sector is still rather small. The dependency of external markets has declined in favour of the domestic market.

Table III.16.8. **Number of people employed**

Aquaculture for consumption	Men	287
	Women	62
Aquaculture for release or stocking	Men	188
	Women	21

Source: OECD.

## 4. Fisheries and the environment

### *Environmental policy changes*

An action plan for the protection of wild salmon stocks in the Baltic has been in operation since 1997. This plan involves extensive regulation of the salmon fishery, restoration of habitats and a reduction of the TAC. The overall objective is to reach a 50% production target for each wild salmon population before 2010.

A new policy for the stocking of fish has been adopted in 2000. It implies a greater emphasis on the questions of aquatic biodiversity and the spreading of diseases.

New action plans for marine mammals and cormorants have been launched or are under preparation. All of them involve mitigation measures to reduce accidental by-catches.

### *Sustainable development initiatives*

For a long time legislation has been the central tool with which principles of environmental policy have been transformed into practical measures. The principle of sustainable development has had an increasing impact on both national and international environmental protection since it was introduced by the Bruntland Commission in 1987. At the UN conference on Environment and Development in Rio de Janeiro in 1992, the concept won recognition as a central point of departure for future development of society. With the Amsterdam Treaty of 1997, the principle has been written into the EC constitution as one of the objectives of the European Union.

The Swedish parliament has established 15 objectives for environmental quality that describe the qualities of our environment and our common natural and cultural resources must have in order to be ecologically sustainable. In 2001, the objectives were specified with short- and long-term goals. The most relevant for fisheries are the interim targets for "A balanced marine environment, flourishing coastal areas and archipelagos" which states that:

1. By 2010, long-term protection will be provided for at least 50% of marine environments that are worth protecting and at least 70% of coastal and archipelago areas with significant natural and cultural assets. By 2005, another five marine areas will be protected as reserves, and the competent authorities will have decided which other areas in the marine environment are in need of long-term protection.

2. By 2005, a strategy for the preservation and use of the cultural heritage and agricultural landscape in coastal and archipelago areas will have been adopted.
3. By 2005, action programmes will be under way for endangered marine species and fish stocks that are in need of targeted measures.
4. By 2010, annual by-catches of marine mammals will not exceed 1% of the stocks in each case. The by-catches of sea birds and undesired fish species will have been minimised to levels that do not have an adverse effect on the populations.
5. By 2008, catches, including by-catches of juveniles, will not exceed an amount which would prevent a stock's ability to regenerate, so that fish stocks can survive and, where necessary, recover.
6. Noise and other disturbances from boat traffic will be negligible in particularly sensitive and other designated archipelagos and coastal areas by 2010.
7. By 2010, discharges of oil and chemicals from ships will be minimised to a negligible level as a result of stricter legislation and increased monitoring.
8. By 2009, an action programme under the Water Framework Directive will be adopted with a view to achieving a good surface water status.

## 5. Government financial transfers

### Transfer policies

Transfers to the sector are in accordance with EU regulations. There is hardly any financial support to the sector outside this framework. The administration of the support is shared between the National Board of Fisheries and the Regional County administrations. The NBF has the responsibility for the whole disbursement of the transfers, and issues general guidelines to the different County administrations, which have responsibility for granting aid for aquaculture, the processing industry, inland fishery and, in the north of Sweden, equipment in harbours. The NBF is responsible for the remainder as well as for control and surveillance. Table III.16.9 lists the target objectives and the sum of disbursed amounts.

Table III.16.9. **Revenue enhancing direct payments – Disbursed amounts**  
'000 SEK/'000 EUR

Target area	2000 national co-financing	2000 EU-FIFG	2001 national co-financing	2001 EU-FIFG
Catching sector	2 414/284	14 183/1 669	17 217/2 025	23 344/2 746
Aquaculture	2 357/277	8 668/1 020	2 803/330	11 256/1 324
Processing industry	6 302/741	19 192/2 258	5 419/637	16 439/1 934
Others	1 223/144	39 703/4 671	4 842/570	12 463/1 466
<b>Total</b>	<b>12 296/1 446</b>	<b>81 746/9 618</b>	<b>30 281/3 562</b>	<b>63 502/7 470</b>

Source: OECD.

Financial compensation, according to EU-regulation 104/2000, for products withdrawn from the market has been paid out to the producers' organisations as follows in Table III.16.10.

Table III.16.10. **Revenue enhancing market price support '000 EUR**

1999	2000	2001
297	265	50

Source: OECD.

### **Social assistance**

There is a special unemployment fund for fishermen. As a general rule, the unemployed person must be at the disposal of the labour market. It is possible for a fisherman to receive unemployment benefits in certain circumstances. In total SEK 24 million (EUR 2.8 million) was paid to fishermen in 2001, which is approximately SEK 5 million less than in 2000. There have been no policy changes in this area in the last years.

### **Structural adjustment**

In 2000, a new structural programme was launched to run until the end of 2006. This programme is similar to the previous one, which ran between 1995 and 1999. There is, however, a tendency to disburse larger amounts of support to different projects, concerning for example research or marketing efforts, and smaller amounts for typical capital investments like processing machines (see also the EU chapter).

## **6. Post-harvesting policies and practices**

### **Policy changes**

As regards food safety there has been no changes in the Swedish rules, but see also EU chapter.

### **Information and labelling**

The Swedish consumers' demand for ecologically safe food is increasing. As of today a working system for eco-labelling of commercially caught fish does not exist. Due to this fact KRAV<sup>1</sup> together with Svensk Fisk<sup>2</sup> are planning to start a project to work out criteria that could be used for labelling commercially caught fish. Hopefully, this project will start sometime during 2002.

There are, however, criteria for labelling fish that has been farmed ecologically. In 2001 KRAV together with the Norwegian organisation Debio introduced a system for eco-labelling of aquaculture products. In 2001, there were only two fish farms in Sweden, which produced fish that could be ecologically labelled. Together they produced approximately 40 tonnes of ecologically farmed fish per year. It is possible to get a higher price for fish that have been farmed ecologically, and there is a demand for the product.

### **Processing and handling facilities**

There have not been any major changes in the industrial structure during these last two years. Since the accession of Sweden to the EU, the production and exports of the processing industry have increased due to the extended market and also due to a reallocation of production facilities from the EU-12 area to Sweden. The increase of production seems, however, to have slowed down during recent years.

Even though there are no major changes in the industrial structure, there is a tendency for Swedish companies to be bought by or merge with Norwegian or Icelandic companies.

This is a way for the Swedish companies to secure their access to the raw material, which is presently the main obstacle for increasing production and profitability, but also a way for the Norwegian and Icelandic companies to gain access to the EU market.

Today, the Swedish processing companies import between 55 and 60% of their raw material. The main output is herring and cod products but, to a certain degree, also prawn, salmon, mackerel and haddock products.

## **7. Markets and trade**

Consumers' demand for fish and fishery products has been fairly stable in recent years while catches of commercially important species have declined. This has led to an increase in imports.

### **Markets**

#### ***Trends in domestic consumption***

During 1999, consumption of fish and fish products amounted to 155 000 tonnes with a value of approximately SEK 9 226 million (EUR 1 085 million). The fish product most preferred by the consumers is fresh or chilled salmon (average consumption of 2 kilos per capita per year), followed by prepared fish products like prefabricated food and fish quenelles, (average consumption of 1.8 kilos per capita per year).

The tendency for many years of a dwindling consumption of fresh fish, including fresh salmon, seems to be continuing in spite of the increased supply of farmed fish. On the other hand, the amount of ready-made products consumed keeps increasing. In total, the demand for fish products is fairly stable. Another trend is that the demand for ecologically labelled foodstuff is growing.

#### ***Promotional efforts***

Svensk Fisk is an organisation whose main purpose is to promote fish and fish products to consumers. Svensk Fisk used to be a semi-public organisation run by the National Board of Fisheries but since 2001 it is an economic association run jointly by the fishermen, the processing industry, the aquaculture organisation and the trade.

### **Trade**

#### ***Volumes and values***

Both exports and imports of fish products have been increasing for several years and the trend seems to be continuing. The figures presented in Table III.16.11 are, however, somewhat misleading. Sweden imports large quantities of mainly fresh or chilled salmon from Norway. The main part of this import is re-exported to other EU countries without further processing in Sweden – the salmon is just passing through.

Table III.16.11. **Swedish imports and exports of fish and fish products 1997-2001**  
– Quantity and value

	1997	1998	1999	2000	2001
Export, '000 tonnes	221	255	249	276	272
Import, '000 tonnes	172	171	186	197	211
Export, SEK M/EUR M	303/36	366/43	437/51	500/59	570/67
Import, SEK M/EUR M	537/63	599/70	693/82	763/90	894/105

1. CN number: Chapter 3, 1604, 1605, 15041091-15042090, 23012000.

Source: OECD.

In terms of value approximately 30% of Swedish exports and 25% of Swedish imports of fish products consists of fresh or chilled salmon (CN-number 0302 12 00) from Norway. The percentages are somewhat lower in terms of quantity. Thus, to get a more accurate picture the figures representing value in Table III.16.11 should be reduced by 30% (exports) and 25% (imports) respectively.

## 8. Outlook

In the mid 1990s, there were large investments in the Swedish fishing fleet due to higher TACs and high prices, especially for pelagic species. Due to decreasing stocks, TACs were subsequently reduced and this led to an overcapacity, mainly in the fishing for cod and pelagic species. TACs will probably continue to be cut and this creates a need for structural changes in the sector.

Profitability in the part of the fleet fishing for pelagic species has, due to lower prices and reduced TACs, decreased since 1998. In 2000, however, there was an increase in demand for herring for consumption, which led to subsequent price increases. The chance that this price-increase wholly will compensate for the diminishing number of catches is, however, small. As regards the part of the Swedish fleet fishing for demersal species – mainly cod – the increased prices have so far compensated for the reduction in catches. It is uncertain, however, if the increased prices will continue to compensate for further reductions in the TACs.

On 1 July 2002, new rules concerning the highest allowable level of dioxin in food and feedstuffs will enter into force. The new rules may be problematic for the Swedish fishing industry, especially in the Baltic Sea where certain species of fish might have a content of dioxin that is above the fixed limits. Sweden has, until the end of 2006, been granted an exception from these new rules, which relates to fish sold for human consumption on the Swedish or Finnish markets. It is difficult at this stage to predict how the demand for fish on the Swedish market will develop or how sales of fish to the EU and to third countries will be affected by the new dioxin limits.

## Notes

1. KRAV is a private organisation that oversees labelling of organically produced food in general.
2. For a description of the organisation see the section on markets and trade.

PART III  
*Chapter 17*

## United Kingdom

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## Summary

During 2000 and 2001 the UK Government sought to improve fisheries management while ensuring the sustainable exploitation of fish stocks. A system of fixed quota allocation was introduced from 1 January 1999, replacing arrangements under which allocations had been based on landings in the three years preceding any quota year.

The volume of total landings by UK vessels in domestic ports fell by 1% between 2000 and 2001 to 458 300 tonnes in 2001, worth GBP 423.7 million.

## 1. Legal and institutional framework

Responsibility for fisheries in the United Kingdom lies with the Secretary of State for Environment, Food and Rural Affairs, Scottish Ministers, the Minister of the Welsh Assembly Government and Northern Ireland Ministers. The principal power governing the regulation of fisheries are set out in the Sea Fish (Conservation) Acts 1967 and 1992; the Sea Fisheries Act 1968; the Fishery Limits Act 1976; the Fisheries Act 1981; the Sea Fisheries (Shellfish) Act 1967 and the Fisheries Act 1966. Responsibility for these functions in relation to Scotland and Wales were transferred to Scottish Executive, Welsh Assembly and the Department of Agriculture and Rural Development, respectively, by virtue of Scotland Act 1998, the Government of Wales Act 1998 and the National Assembly for Wales (Transfer of Functions) Order 1999 and the Northern Ireland 1998.

Any person wishing to fish under the British flag and against UK quotas may do so only with a fishing vessel which is both registered and licensed by the UK authorities. In order to register a fishing vessel, the owners should be UK citizens, EU citizens, established in the UK or companies incorporated within the EU with a place of business in the United Kingdom. As a condition of registration all fishing vessels must be managed, controlled and directed from the UK. A restrictive licence scheme operates and no new licences are issued by the UK authorities. Anyone wishing to fish for profit must acquire a licence from an existing fishing vessel. Owners of all vessels fishing against the UK's quotas have to maintain a genuine economic link with the UK. This may be achieved through landing quota catches into the UK, employing crew resident in the UK or other measures sufficient to ensure that a satisfactory economic link is achieved.

In the UK over 95% of quotas in EU waters was allocated through Producer Organisations ("the sector"). The remaining quota was divided between the "non-sector" (vessels over 10 metres in overall length but not members of a producer organisation). In 2000 and 2001 guaranteed minimum allocations continued to apply to a range of quota allocations for the non-sector and vessels of 10 metres and under.



## 2. Capture fisheries

### ***Employment and the structure and performance of the fleet***

In 2001 approximately 14 640 people were employed in the fisheries sector, some 250 fewer than in 2000. This fall was accounted for entirely by part time fishers, where the number employed dropped by 470.

At the end of 2001, 7 169 vessels were in the UK (excluding the Isle of Man and Channel Islands) fishing fleet, 73 fewer than at the same time in 2000. However, the registered gross tonnage of the fleet increased to 253 914 tonnes. The change in the structure of the fleet continued with smaller vessels leaving the fleet and larger vessels joining. The number and size of vessels less than 250 registered gross tonnes fell by 79 vessels but showed a 2 711 tonnes increase. Whereas the number and size of vessels greater than 250 registered gross tonnes increased by 5 vessels and 3 786 tonnes respectively.

### ***Landings***

In the year 2001 the volume of total landings by UK vessels in domestic ports fell by almost 2% to 458 300 tonnes, worth GBP 424 million over 2000.

Cod landings decreased to GBP 37 million from GBP 51 million, but remained the most valuable component of domestic landings by UK vessels. Of the other main commercial fin-fish species the value of haddock landings decreased from GBP 51 million to GBP 36 million; the value of mackerel landings rose from GBP 14 million to GBP 24 million; and the value of plaice landings fell from GBP 10 million to GBP 9 million. In volume terms haddock remained the most important species although landings fell from 50 000 tonnes in 2000 to 42 000 tonnes in 2001.

Mollusc and crustacea landings increased to 136 000 tonnes in 2001 from 127 000 tonnes in 2000. The value of landings also rose to GBP 167 million. With landings of 28 000 tonnes worth GBP 68 million, Norway lobster was the most valuable species.

The volume of landings by foreign vessels into the UK rose by 14% to 72 000 tonnes in 2001. The total value of these landings rose 7% to GBP 64 million. The volume of landings by UK vessels into foreign ports decreased by 2% to 280 000 tonnes while the value increased by 15% to GBP 151 million. In 2001, 26% of the UK catch by value and 38% by volume was landed into foreign ports.

### ***Resource management***

During 2000 and 2001 the Government continued to operate a restrictive licensing scheme in which licences were used to control the number of vessels fishing and stocks caught. Capacity reduction penalties were applied where licences were transferred or aggregated. These licence arrangements have contributed to the UK's MAGP objectives. Additional licensing requirements were introduced in April 1998 for vessels over 10 metres in overall length targeting pelagic stocks and in April 1999 for such vessels targeting scallops using mechanical dredging gear. During the period a phased programme of action was introduced to link the registration and licensing of fishing vessels to the declaration of maximum continuous or permanently derated engine power of such vessels.

### ***Assistance for capture fisheries***

Government funding of marine fisheries R and D through DEFRA (Department for Environment, Food and Rural Affairs) was GBP 3.5 million in 2000/01 and GBP 3.4 million

in 2001/02. SEERAD (Scottish Executive Environment and Rural Affairs Department) funding for 1998/99 was GBP 0.6 million in 2000/01 and GBP 0.7 million in 2001/02. Funding from DARDNI (Department Agriculture and Rural Development for Northern Ireland) was GBP 0.5 million in 2000/00 and GBP 0.5 million in 2001/02. In addition fish stock assessments were funded to GBP 4.6 million and GBP 4.7 million from DEFRA in 2000/01 and 2001/02 respectively, and GBP 4.3 million and GBP 5.0 million from SEERAD.

### **Enforcement and control**

The Fisheries Departments in the UK continue to give high priority to fisheries control and enforcement and in 2000 spent some GBP 24.7 million on an integrated programme of aerial, surface and port surveillance. From 1 January 2000 UK fishing vessels over 24 metres were required to carry satellite monitoring terminals and submit regular position reports to fisheries monitoring centres in London, Edinburgh and Belfast.

National legislation was introduced to implement Community Regulations relating to fisheries monitoring, control and surveillance. This included satellite monitoring of fishing vessels, changes to the EU's control regulations and a control regime applicable to vessels operating in waters covered by the North East Atlantic Fisheries Commission.

## **3. Aquaculture**

### **Production facilities**

Aquaculture production in the UK is concentrated on Atlantic salmon, rainbow trout and mollusc shellfish, such as mussels and Pacific Oysters. Pilot trials of farming non-salmonid finfish species, such as turbot, halibut, cod and sea bass, have produced encouraging results. With the exception of some new fish farms based on re-circulation, technology and production facilities have changed little since 1997. There are more than 1 000 fish and shellfish farming businesses in the UK operating on 1 400 sites and directly employing more than 3 000 people (some 2 500 in Scotland). The total estimated employment figure rises to over 6 000 when transportation, marketing and processing activities are taken into account.

### **Production volume and values**

Overall production of aquaculture products for 2001 is expected to be in the region of 150 000 tonnes. The total value at first sale of aquaculture products in 2000 was in excess of GBP 350 million.

## **4. Policy development**

UK policy is to encourage the development of efficient, competitive and sustainable aquaculture industries whilst protecting the health status and welfare of UK farmed and wild freshwater fish and shellfish. Central to the policy is the sustainable use of rural and marine environment and the prosperity of the economies and communities in those areas.

## **5. Environmental protection**

Since 1999, the only type of waste that is routinely considered for disposal at sea round the coast of the UK is material dredged from ports and harbour and small quantities of fish waste. Strict licensing controls operate under the Food and Environment Protection Act (FEPA). The purpose of this licensing regime is to protect the marine environment and to

prevent interference with other uses of the sea (including fishing). Before issuing a licence for sea disposal, the licensing authority is required to have regard to the practical availability of any alternative ways of dealing with the material and applicants are required to investigate the possibility of using some or all of the material beneficially, for instance, for beach replenishment or for salt marsh regeneration. Sea disposal is also considered only after a rigorous scientific assessment of the impact of the material on the marine environment.

FEPA also controls a wide range of construction works undertaken at sea. These controls are central to the application of the UK Government's policy of sustainable development in the marine sector. When considering an application for a consent, the licensing authority has to weigh the perceived socio-economic benefits of the project against the potential impact upon the environment and loss of natural resources and other assets, including fishing. Schemes to offset rising sea levels and to produce renewable energy (offshore windfarms) are examples where detailed scientific evaluation is necessary to minimise any adverse environmental effects upon fisheries and indeed may even offer stock enhancement opportunities.

The discharge of radioactive waste to the marine environment is also strictly controlled by national legislation. Sites are regularly inspected and authorisations reviewed to ensure that discharges are kept as low as is reasonably achievable.

Since the introduction of the Environment Act 1995, sea fisheries regulators have had the power to manage fisheries for environmental as well as for traditional fisheries management purposes.

No significant environmental issues arose in connection with aquaculture in 2000/01. Fish farm effluents are monitored by the Environment Agency which enforces strict discharge consents to protect the quality of receiving waters.

The Surface Waters (Shellfish) (Classification) Regulations 1997 and the associated Directions and Notice transpose Directive 79/923/EEC into UK law. These regulations prescribe a system for classifying the quality of controlled coastal or brackish waters which need protection or improvement in order to support shellfish life and growth.

## **6. Processing, handling and distribution**

During 2001 there was a slight increase in the total supply of fish available for domestic use.

## **7. Government financial transfers**

The provision of government aid to the fishing industry in the UK was not typical in 2000-2001. The programmes of aid covering 1994-1999 closed to new applications at the end of 1999, and the new programmes for aid were not launched until late in 2000 or early in 2001. Thus the transfers made in 2000 were for outstanding payments from 1999, while the late launch of the 2000-2006 programme meant only a few claims for payment were made in 2001, and some of these transfers still applied to the old programme. The figures shown in the table are therefore much less than previous years. However, approximately GBP 9 million has already been committed for structural aid, and these transfers are expected to be made in 2002/03. Similarly, a Scottish decommissioning scheme was launched in 2001, the payments for which are expected to be made in 2002. Figures from 2002 onwards should therefore give a much clearer picture of government support.

### **Key to transfers in Table III.17.1**

The definitions of those transfers labelled “2000” indicate measures active under the old scheme (1994-1999) and are therefore the same as those supplied in the 1998-1999 OECD return. Measures with no year beside them are essentially unchanged between each scheme, and therefore the definitions supplied in the 1998-1999 return apply to both years.

### **Vessel modernisation (2001)**

There is the EU scheme aiding the cost adopting sustainable catching methods, or facilities to maximise the quality of fish on board vessels in some areas of the UK. This measure also covers crew comfort and working conditions. Grant is not available for increased fishing effort or and increase in fishing capacity.

### **Structural adjustment**

The EU’s Financial Instrument for Fisheries Guidance (FIFG) maintains CFP funding for structural measures covering the industry as a whole. In April 2001 the Fisheries and Aquaculture Structures (Grants) Regulations 2001 were introduced providing for national back-up aid in England to enable the industry to obtain funding for measures set out in the UK’s Sectoral Plan. This indicated that aid would be available for vessel modernisation (for quality improvements and more selective fishing methods only), safety training for fishermen, decommissioning, protection and development of aquatic resources, improvement of fishing port facilities, processing and marketing of fishery and aquaculture products, product promotion, and other projects for the collective benefit of the fishing industry. The regulations provide for the implementation of the UK’s programme for implementing FIFG which was adopted by the Commission on 27 December 2000. Similar regulations were introduced in Scotland, Wales and Northern Ireland.

### **Assistance for aquaculture**

Government funding for aquaculture R&D through Defra was around GBP 1.9 million in 2001. SEERAD R&D funding for 2001 was GBP 1 million. In addition, there was ongoing funding of a 5 year, GBP 10 million Aquaculture LINK programme for collaborative research between Government and Industry on fish and shellfish farming.

## **8. Markets and trade**

### **Domestic market**

The results of the National Food Survey show that household purchases of fish and fish products fell to 7.4 kg per capita in 2000 the value of those purchases rose to GBP 41.70 per person. This represents about 5.4% of total UK food consumption in the home.

In 2001, the UK withdrawals from the market under EU support arrangements remained at the same level as 2000 at about 1 000 tonnes.

In the EU, the Fisheries Council agreed a marketing regime for fisheries products in 2000 and Council Regulation 104/2000 of 17 December 1999 entered into force from 1 January 2001. The Regulation reformed the fisheries marketing regime so that it is more able to match supply with the requirements of the market. In particular, the regulation enhances the role and structure of the producers’ organisation so that they can be more active in the market, while providing greater access to third country raw materials, by a relaxation of tariffs.

**Table III.17.1. Total EU and government financial expenditures associated with the Common Fisheries Policy and the UK's Fishery Policies, 2000 and 2001<sup>1</sup>**

GBP million

Nature of transfer	1999		2000	
	UK contribution	EU contribution	UK contribution	EU contribution
<b>Marine capture fisheries total</b>	<b>38.60</b>	<b>7.20</b>	<b>39.94</b>	<b>5.43</b>
(percentage of total landed value)	7.01	–	6.95	–
<i>Direct payments</i>				
Payments for the permanent withdrawal of fishing vessels	–	–	–	–
<i>Cost Reducing Transfers</i>				
Support for vessel modernisation <sup>2</sup>	0.04	0.2	0.006	0.03
Support for vessel modernisation <sup>3</sup>	–	–	0.04	0.003
Support for port facilities for fishers <sup>4</sup>	0.02	0.3	0.09	0.5
Support to reduce restructuring costs <sup>5</sup>	0.04	1.4	0.3	0.7
Support for access to third country waters	–	–	–	–
<i>General services</i>				
Support for producers organisations	–	–	–	–
Research	14.1	–	13.5	–
Management	–	–	–	–
Enforcement <sup>12</sup>	23.7	4.5 <sup>13</sup>	24.7	3.8 <sup>13</sup>
Market intervention <sup>6</sup>	–	0.8	–	0.4
Support for port facilities <sup>7</sup>	0.7	–	1.3	–
<b>Aquaculture total</b>	<b>4.74</b>	<b>0.87</b>	<b>5.11</b>	<b>0.04</b>
<i>Cost reducing transfers</i>				
Support for aquaculture <sup>8</sup>	0.14	0.87	0.01	0.04
<i>General services</i>				
Aquaculture research and development <sup>9</sup>	4.6	–	5.1	–
<b>Marketing and processing</b>	<b>0.42</b>	<b>1.89</b>	<b>0.07</b>	<b>0.29</b>
Support for processing and marketing <sup>10</sup>	0.41	1.8	0.06	0.2
Support for promotion <sup>11</sup>	0.01	0.09	0.01	0.09
<b>Grand total</b>	<b>43.76</b>	<b>9.96</b>	<b>45.12</b>	<b>5.76</b>

1. This table shows the main elements of support (combining the EU and UK contributions), and is not necessarily comprehensive.

2. EU and national schemes that provide funds to meet the costs of safety equipment necessary for a vessel to obtain a safety certificate.

3. A vessel modernisation scheme that operates in Northern Ireland and parts of Scotland. Vessels may be modernised provided such modernisation does not result in an increase in fishing capacity or fishing effort.

4. EU scheme to improve facilities for fishers at ports

5. EU PESCA scheme – designed to assist restructuring of the fisheries sector and to encourage the diversification of economic activities in areas dependent on fishing.

6. Represents money spent purchasing fish and fish products to support prices at fish auctions (EC withdrawal scheme).

7. UK scheme for the construction, improvement and repair of fishing harbours

8. EU scheme for investments in fish farming and protection of enclosed coastal waters. The scheme presently only operates in Scotland, Wales and Northern Ireland.

9. Includes 20% of GBP 10 million budget of a five year Government/industry research programme.

10. EU scheme for processing and marketing of fisheries and aquaculture products.

11. EU scheme for promoting new market outlets for sea fish and fresh water aquaculture products.

12. Excluding Sea Fishery Committee expenditure and EU enforcement aid.

13. Including EU enforcement aid paid to Sea Fisheries Committees and the Royal Navy for Fishery Protection Vessel refits.

Source: OECD.

**Sanitary regulations**

EC legislation sets minimum hygiene standards for the production and marketing of fish and shellfish. These standards are transposed into UK legislation. Live bivalve molluscs can be marketed only if they come from classified harvesting areas. The areas are classified according to the microbiological quality of shellfish samples taken from the area.

**9. Outlook****Labelling**

In 2001, the EU, at the Fishery Products Management Committee agreed a new regulation, Commission Regulation 2065/2001, which lays down the detailed rules for the application of Council Regulation 104/2000 as regards informing consumers about fishery and aquaculture products. The new provisions, which apply from 1 January 2002, will require that certain fish and fish products must, when offered for retail sale to the final consumer, be labelled with the species name, method of production and the catch area. The regulation will also include traceability provisions requiring that the labelling information, as well as the scientific name of the species, is available at all stages of the marketing chain.

PART III  
*Chapter 18*

## **Iceland**

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## Summary

Total catch was the same for both 2000 and 2001, approximately 2.0 million tonnes of fish, shellfish and crustaceans caught each year. This is an increase of 15% from 1999. The increase in catch was primarily due to increased pelagic catches as well as record catches of blue whiting. Total first-hand catch value was ISK 60.4 billion (USD 766 million) in 2000 and 70.8 billion (USD 724 million) in 2001. Catch value in ISK was unchanged from 1999 to 2000, but increased by 17% from 2000 to 2001.

The total quantity of marine products exported in 2001 (preliminary figures) amounted to 782 000 tonnes, compared with 729 000 tonnes in 2000, whereas the average export volume for the last two decades was around 620 000 tonnes. The value of marine exports in 2001 was USD 1.3 billion (current prices), an increase of USD 1.2 billion from the 2000 value. The value increase in ISK, however, is considerably higher, due to exchange rate fluctuations of the Icelandic *króna* in 2001.

According to information from the National Economic Institute, net earnings of the entire fisheries sector as a proportion of income was 2.5% for the year 2000. Profits from fishing and processing of demersal species were approximately 6.5%, while losses on shrimp fishing and processing were about 3.5%. Final figures for 2001 are not yet available, but indicate favourable performance in the sector.

## 1. Legal and institutional framework

The Fisheries Management Act of 1990 remains the cornerstone of the present fisheries management system, although it has undergone a series of subsequent adjustments. This Act provides for a system of individual transferable quotas (ITQs) that are allocated to fishing vessels in most of the commercial fisheries. In accordance with this Act, each fishing year begins on September 1 and concludes August 31 of the following year. This arrangement was adopted to direct fishing away from the summer months, when catch quality suffers more quickly and regular factory workers are on vacation. The Minister of Fisheries determines the Total Allowable Catch (TAC) for individual species annually on the basis of scientific advice from the Icelandic Marine Research Institute (MRI). Some 98% of catch landed is subject to TACs. Cod is the most important fishing stock in Icelandic waters and a specific catch rule has been used to determine the TAC since 1995. This catch rule for cod, revised in 2000, stipulates that the annual quota may not exceed 25% of the fishable stock, and that fluctuations in annual total allowable cod catch shall not exceed 30 000 tons from one year to the next.

In addition to the TACs, various rules encourage the optimal exploitation of fishing stocks. These include closures of fishing areas, division of fishing areas according to the type of vessel and fishing gear, and measures to encourage introduction of fishing gear with increased selectivity.



Foreign ownership of quotas is prohibited and, apart from those authorised under bilateral fishing agreements, no vessel owned or operated by a foreign party may engage in fishing or fish processing in Icelandic waters.

Fishing by small craft (6 GRT or less) is still partly effort-based. Four different management options apply to the majority of these small craft. Their allocated share in the TAC for cod is 13.75%.

All catches by Icelandic vessels must be weighed and recorded at the port of landing by the local port authorities. The ports of landing are then required to send information on a daily basis directly to the Directorate of Fisheries database. This means the Directorate always has the latest possible figures on catches and can conduct its management and surveillance of fisheries promptly and effectively.

## 2. Capture fisheries

### *Landings volume*

Icelandic catches from all fishing banks in 2001 amounted to 1 987 000 tonnes as compared with 1 980 000 tonnes in 2000. Icelandic fishing banks contribute most of the catches, or 98% of the total quantity. Total catches have increased since 1998, but Icelanders have not been able to top the record fishing year of 1997, when catches reached 2 200 000 tonnes. A drop of 23 000 tonnes in redfish catches in 2001 accounts primarily for the decrease in demersal catch. The cod catch amounted to 240 000 tonnes. Shellfish catches were stable at around 47 000 tonnes, a slight increase from 2000, but still low in comparison with catches over the last two decades. Large fluctuations in the Icelandic catches can usually be traced to the small pelagics. The total small pelagics catch in 2001 amounted to 1 468 000 tonnes, up from 1 439 000 tonnes in 2000. Capelin catches make up the bulk of the catch at 925 000 tonnes.

### *Landings value*

The total first-hand value of the Icelandic catch increased at current prices to around ISK 70 billion in 2001 from ISK 60 billion in 1999 and 2000. Since catch volume was practically unchanged, this 17% increase reflects a considerable rise in the first-hand price of landings, especially the small pelagics.

In 2001, demersal species accounted for 70% of the catch value, ISK 49 billion, but only 22% of the catch volume. Pelagics, on the other hand, only contributed to around 17% of the value, or ISK 12 billion, but comprised 74% of the volume. Cod maintained its place as the single most important species in the Icelandic fisheries, making up 42% of the value of total landings but only 12% of the volume.

The combined power of the main engines in the fleet in kW was 549 000 kW in 2001 but has varied for the past three years between 510 and 553 000 kW. The average age of the vessels in the fishing fleet was 19.2 years.

### *Status of fish stocks*

#### *Cod*

Various indications in the year 2000 pointed to an overestimate of the cod stock size in previous years. The size of the fishable stock was estimated as 756 000 tonnes, including a spawning stock of some 406 000 tonnes. In 1999, however, the fishable stock had been predicted to be 945 000 tonnes at the beginning of 2000, with the spawning stock at

Table III.18.1. **Total catch for the fishing years 1999 to 2001**

	Catch (in '000 tonnes)		
	1999	2000	2001
Cod	260	238	240
Haddock	45	42	40
Pollock	31	33	32
Redfish	110	116	93
Flatfish	30	30	33
Herring	298	288	179
Capelin	704	893	918
Blue whiting	160	259	365
Shellfish	57	46	47
Other	38	35	41
<b>Total</b>	<b>1 733</b>	<b>1 980</b>	<b>1 987</b>

	Catch value (ISK billion)		
	1999	2000	2001
Cod	26 645	25 702	30 045
Haddock	5 447	5 537	6 149
Pollock	1 794	1 596	1 890
Redfish	7 930	8 430	7 915
Flatfish	4 047	4 647	5 669
Herring	1 724	1 790	3 756
Capelin	3 164	3 996	5 169
Blue whiting	738	1 220	2 861
Shellfish	6 373	4 760	4 305
Other	2 553	2 702	3 126
<b>Total</b>	<b>60 415</b>	<b>60 380</b>	<b>70 885</b>

Source: OECD.

Table III.18.2. **Size of the Icelandic fishing fleet 2001 in gross tonnage**

Decked vessels (total number 875)		Trawlers (total number 80)		Undecked vessels (total number 1057)	
< 100	(654)	100-499	(8)	0-2.99	(155)
100-499	(173)	500-999	(40)	3-4.99	(546)
500-999	(26)	1 000-1 499	(21)	5-6.99	(301)
1 000-1 499	(14)	1 000-4 999	(11)	7-8.99	(27)
1 500-4 999	(8)			9-10.99	(26)
				> 11	(2)

Source: OECD.

553 000 tonnes. These indications were confirmed in 2001, when the size of the fishable stock was estimated as only 577 000 tonnes, of which the spawning stock was assessed at 219 000 tonnes.

### **Haddock**

The fishable haddock stock was estimated as 86 000 tonnes in 2000 and the spawning stock as 59 000 tonnes. In 2001, the estimate for the fishable stock was 81 000 tonnes and the spawning stock 45 000 tonnes.

## **Pollock**

At the beginning of 2000, the fishable pollock stock was estimated to be 143 000 tonnes and the spawning stock about 95 000 tonnes. Similar figures for the beginning of 2001 were 127 000 tonnes and 85 000 tonnes, respectively.

### **General trends in demersal stock size**

Demersal stock sizes on the Icelandic banks have in general decreased slightly, which could be due to various reasons, such as changes in general ocean conditions. In no other stock, however, is the development as serious as in the case of the cod stock, which is more the result of previous over-assessment rather than a direct decrease in stock size. The over-assessment, however, led to over-fishing due to the effect of the catch rule on the TAC.

### **Development in pelagic stock size: capelin and herring**

The overall development in stock size for these species is fairly positive, giving cause for some increase in fishing in addition to the positive effects on the stock sizes of demersal fish higher up in the food chain.

### **Management of commercial fisheries**

In 2001, new legislation came into effect on fishing of small craft. As a result, the majority of those hook-and-line boats which could previously catch unlimited quantities of species other than cod were included in the catch quota system for those species as well.

In the year 2000, the catch rule was amended to include a buffering factor, so as to avoid excessive changes in quotas from one year to the next. This restricts interannual changes in cod catches/TACs to no more than 30 000 tonnes.

### **Management instruments**

In 2001, three additional fish species were included in the quota system: tusk, ling and monkfish. Fishing of these species had previously been unrestricted.

As provided for by the catch rule, total allowable catch in cod was reduced from 250 000 tonnes for the 1999/2000 fishing year to 220 000 tonnes for the fishing year 2000/2001 and again to 190 000 tonnes for the fishing year 2001/2002. The TAC for haddock was raised from 35 000 tonnes for the 1999/2000 fishing year to 41 000 tonnes for 2001/2002, the TAC for redfish was 60 000 tonnes for 1999/2000 and 65 000 tonnes for 2001/2002, the TAC for Greenland halibut was 10 000 tonnes for 1999/2000 and 20 000 tonnes for 2000/2001 and 2001/2002. The TAC for scallops was reduced from 9 800 tonnes for 1999/2000 to 9 300 tonnes for 2000/2001 and then 6 500 for 2001/2002. See Table III.18.3 for TACs of other species.

### **Management of recreational fisheries**

Leisure fishing for personal consumption is authorised without special permit. Such fishing may only be pursued with hand line without automatic jigger. Catch may not be sold nor used for financial gain by any other means. The Minister may each year decide that at a specific number of public ocean rod and reel fishing derbies, the catch shall not be included in the catch quotas and the fishing days not included in pursuit days, provided the catch is not used for financial gain but only to pay for the cost of the competition.

Table III.18.3. **TACs for the fishing years 1999/2000, 2000/2001 and 2001/2002**

In '000 tonnes

Species	Fishing year 1999-2000	Fishing year 2000-2001	Fishing year 2001-2002
Cod	250	220	190
Haddock	35	30	41
Pollock	30	30	37
Redfish	60	57	65
Oceanic redfish	45	45	45
Greenland halibut	10	20	20
Plaice	4	4	5
Dab	7	5.5	4
American plaice	5	5	5
Witch	1.1	1.1	1.35
Lemon sole	1.4	1.4	1.4
Herring	100	110	125
Capelin	1 000	1 070	1 325
Inshore shrimp	3.25	3.25	3.8
Deepwater shrimp	20	25	35
Scallops	9.8	9.3	6.5

Source: OECD.

### **Multilateral agreements NEAFC (North-East Atlantic Fishing Council)**

#### ***Oceanic redfish***

This species is caught in Icelandic and Greenlander jurisdiction, but also in the international region of the Greenland Sea. Last year 118 000 tonnes of oceanic redfish were caught, which is similar to the year prior to that. Catches by Icelandic vessels were just over 42 000 tonnes, as compared to 45 000 tonnes the previous year. A major portion of the Icelandic catch is caught within Icelandic jurisdiction.

#### ***Blue whiting***

The total blue whiting catch in the Northeast Atlantic in 2001 was just under 1.8 million tonnes, as compared with 1.4 million tonnes the previous year. Of this, Icelanders caught 365 000 tonnes as compared with 260 000 tonnes the previous year. A total of 270 000 tonnes were caught in Icelandic jurisdiction in 2001 and 159 000 tonnes in 2000. Icelanders caught 155 000 tonnes of this in 2000 and 218 000 tonnes the following year.

#### ***Atlantico-Scandic herring***

In 2000, Icelandic vessels caught some 186 000 tonnes from the Atlantico-Scandic herring stock. Total catches amounted to 1.2 million tonnes. In 2001, however, Icelanders caught just under 78 000 tonnes from this stock, while total catch was over 770 000 tonnes.

### **NAFO (Northwest Atlantic Fisheries Organisation)**

#### ***Shrimp fishing in the Flemish Cap***

Total catch in 2000 and 2001 was the highest ever recorded, some 50 000 tonnes. The share of Icelanders was 8 000 tonnes in 2000 and 5 300 tonnes last year.

### **Other agreements**

A bilateral fisheries agreement is in force between Iceland and the EU. The contracting parties meet each year to review the agreement. The agreement provides a capelin quota for Icelanders of 30 000 tonnes from the EU in exchange for a redfish quota of 3 000 tonnes, which the EU may catch within Icelandic jurisdiction. The EU caught some 1 500 tonnes in 2000 but increased their catch to approximately 2 300 tonnes last year. Iceland has, on the other hand, caught less of its quota, or only about one-third.

An agreement in force from 1998 between Iceland, Norway and Greenland provides for the utilisation of the capelin stock between Iceland and Jan Mayen. A bilateral agreement between Iceland and the Faroe Islands is also in force. According to the latter, Icelanders may catch blue whiting, 2 000 tonnes of herring other than Atlantico-Scandic herring, and 1 300 tonnes of mackerel within Faroese jurisdiction. Within Icelandic jurisdiction, Faroese may catch blue whiting and capelin.

An agreement has been in force since 1999 between the government of Iceland, the government of Norway and the government of the Russian Federation concerning certain aspects of co-operation in the area of fisheries. When this agreement was concluded, the total allowable catch in the Barents Sea was 480 000 tonnes of cod of which Icelandic fishing vessels were allowed to catch 8 900 tonnes of cod in Norwegian and Russian jurisdictions. Iceland's proportion of the total catch quota remains constant despite changes in the TAC unless in the event that TAC is below 350 000 when the Icelandic quota is suspended. The agreement provides a capelin quota for Norway that can be counted within the Icelandic jurisdiction as well as 500 tonnes of ling and tusk. If the Icelandic quota is suspended, these quotas are suspended too.

At the beginning of 2000, an agreement was reached with the Faroe Islands on allowable catches for long line and hand line vessels in Icelandic waters during the year 2000. The Faroese were permitted to catch up to 5 600 tonnes of demersal fish in Icelandic jurisdiction during the year 2000. Cod catch was not to exceed 1 200 tonnes, halibut catch not more than 100 tonnes, tusk not more than 1 700 tonnes and no fishing of Greenland halibut was allowed. No more than 16 long line vessels, including halibut vessels, were to fish at any one time within Icelandic jurisdiction. Halibut vessels were only allowed to fish in Icelandic jurisdiction from 1 June to 31 August 2000.

According to the agreement reached with the Faroe Islands on fishing in Icelandic waters in the year 2001, the Faroese were permitted to catch up to 5 600 tonnes of demersal fish within Icelandic jurisdiction. Cod catch was not to exceed 1 200 tonnes, halibut catch not more than 80 tonnes and no fishing of Greenland halibut was allowed.

Iceland is a member of two international bodies that have responsibilities regarding the conservation, management and sustainable use of marine mammals: the North Atlantic Marine Mammal Commission (NAMMCO) and the International Whaling Commission (IWC). No whaling is currently conducted in Iceland.

## **3. Aquaculture**

### **Policy changes**

In 2001, amendments were passed referring to the Act on Salmon and Trout Fishing (No. 76/1970), which includes provisions on farming of freshwater fish. At the same time a bill was submitted to the Icelandic parliament on farming of commercial ocean species. These changes aim at a restructuring to strengthen the position of aquaculture in Iceland

and enable increased activity in this field, while at the same time ensuring the future of traditional salmon and trout fishing areas, e.g. for sport fishing with rod and reel.

### **Production facilities, values and volumes**

In 2000, there were 53 aquaculture undertakings operating in Iceland and 60 in 2001. In 2000 and 2001, aquaculture production for the main species was as follows:

**Table III.18.4. Principle aquaculture production figures in Iceland for 2000 and 2001**

Fish type	Tonnes	
	2000	2001
Farmed salmon	2 600	2 645
Ocean-ranching salmon	2	0
Charr	925	1 340
Rainbow trout	30	105
Halibut	34	90
Bass	20	20
Abalone	15	23
Turbot	0	217
Cod	–	70

Source: OECD.

The value of exported aquaculture products was approximately ISK 850 million in 2000 and domestic sales just over ISK 400 million; the respective figures for 2001 were just over ISK 1 000 million and ISK 500 million.

## **4. Fisheries and the environment**

### **Environmental policy changes**

Icelanders have for many years emphasised sustainable fisheries. Stock size assessments by the Icelandic Marine Research Institute (MRI) and its fisheries advice is aimed at this objective, as is the fisheries management system which, in addition to sustainable utilisation, aims at economically maximising fisheries yield. In 2001, Iceland took the initiative to hold an international conference in Reykjavík entitled *Responsible Fisheries in the Marine Ecosystem*, with the focus of the conference on wider application of the concept of sustainability in fisheries. This involves not limiting the application to sustainable utilisation of individual stocks, but rather considering the marine ecosystem as a whole. The conference was arranged in co-operation with FAO and with financial support from Norway.

### **Sustainable development initiatives**

Icelanders participate in international co-operation in the field of sustainable development and have promoted development of methodology in this area, for instance, concerning the presentation of rating scales i.e. indicators. In this regard, extensive emphasis is placed on having rating scales which can stand up to assessment of their predictive value.

## 5. Government financial transfers

### Total transfers

This section describes transfers to the harvesting and fish processing sectors in Iceland. The aquaculture sector is of minor importance in Iceland. There are no direct transfers to the fishing or processing sector. The government funds general services, such as the Marine Research Institute, and part of activities of the Directorate of Fisheries as well as the Icelandic Fisheries Laboratories. The Government also funds the Coast Guard; 75% of its total cost is estimated to result from offshore fisheries surveillance. Total net transfers associated with Iceland's fishery policies amounted to ISK 1 187 million in 2000 (USD 15 million) and ISK 1 528 million in 2001 (USD 16 million). These figures do not include tax deductions for fishermen. Transfers to the Icelandic fishing and processing sectors are summarised in Table III.18.5.

Table III.18.5. **Government financial transfers associated with fishery policies**

ISK million

Type of transfer	2000	2001
<b>Revenue enhancing transfers (from consumers) market price support</b>	0	0
<b>Revenue enhancing transfers (from government budget) direct payments</b>	0	0
<i>Cost reducing transfers</i>		
Income tax deduction for fishers <sup>1</sup>	1 220	1 250
Training of fish processing workers	10	12
<i>General services</i>		
Directorate of fisheries	457	534
Marine research institute	852	1 018
Icelandic fisheries laboratories	112	118
Coast guard – fisheries surveillance <sup>2</sup>	656	763
<i>Cost recovery paid by the fishing fleet</i>		
Fisheries surveillance fee	-260	-292
Fisheries development fund levy	-630	-613

1. Available to all persons working on sea-going vessels. About 95 per cent are fishermen. The figure for 2001 is an estimate.

2. 75% of the total cost.

Source: OECD.

Government grants are not provided to marine product processing enterprises. However, the Ministry of Fisheries, in co-operation with associations of employers and employees in fish processing, has supported occupational training for workers in fish processing. In 2000, the Ministry allocated to this project a contribution of ISK 9.8 million and ISK 12.1 million (USD 123 000) in 2001.

These sectors pay for some services they receive, e.g. from the Directorate of Fisheries. The harvesting sector also pays a surveillance fee to the Directorate as well as Development Fund levy. The fee is paid annually by vessel owners. It is levied on basis of the vessel's catch quota for a species subject to decisions on TAC. Vessel operators also pay an annual levy to the Development Fund. This fee is used to pay off loans taken by the Fund to finance the costs of the buy-back programme for fishing vessels, which was operated 1992-1996, and the new marine research vessel purchased in 2001.

### **Social assistance**

No social assistance is provided to fishermen or fish processing workers in Iceland. However, fishermen do enjoy a special income tax deduction linked to the number of days spent at sea.

## **6. Post-harvesting policies and practices**

### **Food safety**

During the period in question (2000-2001) there have been no significant amendments made to Acts or Regulations concerning supervision of production or distribution of marine products.

Following the dioxin scare in Belgium, work has been underway to adopt rules on maximum dioxin levels in foodstuffs and feeds in the EEA. Iceland has taken part in this discussion, including submitting data on measurements. Emphasis has been placed on fish as healthy food. It has also been pointed out that any rules adopted must take into consideration the varying dioxin content in fish according to ocean areas and background values reflecting the condition of the ocean.

As part of its campaign to combat BSE, the EU adopted rules prohibiting the use of fish meal in animal feed. Iceland was actively involved in this discussion and pointed out, for instance, that there has never been any evidence to demonstrate that BSE could be spread in cattle through fish meal. After extensive discussion the prohibition against fish meal in animal feed was limited to ruminants. Iceland has protested against this decision, for which there is no scientific basis.

### **Processing and handling facilities**

In 2000 and 2001, there were changes in processing of pelagic catches for human consumption, especially of herring, which up until now has been used primarily to produce fish meal and oil. In several locations high-output freezing plants have been or are being constructed which can freeze large quantities of herring and capelin during the fishing seasons. Freezing of herring on board is also increasing with the advent of vessels specially designed for this type of fishing and processing, with high processing output a prerequisite for achieving cost-efficiency.

## **7. Markets and trade**

### **Volumes and values**

#### **Trade: Volume and values**

The volume of exported marine products in 2001 amounted to 782 000 tonnes, as compared with 729 000 tonnes in 2000. The average annual export volume for 1979-2001 was approximately 620 000 tonnes.

The value of marine exports in 2001 was USD 1 262 million (at current prices), an increase from the 2000 figure of USD 1 214 million. The value increase in ISK, however, is considerably higher, due to the exchange rate fluctuations of the ISK in 2001.

The most important export market for marine products is the EES area, with over 70% share of the total value. Within the EEA the largest share goes to the UK. Approximately 17% of exports go to the US and about 10% to Japan. Cod alone accounted for around 40% of the



Table III.18.6. **Quantity of Icelandic marine exports 1999-2001**

	In tonnes		
	1999	2000	2001 <sup>1</sup>
<b>Total</b>	<b>688 071</b>	<b>728 666</b>	<b>781 631</b>
Fresh or chilled	70 464	110 648	117 432
Frozen	194 539	193 080	211 988
Salted/dried	74 729	74 531	73 175
Meal/fish oil	329 191	331 753	359 709
Other	19 148	18 654	19 327

1. Preliminary figures.

Source: Statistics Iceland.

Table III.18.7. **Value of Icelandic marine exports 1999-2001**

	USD millions		
	1999	2000	2001 <sup>1</sup>
<b>Total</b>	<b>1 368</b>	<b>1 214</b>	<b>1 262</b>
Fresh or chilled	142	143	149
Frozen	753	637	631
Salted/dried	296	271	290
Meal/fish oil	151	143	174
Other	25	21	17

1. Preliminary figures

Source: Statistics Iceland.

export value in 2000 and 2001, fish meal and oil added another 11-12% and redfish and shrimp products account for 10% of earnings each.

## 8. Outlook

All signs indicate that the TAC for the 2002/2003 fishing year will be similar, in terms of cod equivalents, to that for the 2001/2002 fishing year. Exports of marine products are also expected to be similar in 2002 to those of 2001, both in terms of quantity and value. Good performance is predicted for both fishing and processing for 2002. Fluctuations on the domestic currency exchange markets are expected to be less in 2002 than in 2001. Continuing development and discussion is expected on international markets on methods of ensuring food safety and traceability, so that consumers can trust that products are healthy. At the end of 2001 the Minister of Fisheries submitted a bill on a fishing fee to the Icelandic parliament *Althingi*. This bill created a government policy so that those parties which are granted rights to utilise natural resources should pay a fair price for them. The fee is expected to be levied on vessel owners for the first time in 2004.

PART III  
*Chapter 19*

## Japan

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## Summary

In June 2000, a new fisheries agreement between Japan and the People's Republic of China entered into force. The conservation and control system for this fisheries agreement was developed in accordance with the principles of the "United Nations Convention on the Law of the Sea" (UNCLOS).

Given changes in the situation surrounding fisheries, and also the intent and purpose of UNCLOS, the Government of Japan enacted the "Basic Law on Fisheries Policy" in June 2001 as a new guideline for fishery policy replacing the "Coastal Fishery and Others Promotion Law" of 1963, whose primary aim was to improve fishery productivity.

Many fish products sourced from flag of convenience vessels are imported into Japan. This situation encourages disorderly fishing operations. In order to prevent this, on the basis of the "Law Concerning Special Measures to Strengthen Conservation and Management of Tuna Resources", the Japanese Government requires traders importing tuna to submit a report indicating the fishing vessel name, etc. Furthermore, in response to recommendations from international organisations, the Japanese Government strengthened measures against flag of convenience vessels by requesting tuna traders to voluntarily terminate imports of fish products from flag of convenience vessels.

## 1. Law and the system

Given recent changes in the situation surrounding fisheries, such as declining fish catches and worsening marine pollution, and also the principles of the UNCLOS, the Government of Japan enacted the "Basic Law on Fisheries Policy" in June 2001. This law is a new guideline for fishery policy replacing the "Coastal Fishery and Others Promotion Law" of 1963, whose primary aim was to improve fishery productivity. The Basic Law on Fisheries Policy has two basic concepts: 1) securing a stable supply of fishery products; and 2) the sound development of the fisheries industry to promote the appropriate conservation and management of marine living resources. It also clearly establishes the basic direction for measures to be implemented under these concepts.

Japan manages its fisheries through fishing effort regulation such as limitations on the number of licenses issued and restrictions on fishing methods, as well as total allowable catch (TAC) systems. The principal laws are "The Fisheries Law", the "Living Aquatic Resources Protection Law" and the "Law Concerning Conservation and Management of Marine Living Resources". These principal laws were also amended in keeping with the concept of the "Basic Law on Fisheries Policy".

The central and prefectural governments regulate fishing efforts in terms of fishing method. The TAC system assigns TAC allocations to each fishery separately, not to individual fisherman. While seven fish species are subject to the TAC system covering about 30% of total fishing in Japan in 2000, TAE (Total Allowable Effort) was established as a system to manage total allowable effort with the amendment of the "Law Concerning Conservation and Management of Marine Living Resources".

Operations by foreign fishing vessels in the Japanese EEZ are prohibited unless permitted under a bilateral fisheries agreement.

## 2. Marine fisheries

Fisheries production (including marine fisheries, inland-water fisheries, and aquaculture) has decreased in quantity since 1989. Production amounted to 6 626 000 tonnes in 1999, and decreased to 6 384 000 tonnes in 2000 (a fall of 4%).

The value of fisheries production in 1999 increased to JPY 1 987 billion, which was 2% higher than the previous year, but decreased by 6% to JPY 1 875 billion in 2000.

### **Employment situation**

Due to the severe situation surrounding the Japanese fishing industry recently, the number of fishermen has declined. Furthermore, the aging fisherman's society has become more problematic. The number of fisherman (including aquaculture) in 1998 was 277 000, which is 15% lower than the level of five years ago (the Census for fisheries is carried out every five years). The proportion of 60+ years of age in Japanese fisherman had risen to 42%, which is eight percentage points higher than that of the previous survey. Moreover, the number of people engaged in fisheries processing decreased to 205 000, a decline of 7% compared to five years ago.

### **Fishing fleet**

In 1998, the number of powered marine fishing vessels was 236 000, a decline of 12% compared to five years ago. Ninety-five per cent of total fishing vessels (225 000) were counted as small fishing vessels (less than 10 tonnes).

## 3. Resource condition

The resource condition of main fish stocks has been monitored for the past 20 years. The resource conditions of common squid, anchovy, chum salmon etc. are good, but the resource levels of many fish stocks such as sardine, mackerel and many bottom fish are poor. Furthermore, many stocks have been stable or decreasing.

## 4. The resources recovery plan

It is necessary to rebuild important marine living resource levels by reducing excessive fishing effort or environmental changes of fishing grounds.

Japan established a framework for Resource Recovery Plans to implement the necessary measures for rebuilding resources in a comprehensive and planned manner, such as the reduction of Total Allowable Effort (decrease in the number of boats, suspension of operations, improvement of fishing gear, etc.), active resource enhancement (release fry, etc.) and preservation and rehabilitation of the environment of fishing grounds (sea grass beds, tidal flats, etc.).

## 5. Access agreements

The agreements permitting Japan's fishing vessels access to fishing in foreign waters as of 2001 are as follows: Russia (since 1994), Canada (since 1978), China (since 1975, with a new agreement signed in 2000), Republic of Korea (1965, new agreement signed in 1999), Kiribati (since 1978), Solomon Islands (since 1978), Marshall Islands (since 1981), Micronesia

(since 1992), Palau (since 1992), Tuvalu (since 1986), Nauru (since 1994), France (since 1979), South Africa (since 1977), Australia (since 1979), Morocco (since 1985), Senegal (since 1991), Gabon (since 2000), Seychelles (since 1988), Sierra Leone (since 1990), Gambia (since 1992), Mauritania (since 1995), Guinea Bissau (since 1993), Cape Verde (since 1996), Madagascar (since 1997), Mozambique (since 1997), Mauritius (since 2000), Fiji (since 1998). Some arrangements are concluded as Government to Government arrangements; others are concluded between the Japanese private sector and foreign Governments.

Among these agreements, those with Russia, China and Korea are mutual fishing access agreements.

A new agreement with China entered into force in June 2000 following a new agreement with Korea. The scheme for the conservation and management of marine living resources has been established in accordance with UNCLOS. As a result, Japanese and Chinese fishers, who are given permission and a quota, conduct fisheries operations in each country's water within restrictions.

With the exception of the agreements with Russia, Canada, China and Korea, those arrangements listed above, are for tuna fishery vessels, which enable to access to foreign waters. The conditions of the agreements such as quota and fishing fees borne by fishermen vary, depending on respective agreements.

## 6. Control of recreational fishing

Based on the provisions of "The Fisheries Law" and the "Living Aquatic Resources Protection Law", the prefectural governors may issue regulations for the control of recreational fishing. These provisions regulate fishing gears and methods for recreational fishing. Many prefectural governors may also establish Catch Prohibition Areas and regulate fish size.

In general, the total catch by recreational fishing is marginal. However, for certain fish stocks, there are some cases where the catch by recreational fishing is more than that of commercial fisheries.

The number of persons who engage in marine recreational fishing has reached 39 million man-years (1998). As recreational fishing and the fishing industry use the same waters, there are many conflicts between the two groups in different areas concerning the use of fishing ground/water resources and the place of moorage for vessels, etc.

Each prefecture takes measures in order to resolve these conflicts. For example, some prefectures have held meetings for discussing marine utilisation in order to promote rule making for a marine area on a local basis.

### **Monitoring and enforcement**

Since 1998, one species has been added to the TAC system, which now regulates seven species. As the new fisheries agreements between Japan and Korea, and between Japan and China, entered into force, Japan has implemented marine living resource management measures in its EEZ in accordance with the UNCLOS. Japan also implements enforcement measures such as seizure of illegal fishing gears against foreign fishing vessels licensed by Japan to operate in its EEZ.

### International conservation agreements

Japan is a member of several international frameworks for the conservation and management of tuna stocks such as ICCAT, IATTC, CCSBT and IOTC.

Japan actively participated in the negotiations for establishing the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. Because the Convention, as it stands, has many problems, Japan has been making efforts to solve these problems by means including amendments to the Convention text, in order to establish an appropriate framework for the management and conservation of tuna and tuna-like species. Furthermore, regarding the north Pacific, Japan has participated in the “Interim Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean” and has carried out resource evaluation and other measures for tuna and tuna-like species in this area.

## 7. Aquaculture

### Policy changes

The aquaculture sector suffers from the environmental deterioration of the aquaculture grounds due to excessive stocking intensity and over-feeding for increased production as well as environmental pollution due to public pollution. There is a movement to diversify aquaculture species, leading to more import of seed of yellowtail and similar species, *e.g.* “kanpachi”. As a result, the possibility that the diseases are brought from foreign countries is increasing.

In order to resolve these problems, “The Law to Ensure Sustainable Aquaculture Production” was established in May 1999. The law provides a framework for secure and sustainable aquaculture. The law includes systems for promoting voluntary plans to maintain and improve the environment of aquaculture grounds by fishery cooperatives and measures for the prevention of specific fish diseases.

### Production

The number of enterprises of inland-water aquaculture also decreased by 6 000, a 21% decrease compared with five years ago.

Table III.19.1. **Number of enterprises of Inland water aquaculture**

Type of enterprise	Current number of enterprises
<i>Nori</i> production (a kind of seaweed)	8 000
Yeso Scallop production	4 000
Oyster	3 000
Wakame (a kind of seaweed) production	3 000
Pearls	2 000

Source: OECD.

Aquaculture has several advantages compared to wild capture fisheries as it is easier to plan production and secure a stable supply. With these advantages, the value and quantity of aquaculture production (mainly marine aquaculture) has increased steadily, due to increasing consumer demand for high valued fish species. However, production has been levelling off recently owing to the limited availability of suitable production sites and over-supply.

In 2000, the value of aquaculture amounted to JPY 578 billion (the amount of marine aquaculture amounted to JPY 527 billion and inland-water aquaculture amounted to JPY 51 billion), down 3% from the previous year. Aquaculture contributed to 31% of total fisheries production in Japan in the same year.

In 2000, the quantity of aquaculture production decreased to 1 292 000 tonnes (the quantity of marine aquaculture totalled 1 231 000 tonnes and inland-water totalled 61 000 tonnes), down 2% from the previous year (equal to 20% of the total quantity of fisheries production in Japan in the same year).

## **8. Fisheries and the environment**

### ***Water ecosystem***

Seaweed lands and tidal lands function to improve water quality, aid the decomposition of organic matter, and provide nursery and spawning areas. Beaches and reefs also fulfill these functions.

In the past the natural condition of the seashore (seaweed land, tidal land, and sandy beaches) deteriorated sharply through reclamation for the development of industrial spaces etc. The degree of the deterioration has continued, albeit at a slower rate. To resolve this problem, the “Environmental Assessment Law” was enacted in 1999 in order to ensure proper consideration of the environment in the decision-making process for development. The Government has made efforts to secure “blue and rich sea” through dredging of sludge and development of seaweed lands and tidal lands in the coastal areas which are negatively affected by polluted water drained from household and industries.

It is seriously taken into account that the chemical debris in the marine environment may affect not only human bodies but also the marine ecosystem. Especially, organic tin is reported to affect the genital organs of conch. Additional harmful effects are also considered. In this circumstance, further research (kind of substances, actual effects on the ecosystem, the mechanism of disturbance) is needed for its investigation. In 1999, the government of Japan started intensive surveys on the influence of chemical substances on aquatic animals.

### ***Effect of the environment on fish***

In aquaculture, 177 fishery cooperatives in 16 prefectures made plans to improve the marine environment of aquaculture grounds based on “The Law to Ensure Sustainable Aquaculture Production” enacted in 1999. Each prefectural government has also taken independent initiatives.

## **9. Government financial transfers**

The government of Japan expended JPY 314 billion and JPY 313 billion in the fiscal year 2000 and 2001 respectively. The details are given in Table III.19.2.

## **10. Philosophy of expenditure**

### ***Support for market prices***

There are no market price support payments for fisheries products. The average tariff on fishery products is 4.1%.

Table III.19.2. **Government financial transfers of marine capture fisheries in 2000 and 2001**

Million JPY

	2000	2001
<b>Marine capture fisheries</b>	308 806	307 612
Direct payments	2 050	2 050
Payment for fleet reduction		
Cost reducing transfers support for introduction of vessels and gear	4 043	3 909
General services	302 713	301 653
Resource management costs, including:		
Support for strengthening community-based fisheries management		
Surveillance and enforcement		
Support for the improvement of national and prefecture Fish		
Farming centres/release of seedlings		
Support for fisheries facilities and infrastructure, enhancement of fishery communities environment, including:		
Support for construction of fishing ports		
Support for establishing artificial reefs		
Research and development of fishery technologies		
Research on deep-sea marine living resources		
Promotion of international fisheries co-operations		
Cost recovery charges	0	0
<b>Aquaculture</b>	710	551
Direct payments	0	0
Cost reducing transfers	0	0
General services	710	551
Advancement		
Prevention of epidemics		
Cost recovery charges	0	0
<b>Marketing and processing</b>	4 638	4 537
Direct payments	0	0
Cost reducing transfers	53	45
Support for management of processing enterprises		
General Services	4 585	4 492
Research and development of fishery technologies		
Advancement of distribution, processing and consumption		
Cost recovery charges	0	0
<b>Grand total</b>	<b>314 154</b>	<b>312 700</b>

Source: OECD.

### **Direct payments**

There are no direct payments to fishermen, aquaculture enterprises and processors except for support for vessel reduction. This transfer contributes to the structural adjustment of the Japanese fishing industry.

### **Cost reducing**

Low interest loans (to introduce new fishing vessels, etc.) are available. In addition, loan guarantees and insurance schemes are available so that fishers are able to receive necessary funding smoothly.



### **General services**

Financial transfers contribute to resource management in the EEZ and to securing the safe operation of fishing vessels. They also contribute to the revitalization of local fishing communities and recruitment of new fishers as the number of fishers is decreasing and the ageing problem is increasing.

Financial transfers are available for:

1. Support for self-management by fishers.
2. Management and enforcement.
3. Hatchery operation and fry release.
4. Improvement of the environment of fisheries communities, and fisheries infrastructure including the repair of fishing ports and the construction of artificial reefs.
5. Research and development of fisheries technology.
6. International co-operation.

## **11. Social support**

The unemployment insurance and pension system for the fishing industry is basically the same as in other industries. However, fishers who lose their jobs due to restructuring receive a special allowance in addition to the standard unemployment allowance in order to promote transfers to new jobs.

## **12. Structural adjustment**

Restructuring of the fishing industry is carried out through vessel reductions and downsizing of fishing vessels in order to adjust fishing effort in proportion to the status of stocks and to secure proper financial conditions for fishers.

In accordance with the “International plan of action for the management of fishing capacity” adopted by the Fisheries Committee of the FAO in February 1999, Japan scrapped 132 tuna longline fishing vessels corresponding to about 20% of the vessels in this fleet segment (the financial transfer was expended in fiscal year 1998).

## **13. Post-harvesting policies and practices**

Inspectors of food hygiene appointed by local governments have conducted surveillance of the bacteria number, anti-bacteria substance and environmental pollutants in food and the proper utilisation of food additives. They have conducted this surveillance by sampling at wholesale market, cold storage facilities, retail stores, etc., on the basis of the “Food Hygiene Law”. All marine products (domestic products or imported products) are subject to surveillance.

Recently, large fish processors have started to introduce the HACCP system for quality and sanitation control purposes. It is necessary for these enterprises to station quality and sanitation control experts and to maintain the system in a proper condition. The enterprises in some cases have to invest in these facilities. These requirements make it difficult for small and medium sized processors to introduce HACCP. To resolve these problems, the Government introduced loans for the introduction of the HACCP system and developed manuals of quality management of fish products under HACCP.

Interests and concerns of consumers on freshness and safety of food are increasing. They also request necessary information required for their own decisions on purchase. It is now necessary to provide consumers with accurate and comprehensible information such as labelling for quality, in addition to the supply of fresh and safe seafood.

In response to this, the “Law Regarding the Adjustment of the Standardisation and Quality Display for Agriculture and Forestry Goods” was revised in 1999. Accordingly, all unprocessed seafood and several processed seafood are now required to display necessary information such as the origin of the produce.

## 14. Processing

The principal marketing channel for fisheries products is as follows: after landing, prices are set and products are sorted out at the wholesale market in producing areas according to utilization purposes and destinations, and the fish is supplied to consumers through the wholesale market in consuming areas. The number of wholesale markets handling fishery products, authorised by the governors of prefectures based on the “Wholesale Market Law”, was 737 in 2000.

In recent years, imports and direct purchases by retailers (*e.g.* supermarket and restaurant chains) from the wholesale markets in producing areas have increased. Consequently, the proportion of fishery products not going through wholesale markets in consuming areas or any market is increasing.

The Government of Japan supports the improvement of market facilities. A plan to unify local wholesale markets, which account for 93% of the total number of wholesale markets, has been established for a smoother and more effective distribution of fisheries products.

The number of fisheries processors has decreased recently to a total of 14 102 in 2000. Small-scale operators, which employ less than 20 people, account for 74% of the total number of processors.

## 15. Markets and trade

### **Domestic consumption**

In Japan, the demand for fisheries food products increased with rising income (due to the buoyancy of the economy). The total demand has fluctuated between 8 000 000 tonnes to 9 000 000 tonnes in recent years. In 2000, the demand decreased to 8 142 000 tonnes (preliminary), a reduction of 2.8% from the previous year. This continues the decline from the previous three years.

The demand for non-food fisheries products peaked in 1989 at 4 436 000 tonnes. It has been decreasing since then due to the decreased production of sardine and the shift of aquaculture feed to compound feeds. The demand was 2 343 000 tonnes in 2000 (preliminary), a reduction of 0.2% from the previous year.

### **Trade**

As the amount of income has been increasing due to economic prosperity, the demand for fishery products has shifted from medium to high price fish that cannot be fully supplied by domestic production. At the same time, domestic production has been decreasing. These factors have boosted the imports of fishery products. About 50% of edible fish supply comes from foreign countries on a raw material basis.

Meanwhile, the quantity of imported products has decreased since 1996 because of stagnating domestic demand and the low production of fishmeal in Peru and Chile. This trend has changed since 1999. In 2000 the quantity of imported fisheries products increased 4% compared with the previous year because of an increase in tuna, prepared eel, prepared shrimp, octopus, etc. The value was the same as the previous year due to a decrease in the import unit value.

In 2000, the quantity of fisheries exports increased by 9% from the previous year due to an increase in prepared adductor muscle, cod and squid although there was a decrease in exports of pearls, tuna and fish paste.

Table III.19.3. **Quantity and value of fishery imports and exports in 1999 and 2000**

	Units	1999	2000
Quantity of imports	'000 tonnes	3 416	3 544
Value of imports	JPY billion	1 739	1 734
Quantity of exports	'000 tonnes	204	222
Value of exports	JPY billion	141	138

Source: OECD.

### **Policy changes**

To promote international co-operation in resource management, Japan has prohibited the import of Atlantic blue fin tuna from Belize and Equatorial Guinea in accordance with ICCAT recommendations. Because a large amount of tuna caught by flag of convenience vessels is still imported despite these measures, and because such imports encourage disorderly fishing operations, the Government imposed a requirement for tuna importers to report the name of the fishing vessel in accordance with the provision of the "Law Concerning Special Measures to Strengthen Conservation and Management of Tuna Resource" since 1999. The Government also requested importers to refrain from importing fish caught by flag of convenience fishing vessels. These are measures that the Government is taking against FOC fishing operations.

There is no new legislation regarding sanitation control standards for fisheries products in relation to trade in 2000 and 2001.

## **16. Outlook**

Japan's fishing industry entered a new 200 mile era with the ratification of UNCLOS in June, 1996. Japanese fisheries are faced with a severe situation with falling fisheries production partly due to declining stocks in the adjacent areas, decreasing numbers and further ageing of fishers and a declining vitality of fishing communities.

Under these circumstances and in order to secure the sustainable development of Japan's fishing industry, Japan is required to establish a new basic fisheries policy corresponding to the new maritime order. It is clear that Japan's fishing industry is at a turning point. In such a situation, Japan will take concrete measures for future policy based on the "Basic Law on Fisheries Policy" enacted in 2001.

Table III.19.4. **Sea surface power fishing vessels in 1999 and 2000**

Tonnage	Number of vessels	
	1999	2000
0-4.9	100 912	98 263
5-9	15 332	15 264
10-19	8 680	8 656
20-29	33	32
30-49	152	136
50-99	615	599
100-199	727	685
200-	864	827
<b>Total</b>	<b>127 315</b>	<b>124 462</b>

Source: Ministry of Agriculture, Forestry and Fisheries, "Fisheries Dynamic Statistics".

Table III.19.5. **Number of employees in 1993 and 1998**

Age	Number of vessels	
	1993	1998
<b>Male total</b>	<b>267 863</b>	<b>230 599</b>
15-24	10 050	6 966
25-39	44 475	32 040
40-59	122 569	94 207
60-	90 769	97 386
<b>Women</b>	<b>57 023</b>	<b>46 443</b>
<b>Total</b>	<b>324 886</b>	<b>277 042</b>

Source: Ministry of Agriculture, Forestry and Fisheries "Fishing Census".

PART III  
*Chapter 20*

**Korea**

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## Summary

Fishery production in 2001 was 2 665 123 metric tonnes (MTs) valued at KRW 4 511 billion, an increase of 150 898 MTs (6%) from 2 514 225 MTs in 2000 due to increased catches in mackerel and anchovy in the coastal and offshore waters and Alaska pollock in distant waters (see Table III.20.1).

Table III.20.1. **Fishery production for 2000-2001**

			2000		2001	
			MTs	KRW million	MTs	KRW million
<b>Capture fisheries</b>	<i>Marine</i>	Coastal and offshore	1 189 000	2 329 483	1 252 089	2 468 309
		Distant waters	651 267	1 321 681	739 057	1 223 078
		Sub-total	1 840 267	3 651 164	1 991 155	3 691 387
	<i>Inland</i>		7 142	33 765	5 971	29 469
	Sub-total		1 847 409	3 684 929	1 997 126	3 720 856
<b>Aquaculture</b>	<i>Marine</i>		653 373	683 856	655 827	717 163
	<i>Inland</i>		13 443	89 676	12 170	73 831
	Sub-total		666 816	773 532	667 997	790 994
<b>Total</b>			<b>2 514 225</b>	<b>4 458 461</b>	<b>2 665 123</b>	<b>4 511 850</b>

Source: OECD.

In 2001, for the first time Korea recorded a trade deficit of USD 374 million in fishery products, as a result of declining exports to Japan following its economic depression and increasing imports from China. The total 2001 export value of fishery products was USD 1 273 million (435 691 MTs), a decrease of USD 231 million (15%) from USD 1 504 million (533 824 MTs) in 2000. 2001 imports of fishery products rose 17% in value to USD 1 648 million (1 056 252 MTs) from USD 1 410 million (749 191 MTs) in 2000.

To address chronic overexploitation of marine fishery resources by over-capacity in coastal and offshore waters, the fleet reduction program known as the “General Buy-back Program” has been strengthened since 1994. In 2001, 113 fishing vessels were scrapped under the program. Moreover, “Buy-back Program by the International Agreements”, another buy back scheme, has been ongoing since the “Special Act for Supporting Fishermen Affected by the International Fishery Agreements” entered into force on 7 December 1999 which aimed at compensating fishermen for losses resulting from the international fishery agreements, including agreements with Japan and China. In accordance with this Act, the Korean government scrapped 551 vessels in 2001. Government financial transfers totalled KRW 550 billion in 2001, an increase of KRW 192.7 billion (54%) from KRW 367.3 billion in 2000, mainly due to the buy-back programs.

In addition, working towards implementing the best optimal management system for sustainable fisheries, the Total Allowable Catch (TAC) system, an alternative to the current

fishing license system, has been implemented for seven species in 2001 after the experimental period of 1999-2000.

## 1. Legal and institutional framework

Korean fisheries management is based on the Fishery Act together with many related acts and regulations. According to the Act, the Ministry of Maritime Affairs and Fisheries (MOMAF) is largely responsible for fishing vessels in offshore and distant waters and foreign-flagged vessels fishing within the Korean EEZ, while local governments at province, city and district levels are mainly responsible for fishing licenses of vessels in the coastal area. Fisheries resources have been protected mainly through governing the mesh size of fishing nets, fishing grounds, fishing seasons, etc. In 2001, TACs set for 7 species after the experimental period of 1999-2000.

The Korean government also started a fishermen-oriented co-management system for more effective implementation of responsible fisheries. Under this system, an organisation of fishermen such as a fishery corporation or a group of fishermen in fishing villages set up self-regulation according to the fishery-related laws and regulations with endorsement of local government; thereby a fishery is controlled. The fishermen-oriented co-management system is designed to enhance the sense of responsibility of the fishermen and to prevent illegal fishing.

After the 1992 establishment of diplomatic ties, the Korea-China Fishery Agreement was signed on 3 August 2000 and entered into force on 30 June. As a result, Korea has bilateral fishery management regimes under the UNCLOS and the EEZ system with neighbouring countries, China and Japan, but not North Korea. According to these bilateral agreements, only Chinese and Japanese vessels can gain access to the Korean EEZ on a reciprocal basis.

## 2. Capture fisheries

### *Performance*

Catches from coastal, offshore, distant waters, and inland were 1 847 409 MTs (KRW 3 790 904 million) in 2000 and 1 997 126 MTs (KRW 3 720 856 million) in 2001. The main factor for the increase of capture production was the increase in mackerels, anchovy, and Alaska pollock production. In particular, the Alaska pollock production in the North Pacific Russian waters in 2001 reached approximately 199 123 MTs, an increase of 113 057 MTs from 2000 (86 066 MTs).

In coastal and offshore fisheries, the production in 2001 accounted for 1 252 098 MTs, an increase of 5.3% from 2000 (1 189 000 MTs). The major species in coastal and offshore fisheries were hairtail, mackerel, anchovy, squid, horse mackerel and blue crab. In particular, the production of mackerel and anchovy respectively increased by 40% (57 809 MTs) from 145 908 MTs in 2000 to 203 717 MTs in 2001 and by 36% (72 735 MTs) from 201 192 MTs in 2000 to 273 927 MTs in 2001.

In distant water fisheries, production in 2001 accounted for 739 057 MTs, an increase of 87 790 MTs from 651 267 MTs in 2000. The increase in production resulted from a drastic increase in Alaskan pollock catch of 113 057 MTs. The major species in the distant waters were saury, tuna, Alaska pollock, croaker and squid.

The population in fisheries has continuously dropped since 1982. The number of fisheries households also dropped 4.7% from 81 751 in 2000 to 77 717 in 2001. The number of fisheries households in 2001 can be broken down to 42.9% with fishing vessels, 23.6%

without fishing vessels, and 32.6% in aquaculture. The number of households in 2001 in capture fisheries was reduced by 7.7% (534 households) than that in 2000, but that of aquaculture increased by 2% (10 534 households) due to the government policy to enhance aquaculture (see Tables III.20.2 and III.20.3).

Table III.20.2. **Fishery households for 2000-2001**

	Total	Full time	Part time				
			Total	Aquaculture	Wholesale or retail	Manufacture	Others
<b>2001</b>	77 717	19 926	57 792	41 813	3 316	2 792	9 871
Component ratio (%)	100%	25.6	74.4 (100%)	(72.4)	(5.7)	(4.8)	(17.8)
<b>2000</b>	81 571	29 699	51 872	–	–	–	–
Change (2001-2000) 100%	–4.7	–49.1	10.3	–	–	–	–

Source: OECD.

Table III.20.3. **Households by fishery types**

	Total	Capture fisheries without vessels	Capture fisheries with vessels	Aquaculture
<b>2001</b>	77 717	18 290	34 083	25 344
Component ratio (%)	100	23.6	43.9	32.6
<b>2000</b>	81 571	17 793	38 968	24 810
Change (2001-2000) 100%	–5.0	2.7	–14.3	29.8

Source: OECD.

The number of fishing vessels decreased by 955, from 95 890 vessels (923 099 G/T) in 2000 to 94 935 vessels (884 853 G/T) in 2001. The decrease in number and gross tonnage was the result of the government's fleet reduction program. The composition of the fishing vessels in number and gross tonnage in 2000-2001 is shown in Table III.20.4.

Table III.20.4. **Fishing vessels by size for 2000-2001**

Internal size (tonnes)	2000			2001		
	Numbers	Gross tonnes	Horse power	Numbers	Gross tonnes	Horse power
Powered	89 294	917 963	13 597 179	89 347	880 467	14 765 745
0-24.9	85 046	212 287	10 532 766	85 336	214 912	11 353 877
25-49.9	1 491	51 589	595 716	1 424	49 204	1 042 800
50-99.9	1 584	120 489	818 129	1 463	110 345	777 338
100-149.9	362	46 006	369 398	342	43 499	354 606
150-249.9	218	41 516	210 272	212	40 669	215 990
250-999.9	446	173 696	615 622	431	168 937	594 321
500-999.9	62	45 844	137 950	61	45 892	139 348
1000-1999.9	45	62 148	146 226	43	59 369	141 126
2 000+	40	164 388	171 100	35	147 640	146 339
Non-powered	6 596	5 136	–	5 588	4 386	–
<b>Total</b>	<b>95 890</b>	<b>923 099</b>	<b>1 397 179</b>	<b>94 935</b>	<b>884 853</b>	<b>14 765 745</b>

Source: OECD.



## Status of fish stocks

Fishery resources in the coastal and offshore waters have been overexploited, particularly in commercially important species such as redlip croaker and Alaska pollock. Catches have been stagnant during recent years with no significant changes in spite of government's policy such as the buy-back program to reduce fishing capacity. Table III.20.5 shows CPUE (catch per unit effort) in coastal and offshore fisheries.

Table III.20.5. **CPUE in coastal and offshore fisheries**

	Catches (000 MT) (A)	Vessel tonnage (thousand tonnes) (B)	CPUE (MT) (A/B)
1996	1 624	439	3.70
1997	1 367	439	3.11
1998	1 308	438	2.99
1999	1 335	434	3.07
2000	1 189	398	2.99

Source: OECD.

Table III.20.6 shows catches by major species. Pelagic species such as mackerels, anchovies, squids, etc. have been found to be abundant while demersal species such as Alaska pollock have declined due to increased water temperature.

Table III.20.6. **Catches by major species in the coastal and offshore fisheries**

	'000 MTs				
	1997	1998	1999	2000	2001
Alaska pollock	6.4	6.2	1.4	0.8	0.2
Hair tail	67.2	74.9	64.5	81.1	79.9
Other croakers	34.9	27.5	28.0	26.7	10.9
Mackerels	160.4	172.9	177.6	145.9	203.7
Anchovies	230.9	249.5	241.3	201.2	273.9
Sardines	9.0	7.6	17.0	2.2	0.1
Flounders	18.1	20.1	19.6	15.4	14.5
File fish	16.3	10.0	2.6	2.9	1.6
Squids	225.0	163.0	238.7	226.3	225.6
Cuttle fish	2.1	3.0	5.8	1.3	1.4
Redlip croaker	21.8	15.0	13.5	19.6	7.9
Jack mackerel	22.8	22.1	13.6	19.5	17.5
Saury	18.6	4.6	11.4	19.9	5.3

Source: OECD.

## Management of commercial fisheries

### Management instrument

Major management instruments in coastal and offshore areas include: maximum number to be licensed, minimum mesh size of nets, engine power by fisheries, fishing grounds, fishing seasons and size of fish. Maximum permissible number is set for fisheries with intensive fishing capacity in order to protect fishery resources (see Table III.20.7).

Table III.20.7. **Maximum number of licenses**

Fishery types	Number of licenses	Major target species
Danish Seine	80	Hair tail, flounder, file fish
Pair Trawl	180	"
Middle-sized Eastern Sea Danish Seine	42	Alaska pollock, cod, shrimp
Middle-sized Western Southern Danish Seine	65	File fish, flounder, hair tail, blue crab
Off-shore Eastern Sea Trawl	43	Alaska pollock, herring
Large Otta Trawl	60	Shrimp, mackerels, hair tail
Anchovy Drag Nets	150	Anchovy
Diving	249	Oyster, hen cockle, pen shell
Offshore Stow Net	850	Hair tail, croaker, pomfret
Offshore Drift Gill Nets	2 200	Croaker, anchovy, saury
Offshore Dredges	540	Hen cockle
Offshore Powered Purse Seine	35	Hair tail, sardine, mackerels
Offshore Eel Trap	300	Sea eel
Coastal Trap (newly set in 1999)	10 581	Sea eel, blue crab
<b>Total</b>	<b>15 375</b>	

Source: OECD.

In 2001, MOMAF allocated TACs to 7 species after the 1999-2000 experimental period of four species (mackerel, sardine, jack mackerel, red large crab) (see Table III.20.8). To operate the TAC system, observers are employed and they check the amount of catches at landing places and collect biological data of the catches. The Korean government will expand the number of species to be applied for the TAC system gradually in order to manage fisheries on a basis of sound scientific data and thus sustain fisheries.

Table III.20.8. **TACs and catches in 2001**

Fishing type	Species	TAC (MTs)	Catch (MTs)	%
Large Purse Seine	Mackerel	165 000	156 081	94.6
	Sardine	19 000	125	0.66
"	Jack mackerel	10 600	6 504	61.4
Offshore trap	Red large crab	28 000	19 319	69.0
Diving	Hen cokle	9 500	6 051	63.7
Diving	Pen shell	4 500	1 479	32.9
Diving	Cheju Top shell	2 150	1 938	90.2
<b>Total</b>		<b>238 750</b>	<b>191 497</b>	

Source: OECD.

Also, Korea is initiating the international observer training program to dispatch observers in the distant waters managed by the regional fisheries bodies.

### Access

Table III.20.9 lists bilateral fishery agreements with Korea and status of access to foreign waters. Access to Korean waters by foreign-flagged vessels was allowed only for Japan and China on a reciprocal basis, according to the bilateral fishery agreements.

Table III.20.9. **Korea's bilateral fishery agreements and access to foreign waters**

	Date of effectuation of agreement	2001			
		Quota (MT)	Catch (MT)	Fishing fee (USD)	Species covered
Japan	22 January 1999	109 773	23 839	–	Mackerels, Squid, etc.
China	30 June 2001	90 000 <sup>1</sup>	99	–	Hair tail, croakers, etc.
Iran	1 April 1978	–	–	–	–
Tuvalu	18 June 1980	–	2 950	650 000	Tuna
Cook Islands	25 August 1980	–	–	–	–
France	19 December 1980	–	–	–	–
Solomon Islands	12 December 1980	–	7 238	394 285	Tuna
Kiribati	18 December 1980	–	75 016	5 943 251	Tuna
Australia	24 November 1983	–	–	–	–
Mauritania	8 January 1984	–	–	–	–
Ecuador	19 September 1984	–	–	–	–
Russia	22 October 1991	236 150	228 150	29 142 275	Alaskan pollock, Saury, Cod, Squid
Papua New Guinea	15 April 1992	–	18 320	2 308 500	Tuna
Peru	None	–	11 517	1 393 836	Squid
Argentina	None	–	6 035	800 000	"
UK (Falklands)	None	–	132 449	11 179 314	Squid, Ray
FSM	None	–	29 695	2 376 000	Tuna
Nauru	None	–	12 575	675 000	Tuna
<b>Total</b>		<b>435 923</b>	<b>574 732</b>	<b>54 862 461</b>	

1. This quota is allocated for the period from July 2001 to December 2002.

Source: OECD.

### **Management of recreational fisheries**

Recreational fishing in Korea is regulated by the Recreational Fishing Boats Operation Act (RFBOA) and the Fisheries Act. The Fisheries Act is applied to recreational fishers in terms of seasonal and area closure, minimum size limit, etc. The Recreational Fishing Boats Operation Act is applied to operators of recreational fishing boats. Local governments are responsible for operators and any person who intends to operate recreational fishing boats should report to the local government concerned. As of December 2001, 4 240 boats have been reported to local governments.

RFBOA focuses on recreational fishers' safety and prevention of discarding of wastes by anglers. Accordingly, recreational boats must be inspected for safety every 5 years and waste-treating equipment on boats is required.

### **Monitoring and enforcement**

Monitoring and enforcement are conducted by the MOMAF, Maritime Police and local governments, which mobilised 84 patrol vessels, 220 guard-ships, 10 helicopters, and 3 950 staffs in 2001. They found that 1 532 national vessels and 95 foreign-flagged vessels violated Korean laws and regulations in 2001 with the Korean EEZ.

In order to abide by the conservation and management measures adopted by the regional fisheries organisation, the government has been operating an "Ordinance on Complying with the Conservation and Management Measures of International Fisheries Organisations".

In spite of the government's efforts to eliminate illegal fishing activities, this issue still remains as one of the top agenda in fisheries policy. Thus, the Korean government is

preparing a stronger national action plan to eliminate illegal fishing activities, taking advantage of the adoption of the “International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing” by the 24th FAO/COFI on March 2001.

### **Multilateral agreements and arrangements**

Korea became a member of CCSBT (Convention for the Conservation of Southern Bluefin Tuna) as of 17 October 2001. Also, Korea is planning to be a party of the following conventions or agreement in 2002: Convention on the Conservation and Management of Fishery Resources in the South East Atlantic Ocean; Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean; and Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas.

Korea hosted the first APEC Ocean-related Ministerial Meeting from 22 to 26 April 2002 in Seoul and the meeting adopted the “Seoul Ocean Declaration” which signifies a major milestone in cooperation among APEC member economies to work towards sustainable management of marine and coastal resources.

## **3. Aquaculture**

### **Policy changes**

The Korean government enacted two significant acts to mitigate the pressure of overexploitation in capture fisheries and to respond to the increasing market demand for fish and fishery products. As of 29 January 2000, the Aquaculture Ground Management Act was enacted to build a sustainable fishery and to improve the productivity of farming grounds. The Act introduces a system of sabbatical years for mariculture grounds for efficiency, inspection and standardisation of environment of fishing grounds, etc.

Also, the Culture-based Fishery Promotion Act was enacted as of 14 January 2002. According to this act, the government shall establish a framework to promote culture-based fisheries every 5 years. In particular, this act introduces a fish doctor system in order to be consulted by an expert on fish disease. Any person wanting to be a fish doctor should pass a qualification test and be licensed by the government.

### **Production facilities, values and volumes**

The area of mariculture in 2001 was 122 218 ha, an increase of 238 ha (0.2%) from 121 980 ha in 2000. Production in 2001 was 655 827 M/T (KRW 717 163 million), about a 0.3% increase from 653 373 M/T (KRW 683 856 million) in 2000 and the number of households in 2001 was 25 344, a 2% increase from 24 810 in 2000, due to the government's aquaculture promotion policy. The major species in mariculture are bastard, jaco pever, oyster, short neck clam, sea mussel, laver, and sea mustard.

## **4. Fisheries and the environment**

To inspect the environmental impacts on farming grounds and to estimate the environmental capacity for sustainable fisheries, an assessment including water quality, sediments, distribution of benthos, the status of the use of fishing grounds, etc. has been in continuation since 1999.

The Korean government has been operating the Fishery Resources Protected Area (FRPA) to protect fish habitats and spawning grounds. Currently 10 FRPAs are designated across the coastal and inland areas. In those areas and neighbouring areas, any

reclamation of coastal waters is restricted, the purifying facilities to mitigate marine pollution are expanded, and any discard of pollutants is prohibited. Also, the Wetland Conservation Act enforced as of 9 August 1999 makes it possible for the government to designate a wetland sanctuary which restricts human activities such as fishing, building, dredging, etc.

## 5. Government financial transfers

Total transfers in 2001 were KRW 550 billion, an increase of KRW 192.7 billion from KRW 357.3 billion in 2000. About seven times expansion of the payments for fishing fleet reduction contributed to the increase. Most of the transfers in 2001 were used for fishing fleet reduction (KRW 260.2 billion, 47.3%), infrastructure and environment enhancement (KRW 177.2 billion, 32%), and resource enhancement (KRW 31.0 billion, 5.6%) (see Table III.20.10).

Table III.20.10. **Government financial transfers associated with fishery policies**

KRW billion

	1999	2000	2001
<b>Direct payments</b>	241.3	38.0	260.2
Payments for fishing fleet reduction	236.9	33.3	254.5
Support for crew insurance	4.4	4.7	5.7
<b>Cost reducing transfers</b>	67.9	76.8	72.8
Renewal and modernisation of vessels	3.0	8.7	2.4
Aquaculture development	5.7	4.8	18.2
Other cost reducing transfers	59.2	63.3	52.2
<b>General services</b>	233.9	242.5	217.0
Resource enhancement	56.0	54.9	31.0
Fisheries infrastructure and environment enhancement	172.5	182.0	177.2
Research and education	5.4	5.6	8.8
<b>Total</b>	<b>543.1</b>	<b>357.3</b>	<b>550.0</b>

Source: OECD.

## 6. Post-harvesting policies and practices

### *Policy changes*

#### *Food safety and labelling*

To secure food safety and harmonise with international standards of food quality, Fishery Products Quality Control Act, which integrated the acts on control of fishery products quality, was newly enacted as of 29 January 2001 and effectuated as of 1 September 2001. The act introduced HACCP (Hazard Analysis Critical Control Point) system. According to this act, as of 14 March 2002, the Korean government established a Ministerial decree which set the HACCPs for fishery products and commodities intended for export and will expand the coverage of this system to other producing and processing facilities.

#### *Structure*

As of June 1, 2000, the Act on Distribution and Price Stabilisation of Agricultural and Fishery Products which sets the basic framework on fishery products distribution newly introduced a "market brokerage system". Under the system, a judicial person qualified

with certain capital and scale of business can directly collect and sell fishery products so that it provides producers with more opportunities in selecting buyers and reduces distribution stages of fishery products.

### **Processing and handling facilities**

The total number of fishery processing facilities in 2000 was 749 and among them, there were 651 freezing and refrigerating facilities, 80 processing and handling facilities on ships and 18 the others. The number and capacity of freezing and refrigerating facilities is increasing due to the increasing trends of market demand.

## **7. Markets and trade**

### **Markets**

Tables III.20.11 and III.20.12 show the trends of supply and demand and consumption for fishery products. Total demand and supply of fishery products is increasing but that of 2000. The low consumption of fishery products in 2000 is due to the relative low production of the year.

Table III.20.11. **Trends of supply and demand for fishery products**

		'000 tonnes		
		1999	2000	2001
<b>Supply</b>	<i>Production</i>	2 911	2 514	2 665
	Import	1 332	1 420	1 806
	Carry over from the previous year	319	582	510
<b>Total</b>		<b>4 562</b>	<b>4 516</b>	<b>4 981</b>
<b>Demand</b>	<i>Consumption</i>	2 748	2 668	3 260
	Export	1 232	1 38	1 080
	Carry over to next year	582	510	641

Source: OECD.

Table III.20.12. **Trend of fishery products consumption per capita**

	1996	1997	1998	1999	2000	2001
<b>Total (kg/year)</b>	<b>43.7</b>	<b>43.6</b>	<b>33.0</b>	<b>38.3</b>	<b>35.6</b>	<b>n.a.</b>
Fish and shellfish	34.4	32.0	25.9	30.7	30.6	n.a.
Seaweed	9.3	11.6	7.1	7.6	5.0	n.a.

n.a. Not applicable.

Source: OECD.

### **Trade**

In 2001, Korea recorded a trade deficit of USD 374 million in fishery products for the first time due to declining exports to Japan following economic depression and increasing imports from China.

Total export value of fishery products was USD 1 273 million (435 691 MTs) in 2001, a decrease of USD 231 million (15%) from USD 1 504 million (533 824 MTs) in 2000. The main species were tuna, oyster, sea eel, squid and fish meat. The main countries exported to were Japan (72.6%), USA (6.4%), and China (4.4%).

Imports of fishery products in 2001 rose 17% in value to USD 1 648 million (1 056 252 MTs) from USD 1 410 million (749 191 MTs) in 2000. The leading import items were yellow croaker, fish egg, shrimp, hairtail and Alaska pollock and the leading countries imported from were China (38.5%), USA (9.6%), Russia (9.3%).

## 8. Outlook

The primary objective of the fishery policies is to improve both fishermen's and consumers' welfare through recovering fishery resources in the coastal and offshore waters. For fishermen, the government focuses on the following: *a)* promotion of fishing fleet buy-back program; *b)* promotion of culture based fisheries and fishery resources fostering efforts; *c)* expansion of applicable species for TAC system; *d)* prevention of marine pollution; and *e)* strengthening law enforcement activities to eliminate illegal fishing activities.

To protect consumers, the Korean government will put emphasis on the quality of fisheries products, reinforce rules and regulations relating to sea food sanitation such as the expansion of application of HACCP system, and devise a better system to eliminate redundant phases in fishery markets.

Korea will continue making efforts to observe international regulations and to share in international efforts for the optimum management and sustainable use of marine resources.

PART III

*Chapter 21*

**Mexico**

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## Introduction

Stemming from the changes made by the new Administration, the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA) assumed the function of promoting fisheries and aquaculture activities, and for this purpose on June 5, 2001 the Decree (Official Gazette of the Federation, 5-06-01) was published whereby the National Aquaculture and Fisheries Commission was created as a decentralised administrative body of the above-mentioned Ministry, with its headquarters in the City of Mazatlán, Sinaloa (Official Gazette of the Federation, 17-07-01).

The creation of the Commission makes it possible for regulation in the area of fisheries and aquaculture to be clearer and it favours new forms of functioning of the respective programs, which are included in a strategy of sustainable and efficient use of resources, in order to raise the productivity and competitiveness of the sector's activities.

The objective that has been established for CONAPESCA to administer, with quality and transparency, the sustainable use of fisheries and aquaculture resources, promote the development of the chain of production, distribution and consumption, in support of the comprehensive development of the sector's productive agents, and contribute to improving Mexicans' nourishment.

In this regard, during 2001 efforts were directed, in the first place, toward the project for the creation of the National Aquaculture and Fisheries Commission (CONAPESCA) and the establishment of its objectives and strategies, in order to assure proper administration of fisheries and aquaculture resources and contribute to the economic and social development of those involved in the activity.

In compliance with the decree for the creation of CONAPESCA, in August the Commission's Technical Council was established, its first ordinary meeting being held on August 30, in which its Operating Rules were approved, as well as the creation of the National Aquaculture and Fisheries Commission and its Operating Rules.

The Technical Council of the Commission will have the following functions:

- to issue opinions and contribute to the formulation and application of fisheries and aquaculture policy measures;
- know and give its opinion on bills and regulations that have an impact on fisheries and aquaculture development;
- approve projects for programs and budgets of the National Aquaculture and Fisheries Commission;
- evaluate general and special reports submitted for its consideration by the Commissioner;
- know and give its opinion on the problems of the fisheries and aquaculture sector;
- suggest concerted actions of co-operation with state and municipal governments, academic institutions, social groups and interested private individuals, and

- approve the creation of the National Aquaculture and Fisheries Commission and other consultative bodies proposed by the Commissioner, as well as authorise its Operating Rules.

Likewise, in August the National Aquaculture and Fisheries Commission was inducted, a collegiate body for consultation with producers in aspects relative to the implementation of policies, plans and programs concerning marketing, technological improvement, signing of agreements and in general, promotion of fisheries and aquaculture activities.

## Summary

Total fisheries production in 2000 was 1 402 938 tonnes, of which 1 214 780 tonnes (86.6%) were of marine origin and 188 158 tonnes (13.4%) came from aquaculture. In 2001, fisheries production registered a total of 1 520 938 tonnes, of which 1 324 215 and 196 723 tonnes were of marine and aquaculture origin, respectively.

During the 2000 and 2001 biennium, the industrial fisheries plant produced an average of 390 484 tonnes of finished products. In general terms, product lines showed an increase for 2001 in comparison with the figure for 2000, registering an increase of 3.79% for frozen products, 5.4% for canned products and 3.03% for the other processes.

The sector's trade balance for the period in question registered a positive result, an average on the order of USD 503 998 000, as a result of having carried out average exports of USD 695 526 000 and imports for USD 191 527 000.

In the area of aquaculture, actions to promote aquaculture of an industrial and high-yield nature were carried out during the period, reinforcing actions of support for rural aquaculture as a result of its social impact. In 2001, total production was 193 387 tonnes, the highest production being mojarra (61 630 tonnes), followed by shrimp (47 465 tonnes).

With regard to the marketing and processing of fisheries products, work is being done on actions tending to restructure traditional forms of marketing to increase domestic consumption of fisheries products and the export capacity of domestic products by improving processing systems and conditions of infrastructure and hygiene.

As regards international fisheries co-operation, during the 2000-2001 biennium, actions were oriented toward promoting and co-ordinating scientific-technological and economic-commercial programs and projects with other countries and groups of countries, as well as toward strengthening Mexico's participation in the main international fisheries forums for the development of a world fisheries order that complies with criteria that are ever closer to sustainability.

In 2001 fisheries administration was transferred from the Ministry of the Environment and Natural Resources (SEMARNAT) to the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA). Likewise, the National Aquaculture and Fisheries Commission (CONAPESCA) was created, with the aim of administering, with quality and transparency, the sustainable development of said fisheries and aquaculture resources; fostering the development of the chain of production, distribution and consumption, in support of the comprehensive development of the sector's productive agents, and contributing to improve Mexicans' nourishment.

## 1. Legal and institutional framework

Fisheries policy responds to a comprehensive vision of the administration of aquatic flora and fauna which is based on the principle of responsible fishing. For this reason, the legal framework for fisheries in Mexico lays the foundations for the administration and promotion of fisheries resources and activities, in order to guarantee their conservation, protection and rational development.

In this regard, the administration of fisheries resources, both marine and of inland waters, corresponds to the federal government. The corresponding law is the Fisheries Law, published in the Official Gazette of the Federation on June 25, 1992, as well as the new Regulations of the Fisheries Law, which were published in the Official Gazette of the Federation on September 29, 1999.

These Regulations establish, among others, the elements of the National Fisheries Charter, which contains indicators on the availability and conservation of fisheries resources, essential information for decision-making on the administration and management of the resources; the regulations also eliminate discretionary acts by the authority in resolving requests for concessions, permits and authorisations provided for in the Fisheries Law, by establishing criteria, requirements and time frames for reply. Furthermore, it determines the conditions that give the authority greater elements for verifying the legal origin of fisheries products, which results in benefit of conservation and sustainable development of the resources of aquatic flora and fauna, and of those who devote themselves to fisheries activities within the framework of the Law.

The regulatory framework for fisheries is strengthened by means of the incorporation of guidelines that make the action of the authority toward the individual more punctual and transparent. The Regulations also establish expeditious procedures and separates, through a new structure, the specific provisions that differentiate extractive fisheries from those of cultivation.

Thus, the Regulations of the Fisheries Law are oriented toward full, sustained development of fisheries and aquaculture activities, within the framework of sustainability, and provide certainty to those who participate throughout the chain of production.

Likewise, among the main elements contained in the Fisheries Law and its Regulations are those stating that the capture of fisheries products, and the development of aquaculture farms in waters of federal jurisdiction, is administered through permits and concessions. Permits are issued with a duration of up to four years and concessions for up to 20 years in the case of the capture of fisheries species and 50 in aquaculture, which may be extended for terms equivalent to those conceded.

Producers are subject to compliance with the provisions contained in Official Mexican Standards for fisheries, which are issued through a Committee made up not only of the fisheries authority, but also of representatives of the productive sectors and other public and private entities that have a direct or indirect bearing on the development of fisheries resources. Fisheries efforts applied to a particular fishing ground are controlled by means of the number of permits issued and by the establishment of temporary or permanent closed seasons, when this is in order.

The Fisheries Law does not provide for the issuance of licenses to foreign vessels. Foreign participation can only take place through joint investment companies,

incorporated under Mexican legislation, in which the share of foreign investment cannot exceed 49% of the company's capital stock. In companies engaged in aquaculture, industrialisation or marketing of fisheries products, foreign investment may be up to 100%.

In the institutional area, and stemming from the amendments and additions that were made to the Organic Law of the Federal Public Administration and to the Fisheries Law, published in the Official Gazette of the Federation on November 30, 2000 (Article 35, Subsection XXI), the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA) was assigned the role of fostering fisheries activities through a public entity under their two main headings: aquaculture and fisheries, with the exception of marine species with a regime for special protection, provided for in the Fisheries Law.

In compliance with this provision, on June 5, 2001 the Decree was published in the Official Gazette of the Federation whereby the National Aquaculture and Fisheries Commission was created as a decentralised administrative body of the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food, the purpose of which is to administer, with quality and transparency, sustainable development of fisheries and aquaculture resources, foster the development of the chain of production, distribution and consumption, in support of the integral development of the sector's productive agents, and contribute to improving Mexicans' nourishment.

The creation of the Commission makes it possible for the regulations in the area of fisheries and aquaculture to be clearer and it favours new ways of functioning of the respective programs, which are included in a strategy of sustainable and efficient development of the resources, in order to raise the productivity and competitiveness of the sector's activities.

### **Organigram**

Comisión: Commission

Consejo Técnico: Technical Council

Consejo Nacional de la Pesca y Acuicultura: National Fisheries and Aquaculture Council

Unidad de Contraloría Interna: Internal Comptroller Unit

Unidad de Asuntos Jurídicos: Legal Affairs Unit

Unidad de Administración: Administration Unit

Dirección General de Planeación, Programación y Evaluación: General Directorate of Planning, Programming and Evaluation

Dirección General de Ordenamiento Pesquero y Acuícola: General Directorate of Fisheries and Aquaculture Ordering

Dirección General de Organización y Fomento: General Directorate of Organization and Development

Dirección General de Infraestructura: General Directorate of Infrastructure

Dirección General de Inspección y Vigilancia: General Directorate of Inspection and Surveillance

Source: Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food.

## 2. Fisheries harvest

### Performance

Total fisheries production in 2000 was 1 402 938 tonnes, of which 1 214 780 tonnes (86.6%) were of marine origin and 188 158 tonnes (13.4%) came from aquaculture. In 2001, fisheries production registered a total of 1 520 938 tonnes, of which 1 324 215 and 196 723 tonnes were of marine and aquaculture origin, respectively.

As can be observed for 2001, an increase of 8.4% was registered in the marine harvest with respect to the figures for 2000. Likewise, a positive variation on the order of 4.6% was registered in aquaculture production.

The increase in marine production in 2001 was due mainly to the gains registered in comparison to the previous year in the harvests of squid (22.8%), tuna (21.5%), shrimp (10.1%) and oyster (2.2%).

Table III.21.1. **Volume of fisheries production by principal species 2000-2001**

Tonnes<sup>1</sup>

Item	Volume 2000	Volume 2001	Variation % 2000/2001
Total production	1 402 938	1 520 938	
Total harvest	1 214 780	1 324 215	9
Sardine	137 581	138 789	0.9
Tuna	103 655	133 288	21.5
Shrimp	95 077	105 523	10.1
Mojarra	77 271	74 031	-3.4
Squid	56 238	73 833	22.8
Oyster	51 539	52 799	2.2
Carp	31 674	30 286	-2.7
Octopus	23 346	21 433	-6.0
Shark	21 125	19 640	-6.4
Crab	20 582	18 495	-10.1
Aquaculture	188 158	196 723	4.6

1. Tonnes in live weight.

Source: Anuarios Estadísticos de Pesca 2000 y 2001. SAGARPA/CONAPESCA.

## 3. State of the fisheries

In 1997 the National Fisheries Institute (INP) began a study on "Sustainability and Responsible Fishing in Mexico". This study presented for the 18 main fisheries a historical description of what had occurred over the past 20 years; a quantitative approach based on world trends (precautionary approach, points of reference, explicit consideration of risk and uncertainty in management, among others); and a section on management strategies and alternatives appropriate for each fishery, depending on its condition.

In 2000 and 2001, the INP updated the book Sustainability and Responsible Fishing by incorporating three more fisheries. Just as in the preceding versions, state-of-the-art evaluation methodologies were followed.

The status of the fisheries and aquatic resources included in the previous versions has basically not varied (see summary table). The incorporation of other fisheries signifies an advance in the policy oriented toward sustainable management of resources.

Table III.21.2. **Summary of the condition of each fishery**

Pacific		Gulf of México and Caribbean		Inland waters	
Fishery	State	Fishery	State	Fishery	State
Shrimp	<b>M</b>	Shrimp	<b>M</b>	Pátzcuaro	<b>D</b>
Tuna	<b>P</b>	Sharks	<b>M</b>		
Lesser pelagic	<b>P</b>	Tuna	<b>P</b>		
Sharks	<b>M</b>	Grouper	<b>D</b>		
Oceanic sharks	<b>P</b>	Octopus	<b>M</b>		
Squid	<b>P</b>	Lobster	<b>M</b>		
Abalone	<b>D</b>	Conch	<b>D</b>		
Lobster	<b>P</b>				
Globefish	<b>D</b>				
Sea cucumber	<b>D</b>				

**P** = With potential for development.

**M** = Developed to the maximum sustainable.

**D** = In deterioration.

Source: OECD.

As an additional study, 30 commercial fisheries of fish and invertebrates were included and analysed, both of the Pacific Ocean and of the Gulf of Mexico and Caribbean Sea. These fisheries represent more than 70% of the volume of production and of the value of the national harvest. Also included were four inland reservoirs, three potential fisheries resources, two species of marine mammals and six of sea turtles.

The species included correspond to the following resources of reservoirs:

- **Pacific Ocean:** shrimp, tuna, lesser pelagic fish, sharks, giant squid, abalone, globefish, sierra, striped mullet, red snapper, crab, lion's paw clam, conch, sailfish, swordfish and marlin.
- **Gulf of Mexico and Caribbean:** shrimp, sharks, tuna, grouper, octopus, lobster, conch, sierra, peto, red snapper, crab, sea bass and striped mullet.
- **Inland waters:** Lake Pátzcuaro, Lake Chapala, Infiernillo dam and Aguamilpa dam.
- **Potential resources:** Ornamental marine species, black cod and sea cucumber.
- **Species subject to special protection:** manatee, grey whale, olive ridley turtle, hawksbill turtle, leatherback turtle, green turtle, loggerhead turtle and black turtle.

In this same regard, during this period the preparation of the National Fisheries Charter was promoted, a process that was initiated prior to the publication of the new Regulations of the Fisheries Law in September 1999, but as of that date the work was accelerated by means of training courses for producers and officials of SEMARNAP and of the State Governments on the new regulatory provisions for the development of fisheries activities.

The National Fisheries Charter is a comprehensive, updated document that summarises research efforts and wide-ranging institutional and citizen participation. It is a point of contact between academia, society and the authority, for the implementation of management rules. It is an important exercise for advancing in the shared management of fisheries and aquaculture resources and their habitats (co-management).

This charter contains information on marine and coastal fisheries, both fisheries that include a group of target species and species associated with the catch (incidental catch), and fisheries of one species in particular, with or without incidental catch.

Forty-six fisheries are included, and information is provided on their development status: in deterioration, developed to the maximum and with development potential. Thus emphasis is placed on the fact that more than 80% of the fisheries are in deterioration or developed to the maximum; that is, it is only possible to achieve greater development in the remaining 20%. Any resource or species for which a harvesting permit is requested and which is not included in the Charter will receive development fishery treatment.

For management purposes, a new unit is being proposed for regulation, the Fisheries Management Unit, which is a grouping of species by affinity of habitat, in accordance with reports on arrival notices. Sixty-five Fisheries Management Units are included, 37 on the Mexican Pacific and 28 in the Gulf of Mexico and Caribbean Sea.

The Charter also contains 551 marine species, 36 of which are distributed on both coasts. The most important are fish with 85.5% of the species, crustaceans with 7% and molluscs with 6.6%; the remainder corresponds to echinoderms and aquatic flora.

Nine species are added which are under the status of special protection, seven of sea turtles and two of marine mammals. The former, because they have been subjected to fisheries development activities and the latter, grey whale and manatee, because without being exploited, they have been the object of significant conservation efforts and have brought recognition to our country from international agencies.

Also, all the authorised Harvesting Systems, with which more than 95% of national production is fished, are incorporated. These appear in accordance with their regional application and by type of fishery.

Likewise, in national inland waters 506 fresh water species have been identified, 484 of which are included in the National Fisheries Charter. Approximately 48 (10%) of these species are exotic and 436 (90%) native.

For aquaculture 60 species of fish, molluscs and crustaceans are registered, showing their status as regards deterioration, risk and potential. Information is also provided on Aquaculture Production Units and their coverage as regards consumption.

Another element of great importance set forth in the National Fisheries Charter is the information relative to Coastal Lagoon Ecosystems. Our country has approximately 135 coastal ecosystems with an area of around 1.5 million hectares. Forty-two ecosystems are included in the Charter, which represent 73% of the national lagoon surface.

Also described is the inventory and coverage of the Marine and Coastal Natural Protected Areas, of which 14 are National Parks, 3 Flora and Fauna Protection Areas and 9 are Biosphere Reserves.

## 4. Management of commercial fisheries

### *Management Instruments*

In 2001 the Aquaculture and Fisheries Program 2001-2006 was set in motion when the fisheries sector was integrated into the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA); this Program has a series of programs and subprograms oriented toward promoting the sustainable development of fisheries activities, and work continues for the Fisheries Administration through the Program of Fisheries Ordering and the Program of Normalisation of Responsible Fishing.

The long-term objective of the Program of Fisheries Ordering is to induce sustainable use of fisheries resources by means of the establishment of mechanisms that reconcile

fisheries practices with the current regulations and with precautionary criteria, oriented toward the development of responsible fishing with wide-ranging social benefits.

Decision-making with regard to fisheries ordering has been carried out under the principles of sustainability and responsible fishing, taking scientific criteria as a basis in the appraisal of fisheries resources and a precautionary approach, which has made it possible to proportion and maintain fisheries efforts, regularise the legal situation of social organisations, establish instruments of fisheries administration, carry out ordering actions as part of the National Program of Normalisation of Responsible fishing and, at state level, within the Fisheries and Marine Resources Committees, where emphasis is placed on the identification of those who participate in this activity through censuses of fishermen, vessels and fishing gear; all of this in a co-ordinated manner, agreed upon between the 3 levels of government, the scientific community and the fisheries productive sector.

During the period progress was made in the ordering of the main fisheries by means of the establishment of regulatory measures oriented toward:

- standardisation of fishing systems;
- restrictions on practices that are destructive or harmful to the environment;
- encouragement of selective fishing of target species, and promotion of conservation of associated species subject to protection;
- establishment of minimum catch sizes for some species;
- establishment of the use of specific fishing logs;
- encouragement of standardisation of fisheries administration processes; and
- establishment of protection areas.

Within this framework of fisheries ordering, through the regularisation of producers' organisations, identification of vessels, screening and systematisation of files related to requests for permits and concessions, identification of participants in fisheries, promotion of diverse reforms of regulatory provisions and issuance of new fisheries standards (NOM), progress was made in the ordering of the country's main fisheries.

Within the framework of the National Consultative Committee on Normalisation of Responsible Fishing, in 2000 the following projects were approved:

- Official Mexican Standard PROY-NOM-031-PESC-2000, responsible fishing in the reservoir of the "José López Portillo" (Cerro Prieto) Dam, located in the State of Nuevo León, specifications for the development of fisheries resources.
- Official Mexican Standard PROY-NOM-001-PESC-2000, responsible fishing of tuna species, specifications for the protection of dolphins, requirements for the marketing of tuna species in the national territory.
- Official Mexican Standard PROY-NOM-030-PESC-2000, which establishes the requirements for determining the presence of viral diseases of aquatic crustaceans, alive, dead, their products or by-products in any presentation, as well as for the introduction into the national territory and its movement in same of artemia (*Artemia spp.*).

Work is being carried out within the framework of the Inter-Ministerial Commission on Maritime Port Security and Vigilance (CONSEVI) for the registration and licensing of fisheries vessels with permits or concessions for commercial fishing. In the last two years the registration and licensing of vessels operating under a permit or concession was concluded.



In co-ordination with Petróleos Mexicanos (PEMEX) and the Ministry of Finance and Public Credit (SHCP), a program of access to marine diesel was implemented, which enables fishing vessels to operate with competitive costs, benefiting those who really are the holders of a fisheries or aquaculture permit or concession.

In 2001 three preliminary draft Standards were prepared, which are being reviewed by the technical groups. These correspond to marine scale and of the reservoirs of the Champayán and Portes Gil dams. Progress was also made in the preparation of the NOMs for crab, Lake Chapala, Lake Pátzcuaro, Malpaso Dam and La Angostura Dam. The definitive version of NOM-030 was drafted, which establishes the requirements for determining the presence of viral diseases of aquatic crustaceans, alive, dead, their products or by-products in any presentation, and *Artemia* (*Artemia* spp), for its introduction into the national territory and its movement in same. The requirements for the importation of crustaceans were updated in NOM-030-PESC-2000, which also includes the updated requirements for the application of quarantine.

Moreover, close co-ordination of actions was maintained with the National Fisheries Institute (INP), which co-ordinated the application of the National Fisheries Charter, an instrument that serves as support in decision-making for the administration of fisheries; with the Federal Attorney's Office for Environmental Protection (PROFEPA) for inspection and surveillance; as well as with the National Ecology Institute (INE) in the preparation of management plans.

A Program of Fisheries and Aquaculture Ordering of the Shrimp Fishery in the State of Sinaloa is being developed, which aims to solve the problems of the shrimp fishery in said State, stemming from the unauthorised increase of fishing efforts and the consequent competition between ocean and coastal fishermen, as well as the demand for amendment of NOM-002-PESC-1993 (which orders the development of various species of shrimp), so that the fishing of the crustacean is permitted on the high seas by coastal vessels.

In late 2001 the compiling and crossing of information was begun for the consolidation of a single database on authorised fishermen and fishing tackle. The matching and validation of lists registered in the requests for concessions with the data available in central offices of CONAPESCA and fisheries offices in the coastal States is in process.

The procedures for the issuance of fishing permits, concessions and authorisations were simplified; and the policy adopted by this administration of granting concessions and permits for the maximum time allowed by law was continued.

Furthermore, to favour wider knowledge of the fisheries resources that exist in the country, within the framework of international co-operation, 15 permits for development fishing were granted to foreign citizens and institutions to carry out scientific research on corals, fresh water fish, sea turtles, marine isopods, cyhlids and marine mammals, among others.

### **Access**

When the establishment of the Exclusive Economic Zone was decreed in 1976, which broadened Mexico's jurisdiction to 200 miles, the Government of Cuba argued historical rights of operation for its fleets, and it therefore became necessary to regulate the operations of Cuban vessels that traditionally fished in what is now the National Jurisdiction Zone. With that aim and in response to the argument of the Cuban government, on July 26, 1976 the Fishing Agreement was signed between the two countries, which in addition made it possible to reinforce and maintain the existing bonds of friendship between the two States.

In accordance with the provisions of said Agreement, authorities of both governments meet every year alternately, in Mexico and in Cuba, to carry out consultations on its application and fulfilment. In these consultations, among other aspects addressed is the annual setting of catch volumes, including the species (grouper, red snapper, sierra, sawfish, shark and associated species) and the fishing permits that Mexico authorises and grants to the Cuban fleet for its operation in the Gulf of Mexico and Caribbean Sea.

It is important to point out that for the biennium in question (2000-2001), the average catches made by the Cuban fleet in Mexican jurisdictional waters outside the Territorial Waters of the Gulf of Mexico and Caribbean Sea totalled 324.5 tonnes a year, which represented on average for the period in question 21.6% of the amount authorised (1 500 tonnes on average).

### **Sports fishing**

Forming part of the National Fisheries and Aquaculture Program 1995-2000, the sports fishing subprogram constituted one aspect of the policy to foster the practice of this sport in national tourism centres and the generation of greater benefits by means of the promotion of related productive activities, fishing equipment and inputs, which in turn supported the development of tourism.

Some of the advances of this subprogram were: drafting of Mexican Official Standards (NOMs) for the ordering of inland water reservoirs, formulation and evaluation of the "Revillagigedo Archipelago" Biosphere Reserve Management Program and of other strategies for the identification of Mexico's natural wealth, such as the CONABIO study on Mexico's biodiversity.

The species that are reserved for sports-recreational fishing are: marlin, sailfish, swordfish, shad, elephant fish and dorado.

In 2000, in co-ordination with the Co-ordinating Unit for Protected Natural Areas of the National Ecology Institute, the criteria were established for the development of this activity in the Revillagigedo Biosphere Reserve, bearing in mind the elements of the draft Management Program for said area that the INE has. Work was done considering the activities carried out by sports fishermen in the Reserve, the catch volumes obtained and in general all the information useful for knowing the impact of these activities on the resources and habitats of the Reserve, in such a way that support could be provided in planning the fishing season.

## **5. Inspection and surveillance**

In 2000, within the actions carried out in fisheries inspection and surveillance, still under the responsibility of the then SEMARNAP, 3 643 inspection activities and 5 250 special operations were carried out in order to check the proper development of fisheries resources.

In the area of marine resources and shrimp fishery, based on the provisions of NOM-002-PESC-1993, relative to the use of devices to exclude sea turtles in shrimp drift nets during commercial shrimp fishing operations in the Pacific Ocean, Gulf of Mexico and Caribbean Sea, the PROFEPA, with the assistance of the General Directorate of Inspection and Surveillance of CONAPESCA, continued with the work of verification of the presence of the devices in shrimp drift nets, and that they complied with specifications such as: components, construction materials, structure and installation, as well as a prior physical examination of the vessel.

Verification and certification, if applicable, is carried out during two annual periods, March-April and August-September, on the totality of the country's shrimp vessels. It is a requirement to have the certification issued by PROFEPA so that the Port Authority of the Ministry of Communications and Transportation grants the Fishery Clearance Document and these vessels can depart from the port to carry out their fishery activities.

With the current CONAPESCA, the new General Directorate of Inspection and Surveillance was created, which has the mandate of supervising the development of fishing in accordance with the established norms and rules.

To strengthen the operation of this inspection and surveillance unit, the following actions have been carried out:

- A model for a general agreement was prepared which is to be signed with the state governments and SAGARPA-CONAPESCA, containing the necessary precautions to add to it in the future, via technical annexes, the concerted agreement on actions in favour of the legal and responsible practice of aquaculture and fishing.
- The bases for collaboration were signed with the Ministry of the Environment and Natural Resources (SEMARNAT) and the Federal Attorney's Office for Environmental Protection (PROFEPA) by means of which diverse actions of inspection and surveillance were carried out with the aim of discouraging and eliminating illicit fishing practices; at the same time the fisheries officials of SAGARPA were trained in verification tasks.
- Bases for collaboration were signed with the Ministry of the Navy that formalise joint or separate actions in support of inspection and surveillance in the area of fisheries at national level.
- With the aim of offering a new image of fisheries inspection and surveillance, 660 fisheries officials were trained and accredited, at national level, to verify enforcement of the Fisheries Law and its Regulations. Of these, 436 officials belong to SAGARPA, 180 to PROFEPA and 44 to the participating states.
- As part of the process of information activities for the new policies and authority of CONAPESCA with regard to inspection and surveillance, training and information courses were given for the 32 Fisheries Sub delegates in the country. Likewise, the 32 heads of the Legal Departments of the SAGARPA Delegations in the states were trained in relation to the administrative procedures provided for in the Fisheries Law and its Regulations.

## 6. Multilateral agreements

Mexico's international fisheries policy has been directed in recent years toward the development of a world fisheries order that complies with criteria that are ever closer to sustainability, in addition to providing a response to countries' needs in food, employment and foreign-exchange income. Mexico's participation in international forums has given impetus, since 1995, to the application of the Code of Conduct for Responsible Fishing in FAO.

Mexico has declared itself in favour of actions such as the creation and application of multilateral mechanisms for the protection of marine species, rejection of the application of trade sanctions, elimination of tariff and non-tariff barriers in fisheries trade and in favour of a practice of responsible fishing in forums such as the Fisheries Working Group of the Asia-Pacific Economic Co-operation mechanism (APEC), the Latin American Fisheries Development Organisation (Oldepesca), the Fisheries Committee of the Organisation for Economic Co-operation and Development (OECD), the International Whaling Commission

(IWC), the Inter-American Commission on Tropical Tuna (CIAT) and the International Commission for the Conservation of the Atlantic Tuna, among others.

In this context, and in accordance with the objectives indicated in the Fisheries and Aquaculture Program 1995-2000, efforts have been made in Mexico to resolve, for example, the problems caused by unilateral measures related to the incidental mortality of marine species. This is the case with the tuna embargo which has been affecting the development of Mexico's tuna fleet and industry.

Of special note during 2000 is the ratification of the Agreement on the International Program for the Protection and Conservation of Dolphins, which in addition to guaranteeing the protection of said species, constitutes important support for the lifting of the tuna embargo. In April this year the Honourable Chamber of Senators approved Mexico's accession to the International Commission on Tropical Tuna (CIAT) as a full member, which has made it possible to participate directly in decision-making on the management of tuna in the Eastern Pacific Ocean.

The Government of the United States, for its part, notified the administrative lifting of the embargo on Mexican tuna exports. Nonetheless, resolving full recognition of the sustainability of catching techniques used by the Mexican tuna fleet remains pending. The above would make it possible to modify the definition of the "Dolphin Safe" label, with which the Mexican product could carry said legend and improve the conditions of competitiveness in world markets, particularly the US market.

In regard to the situation of Mexican tuna's access to the US market, it should be pointed out that although in April 2001 a positive decision was extended once again to Mexico to sell tuna in the US market, a solution to the problem of labelling remains pending, since through the decision issued on July 23, 2001 by the Federal Appeals Court of the State of California in relation to the appeal filed by the US Federal Executive, the definition of the "dolphin safe" tuna labelling was maintained as that not caught in association with dolphins. With this decision Mexican tuna is in conditions of disadvantage for its marketing in the United States and other international markets.

The Mexican government requested the government of the United States of America to issue a new decision on the non-existence of a significant adverse impact on dolphins as a result of tuna fishing associated with this marine mammal, in order to counteract the decision issued by the Court of the State of California; as well as to regulate the use of the "dolphin safe" labelling that is not backed by a system of tuna follow-up and verification.

Furthermore, in June 2001, on occasion of the Fifth Meeting of the Parties, the member countries of APICD announced the creation of the program for certification and labelling of tuna caught in the Eastern Pacific Ocean, consistent with this Agreement.

Certification of tuna APICD "Dolphin Safe" is the only one in the world backed by a multilateral, extensive and transparent system of follow-up and verification, administered by the member governments and a regional fisheries ordering organisation, the Inter-American Commission on Tropical Tuna (CIAT), which guarantees consumers' full confidence in the APICD "Dolphin Safe" label. The certification that backs this makes it possible to improve the competitiveness of the Mexican product in international markets.

The advantages of the APICD "Dolphin Safe" label are, among others:

- the label is granted to the tuna which during its capture and processing was subject to a system of follow-up and verification with observers on board the boats;

- its purpose is not profit but to guarantee consumers that they will obtain a product caught under strict rules of sustainability;
- it promotes a fishery that protects the ecosystem in a comprehensive manner;
- it guarantees that there were no dead or seriously injured dolphins in the tuna catch.

With regard to the protection of sea turtles and their linkage to shrimp fishing, the continuity of shrimp exports to the US market was assured, since a successful program of protection and recovery of turtles was maintained, as well as the use of sea turtle excluding devices in 100% of the shrimp fleet.

It is important to mention that on May 2, 2001 the Inter-American Convention for the Protection and Conservation of Sea Turtles entered into effect, an instrument of a multilateral nature that establishes measures for the protection, conservation and recovery of sea turtle populations. Mexico ratified this instrument in September 2000.

On occasion of the Twenty-Fourth Session of the Fisheries Committee of FAO, held from February 26 to March 2, 2001, Mexico occupied the Vice Chair of the meeting and promoted the approval of an International Plan on Illegal, Unregulated and Unreported Fishing (IUU Fishing). During the negotiations of this IUU Fishing Plan, Mexico promoted initiatives for the conservation and sustainable use of live marine resources. With this Plan of Action, Mexico supported the countries' commitment to applying a series of actions to regulate said activity, among which are maintaining a registry of the vessels that operate under the flag of a State, applying commercial measures of a multilateral nature as a last measure in order to check this activity, as well as applying measures on the part of the State of the port.

In the Inter-American Commission on Tropical Tuna (CIAT) during this year, Mexico supported the establishment of diverse measures for ordering and management of tunas species fisheries, such as the application of catch quotas for yellow fin tuna and big-eyed tuna, and also a moratorium was established on the growth of the tuna fleet that operates in the Eastern Pacific.

Within the framework of the Fisheries Working Group of APEC, Mexico has worked on the topic of the development of harmonised standards for aquaculture health, and within this framework it hosted the holding of workshops on IRA and will host another on management of shark fisheries.

In the context of bilateral relations with the United States of America, development fisheries permits were authorised to research institutions and scientists from that country to carry out joint studies on turtles, sharks, fresh water fish and tuna species, among others.

## **7. Aquaculture**

As a strategy to combat extreme poverty and contribute to food production in communities in the rural milieu, during the period the Rural Aquaculture Program was continued, which constitutes one of the most important alternatives for increasing domestic fisheries production and favouring the Mexican rural milieu.

Thus, during the year 2000, in the context of this Program, 15 collaboration agreements were signed with the governments of the states of Baja California, Baja California Sur, Coahuila, Colima, Hidalgo, Jalisco, Morelos, Nuevo León, Puebla, Sonora, Tamaulipas, Tlaxcala, Veracruz, Yucatán and Zacatecas.

For the execution of the Program in 2001 32 teams were formed, and as a result of the work carried out by the team members, a total of 41.3 million young of species such as tilapia, carp, trout, bass, catfish and prawn were deposited in ponds, cages and dykes, mainly.

Furthermore, 2 299 technical advisory services were provided, 1 217 survey visits and 96 training courses aimed at producers and promoters of aquaculture activities.

As a result of the execution of this program, during the 2000-2001 biennium an average production of 8 172 tonnes of fish meat was reached, which in 2000 benefited 42 767 families in 1 391 communities in 407 municipalities and in 2001, 35 324 families in 2 116 communities in 533 municipalities.

In 2001, meat production stemming from the actions of this program reached 9 344 tonnes, resulting from the hatching of 52 605 000 million young.

## 8. Production installations

In the year 2000, a total of 1 898 production units in operation were registered, in the form of Controlled Systems (commercial farms), whereas in 2001 the number increased by 65, since a total of 1 963 was registered.

Of the total of production units corresponding to these controlled systems, in 2001 36.7% corresponded to shrimp farms, with an area of 52 648 hectares, while 29.6% of those units were for trout, 11.4% for carp, 7.5% for mojarra-tilapia, and the remainder corresponded mainly to oyster, catfish, prawn, abalone, frog, ornamental fish and bass.

## 9. Volume and value of production

Total aquaculture production in 2000 was 184 993 tonnes, made up mainly of mojarra (69 291 tonnes), followed by shrimp (33 093 tonnes), and the lowest production was prawn (60 tonnes). In 2001, total production was 193 387 tonnes, the highest production being mojarra (61 630 tonnes), followed by oyster (50 565 tonnes) and the lowest production was prawn (51 tonnes).

Table III.21.3. **Value and volume of aquaculture production by species**  
2000-2001

Species	Volume (tonnes, live weight)		Value (MXN '000)	
	2000	2001	2000	2001
Mojarra	69 291	61 630	563 489	523 564
Shrimp	33 093	47 465	2 079 114	2 738 018
Oyster	49 710	50 565	87 532	94 161
Carp	24 117	20 913	176 294	145 435
Catfish	2 771	2 232	41 577	34 523
Charal	866	841	5 019	4 864
Prawn	60	51	4 732	4 220
Trout	2 622	3 309	117 889	144 203
Bass	611	546	10 895	11 895
Other	1 854	1 432	50 115	31 803
<b>Total</b>	<b>184 993</b>	<b>193 387</b>	<b>3 136 655</b>	<b>3 732 688</b>

Source: Anuarios estadísticos de Pesca 2000 y 2001 SAGARPA/CONAPESCA.

## 10. Fisheries and the environment

### *Government financial transfers*

As part of the Fisheries and Aquaculture Program 1995-2000, the Program of Promotion of Credit Support for the Fisheries and Aquaculture Sector was continued, the purpose of which was to design and promote, in co-ordination with the competent authorities, financial instruments appropriate for the characteristics of the sector, as well as to channel credit resources and risk capital, in a timely and sufficient manner, and permanently strengthen the financial reorganisation and capitalisation of fisheries organisations.

To achieve those ends, concerted agreements were reached with the Ministry of Finance and Public Credit (SHCP), the Development Funds of FIRA-FOPESCA (Guarantee and Development Funding for Fisheries Activities) and the National Foreign Trade Bank (BANCOMEXT), the Commercial Banks and other financial sources, so that the credit resources should flow in a timely and sufficient manner in keeping with the sector's specific needs.

Due to the above, there is direct participation in the Technical and Administration Committees of FIRA-FOPESCA and BANCOMEXT, where the financial support programs that are prepared in co-ordination with the SHCP are followed up and evaluated, as well as the financial and credit management of investment projects specifically requested by producers.

Thus, with the aim of permanently strengthening the financial reorganisation and capitalisation of the organisations in keeping with the sector's technical, economic and social development, in 2001 the figures show that the financing (loans with bank interest) extended to the fisheries sector by the FIRA-FOPESCA and BANCOMEXT development funds was approximately MXN 1 575 million, a figure 13.7% lower than the supports extended in the year 2000. Of these resources, 54% (MXN 850.2 million) was channelled by FIRA-FOPESCA and the remaining 46.0% by BANCOMEXT. The reduction in the amount of credit is basically due to the drop in tuna prices and a surplus of inventories.

The channeling of these resources benefited 9 412 fisheries producers, and made possible the establishment of 14 068 hectares of ponds for aquaculture and the repair and provisioning of 5 204 fishing vessels.

## 11. Post-harvesting policies and practices

With the aim of orienting and supporting the sector's industrial plant, the implementation of the Modernisation Program for the Fisheries Industry began in early 1995. The principles of said Program include the recognition that the sustainable development of fisheries implies, among other aspects, having an efficient processing industry that makes rational use of raw materials, for which purpose it is necessary for the industrial plant to implement sanitary quality assurance systems in fisheries products processes, focusing in a priority manner on the program of good hygiene and health practices, as well as on risk analysis and control of critical points.

### *Food health*

Within the framework of the Modernisation Program for the Fisheries Industrial Plant and as a result of the implementation of sanitary regulations and the adoption of NOM-120-SSA1-1994, Hygiene and health practices for the food process and

NOM-128-SSA1-1994, which refers to the System of Risk Analysis and Control of Critical Points, decision (98/695) of the European Economic Community was published, which establishes the particular conditions for the importation of fisheries and aquaculture products from Mexico (24 November 1998).

In order to improve competitiveness in industrialisation and marketing processes for ocean products, said Modernisation Program of the Fisheries Industry was continued, for which purpose the guide for self-evaluation of the fisheries industrial plant was modified with the aim of improving the technical assistance provided to the industry in the area of food safety.

Likewise, the document “Sanitary Technical Diagnosis for Vessels” was prepared, which will be revised in Co-ordination with the Health Ministry, in order to be able to support them in the drafting of the corresponding standard, the establishment of which will make it possible to comply with the demands of the European Economic Community for vessels and ensure our products’ access to that market.

In view of the fact that in the European Union chloramphenicol residues have been detected in shipments of cultivated shrimps from Asia, the European countries and the United States are carrying out stricter monitoring aimed at the detection of residues of chloramphenicol and other antibiotics.

In this context, during the period in question the Emergency Official Standard NOM-EM-05-PESC-2002 was issued with the aim of establishing the requirements and measures to prevent and control the spread of high-impact diseases and for the use and application of antibiotics in aquaculture.

## 12. Management and processing installations

In order to improve competitiveness in industrialisation and marketing processes for ocean products, the Modernisation Program for the Fisheries Industry was continued in 2000. The Program fosters the establishment of rigorous hygiene and health practices in the processing of fisheries products, in keeping with the current regulations on the matter. In this context, recommendations were issued to 208 plants, while 142 verification visits were made for the purpose of issuing recommendations and providing technical assistance to companies. Compliance by the latter made it possible to increase from 59 to 62 the number of companies certified to export to the European Union in accordance with its health guidelines.

Moreover, in 2001, as part of the modernisation program for the fisheries industrial plant, 35 fisheries products processing plants were visited, which received recommendations through the guide for self-evaluation for the fisheries industrial plant and 10 plants received technical assistance and were evaluated on-site to issue the necessary recommendations for compliance with the new standards of the Ministry of Health, the Ministry of Labour and the Ministry of Economy. Both the recommendations and the technical assistance have focused on specific actions used to diagnose fisheries industrial plants with regard to infrastructure, conditions of hygiene and the implementation of the HACCP program.

After 6 years of this program, certain areas have been identified in which the industry has worked to improve its conditions and ensure that government standards are complied with, as well as the requirements of the international market. This approach seeks to promote healthy, quality fisheries products among consumers.



The adoption of NOM-120-SSA-1-1994 Hygiene and Health Practices for the food process and NOM-128-SSA-1-1994, which refers to the system of risk analysis and control of critical points, has made it possible currently for 70.8% of fisheries plants to comply with health standards. Recommendations to the industrial plant will continue until 100% comply with the standards.

### Processing

During the 2000-2001 biennium, the fisheries industrial plant produced an average of 390 484 tonnes of finished product. In general terms product lines showed an increase in 2001 in comparison with the figure for 2000, registering an increase of 3.79% for frozen products, 5.4% for canned products and 3.03% for other processes.

Table III.21.4. **Fisheries industrial production 1999-2001**

	Tonnes		
	1999	2000	2001
Frozen products	170 112	190 809	198 052
Canned products	112 875	106 057	111 791
Other processes	3 015	3 357	3 255
Reduction	55 002	73 534	94 114
<b>Total</b>	<b>341 004</b>	<b>373 757</b>	<b>407 212</b>

Source: Anuarios Estadísticos de Pesca 2000 y 2001 SAGARPA/CONAPESCA.

## 13. Markets and trade

### Markets

#### Trends in domestic consumption

The fundamental objective of fisheries production is to provide food with a high protein value to domestic consumers, in keeping with their different economic capacities.

Providing varied fisheries products that mean viable options in price and timely supply is one of the challenges of fisheries policy, as is also achieving greater and better access for our products to foreign markets.

In this regard, work continues with the National Committee for the Promotion of consumption of Fisheries Products, which operates throughout the year and in particular intensifies its work in the seasons of greatest demand, such as Lent, Christmas and the end of the year.

It is important to point out that producers, marketers and federal government institutions participate in the National Committee. The purpose of this Committee is to achieve sufficient and timely supply at national level and ensure that prices permit access by the population to these traditional products during said seasons.

As a result, during Lent 2001 the marketing system was strengthened by setting up around four thousand points of sale in addition to those already established.

Thus, with the operation of the Lent 2001 program, 140 951 tonnes of ocean products were marketed, making an increase of 6.1% over the previous season.

Of this volume, 25 000 tonnes of fresh and frozen products were marketed in the Federal District, a figure similar to the one registered for the previous year, and

62 225 tonnes were marketed in the provinces, which represented an increase of 8.0% over the previous year. Likewise, 53 726 tonnes of canned fisheries products were marketed.

It is still necessary to promote changes of attitude in the consumption of fisheries products; the education of consumers so that they adopt consumption patterns that are favourable to sustainability plays an important role. In this regard, wide-ranging dissemination campaigns have been implemented on radio and television, informing the population of the nutritional properties, quality and prices of the different fresh and frozen species available on the market, and likewise the consumption of canned tuna is being promoted.

### **Promotion efforts**

To improve the marketing system and favour the population's access to these products, the creation of supply and distribution centres for fisheries products additional to the existing ones (La Nueva Viga and Zapopan) is being promoted in the provinces.

The creation of these supply centres will make it possible to improve marketing channels, lower the current intermediation margins and shape a market that includes a wide variety of species.

Through the work carried out by the Committee to Promote Consumption of Fisheries Products, it was proposed to systematically raise supply goals in the 2000-2001 Lent season, reaching a total of 132 818 tonnes marketed, exceeding the goal originally set by 5.4%.

Furthermore, the establishment of 3 000 sales outlets was promoted, succeeding in bringing these products closer to almost 1 000 municipalities in the country. Another promotion achievement was established by means of the co-ordination of efforts in Mexico City between "La Viga" supply centre and the City Government, by launching a program in the Political Boroughs to set up 69 sales outlets at the end of Lent every Friday until the month of December.

Through the modernisation program for fish shops, during the 2000-2001 period training courses have been given to fish and seafood retailers on aspects such as good hygiene and health practices for fisheries products, thus promoting an improvement in the operation and presentation of premises dedicated to this line of business, in order to improve their commercial practices.

One of the main tasks is to consolidate and increase our traditional exports and promote exports of new fisheries products, by means of the incorporation of added value that will lead us to competing more effectively in international markets.

The incorporation of greater value in fisheries products, under strict sanitary and quality standards, is a requirement to create a more independent and apt sector for competing in the domestic and international markets. Therefore, impetus is being given to the re-adaptation, modernisation and construction of processing plants in which new presentations that are more attractive to consumers are incorporated. It is important to point out that greater added value in fisheries products generates more jobs and better quality.

### **Trade**

For the 2000-2001 period the sector's trade balance was positive, registering an average on the order of USD 503 998 000, as a result of having average exports of USD 695 526 000 and imports of USD 191 527 000. As may be seen in the following table, with respect to 2000, the 2001 balance was higher than 11%, exports increased by 10.8% and foreign purchases increased by 7.9%.

Table III.21.5. **Fisheries products trade balance**  
Tonnes and USD '000

Item	2001		2000		Absolute variation 2001/2000		Relative variation 2001/2000	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value
<b>Trade balance</b>								
<b>Balance</b>		532 433		475 564		56 869		11.96
Exports		731 304		659 748		71 556		10.85
Imports		198 871		184 184		14 687		7.97
<b>Export</b>	199 266	731 304	184 679	659 748	14 587	71 556	7.90	10.85
Algae and sargassos	28 325	1 062	15 076	643	13 249	419	87.88	65.16
Tuna and similar	18 561	25 370	17 473	20 248	1 088	5 122	6.23	25.30
Squid	9 703	12 114	9 604	9 791	99	2 323	1.03	23.73
Shrimp	37 213	469 096	32 835	405 078	4 378	64 018	13.33	15.80
Lobster	1 623	29 228	1 586	29 794	37	-566	2.33	-1.90
Octopus	4 283	12 893	5 671	13 179	-1 388	-286	-24.48	-2.7
Sardine and mackerel	45 680	23 495	39 285	17 591	6 395	5 904	16.28	33.56
Canned crust. and mol. <sup>1</sup>	10 332	56 004	14 691	57 258	-4 359	-1 254	-29.67	2.19
Other edibles <sup>2</sup>	22 054	93 496	39 094	101 807	-17 040	-8 311	-43.59	-8.16
Other non-edibles <sup>3</sup>	21 492	8 545	9 365	4 359	12 127	4 186	129.49	96.03
<b>Import</b>	97 911	198 871	153 371	184 181	-55 460	14 690	-36.16	7.98
Tuna and similar	6 342	8 821	8 467	9 655	-2 125	-834	-25.10	-8.64
Cod	2 441	14 024	1 731	8 526	710	5 498	41.02	64.49
Squid	2 053	2 510	2 257	2 736	-204	-226	-9.04	-8.26
Shrimp	6 517	31 801	5 571	18 972	946	12 829	16.98	67.62
Salmon	1 290	6 072	917	4 884	373	1 188	40.68	24.32
Algae by-products <sup>4</sup>	4 019	34 456	4 310	34 408	-291	48	-6.75	0.14
Fats and oils	16 870	4 124	79 776	19 547	-62 906	-15 423	-78.85	-78.90
Fishmeal	22 572	11 869	27 287	13 703	-4 715	-1 834	-17.28	-13.38
Live aquat. orgs. <sup>5</sup>	156	3 765	4	1 816	152	1 949	38.00	107.32
Other edibles	34 308	74 976	21 923	61 489	12 385	13 487	56.49	21.93
Other non-edibles	1 345	6 454	1 130	8 448	215	-1 994	19.03	-23.60

1. Includes volume and value of canned abalone.

2. Includes fish and seafood in diverse presentations.

3. Includes diverse aquatic animals and vegetables and their by-products or wastes.

4. Includes agar-agar, carrageenin and alginates.

5. Includes ornamental species that are not added in the volume column because they are declared in units.

Source: Anuarios Estadísticos de Pesca 2000 y 2001 SAGARPA/CONAPESCA.

PART III  
*Chapter 22*

## **New Zealand**

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## Summary

2001 was a landmark year for New Zealand fisheries with export values reaching a record NZD 1.5 billion. This was mainly due to the healthy state of the fish stocks, coupled with higher export prices and a lower dollar. In 2001 New Zealand also ratified the United Nations Fish Stocks Agreement (UNFSA) which entered into force later in the year. The implementing legislation will, in particular, improve New Zealand's control of New Zealand flagged vessels and New Zealand nationals fishing outside New Zealand's Exclusive Economic Zone.

## 1. Legal and institutional framework

### *Laws and institutions*

The Fisheries Act 1996 provides the overarching framework for fisheries management. The purpose of the Act is to provide for the utilisation of New Zealand's fisheries resources while ensuring they are maintained at a sustainable level and any adverse effects on the environment are avoided, remedied or mitigated. The Act provides for the fishing interests of all fishing groups, whether they be commercial, recreational or customary Maori. It thereby reflects the Government's intention to manage fisheries for the benefit of all New Zealanders within a framework ensuring sustainability of the resource for current and future generations.

The Fisheries Act 1996 consolidates the range of modifications to the Quota Management System (QMS) and other fisheries management procedures which have been made since 1986, and to implement the results of recent reviews of fisheries legislation. Its intention is to facilitate the activity of fishing while having regard to the sustainability of harvest and the effects of fishing on the environment. The Act builds on the existing framework of the QMS while introducing a number of measures intended to resolve current and likely future difficulties associated with fisheries management.

The Ministry of Fisheries, created in 1995, provides policy advice and enforces management systems to ensure that the use of New Zealand's fisheries resources is in compliance with the Fisheries Act 1996. More specifically, the Ministry of Fisheries:

- advises Government on the development of fisheries policy;
- develops laws to manage fisheries;
- administers the Quota Management System that regulates New Zealand's commercial fishing activity;
- promotes fishers acting within fisheries laws; and
- gives effect to the principles of the Treaty of Waitangi as they relate to fisheries.

## **Commercial fisheries**

### ***The Quota Management System***

The QMS provides for the management of commercial fisheries on the basis of Individual Transferable Quota (ITQ). Most commercial fishing is managed under the quota management system. At its heart are two types of catch limits: the total allowable catch (TAC) and the total allowable commercial catch (TACC). The Minister first sets the TAC. From this the Minister quantifies the TACC for a particular fishing year, making allowance for recreational and Maori customary non-commercial fishing interests and all other sources of fishing. This includes the quantity required for research and an estimate of the amount taken illegally each year. Based on this allowance and the available scientific data the Minister decides what the TAC should be. Before setting or varying a TACC the Minister must consult with all interested parties, including representatives of Maori, commercial, recreational and environmental interests. A number of components of the QMS are reviewed annually, including the TACC, Government levies, deemed values<sup>1</sup> and conversion factors.

### ***Total Allowable Catch (TAC) setting process***

The TAC represents the assessment of the total amount of fish that can be sustainably removed from a stock in any one year. It encompasses all extraction from the sea by all users. Except in limited cases<sup>2</sup> it must be set by the Minister of Fisheries with reference to the maximum sustainable yield (MSY) or the greatest yield that can be achieved over time while maintaining the stock's productive capacity. The stock might be fished down to MSY or rebuilt to a level that can produce MSY. Other sustainability measures include controls to avoid or mitigate by-catch of protected species such as albatross or Hooker sea lions. Technical measures, such as area closures and gear restrictions, are also used.

### ***Annual Catch Entitlement***

The Annual Catch Entitlement (ACE) represents the amount of a particular species a fisher can physically catch in a particular fishing year. Each person's ACE is equal to his or her share of the TACC as determined by their quota holding. It is an offence to take fish in excess of ACE. For all stocks, the commercial fisher must balance the catch with ACE or satisfy a demand for the deemed values of the fish. A commercial fisher will be liable for deemed values for any catch in excess of ACE held on a monthly basis. A deemed value demand may be satisfied by acquiring ACE, entering into a by-catch trade-off, or paying the amount demanded. If the TACC is exceeded in any given year, up to 25% of ACEs generated in the following fishing year will be withheld by the Crown and not be available for fishing.

### ***Deemed values***

Deemed values are set for each quota management stock. Deemed values are set at a level to provide the incentive for every commercial fisher to acquire or maintain enough ACE in respect of each fishing year that is consistent with the catch of that stock taken by the fisher.

### Aggregation limits

Restrictions are placed on the amount of quota that can be held by any one person, including their associates:

Table III.22.1. **Aggregation limits for New Zealand fish stocks**

Aggregation limit	Species
45%	Alfonsino, barracouta, blue warehou, gemfish, hake, hoki, jack mackerel, ling, orange roughy, oreos, packhorse rock lobster, red cod, silver warehou and squid
10%	Spiny rock lobster for any Quota Management Area
20%	Paua for any Quota Management Area
20%	Bluenose
35%	All other species

Source: OECD.

### Individual Quota and non-ITQ fisheries

The Minister of Fisheries may set a catch limit or quota for any fishery outside the QMS, either as a competitive TACC or by allocating the TACC as Individual Quota (IQ). IQ can only be fished by permit holders allocated IQ. IQ are not transferable and cannot be leased or fished on behalf of another IQ holder in the same manner as ITQ.

### Access

A commercial fisher is required to have an appropriate fishing permit before going fishing. For QMS species there is also a minimum quota holding requirement. Permits are not transferable. There is currently a moratorium on the issue of new permits for non-quota management stocks (there is, however, an exemption for tuna). This measure is considered necessary to control the expansion of effort in these fisheries until they can be moved to the QMS. Special permits can be issued for research, education and other approved purposes. Quota may only be held by New Zealanders or New Zealand controlled companies. Permission must be granted by the Minister responsible for Fisheries and the Treasurer for an overseas person to own fishing quota in New Zealand.

Foreign owned fishing vessels may be used in New Zealand waters if they are either:

- foreign fishing vessels licensed under the Fisheries Act 1996; or as
- chartered fishing vessels, registered with a New Zealand permit holder.

### Recreational fishing

The 20% of New Zealand's population that engage in recreational fisheries target some 40 species. Recreational fishers have traditionally had strong, if not well defined, rights in the New Zealand fishery. Recreational fishers do not have quota, but are managed through input controls – namely, closed areas, size limits and closed seasons. An implicit allocation is, however, made to recreational fishers when the Government makes its TACC decisions each year.

### Aboriginal fisheries

The Fisheries Act 1996 recognises Maori as one of the key stakeholder groups in New Zealand's fisheries, providing for the input and participation of *tangata whenua* (local tribes) in fisheries management decision making processes.

### **Recent changes**

Concerns with the flexibility in the fisheries management regime led to an independent review of the operation of the quota management system. This review resulted in the enactment of amendments to the Fisheries Act 1996 in 1999. The Fisheries Act 1996 fully entered into force on 1 October 2001. The main legislative changes include:

- simplifying the catch-balancing regime with the aim of increasing voluntary compliance, including a shift from criminal prosecution to civil penalties as the main disincentive to over-fishing of a catch entitlement;
- a simplified cost recovery regime which is based on the attributable costs;
- providing for integration of fisheries management decisions through fisheries plans developed by stakeholders and/or the Ministry of Fisheries for individual fisheries;
- enabling responsibility for registry services to be transferred from the Ministry of Fisheries to a quota holder organisation.

New Zealand also ratified the United Nations Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks in 2001. From 1 May 2001 all operators of New Zealand flagged vessels must have a high seas fishing permit to take or transport fish on the high seas. In addition, no New Zealand national may use a foreign vessel to take or transport any fish on the high seas except in accordance with an authorisation issued by a State which:

- a) is a party to the Fish Stocks Agreement;
- b) is a party to the FAO Compliance Agreement;
- c) has accepted the obligations of a global regional or subregional fisheries organisation or arrangements to which the organisation relates; or
- d) is a signatory to the Fish Stocks Agreement and has legislative and administrative mechanisms to control its vessels on the high seas in accordance with that agreement.

These provisions ensure that New Zealand can meet its international obligations for the conservation and management of high seas fisheries. These obligations come from the United Nations Convention on the Law of the Sea and the United Nations Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks.

## **2. Capture fisheries**

### **Landings**

The New Zealand fishing industry can be broken down into several main categories based on the locations of the fish caught or the type of method used. These categories include the inshore fishery, the deep-water fishery, the pelagic fishery and the crustacean and shellfish fishery.

In 1999/2000 total landings totalled 536 202 tonnes. QMS species accounted for 494 049 tonnes and non-QMS 42 153 tonnes.

### **Status of fish stocks**

In 2000 there were 45 species (290 separate fish stocks) managed under the QMS. Some components of the QMS, including the Total Annual Commercial Catch (TACC) levels are reviewed annually. Sustainability decisions are made in relation to the purposes of the Fisheries Act 1996, especially those relating to its environmental and information principles,



and the setting and amending of sustainability measures. For the 2000-2001 fishing year the main changes to the TACCs were the following:

- a catch increase from 800 tonnes to 1 400 tonnes for the upper North Island orange roughly quota area and a reduction from 430 to 110 tonnes for the mid West Coast area;
- a reduction in the total hoki catch from 250 000 tonnes to 200 000 tonnes;
- catch reductions for oreos in the east coast South Island and Chatham Islands area;
- a reduction in quota for the Marlborough Sounds commercial paua fishery, combined with a voluntary catch reduction;
- increases in catch limits for alfonsino, Bluenose, elephant fish and sea perch;
- the opening of some areas to commercial hand gathering of beach cast seaweed, where the potential impacts are likely to be small or manageable.

### **Foreign access**

While New Zealand continues to accord a high priority to its bilateral fishing relationships, it let its bilateral agreements lapse in 1997 as they no longer reflected the extent of their economic interests in this area. Continuing expansion of New Zealand's catch capacity in relation to the available stock size has minimised the opportunity for surplus allocations. Should any surplus become available, New Zealand will offer it to other nations consistently with its obligations under the United Nations Convention for the Law of the Sea.

### **Recreational fisheries**

In fisheries where there is commercial and recreational fishing activity, concerns regarding allocation have arisen. In the case of one snapper fishery, commercial fishers have opposed reductions in the TACC because they consider that any improvements in the health of the fishery as a result of such TACC reductions will be captured by the recreational fishers who do not have an enforceable overall catch limit. The commercial fishing industry is therefore seeking Government consideration of how to effectively restrict the overall effort of recreational fishers and move to improve the interface between recreational rights and those of commercial ITQ holders. New Zealand is in the process of developing a recreational fisheries policy that will seek to provide recreational fishers with a better specification of their recreational fishing rights.

### **Aboriginal fisheries**

Following the comprehensive settlement of Maori fisheries claims against the Crown in 1992, and the passing of the Treaty of Waitangi (Fisheries Claims Settlement Act 1992), Maori have become the biggest player in New Zealand's commercial fishing industry, controlling well over half of all commercial fishing quota. Maori commercial fishing assets are currently managed by a central commission that has overseen a significant increase in the asset base since the 1992 settlement. The commission is currently in the process of finalising a model for allocating the settlement assets to Maori, largely on a tribal basis. The commission currently leases its quota holdings to tribes on an annual basis and at discounted rates.

A regulatory framework providing for the customary non-commercial fishing interests of Maori is currently being implemented throughout the country, enabling customary fishing to be effectively managed by Maori communities at a local level. The regulations provide for customary food gathering by Maori through the establishment of a framework

for the issuing of customary food gathering authorisations. The regulations also recognise the special relationship between Maori and their traditional fishing grounds by providing for the establishment of *mataitai* reserves – areas to be managed by local Maori through the making of bylaws governing the taking of fish within those areas.

In addition to the devolution of management authority contained in the customary fishing regulations, the Fisheries Act 1996 recognises a Treaty of Waitangi obligation to provide for the input and participation of *tangata whenua* (local tribes) in New Zealand's fisheries management decision making processes. There are a number of initiatives in progress that seek to increase the participation of Maori in wider fisheries management, including structural changes within the Ministry of Fisheries to better provide for interaction with Maori at a regional level. The Ministry of Fisheries is currently working with iwi and hapu on the development of relationships and structures at a regional level that provide for face to face engagement on fisheries issues, as well as the necessary capacity building and training to ensure that engagement is meaningful.

### **Multilateral agreements and arrangements**

#### ***Commission for the Conservation of Antarctic marine Living Resources***

New Zealand has been approved by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) to carry out exploratory fishing for toothfish in the Ross Sea since 1996. In the summer of 2000/01 three New Zealand flagged vessels entered the fishery and in the summer of 2001/02 two New Zealand flagged vessels returned to the Ross Sea to continue the exploratory fishery and the collection of research data. An important aspect of the Ross Sea CCAMLR fishery has been the successful implementation of a line-weighting regime to sink the longlines at such a rate so as to minimise the risk of seabirds taking baited hooks during the line setting operations. During the five seasons of fishing that have taken place in the Ross Sea vessels have reported zero seabird captures, this is in marked contrast to the level of seabird capture in some other toothfish fisheries.

In 1999 CCAMLR adopted a Catch Documentation Scheme for toothfish that was implemented by parties to CCAMLR in May 2000. The scheme is assisting in preventing toothfish catch from illegal, unreported and unregulated fishing (IUU) operations entering markets in CCAMLR member countries. The main markets for toothfish are all in CCAMLR member countries.

#### ***Commission for the Conservation of Southern Bluefin Tuna***

The Commission for the Conservation of Southern Bluefin Tuna (CCSBT) manages Southern bluefin tuna throughout its range. The eight meeting of Commission for the Conservation of Southern Bluefin Tuna (CCSBT) in 2001 yielded mixed results. Good progress was made when Korea formally acceded to the Convention. Chinese Taipei also undertook to join the CCSBT during the course of 2002. The Commission members (New Zealand, Australia, Japan and Korea) were, however, unable to agree on a total allowable catch limit. New Zealand, Australia and Korea subsequently undertook to voluntarily constrain their catch to the previously agreed national allocations.

## **3. Aquaculture**

Aquaculture is an important activity in terms of its contribution to the economy. Production from aquaculture activity has grown since its beginnings in the early 1970s.

Aquaculture is based primarily on the farming of greenshell mussels. Other important farmed species include pacific oyster, abalone and salmon. Techniques are being developed to enable a variety of new species, like dredge oysters, sea urchin, scallops, seaweed, snapper and sponges to be farmed. In the 2001 calendar year, exports of greenshell mussels were valued at NZD 157 million, ranking them as the second largest seafood export, after hoki.

The government has recently completed a review of the legislative framework under which aquaculture activity currently operates it has agreed to introduce new legislation in 2002. The intent of the new legislation is to support the contribution that the sustainable development of aquaculture can make to the economy, by integrating the planning process, streamlining the allocation process for new marine farms, and allowing greater benefit to be realised from the commercial use of coastal water space.

However, some important constraints have been placed on the reform process. These include that the reforms should not place the 1992 settlement of Maori customary and commercial fisheries claims at risk by creating a new grievance. Neither should the reform undermine the management regime that the government has established for fisheries, which is based on a system of individual fishing rights.

The reform package agreed to by government will provide regional councils with greater powers to manage and control the staged development of aquaculture, by requiring new marine farm developments to take place within clearly defined areas. This approach should focus marine farm development into prescribed areas, as opposed to the current somewhat open-ended zoning approach whereby councils have limited control over the amount or location of water space that can be applied for, for new marine farm development.

In addition, the new legislation will streamline the application and environmental assessment process for new marine farms. Regional councils will be required to consider the impact that marine farming has on the aquatic environment including carrying capacity, and the sustainability of fisheries resources when they are providing for aquaculture under regional coastal plans. This will go a long way towards improving the integration that is currently lacking between coastal planning, aquaculture development and fisheries management. It will also maintain a planning framework whereby the needs of the aquaculture industry, such as receiving an appropriate level of protection from inappropriate land use or land-based discharges can be considered in an integrated manner.

Providing an updated legislative framework for aquaculture will provide more certainty to participants and allow the industry to move onto a more sustainable development path. This will allow the aquaculture industry to continue its contribution to the economy while not undermining other marine resource users or compromising the environment.

#### **4. Government financial transfers**

##### ***Total transfers***

Since October 1994 the New Zealand Government has recovered the costs associated with fisheries management services and conservation services carried out for the benefit of the commercial sector.<sup>3</sup>

Table III.22.2. **Total [net] Government financial expenditures in New Zealand's fishery sector**

NZD million

Nature of transfer	1999/2000	2000/01
<b>Marine capture fisheries export value</b>	1 430	1 465
<b>Direct payments</b>	0	0
<b>Cost reducing transfers</b>	0	0
<b>General services</b>		
Policy framework	5	6
Fisheries information and monitoring	18	21
Regulatory management	5	6
Fisheries access and administration	12	11
Enforcement of fisheries policies	18	18
Prosecution of offences	2	3
Sub-total	60	65
<b>Cost recovery</b>		
Cost recovery levies	-27 <sup>1</sup>	-29 <sup>1</sup>
Total	33	36
(percentage of total export value)	2%	3%

1. Negative values refer to transfers from the industry to the Government.

Source: OECD.

Critical to this approach is the annual consultation process that takes place between the Ministry of Fisheries and stakeholders on the nature and extent of fisheries service to be provided, the costs associated with those services, and their allocation between the commercial sector and the Crown. A summary of the levies charged to participants follows:

- Monthly levies on quota holders: the main levies to recover costs for management of fisheries within the quota system.
- Levies for non-ITQ species: the main levies to recover costs for management services in non-quota fisheries.
- Levies on individual catch limits: apply to permit holders where catch limits are specified on the permits and recover costs related to these fisheries.
- Aquaculture levies: levies to recover enforcement and research costs related to aquaculture and apply to holders of permits, leases or licenses.
- Permit holders levy: applies only to permit holders, and recovers costs related to access to fisheries, and processing of fishing returns.
- Licensed fish receivers levy: recovers the costs of processing all returns.
- Vessel monitoring levy: recovers the costs of the further development of the vessel monitoring system.
- Conservation services levy: intended to recover costs incurred by the Department of Conservation in researching the effects on protected species of by-catch resulting from commercial fishing, and measures to mitigate the adverse effects of commercial fishing on protected species.

### **Social assistance**

New Zealand does not have a social policy with regards to the fisheries sector. Fishers are, like all other members of society, entitled to standard “social security” provisions.

### **Structural adjustment**

When TACs are reduced for sustainability reasons, the necessary adjustment and rationalisation required is conducted by fishers and require no Government involvement or financial assistance.

## **5. Markets and trade**

More than 90% of the New Zealand fishing industry’s earnings were derived from exports. Following a decrease in export returns over the past few years, 2001 exports registered a 2% rise relative to 2000. Seafood exports reached NZD 1 465 billion and totalled 283 000 tonnes in 2001.

In 2000 the main export performers were hoki (NZD 311 million), mussels (NZD 169 million), and rock lobsters (NZD 129 million). The key export markets for New Zealand were Japan (NZD 318 million), the USA (NZD 258 million) and the European Union (NZD 219 million).

## **6. Outlook**

The primary focus of fisheries management in New Zealand will be introduction of new species into the QMS. The Ministry of Fisheries plans to introduce up to 50 new species into the QMS over the next three years.

In the international area, New Zealand will be focusing on the development of regional fisheries management organisations for high seas fisheries.

New Zealand will continue to push for the responsible utilisation and conservation of tuna fisheries in regional fora such as the Convention for the Conservation of Southern Bluefin Tuna and the Forum Fisheries Agency.

New Zealand will continue to promote the liberalisation of trade in fish products within the framework of international and regional fora such as the World Trade Organisation (WTO) and Asia-Pacific Economic Co-operation (APEC).

### **Notes**

1. Where catches of quota species are taken in excess of quota held, the Ministry of Fisheries invoices the quota holder for that amount of catch.
2. The exceptions are stocks whose biological characteristics mean MSY cannot be estimated (*e.g.* squid), enhanced stocks, and international stocks where New Zealand’s catch limit is determined as part of an international agreement.
3. At this point in time only commercial users of the resource, the most significant contributors to management costs, pay cost-recovery levies.

PART III  
*Chapter 23*

## Norway

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## Summary

In 2001, landings of fish by Norwegian registered vessels totalled 2.8 million metric tonnes, with a total value at first hand of NOK 11.4 billion.

The overall value of Norwegian seafood export in 2001 was NOK 30.6 billion, a decline of 2.5% on 2000. The decline is attributable mainly to a downturn in exports of salmon products.

The stock situation for the main species in the northern part of Norway, especially north-east Arctic cod, gives rise to some concern. At its last session in November 2001 the Joint Norwegian-Russian Fisheries Commission therefore appointed a working group with a mandate to develop long-term, sustainable management strategies for this stock and report in 2002.

Aquaculture production of salmon and trout increased from approximately 489 000 tons in 2000 to 509 000 tons in 2001. The total value of the production was, on the other hand, reduced from NOK 12.1 billion to NOK 9.1 billion in the period. A sharp increase in the production of trout was the main reason for the increased production volume. The average sales price on salmon and trout was reduced by 27% and 32% respectively.

## 1. Legal and institutional framework

Several administrative measures are applied to limit the fishing effort in Norwegian fisheries. The Act of 1951 and the Act of 1972 were the basic legal instruments for the arrangement of fishing licenses as well as other types of effort regulation introduced to the fishing fleet. The Acts of 1917, 1951 and 1972 were replaced by the Act of 1999 on the Regulation of the Participation in Fisheries as of 1st January 2000. In general, the registration of fishing vessels in the register "Register of Norwegian Fishing Vessels", as well as the acquisition of an already registered fishing vessel, requires a permit from the authorities.

All commercial fishing for whitefish by trawlers of any size, purse seiners longer than 90 feet catching herring, mackerel, capelin, sprat, blue whiting or saithe, shrimp trawlers longer than 65 feet operating North of 62° N, North Sea trawling and industrial trawling, require a license. Coastal fishing vessels, defined as vessels operating with conventional gear (nets, longlines, hand line etc.), are in general not subjected to licensing. There are however exceptions also for this category of vessels, regarding certain pelagic species, where a license system is established.

Norwegian fisheries are regulated through annual regulations on the sharing of the Norwegian TAC on all regulated stocks amongst the different groups and amongst the participating vessels. The different regulations give specific rules on the implementation of the fisheries. In addition, rules for periodic regulations of outtake, by-catch-rules, start-and stop-dates, sanctions when the regulations are broken, and eventual criteria for exemptions from the main rules of the regulation are set out.

Through the regulations the division of quotas to the level of fishing vessels is set. For some fisheries the group quotas are divided equally amongst the vessels, while for other fisheries the vessel-quotas are differentiated by vessel-length, tonnage or other technical criteria.

In addition to the regulation of minimum fish size, minimum mesh size and by-catch rules, the most important instruments to secure a sound management of marine resources are as follows: The discard ban, the closure of fishing grounds with too high intermixture of undersized fish and the requirement that a vessel has to change fishing grounds if the intermixture of undersized fish exceed permitted levels. Another important measure is the use of catch sorting devices, i.e. grids.

In order to properly manage the different fisheries, an extensive system to control the fishing activity and the fishing fleet has been established. There are three corner stones in the control and enforcement system in Norway; the Coast Guard, the Directorate of Fisheries and the Sales Organisations.

### **General conditions regarding foreign access, and restrictions on foreign investment**

Vessels from third countries are subjected to the same rules as Norwegian vessels as regards by-catch, discards, logbooks and use of technical devices such as sorting grids when fishing in Norwegian waters.

Foreign vessels fishing in Norwegian economic zone are also obliged to send regular catch reports to the quota control system in the Directorate of Fisheries.

There are no special regulations on foreign investments in the processing industry.

According to Norwegian law, the right to buy a fishing vessel can only be given to a Norwegian citizen or a body that can be defined as a Norwegian citizen. A company is regarded as having equal rights with a Norwegian citizen when its main office is situated in Norway and the majority of the Board, including the Chair of the Board, are Norwegian citizens and have stayed in the country the last two years. Norwegian citizens also have to own minimum 60% of the shares and have to be authorised to vote for at least 60% of the votes.

### **Obtaining concessions for owning fishing vessels**

It is a part of the Norwegian policy that ownership to the fishing fleet shall be reserved for professional fishermen. Therefore, to obtain the right to own a fishing vessel, one has to have a record of active and professional fishing on a Norwegian fishing boat for at least three of the last five years.

When this legislation is being applied to companies, it means that at least 50% of a boat owning company has to be owned by persons who qualify for owning a fishing vessel.

## **2. Capture fisheries**

### **Landings**

Preliminary figures indicate that the total Norwegian landings, including seaweed, amounted to about 2.8 million metric tonnes both in 2000 and 2001. The total first-hand value increased from NOK 9.9 billion in 2000 to NOK 11.4 billion in 2001.

The total catch of groundfish species increased by approximately 2% in 2001 compared to 2000. The total first-hand value increased by about 4% in the period, indicating that the



positive development in the prices for these species in recent years continued in 2000 and 2001.

The total catch of pelagic species was reduced by approximately 2% from 2000 to 2001. Preliminary figures indicate that the total catch for reduction purposes increased while the catch for direct human consumption decreased in the period. The total first-hand value increased by 48% in 2001 compared to 2000. The average price for all pelagic species for reduction purposes increased by more than 10% whereas the price for the most important species for human consumption more than doubled in the period.

Table III.23.1. **Share of quantity landed by the Norwegian fishing fleet 1998-2001**  
%

	1998	1999	2000	2001
Gadoids etc.	60.5	61.7	55.0	50.0
Pelagic fish	31.1	28.2	33.2	41.5
Shellfish	8.1	9.8	11.4	8.2
Seaweed	0.3	0.3	0.4	0.3
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: OECD.

### **Employment, structure and performance of the fleet**

The total number of commercial fishers in Norway was reduced from approximately 20 100 in 2000 to about 19 000 in 2001. There was a reduction of approximately 550 persons both in the number of full time as well as part time fishermen in the period.

The number of fishing vessels registered in the "Register of Norwegian Fishing Vessels" was reduced from about 13 000 vessels in 2000 to about 11 900 vessels in 2001. An updating of the register, where small inactive vessels were deleted from the register, mainly caused the reduction. The total number of fishing vessels in operation was slightly reduced from about 8 200 vessels in 2000 to about 8 000 vessels in 2001. The number of fishing vessels operating more than 30 weeks was reduced from about 2 500 vessels to 2 400 vessels in the period.

The average age of the fishing fleet is high and was estimated to about 24 years both in 2000 and 2001. A total of 130 and 115 new fishing vessels were built in 2000 and 2001 of which 23 and 28 vessels were above 15 m.

The annual profitability study of Norwegian fishing vessels indicated that the profitability in the fishing fleet as a whole was good in 2000. The total operating revenues for the fishing fleet 8 m and above operating on a whole year basis were estimated at NOK 8.4 billion, while the total operating expenses were estimated at NOK 7.7 billion. This resulted in a total operating profit of NOK 0.7 billion this year. It is expected that the profitability in the fleet as a whole will increase in 2001 compared to 2000.

### **Status of fish stocks**

The scientific advice provided by the International Council for the Exploration of the Sea (ICES) in relation to total allowable catches (TACs) is fundamental to management decisions.

The precautionary approach (pa) has gradually been included into the advice from ICES and implemented in Norwegian management. High fishing mortality has since 1996 been given increased attention even for fish stocks estimated to be within safe biological

limits. Precautionary reference points were introduced in the advice from ICES in 1998, and at the same time ICES also decided to define “safe biological limits” both in relation to the size of the stock as well as to the fishing mortality.

In the years before the introduction of the pa-terminology, assessments, whether stocks were considered to be within or outside “safe biological limits”, were mainly defined in relation to the size of the spawning stock biomass (SSB). By introducing new precautionary reference points, taking into account both the size of the spawning stock and the fishing mortality, some stocks, earlier assessed to be within “safe biological limits”, were considered to be outside safe biological limits, even without any significant changes in the spawning stock biomass. Further discussions will be held between scientists and managers when it comes to implementation of the new reference points.

Table III.23.2 gives the latest assessments (May and November 2001) prepared by the ICES Advisory Committee on Fishery Management (ACFM) regarding fish stocks important to Norway. The table gives information on the stock situation, spawning stock biomass (SSB) and spawning stock reference points ( $B_{pa}$ ), the catch, actual fishing mortality and fishing mortality reference points ( $F_{pa}$ ), proposed by ACFM.

Table III.23.2. **Status for the most important species in Norwegian fisheries**

Species	Spawning stock biomass (1 000 tons)		Spawning stock reference point ( $B_{pa}$ ) (1 000 tons)	Estimated fishing mortality		Fishing mortality reference point ( $F_{pa}$ )
	2000	2001		2000	2001	
<b>Groundfish species</b>						
North-East Arctic cod	223	300	500	0.91	0.66	0.42
North Sea cod	54	55	150	0.83	0.83	0.65
North-East Arctic haddock	70	79	80	0.46	0.67	0.35
Haddock in the North Sea and Skagerrak	87	215	140	0.92	0.92	0.70
North-East Arctic Saithe	311	288	150	0.26	0.26	0.26
Saithe in the North Sea and Skagerrak	218	232	200	0.29	0.29	0.40
Greenland Halibut	30	28	65 <sup>1</sup>	–	–	–
<b>Pelagic species</b>						
Capelin (Barents Sea) <sup>1</sup>	2 099	2 019	–	–	–	–
Norwegian Spring Spawning Herring	6 725	6 106	5 000	0.18	–	0.15
North Sea Herring	772	1 145	1 300	0.42	0.27	0.12/0.25
Mackerel	3 815	4 023	2 300	0.17	0.17	0.17
Blue whiting	2 086	1 514	2 250	0.92	0.86	0.32
Sandeel	707	825	600	0.55	–	–
Norway pout	191	325	150	0.48	–	–

1. Maturing biomass.

Source: OECD.

The table indicates that several groundfish stocks at the moment are considered to be “outside safe biological limits ( $B_{pa}$ )” or to be “harvested outside safe biological limits ( $F_{pa}$ )” whereas the stock situation for important pelagic species is more positive.

### Management of commercial fisheries

Most of the key fish stocks in Norwegian waters are shared with other countries. TACs and national quotas for such joint stocks are determined after negotiations between the countries involved on an annual basis. Norway agrees bilateral quotas with Russia, the European Union,

The Faeroe Islands, Greenland and Iceland. Norway is also party to a trilateral agreement with Greenland and Iceland about capelin as well as a five-party agreement on Norwegian spring spawning herring. Finally, Norway participates in regional management commissions in the Northwest Atlantic (NAFO) and Northeast Atlantic (NEAFC).

To manage national fisheries, output and input regulations as well as technical regulations are employed.

### **Output regulations**

In the Norwegian fisheries several types of output regulations are employed. In most of the fisheries a TAC is set resulting in a national quota for the Norwegian fishing fleet. As a rule the national quota is divided between groups of vessels, i.e. group quotas. The fisheries for the most important species are also regulated by vessel quotas or maximum quotas (a vessel quota is fixed for each participating vessel while a maximum quota is a group quota divided in a manner that results in a certain competition between the vessels in the group). In addition to these measures period quotas, trip quotas and quotas of days at sea are used as output controlling measures in some fisheries.

TACs and national quotas in 2000 and 2001 for some of the most important species in Norwegian fisheries, agreed upon by Norway and other parties, specified on economic zone/area and on agreement are listed in Table III.23.3 below.

The negative development for some of the most important ground fish stocks both in the areas north of 62° N and in the North Sea, continued in 2000 and 2001 resulting in a further reduction in TAC and national quotas.

With the exception of the Norwegian Spring Spawning herring the situation for the main pelagic stocks is regarded more positive than in recent years. This development has resulted in an increase of both the TAC and national quotas in 2000 and 2001 compared to recent years.

One hundred seventy five coastal vessels fishing with conventional gears participated in an experiment with "groundfish" quotas in 2001. A "groundfish" quota is a quota combining the quotas of cod, haddock and saithe given to each vessels participating in these fisheries. The intention with the experiment was to investigate the possibilities for a more rational fishing pattern for the coastal fleet. The experience from the experiment was positive and "groundfish" quotas were introduced to the smaller part of this fleet in 2002.

The national quota of minke whales was set to 655 and 549 animals in 2000 and 2001 respectively. The quotas for seals were set at 5 000 animals in the Barents Sea for 2000 and 2001, and 28 700 and 25 300 in the areas around Jan Mayen. 33 vessels participated in the hunt for minke whales and 3 vessels participated in the hunt for seals in 2000 and 2001 respectively. All participating vessels were required to have inspectors on board to ensure that their hunting activities were performed in accordance with regulations.

### **Input regulations**

Several administrative measures are applied to limit the fishing effort in the Norwegian fisheries. The main legislation for these measures is based on the following acts:

- Act of 26th March 1999 relating to the Regulation of the Participation in Fisheries
- Act of 3rd July 1983 relating to Salt-Water Fisheries

**Table III.23.3. TACs and national quotas in 2000 and 2001 for some of the important species in the Norwegian fisheries**

Species	The economic zone of/area	Agreement between Norway and:	TAC (1 000 tons)		National quota (1 000 tons)	
			2000	2001	2000	2001
Cod	North of N62° N	Russia	390 000	395 000	193 400 <sup>2</sup>	195 335 <sup>2</sup>
	North Sea	EU	81 000	48 600	7 190	7 780
	Skagerrak	EU	11 600	7 000	380	230
Haddock	North of N62° N	Russia	62 000	85 000	38 400 <sup>3</sup>	50 835 <sup>3</sup>
	North Sea	EU	73 000	61 000	8 380	6 945
	Skagerrak	EU	4 450	4 000	190	170
Saithe	North of N62° N		125 000	135 000	118 500	125 000
	North Sea and Skagerrak	EU	85 000	87 000	40 000	41 000
Herring	North of N62° N <sup>1</sup>	Iceland, Faroe Islands, Russia, EU	1 250 000	850 000	712 500	484 500
	North Sea, West of 4° W	EU	265 000	265 000	74 800	74 800
	Skagerrak,	Sweden, Denmark	80 000	80 000	10 670	10 670
Capelin	North of N62° N	Russia	435 000	630 000	256 000	371 000
	Iceland, Jan Mayen, Greenland <sup>5</sup>	Iceland, Greenland	1 000 000	1 090 000	107 000	107 770
Mackerel	North Sea, Skagerrak,	EU	69 725	71 425	58 460	59 930
	North of N62° N		124 710	127 830	113 600	116 440
Blue whiting	International waters		650 000	–	250 000	250 000
Sprat	Skagerrak	Sweden, Denmark	50 000	50 000	3 750	3 750
Shrimp	Skagerrak	Sweden, Denmark	9 100	10 150	4 240	4 730
	North Sea	EU	3 900	4 350	2 870	3 310
	Greenland	EU			2 500	2 500
	NAFO <sup>4</sup>	NAFO			1 985	1 665

1. Norwegian spring spawning herring.

2. Norwegian coastal cod (40 000 metric tons) included.

3. Norwegian coastal haddock (5 000 metric tons) included.

4. "Days at Sea".

5. 2000/2001 and 2001/2000 season.

Source: OECD.

The Act of 1999, which replaced the Act of 1917 relating to Registering and Marking of Fishing Vessels and the Act of 1951 relating to Fishing with Trawl as of 1 January 2000, is the basic legal instrument for the arrangements of fishing licenses as well as other types of effort regulation.

In the Table III.23.4 the number of vessels with license and the type of license for these vessels in 2000 and 2001 are listed.

As indicated in Table III.23.4, a particular vessel may hold several different types of licenses and may or may not, in the course of one or two years, participate in all fisheries for which it is licensed. The table indicates that the number of vessels that hold one or more licenses has been slightly reduced from 2000 to 2001.

To reduce the total fishing capacity, and to secure a reasonable balance of the total fishing capacity to available resources and thus to secure a higher profitability, a unit quota system has been applied in 1996, 1997 and 1998 for certain parts of the ocean going part of the Norwegian fishing fleet.

Table III.23.4. **Type of fishing license, the number of licenses and fishing vessels with license in Norwegian fisheries: 2000 and 2001**

Type of license	Number of licenses	
	2000	2001
Purse seine	97	94
Blue whiting	44	45
Norwegian spring spawning herring with trawl	79	73
Industrial trawl	101	94
Capelin trawl	148	148
Cod trawl	102	96
Saithe trawl	14	14
Shrimp trawl	108	105
Other licenses	49	45
<b>Total number of licenses</b>	<b>783</b>	<b>753</b>
<b>Number of vessels</b>	<b>439</b>	<b>424</b>

Source: OECD.

The purpose of the system is to make the members of a vessel group, where such a system has been applied, responsible of adjusting the fishing capacity. In the seine fisheries this is done by allowing the owner of two vessels to transfer the quota of one vessel, after a certain deduction to the remaining vessels in the group, from one vessel to another. The owner of a vessel will then control more than one quota for a period.

Such a unit quota system was reintroduced in 2000 for the cod trawler fleet, the purse seine fleet and part of the shrimp trawler fleet holding historical permits in the trawling for shrimp in Greenland waters. Including the fleet of vessels 28 m.o.a.l. and above holding annual permits in the fishery for ground fish species with conventional gears also expanded the system. In 2001 the unit quota system was further expanded to also include the trawler fleet holding a saithe trawl license.

As from 2000 the owner of the vessel can control the extra quota for 13 years if the vessel withdrawn from the fishing fleet is sold and for 18 years if the vessel is scrapped. The principle is however unchanged when it comes to the costs as it is the owner of the extra quota that has the responsibility for the costs involved and to withdraw the vessel from the Norwegian fishing fleet.

The licensing system and unit quota system apply to the ocean going part of the Norwegian fishing fleet. As regards the coastal part of the fishing fleet annual permits mainly regulate the fishing effort. However the Act of 1983 relating to Salt-Water Fisheries was changed in 2001 to allow the introduction of special quota arrangement also for the coastal fleet in the near future.

### **Technical regulations**

Regulation of minimum fish size, minimum mesh size, gear restrictions in certain fisheries, by-catch rules, discard ban and real time closure and opening of fishing grounds with too high intermixture of undersized fish are the most important instruments in use in the Norwegian fisheries to secure a sound management of marine resources.

In the shrimp trawl fisheries the use of sorting devices in the gears are mandatory.

Mandatory use of sorting devices in the cod trawl fisheries was introduced in 2000 for the trawl fisheries in Norwegian economic zone north of 62° N.

The authorities also regulate the use of seine in the fisheries for herring to avoid accidental killing and dumping of fish. Work on developing a new instrument that will make the fishers able to estimate the amount of fish in the seine in the pelagic fisheries was initiated in 2000 and continued into 2001.

A program to remove nets and other types of gears lost by the fishing fleet on the fishing grounds and thereby avoiding “ghost fishing” was continued in 2000 and 2001 and will be continued further.

### Access

Consultations on bilateral fishing arrangements for 2000 and 2001 were held with Russia, the EU, the Faeroe Islands, Greenland and Poland. With the exception of the agreement with Poland, these included exchanges of quotas. The objective of such agreements is to develop a reasonable balance in reciprocal fishing patterns.

In Tables III.23.5 and III.23.6 below, the quotas allocated to Norway in other countries zones and quotas allocated to other country in the Norwegian economic zone in 2000 and 2001 are presented.

In addition to the exchange of quotas the agreements between the countries involved also include licensing arrangements for vessels fishing in other countries economic zones.

### Management of recreational fisheries

Recreational fisheries (sports fisheries) in saltwater are regulated by Act of 3 June 1983 No. 40 relating to seawater fisheries Foreign recreational fishermen (other than Norwegian residents) are only allowed to use hand held fishing gear. There are, however, no restrictions to minimum size of fish or maximum catch. Foreigners are prohibited to trade

Table III.23.5. **Quotas allocated to Norway Specified by agreement and economic zone in 2000 and 2001**

Agreement (between)	The economic zone of/area	Total Norwegian quotas (all species, tonnes)	
		2000	2001
Norway and Russia	Russia	456 000	542 000
Norway and EU	EU North Sea	218 300	213 300
	EU West of 4° W	257 910	224 290
	Greenland, West coast.	1 810	1 835
	Greenland, East coast	11 715	11 740
Norway and the Faroe Islands	Faroe Islands	52 825	56 972
Norway and Greenland	Greenland, West coast	600	600
	Greenland, East coast	664	893
	Greenland	950	700
Norway and Iceland	Iceland	14 370	14 482
Norway, Greenland and Iceland	JanMayen/Iceland/Greenland	107 770 <sup>1</sup>	132 315 <sup>1</sup>
Norway and EU (Sweden and Denmark)	Skagerrak/Kattegatt	19 520	19 785
NAFO	NAFO (3M)	–	–
NEAFC	Irminger Sea	4 586	3 596

1. Quota for 2000/2001 and 2001/2002.

Source: OECD.

Table III.23.6. **Quotas allocated to other countries in the Norwegian economic zone in 2000 and 2001**

Allocated to	Area	Total quotas (all species, tonnes)	
		2000	2001
Russia	North of 62° N	520 000	560 500
	Jan Mayen	11 350	7 200
EU	North of 62° N	37 820	38 775
	North Sea	504 500	461 040
	Jan Mayen	1 000	1 000
Faeroe Islands	North of 62° N	25 238	30 760
	North Sea	30 900	27 900
	Jan Mayen	650	350
Greenland	North of 62° N	5 118	4 952
	North Sea	1 000	1 000
Iceland	North of 62° N	3 630	3 660
EU (Sweden and Denmark)	Skagerrak/Kattegatt	150 830	143 265
Sweden	North Sea	4 180	4 115
Poland	North of 62° N	3 100	3 100
	North Sea	825	825
	Jan Mayen	5 000	5 000

Source: OECD.

their catch by the sale organisations. Norwegian recreational fishermen may, however, trade their catch by the sales organisations, but only catch that comply with current minimum size requirements.

Recreational fisheries (sports fisheries) are regulated by the Act relating to salmonids and freshwater fish (No. 47 May 15th, 1992). The Act contains no definition of recreational fishing. Most fishing rivers and lakes in Norway are part of outdoor recreation and not for commercial purpose. Recreational fishers are allowed to sell their catch and there is no limit on how much they can sell. Commercial fishers have to register their gear before the fishing season, and there are different fishing seasons for fishing with fixed gear than for fishing with rod and handline.

Recreational fishing in rivers and lakes is not included in the right of free access: the fishing rights belong to the landowner. There is a distinction between government property, state common land and private property, but regardless of the land ownership, sport fishers may only fish if they have permission from the landowner or have bought a fishing license.

There are different regulations for anadromous salmonids (salmon, sea trout and sea char) and for freshwater fish. For freshwater fishing there are no general regulations regarding gear restrictions or fishing seasons, but in some areas there might be local regulations.

As a general rule anadromous salmonids are protected unless otherwise determined. Regulations permit fishing for anadromous salmonids in rivers and lakes with rod and handline during fishing seasons and are decided by the country governor. There are different fishing seasons for different areas or rivers. All anglers over the age of 16 who wish to fish for anadromous salmonids in fresh water must pay the National Fishing License, an annual fee payable to the Norwegian Government.

There were no changes in management of recreational fisheries in 2000 and 2001 except existing fishing seasons for anadromous salmonids in some rivers. The local fishing seasons are revised every year dependent on the stock of anadromous salmonids in the different areas.

### **Aboriginal fisheries**

Norwegian fisheries authorities acknowledge an obligation to maintain a traditional Lap fishery, which is mainly carried out in the coastal area in the northern parts of Norway. The policy is to fulfil this obligation within the existing fisheries management system. When special measures are taken, the criteria for qualification therefore are geographical or connected to the common boat size among Lap fishermen, rather than an ethnic criterion. The Laps are represented in the Advisory Committee on Regulation, which gives advice on fisheries regulations to the Ministry of Fisheries.

Adjustments in the rules for the register of professional fishermen have been made in order to make it easier for Laps with a traditional way of living and working, to be registered. This has been achieved by extending the limit for maximum income from other types of activities besides fishing, in the actual geographical area. At the same time funds have been made available to secure the delivery of the catches in the Lap areas of northern Norway.

### **Monitoring and enforcement**

In order to manage the different fisheries properly, an extensive system to control the fishing activity and the fishing fleet has been established. The control and enforcement system in Norway has three cornerstones: the Coast Guard, the Directorate of Fisheries and the Sales Organisations.

The most important sources of information, in order to control the fishing activity and check the reliability of catch reports, are logbooks and sales notes. All vessels with an overall length of 13 meters or longer are subject to the logbook provisions. The smaller vessels are obliged to fill in a simplified version of the logbook.

The logbooks are a primary source for the monitoring of a vessel's fishing activity checking facts such as live weight of catches by species and the exact position and fishing time of each fishing operation.

The sales note is a sales contract between the fishermen and the buyers. For the authorities, this document is the basis for keeping accounts of catches in relation to quotas. On the basis of the information from sales notes, the authorities are able to estimate when a quota is exhausted and stop the fishing activity accordingly.

Vessels from third countries are subjected to the same rules as Norwegian vessels when fishing in Norwegian waters *inter alia* with regard to rules for by-catch, discard, logbooks and use of technical devices such as sorting grids.

Foreign vessels fishing in the Norwegian economic zone and onboard-producing Norwegian vessels are obliged to send regular catch reports to the Directorate of Fisheries who is operating the Norwegian system for quota control. The vessels must send a message containing information of the catch onboard specified by species and what time the vessel has entered into the Norwegian economic zone (active code). In addition the vessels must send catch reports to the Directorate of Fisheries on a weekly basis. The vessels are also obliged to notify the authorities when they have completed their fishing activity and are about to leave the Norwegian economic zone (passive code).



The Norwegian fishing authorities have established seven check-points north of 62° N and three flexible checkpoint areas in the North Sea for the purpose of controlling foreign vessels in the Norwegian economic zone. Foreign vessels are obliged to notify the system for quota control in the Directorate of Fisheries no later than 24 hours before arriving at the checkpoint.

In order to improve the control of fisheries, Norway and the European Union have as from 1 January 2000 established a satellite-based monitoring system, which applies to vessels operating in the waters of either party. Bilateral pilot projects on satellite tracking are being carried out in co-operation with Russia, the Faeroe Island and Iceland.

As from 1 January 2000, vessels operating in international waters in the NEAFC-area are subject to satellite tracking. From 1 January 2001, vessels also operating in the NAFO area shall have satellite-tracking equipment on board.

In 2001 various measures regarding the strengthening of control and enforcement were implemented. To this end, the control on shore was made more effective. The maximum penalty for fisheries related crime has been increased and, furthermore, the Norwegian fisheries authorities have now a legal basis for withdrawing the license for fishing and the license for buying fish for a shorter or longer term depending on the seriousness of the violation.

### **Multilateral agreements and arrangements**

On 20 April 2001 Norway signed the Convention on the Conservation and Management of Fishery Resources in the Southeast Atlantic Ocean (SEAFO). Norway has not as yet ratified the Convention, which is to be ratified by three coastal states before coming into force. FAO is Depositary.

There are no other changes as to Norway's participation status in regional fisheries management organisations and other multilateral and international organisations with competence in fisheries matters during 2000 and 2001.

## **3. Aquaculture**

### **Policy/policy changes**

The fish farming industry is of great importance to the Norwegian fisheries sector. Salmon is by far the most important species. Rainbow trout is the second most important species, while species like halibut, arctic char, cod and shellfish are beginning to make their way into the industry.

The industry is regulated by various laws and regulations of which the most important are:

- The Act of Farming of Fish, Shellfish, etc.
- The Act of Sea Ranching
- The Act on Protection against Pollution.
- The Act on Measures against Diseases.
- The Act of Harbours and Fairways, etc.

Farming of fish and shell fish in Norway requires a license from the authorities. For sea farming of salmon and trout there is also a system of limited entry. There has not been issued new licenses for salmon and trout nation-wide since the mid-1980s. However

40 new licenses for breeding of salmon and trout will be allocated late 2002 or early 2003. Licenses for ranching of shellfish and lobster are planned to be allocated in 2003.

The emphasis on environmental and disease-controlling measures has resulted in a regulation of the operation and installation of aquaculture facilities. This regulation also restricts the use of antibiotics in fish farming and addresses the handling and disposal of dead fish. The license holders are instructed to keep logbooks on the amount of fish in the cages, the number of dead fish and escaped fish and the amount of antibiotics and chemicals used in the production. In case of disease, the license holder is obliged to keep records on the type of disease, the number of fish infected and the location the fish is kept in.

The veterinary service controls fish diseases, and any fish farmer using antibiotics is prohibited from selling fish until approval from the fisheries authorities has been given. The Norwegian Directorate of Fisheries operates laboratories along the coast to test fish quality and to measure the residues of antibiotics in fish. Introduction of effective vaccines in addition to improving operating routines has nearly eliminated the use of antibiotics in salmon farming. The average use of antibiotics was only 1.26 mg/kg fish produced in 2000 and 1.13 mg/kg fish produced in 2001.

Feed quotas were introduced in 1996 in order to lessen production growth and prevent lasting imbalance on the EU-market for salmon. Each license holder is obliged to not exceed a maximum level of feed used in the production of salmon. In 2001 the feed quotas amounted to 830 tons for every fish farm of 12 000 m<sup>3</sup> produced salmon, an increase of 10% from 2000. The regime has been extended in 2002.

### **Production facilities, values and volumes**

Most Norwegian sea-farms are open cage systems located along the coast. This kind of system has proven to be most cost-effective. Each license normally covers two or three locations. The purpose of giving the license holder more than one location is to reduce the risk of diseases and pollution. There is still room for an expansion of the aquaculture industry along the Norwegian coast line.

The number of licenses granted for sea-farm production of salmon or trout has not changed in recent years. The fisheries authorities will however distribute 40 new licenses to the industry in 2002. Each license will be subject to charge of NOK 5 million.

The number of licenses for production of marine fish species and shellfish has increased in the period. The activity in this part of the industry is however, as indicated in the table, modest.

As indicated in Table III.23.7, the total production of salmon and trout increased by approximately 4% whereas the total value was reduced by about 25% in the period investigated. A sharp increase in the production of trout was the main explanation for the increased production volume. A reduction of 27% and 32% on the sales price on salmon and trout explain the reduction in total value.

The operating profit in the sea farming industry of salmon and trout was estimated to NOK 0.1 billion in 2001 which is a sharp reduction compared to the estimated total profit of NOK 3.6 billion in 2000. This was mainly caused by the sharp decrease in the sales price on salmon. No major changes are expected as regards the profitability in this industry in 2002.

Table III.23.7. **Types of licenses granted, production and employment in the norwegian aquaculture industry**

2000 and 2001

Type of license	Number of licenses		Production				Employment (persons)	
			Volume (tons/1 000 pcs)		Value (NOK mill)			
	2000	2001	2000	2001	2000	2001	2000	2001
Sea-farm, salmon and trout	854	848	488 839	509 462	12 079	9 121	2 563	2 645
Smolt, salmon and trout	310	302	155 010 <sup>1</sup>	158 903 <sup>1</sup>	1 245	1 158	1 068	1 037
Marine fish	369	486	1 438	1 679	64	70	336	310
Shellfish	869	823	852/407 <sup>2</sup>	913/162 <sup>2</sup>	8	9	355	504

1. 1 000 pieces of smolt.

2. 1 000 pieces (mainly scallop, oysters).

Source: OECD.

#### 4. Fisheries and the environment

The need to manage the coastal zone and to secure the areas used by the fishing fleet and aquaculture industry has high priority in Norway. The coastal zone is an area of many different and potentially conflicting interests.

The challenges in the coastal zone are to ensure harvesting of resources and use of the coastal area for a multitude of activities as well as ensuring a healthy resource base for future generations. Each country and local municipality is urged to work out a coastal zone management plan if they regard it necessary. The fisheries authorities participate in the planning process on the local level.

The Ministry of Fisheries has contributed to a White Paper on Biological Diversity put forward to the Parliament in April 2001. The White Paper brings into focus the importance of protecting the marine biological diversity in order to maintain the rich potential of marine resources in the coastal and sea areas. It focuses on the importance of making better use of the principles of precaution and ecosystem management in the management of fisheries and maricultures.

A sustainable use of the marine biological diversity, of which the fisheries and mariculture resources are components, demands better knowledge of the marine biological diversity. This implies the need for better mapping and monitoring of habitats and species. The Ministry of Fisheries is participating in a workgroup set up by the Ministry of Environment to establish a National plan for mapping and monitoring biological diversity in Norway.

A sustainable development in the marine areas is not only dependent on responsible fisheries management, but is equally dependent upon responsibility within other activities that affect the marine environment. The fisheries authorities thus attach high importance in co-operation with other sector authorities and the environment authorities to reveal harmful effects of various activities and to prevent discharge of hazardous substances into the sea.

#### 5. Government financial transfers

In the period covered by the Review, there were small changes in the government financial transfers.

### **Income support schemes**

The minimum wage scheme to fishermen was kept during 2000 and 2001. This scheme is established to support fishermen when the income from the fishing activity is insufficient, due to reasons beyond the fishermen's influence, such as long periods of bad weather, extraordinary ice conditions etc. From 2000 the principle of calculating the minimum wage scheme was changed. The weekly pay depends on how much one has received over this scheme during the past three years compared to maximum payable amount.

In 1999, NOK 10.8 million was allocated from this scheme. For 2000, NOK 13.9 million were paid out, while the amount in 2001 was NOK 7.9 million.

### **Structural adjustment**

In 2000 Norway changed the renewal and decommissioning scheme, established in 1999. Since 2000 new grants have not been given for the building of new vessels or import of second-hand vessels.

Under this scheme, support could be allocated to:

- fishermen who withdraw their vessels permanently from fishing activity;
- fishermen who withdraw their ships permanently from fishing activity, but plan to transfer their license or fishing rights to another vessel of a better quality and maintain the fishing activity.

About NOK 74 million were paid out under this scheme in 1999, and NOK 67 million in 2000. The administration of this scheme was performed by the Norwegian Industrial and Regional Development Fund, who allocate funds to applicants, according to guidelines given by the Ministry of Fisheries. Corresponding number for 2001 are not yet available.

### **General services**

The costs of fisheries management as a per cent of catch value has declined considerably in the last few years, from 13% in 1990 to less than 8% in 1997. For 2000 the percentage is about 7.5% and for 2001 it is less than 6.5%. The 2000-2001 development is basically due to higher prices for pelagic species that increase the catch value, hence reducing the management cost/catch value factor. In the 2002 budget there is allocated NOK 307 million to a new marine research vessel.

Table III.23.8. **General services – the catching sector**

	NOK		
	1997	2000	2001 <sup>1</sup>
Ministry of Fisheries	21 141 000	28 188 000	31 750 000
Membership in international org.	3 464 000	5 420 000	5 591 000
Institute of marine research	95 437 000	108 598 000	111 475 000
Operations of research vessels	71 011 000	88 577 000	94 212 000
Directorate of fisheries	95 268 000	115 514 000	108 570 000
Coast guard	407 571 000	401 864 000	387 431 000
<b>Total</b>	<b>693 892 000</b>	<b>748 161 000</b>	<b>739 029 000</b>

1. Balanced budget.

Source: OECD.

## 6. Post-harvesting policies and practices

### ***Food safety and quality***

Recent international food scandals have put more emphasis on the importance of food safety and quality. Consumer's expectations and demands have become a legitimate factor in international food trade. It is not longer sufficient to have a scientific justification that food on the market is safe. The consumers must also perceive the food as safe and of the right quality to purchase it. Independent risk assessment and risk communication are important tools to reach these goals.

Norway's policy and practice in regard to safety and quality of seafood is in large an implementation of EEA relevant rules. Following the EEA-agreement and the subsequent obligation to comply with the EU-regulations regarding hygienic standards in the food processing industry, Norway has adopted both EU-legislation on animal health issues and EU safety and quality legislation related to production of seafood. Since 1999 this also includes the adoption of the EU border control regime for fish and fishery products originating from countries outside the EEA area.

Norwegian fish processing industry has implemented own-check systems based on the principles of HACCP as advised by Codex Alimentarius Commission. The own-check systems cover both food safety and quality aspects and are audited by the Directorate of Fisheries. Commercial standards are, however, developed and supervised by the seafood industry.

The authorities and the related establishments have put a lot of resources to implement and revise this system to ensure the quality of products. Much emphasis has been put on obtaining bilateral agreements concerning sanitary and veterinary issues with the quality control authorities in countries representing important markets. Some of the reasons are that the demand for sanitary certificates for the export of fish and fish products to new markets, especially in Central and Eastern Europe, is increasing.

### ***Information and labelling***

With respect to labelling, Norway focussed on the development of international quality standards and conformity assessment systems. It is important to ensure that technical regulations and standards, including packaging and labelling requirements, do not create unnecessary obstacles to international trade.

### ***Processing and handling facilities***

Fish landed and trade in first hand in Norway must be approved by the fishermen's sales organisations. There are five organisations handling gadoids and one organisation handling pelagic fish. These organisations are situated along the entire coast.

The Norwegian quality regulations relating to fish and fish products are based upon international principles and are in accordance with standards given by the Codex Alimentarius. According to the quality regulations the Directorate of Fisheries approves establishments (plants and freezing, salting and filleting vessels). The Directorate of Fisheries' List of Approved Establishments is regularly updated and sent to competent authorities in the markets.

The Norwegian fish processing industry consists of a large number of small and medium-sized plants. In 2000, some 603 processing plants employed 12 420 people. The corresponding numbers for 2001 are not yet available. Processing of salt fish, stockfish and klipfish constitutes the majority of the plants in the Norwegian fish processing industry.

## 7. Markets and trade

### **Promotional efforts**

The Norwegian Seafood Export Council (NSEC) undertakes generic marketing campaigns for fish and fishery products in Norway and abroad. The Council has offices in France, Germany, Japan, USA, Spain, Brazil and China. The Council finances its activities by a levy on exports of fish and fish products.

In 2001 NSEC's budget was NOK 443.5 million. The NSEC operates under the Fish Export Act of 1990 and the Fish Export Regulation of 1991. Additionally, due to the Salmon agreement between Norway and the EU signed in 1997, the NSEC operates under a provisional regulation relating to special conditions attached to the export of salmon products. The regulation which entered into force on 1 December 1998 contains both price and quantitative measures and provides for the collection of an additional export levy on Norwegian salmon. The additional export levy shall be used for the promotion and marketing of joint marketing campaigns to the mutual benefit of the industries in Norway, Scotland and Ireland.

As a result of this agreement between Norway and EU, the funds for marketing of salmon have increased substantially, and the NSEC has increased their marketing efforts correspondingly. The marketing campaigns are carried out in Japan, China, Southeast Asia and European countries. However, due to difficulties for the Norwegian exports of salmon to the EU market NSEC's income decreased in 2001.

### **Volumes and values**

Total exports of seafood from Norway decreased from 2000 to 2001, and in 2001 the total export value reached NOK 30.6 billion, is a decrease of 2.5% compared to 2000. The decrease in exports can mainly be explained by a decrease in the exports of salmon, especially to the European market. Japan and the USA have also shown a decrease in their imports of Norwegian fish products in this period.

The last two years, as in previous years, the most important export market for Norwegian salmon was the European Union. However, the EU share of the total export volume has decreased, from 58% in 2000 to 55% in 2001. There have been some changes in the distribution of frozen salmon to Japan and China, two markets which have had an important increase in imports of Norwegian fish products during previous years. However in 2001 there was a decrease in the Norwegian exports to these markets and particularly for salmon. The major exports market for trout is still Japan.

As regards the main product's share of total export value for seafood, the share of salmon decreased from 42% to 36% from 2000 to 2001, while the share of pelagic products increased from 18% to 24% in the same period. With respect to products of cod its share of total export value was 29%, both in 2000 and 2001.

### **Trends in domestic consumption**

The domestic market is seen as an important and profitable market for the fishing industry. A survey on domestic consumption has been conducted in order to provide more reliable statistics. According to the latest statistics, Norwegians consume about 22.6 kg of fish and fish products on average per year. The last two years there has been a slight increase in the Norwegian consumption. It is particular age groups between 30 and 50 who contribute to an increase in consumption of fish. Younger and older generations have experienced a slight decrease in the consumption of seafood.

### **Policy changes**

As from 1st of July 2001 a free trade agreement between the EFTA states and Mexico entered into force. In the field of fisheries the agreement ensures free market access for the Norwegian exports of important fish and fish products to Mexico.

The Norwegian to Parliament fish processing industry implemented own-check systems based on the principles of HACCP before the year 2000. The own-check systems cover both food safety and quality aspects, and are audited by the Directorate of Fisheries, which is a competent official authority. Commercial standards are developed and supervised by the seafood industry.

## **8. Outlook**

### **Fisheries and the environment**

The Norwegian Government presented a White Paper in March 2002, outlining a new strategy for the management of the coastal and marine environment. The White Paper seeks to launch a more coherent, holistic policy, covering all sectors and users of the marine environment.

The pillars of this cross-sectoral strategy are the principle of sustainable development and further development and implementation of an ecosystem based management approach.

A central goal is to establish a management framework that makes it possible to strike a balance between commercial interests, for instance the fisheries, aquaculture and petroleum industries, and the need to protect the marine environment and the marine biological diversity. The policy also emphasises the importance of co-operation and involving all stakeholders in the decision processes. To our knowledge Norway is one of the first countries to have drawn up a comprehensive policy for all its marine and coastal areas.

Regarding sustainable fisheries the White Paper identifies improvement of the knowledge base, application of new management principles (ecosystem approach, precautionary principles), more efficient enforcement of the regulations and the reduction by-catches as the main challenges facing the authorities and the industry.

In addition a central goal is to reduce fleet capacity to a level which corresponds to expected available future resources. To meet this challenge the government will i.a.:

- strengthen research to increase the understanding of the structure and functioning of marine ecosystems;
- present a proposal to establish a structural adjustment fund to help reduce fleet capacity;
- extend the discard ban to all species and promote use of new technology improving the selectivity of fishing gear;
- establish a new comprehensive legal framework – “marine resources law”, which will encompass all living marine resources.

Concerning aquaculture, the White Paper i.e. signals increased effort to minimise escapes and establishment of criteria for environmental testing of pharmaceuticals.

### **The traditional fishing industry**

The outlook for the traditional fishing industry seems mixed, reflecting the fact that the stock situation for some of the most important species is considered to be satisfactory,

while other stocks are in a more unfavourable situation. This latter applies to the Barents cod stock, which is especially important to some parts of coastal Norway. The situation for cod stock in the North Sea is still regarded as critical.

The main objective for the Norwegian Government fisheries policy is not only to maximise the profits through an economically efficient use of the resources, by seeking the highest possible return rate from the fisheries sector, but also to achieve a socio-economic optimisation with respect to the total gain for the communities at the coast of Norway. The Norwegian fisheries sector plays an important role in the Norwegian government's overall policy to maintain the settlement structure in the coastal communities, and especially in the northern parts of Norway.

In the years to come the Norwegian fishing industry will be challenged in the field of emission of polluting gases to the air. This applies especially to the emission of  $\text{NO}_x$ , where Norway has committed itself to a substantial reduction before the year 2010.

### **The market challenge**

The years 2000 and 2001 were reasonable successful for the Norwegian seafood exports. EU has been and will remain the most important region for Norwegian exports of fish and fish products. Nevertheless, we have experienced a decrease in the proportion of our exports of seafood to the EU from 61% in 1995 to 55% in 2001. This is partly due to barriers to trade Norwegian exporters are met with when exporting seafood to the EU.

A general feature for the fishing industry is an expansion towards new markets in the Pacific Rim. Non-traditional countries become more important, i.e. USA, Southeast Asia, Eastern Europe and Russia. Nevertheless, the EU-countries will continue to be the most important export market in the future.

A constraint for further growth in the aquaculture industry in Norway is market access and barriers of trade. As an example of this, the Norwegian aquaculture industry has gone through dumping cases in EU and USA. The need for recognised principles for free international trade in fish and aquaculture products is necessary in order to meet the growing global demand for fish and shellfish.

Partly as a consequence of market dependence, the Norwegian Authorities put great emphasis on having a good framework for health and hygienic measures to assure the protection of human, animal or plant life of health. Quality regulations and control is not only executed in production levels, but apply until our products reach to its final destination. In order to have an open and good contact with foreign quality authorities, we are expanding our international work in this field. In addition to the work in international bodies, as the Codex Alimentarius, we establish bilateral agreements governing the trade in fish and fishery products.

### **Aquaculture**

During the last 20-25 years, the aquaculture industry has proved to be an important export industry as well as an important industry in small coastal communities. Natural conditions make Norway very suitable for farming of fish and shellfish.

Norwegian fish farming is strictly controlled by a number of laws and regulations which restrict the freedom of action of the actual operators of the fish farm.

To make the industry able to reach its potential production capacity and competitive position, the authorities will continue to focus on the environment as well as disease



controlling measures. To ensure that the industry does not affect the environment in an undesirable way and to control the fish diseases, focus will be put on the establishment and use of environmental parameters in the assignment of locations and the control of these parameters. It is also important to stimulate the industry to use the most profitable forms of production.

The costs involved in the production of salmon and rainbow trout have been reduced during recent years, and the profitability is fairly good. The productivity has increased considerably in the last few years. It is expected that the production costs will be further reduced in the future, due to a continuation of the integration process in the industry and increased efficiency in production methods.

Research, development and education are important to the improvement of the industry. In recent years, focus has been on environmental interactions, reduction of fish diseases and development of new species for farming. Marketing research on aquaculture species and food quality control will be increased in the years ahead.

Farming of marine species is developing, though a great effort still has to be put in to scientific and developing activities to establish a commercial industry.

The shellfish industry is growing rapidly, and in 1998 and 1999 financially investors entered the arena.

The Ministry of Fisheries are planning to allocate licenses for sea ranching with shellfish and lobster during 2003 and allocating up to 40 licenses for breeding of salmon and trout during 2002.

PART III  
*Chapter 24*

## **Poland**

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## 1. Legal and institutional framework

Fisheries management at the national level is the responsibility of the Department of Fisheries of the Ministry of Agriculture and Rural Development. It is comprised of the following six sub-departments: Coastal and Inland Fishery and Aquaculture; Ship Register and Control of Regional Sea Fisheries Inspectorates; Market Organisation and Quality Supervision; European Integration and Structural Policies; International Agreements and Legal Affairs; Economics and Statistics.

The Department of Fisheries directly supervises the work of the three Regional Sea Fisheries Inspectorates in Gdynia, Staupsk and Szczecin. The inspectorates supervise fisheries activities at sea and in adjacent waters and monitor landings, fishing gear and manage of fishing vessel register. Inland fisheries are supervised by the corresponding local governmental administration.

## 2. Capture fisheries

Polish sea catches in 2001 totaled 207 400 tonnes – an increase of 7 300 tonnes (3.6%) over the previous year. This was the result of an increase in Baltic Sea catches of 15 500 tonnes (11%). Deep-sea catches, however, decreased by 8 200 tonnes (13.9%).

Catches in 2001 in the Baltic and its lagoons constituted 75.5% of total Polish catches in comparison to 70.5% in the previous year. The remainder of the catches was from deep-sea fishing grounds, the most important of which is still the northwestern Pacific, although the contribution of catches from this region is on the decline (8% in 2001 versus 16.6% in 2000). Catches from the Antarctic sector of the Atlantic Ocean contributed 6.7% to the total catches as opposed to 10% in the preceding year.

Of the species of fish and marine animals caught by Polish fisheries in 2001, sprat was the most common and comprised 41.4% of the total catches. Herring comprised 18.1% of the total catches and cod (11.2%), walleye pollock (8%) and krill (6.6%) were also common. These species together accounted for 85.3% of the total marine catches.

Fish purchases (klondyking) were higher in 2001 by 2 900 tonnes than in the previous year; this compensated somewhat for losses recorded in deep-sea fisheries. Polish catches and fish purchases in 2001 totaled 230 700 tonnes – an increase of 10 200 tonnes, or 4.6%, over the previous year.

In 2001 an estimated 28 200 people were employed in the fisheries sector. This figure is lower by 3 200, or about 10%, in comparison with 2000. A loss of 500 to 900 jobs was seen in processing and trade and of 1 800 in sea fisheries.

In the public sector, employment fell by 1 700 jobs (37.6%), due to reductions in deep-sea fisheries activities, while job numbers in the private sector fell by 1 400 (5.2%). In 2001 the private sector employed 90% of the fisheries workforce as compared with 85% in the previous year.

Table III.24.1. **Polish deep-sea catches by fishing region and fish species, 2000-2001**

	Tonnes	
	2000	2001
<b>Fishing areas</b>		
North-East Atlantic	2 023	2 611
North-West Atlantic	1 732	760
Central-East Atlantic	–	13 185
South-East Atlantic	–	3 100
South-West Atlantic	970	756
Antarctic Atlantic	20 049	13 805
North-East Pacific	998	–
North-West Pacific	33 217	16 590
<b>Fish species</b>		
Cod	1 220	1 317
Saithe	747	727
Walleye pollock	33 192	16 590
Grenadier	–	191
Hake	997	87
Mackerel	–	1 666
Horse mackerel	–	4 547
Sardinella	–	3 463
Atlantic Halibut	–	492
Atlantic bonito	–	521
Squid	995	749
Shrimp	1 732	263
Krill	20 049	13 696
Other	77	6 498
<b>Total</b>	<b>58 989</b>	<b>50 807</b>

Source: OECD.

Table III.24.2. **Polish Baltic catches by fishing divisions and fish species, 2000-2001**

	Tonnes	
Fishing area/fish species	2000	2001
<b>Fishing area</b>		
Subarea 24 (Western coast)	10 577	10 856
Subarea 25 (Central coastal)	73 462	86 481
Subarea 26 (Eastern coastal)	57 112	59 216
<b>Fish species</b>		
Cod	22 120	21 992
Herring	24 516	37 611
Sprat	84 324	85 757
Salmon	125	156
Flatfish	5 601	6 725
Sea trout	579	529
Eel	172	163
Brackish fish	3 671	3 266
Other	43	354
<b>Total Baltic catches</b>	<b>141 151</b>	<b>156 553</b>

Source: OECD.

Table III.24.3. **Employment in Polish fish industry, 2000-2001**

Employment by sector	2000	2001
<b>Total</b>	31 400	28 600 <sup>1</sup>
Fishing companies	8 100	6 600
Fish processing companies	15 300	14 500 <sup>1</sup>
Fish trade	8 000	7 500 <sup>1</sup>
<b>Fishermen</b>	7 600	6 000
Deep sea fishery	3 400	1 800
Coastal fishery	4 200	4 200

1. Preliminary data.

Source: Sea Fisheries Institute, Gdynia.

The deep-sea fleet decreased by nine ships in comparison with the previous year. On 31 December 2001, Polish fishing companies owned 15 trawlers, of these five were managed and used by foreign ship owners and fished for foreign markets. At the end of the year the average fleet age was 16.7.

At the end of 2001, Polish Baltic fisheries exploited 413 cutters, *i.e.* 4 cutters fewer than in the previous year, and the average cutter fleet age at the end of the year was 34. The boat fleet consisted of 992 motor and row boats, which was an increase of 18 boats in comparison to 2000. The majority of the boats (871) were motor crafts.

Table III.24.4. **Fishing fleet, 2000-2001**

Number and capacity of fishing vessels	2000		2001	
	Number	GT/GRT	Number	GT/GRT
Deep-sea trawlers	24	84,5	15	53,6
Cutters fleet (over 15 m loa)	417	32,8	422	33,3
Boats fleet (under 15 m loa)	974	–	992	–

Source: Sea Fisheries Institute, Gdynia.

### **Status of fish stocks**

**Cod.** In 2000, the stock biomass reached its lowest historical level of 68 000 tonnes, but it increased to about 84000 tonnes in 2002. The stock biomass is currently much lower than the level regarded to be biologically safe. It is anticipated that the introduction of new mesh sizes in fishing gear on 1 January 2002 and appropriate quota regulation will help to increase stock biomass to above the safe limit (240 000 tonnes) over the next few years.

**Sprats.** The biomass of the spawning stock of Baltic sprat has been increasing rapidly since 1988 and reached a maximum level of 2 million tonnes in 1996-1997. Although it fell to 1 million tonnes in 2000, it still exceeds the long-term average (0.95 million tonnes). The sprat biomass increase in the 1990s was caused by several abundant sprat generations born after 1987. The significant fall in the biomass of the cod stock, which preys mainly on clupeids, was another factor that stimulated the increase. In 1992-2001, the spawning stock biomass of eastern Baltic cod was, on average, 20% of that in the early 1980s. As a result, the average natural mortality of Baltic sprat, for which cod predation was partially responsible, fell from approximately 0.40 to 0.25, or almost 40%, during the 1987-2001

period. The decrease in sprat biomass in 1998-2002 is due to non-abundant generations from 1996, 1998 and 2000-2001, as well as intensive stock exploitation.

**Herring.** The biomass of the spawning stock has systematically decreased over a period of 30 years from approximately 1.7-1.6 million tonnes in the mid 1970s to approximately 370-380 000 tonnes in recent years. A fall in individual weight has been primarily responsible for decreasing biomass since the early 1980s. Decreases of approximately 50-60% in different age groups have been observed for nearly twenty years. For the first time in many years, the weight of herring specimens increased in 1998 in comparison with that of previous years. Increases were still being noted in 2000-2001. The decrease in herring biomass accelerated slightly in the mid 1990s in comparison with that of the early 1990s. This was caused by lower levels of stock supplementation. This stock is being exploited beyond biologically safe limits due to excessive catch mortality (and probably a biomass that is too low).

### **Management of commercial fisheries**

Baltic fisheries are managed in compliance with the regulations of the International Baltic Sea Fishery Commission (IBSFC). In order to protect decreasing fish resources the following measures are being taken: imposing catch limits, temporary restrictions for fishing activities and closed regions; protecting juvenile fish by establishing minimum sizes and net mesh sizes.

The Total Allowable Catch (TAC) of the four basic Baltic fish species – cod, herring, sprat and salmon – is established annually by the IBSFC according to guidelines provided by the ICES. The limits are determined for the entire basin and then divided into national quotas according to the area's biological productivity and the nation's historical rights. The following are the percentages of the limited species Poland received: 21.1% of cod, 20.1% of herring, 26.4% of sprat and 6.2% of salmon.

After fishing quotas are exchanged with other Baltic countries, the allowable catch in Polish sea areas, as well as the way of its division among fishing boats and cutters, is determined annually by the Minister of Agriculture and is published as a regulation in the Official Journal (*Dziennik Ustaw*). Individual catch limits apply only to vessels longer than 15 m (cutters and trawlers). Fishing boats (vessels under 15 m) are not assigned individual fishing limits. Vessel owners whose catch quotas are defined in a special fishing permit may transfer them either partially or wholly, with ministry approval, to other vessel owners who catch the same species.\*

Cod and salmon are managed through individual catch limits. The cod catch quota is divided by cutters according to length class. In brief, this is done by summing the total length of all registered cutters and then dividing the catch quota by this figure. The salmon catch quota is divided equally among cutters whose owners apply for a quota and pay the fee for it.

The herring and sprat TACs are not divided among individual cutters or fishing boats. Catches of these species are conducted according to the so-called Olympic system, which permits fishing until the quotas are met. In 2002, after 60% of the sprat TAC is caught, the Regional Sea Fisheries Inspectorate in Slupsk is authorized to close industrial catches of this species.

\* Art. 17 Sea fisheries act of 6 September 2001, OJ No. 129, p. 1441.

## Access

Poland has signed bilateral fisheries agreements with the following countries: USA, Russia, Canada, the Islamic Republic of Mauritania, Norway, Sweden, North Korea and Angola.

## Management of inland and recreational fisheries

Inland fisheries are conducted in surface waters and are based on the natural production potential of rivers, lakes and dam reservoirs with a total area of almost 600 000 ha.

There are approximately 5 000 tonnes of commercial catches made annually, including: approximately 4 000 tonnes from lakes and 1 000 tonnes from rivers and dam reservoirs. Between 45 000 and 60 000 tonnes of fish are caught by recreational fisheries. The majority of the almost 2 million active, recreational fishermen in Poland are rod fishermen.

Table III.24.5. **Extrapolated catches from 270 000 ha of lake in 2001**

Tonnes

Species	Tonnes
Vendace	222.3
Whitefish	12.6
Eel	231.7
Pikeperch	130
Pike	264.6
Tench	97.8
Perch	207.5
Crucian carp	51.1
Roach	702.1
Common bream	1 396.5
White bream	318.1
Carp	38.1
Grass carp	2.8
Silver carp	105.1
Smelt	1.5
Wels	1.4
Other	34.2
<b>Total</b>	<b>3 818</b>

Source: OECD.

Although there is no data regarding inland fisheries employment, it is estimated that from 4 000-5 000 people work in this sector.

## 3. Aquaculture

### Policy changes

Two important pieces of legislation were passed in 2001 regarding aquaculture and the management of water resources.

- The bill of 18 July 2001. The Water Bill (Dz. U. Nr 115, poz. 1229) regulates the management of waters according to the principles of sustainable development. In particular, it provides guidelines for management and protecting water resources, water usage and the management of water resources, including principles for using water in fisheries. This bill went into force on 1 January 2002.

- The bill of 27 April 2001. The Environmental Protection Bill (Dz. U. Nr 62, poz. 627) defines the principles of environmental protection and conditions for exploiting resources according to the requirements of sustainable development. In particular, it addresses the following: conditions for protecting environmental resources; conditions for introducing either substances or energy into the environment; costs of using the environment.

### **Production**

Polish aquaculture is based on the production of freshwater fish throughout the country. Ponds are supplied with surface waters, the amount and quality of which limit production at the facilities. Polish law does not make any provision for preferential water access for fish farms. Permits are required to use surface waters, which are the property of the state. The majority of Polish pond production involves two fish species, and approximately 22 500 tonnes of carp and over 11 000 tonnes of rainbow trout are produced annually.

## **4. Government financial transfers**

The state currently provides the fisheries sector with the following types of aid: subsidies for purchasing deep-sea fishing licenses for trawlers; subsidized loans for the purchase and storage of raw fish material; VAT and fuel excise tax exemptions for fishing vessels; interest subsidies for investment loans under the Sectoral Program of Fisheries Development in Poland between 2000-2006; funding the stocking of Polish sea areas and inland waters.

### **Structural adjustment**

The maximum, allowable fishing effort for the Baltic fleet is laid out in the Ministry of Agriculture regulation as the number of fishing vessels permitted to fish in the territorial seas and the adjacent Szczecin and Vistula lagoons. New vessels can be put into service if a vessel with a comparable fishing capacity is scratched from the register. Total vessel length, width and motor power are used to determine comparability.

Withdrawal of excessive fishing potential is planned to commence at the beginning of 2004 when Poland is expected to become a member of the EU.

## **5. Post-harvesting policies and practices**

### **Processing and handling facilities**

The fish processing sector has been almost entirely privatized, and, over the past several years, it has become one of the most rapidly developing branches of the food processing sector. The greatest number of fish processing firms, approximately 200 (50%), are located in coastal areas. The main task facing these companies is to comply with EU veterinary and sanitary requirements.

In 2000, forty-four companies complied with EU hygienic and veterinary standards, including the implementation of the HACCP system, and had permits to export to EU countries (category A). The remaining 149 processing plants did not comply with EU requirements. However, they had taken steps towards meeting these standards and were classified in the B<sub>1</sub> group. The remaining 163 processing plants were placed in the B<sub>2</sub> group; this means that they are not in compliance with EU requirements and they will not be able to undertake the appropriate corrective actions.



In early 2002 the number of fish processing companies by groups were as follows: category A – 54; B<sub>1</sub> – 130; B<sub>2</sub> and C – 145, of which 57 should meet EU requirements after three years and 88 will have to close down.

Table III.24.6. **Fish processing in 1999-2000**

Tonnes

Product group	1999	2000
Whole, fresh and beheaded and gutted sea fish	19 832	14 580
Whole frozen and beheaded and gutted sea fish	25 139	17 957
Fresh fillets and semi-fillets	2 094	1 392
Frozen fillets and semi-fillets	40 917	48 982
Freshwater fish	6 100	3 933
Salted fish	17 949	14 780
Smoked fish	24 814	23 415
Canned fish	40 397	47 691
Marinated products	55 001	55 073
Other preserved fish	6 568	8 619
Other products <sup>1</sup>	19 112	14 339
<b>Total human consumption products</b>	<b>257 923</b>	<b>250 761</b>

1. Preliminary data.

Source: Central Statistical Office, Warsaw.

## 6. Markets and trade

### Markets

#### *Trends in domestic consumption*

The supply to the domestic market of all the above product groups, with the exception of salted fish, increased in 2000. The greatest increase in demand was for fillets and canned fish – by 7 900 and 7 300 tonnes, respectively. Canned fish dominate the market and their contribution increased to 23.9%, followed by marinated fish and fillets.

In 2000 herring dominated the supplies and consumption of fish, but supplies of it were slightly lower than in 1999 at approximately 93 000 tonnes with a per capita consumption of 2.4 kg. Since Baltic herring catches only yielded 24 500 tonnes, most of this fish are imported from the Atlantic. Alaska pollock was the second most common species consumed, and thanks to increased fillet imports the per capita consumption of this fish grew to 0.9 kg in 2000. Alaska pollock reaches the Polish market as a frozen product (fillets, bars, fingers or cutlets).

The estimated supply of fish products to the Polish market in 2001 was 221 600 tonnes, which means that the average per capita consumption was about 5.7 kg in product weight. These figures are approximately 5% lower than those for the previous year – 232 800 tonnes and 6.0 kg.

#### **Promotional efforts**

The promotion of fish and fish products is very limited in Poland, and advertising campaigns are sponsored mainly by large companies at their own cost. Advertising by the Norwegian Seafood Export Council in Poland is especially high profile, and Poland is one of the largest eastern European markets for exported Norwegian fish.

**Table III.24.7. Estimated market supplies and the average consumption of products made of the Basic Sea fish species in Poland, 1999-2000**

Fish species	1999		2000	
	Supplies ('000 tonnes)	Per capita consumption (kg)	Supplies ('000 tonnes)	Per capita consumption (kg)
Herring	95	2.5	93	2.4
Walleye pollock	29	0.8	34	0.9
Mackerel	25	0.7	27	0.7
Sprat	15	0.4	21	0.5
Hake	3	0.1	13	0.3
Tuna	4	0.1	6	0.2

Source: Sea Fisheries Institute, Gdynia.

## Trade

### Volumes and values

Total fish and fish product imports into Poland in 2001 totaled 281 000 tonnes. This is an increase of 5 000 tonnes (1.8%) in comparison with the previous year at a substantially higher value increase of more than 24%.

Raw fish material and semi-processed products such as frozen fish fillets and fish meat, which require further processing in Poland, dominated imports at 76% of the total. This stemmed from the Polish deep-sea fleet's limited access to resources and the low technological usability and often low quality of Baltic raw materials. The greatest amount of fish (mainly raw fish material) was imported from Norway. Herring was the most frequently imported species comprising 36% of the imported fish.

In 2001 the total Polish export of fish and fish products registered in SAD customs declarations and from aboard Polish deep-sea trawlers and Baltic cutters was 179 500 tonnes. This was 15 300 tonnes (9.3%) higher than in the previous year. The value of the total export increase was not as high at 1.6%.

The most fish and fish products were exported to Germany. Sprat remained the most exported fish species (35.9%), and cod had the highest export value (29%).

## 7. Outlook

The main task of the fisheries administration in the immediate future is to adjust the structures of fisheries management to comply with EU requirements.

As part of the PHARE 2000 Fisheries Administration project, the vessel monitoring system (VMS) is being implemented, the fishing vessel register is being brought into compliance with EU requirements as well as fisheries statistics are being further developed in order to make catch quota management more efficient.

Simultaneously, another PHARE 2001 project, Organization of the Fisheries Market, is being realized with the aim of creating foundations which will allow the market to function in accordance with EU requirements.

In 2002 new legal regulations are being introduced which will adjust the catch report system so that it complies with EU requirements. A new log-book will be introduced that will be uniform for all EU countries, and the requirement of submitting landing declarations and first sale notes will be introduced.

Table III.24.8. **Import of fish products by species, 2000-2001**

Species	2000		2001	
	Tonnes	USD '000	Tonnes	USD '000
Herring	120 498.1	73 016.4	102 116.9	108 366.6
Mackerel	45 954.5	33 552.2	44 029.8	38 711.4
Walleye pollock	33 168.5	51 616.9	27 516.8	51 538.6
Hake	7 406.3	11 701.8	12 199.7	19 979.6
Cod	11 565.7	23 873.0	11 877.3	25 521.9
Salmon	6 993.3	26 998.6	8 679.1	23 952.1
Tuna	5 833.2	10 476.7	6 869.0	11 570.0
Flatfish	4 147.7	7 739.8	4 203.4	8 100.8
Shrimp	4 536.0	13 835.0	3 903.4	13 758.4
Trout	1 686.1	4 468.9	2 097.8	5 697.9
Saithe	1 356.0	1 558.2	2 073.0	2 942.5
Others	32 884.4	39 920.2	55 418.8	60 003.4
<b>Total</b>	<b>276 029.9</b>	<b>298 757.7</b>	<b>280 985.1</b>	<b>370 143.2</b>

Source: OECD.

Table III.24.9. **Export of fish products by species, 2000-2001**

Species	2000		2001	
	Tonnes	USD '000	Tonnes	USD '000
Sprat	49 843.9	5 884.0	64 500.3	7 990.4
Herring	31 144.2	34 574.1	29 179.3	44 163.1
Cod	22 596.1	70 100.2	22 750.1	71 825.0
Sardinella	1 255.2	2 174.6	3 616.8	2 347.5
Horse Mackerel			2 617.9	791.0
Rainbow Trout	1 978.4	11 655.5	2 413.1	13 848.9
Alaska pollack	7 100.9	11 447.0	2 089.7	3 971.6
Salmon	2 311.5	15 930.2	2 052.2	12 947.4
Mackerel	830.8	875.6	2 031.3	1 569.0
Others	47 157.0	91 410.7	48 267.4	88 432.3
<b>Total</b>	<b>164 217.9</b>	<b>244 052.0</b>	<b>179 518.1</b>	<b>247 886.3</b>

Source: OECD.

PART III  
*Chapter 25*

# Turkey

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## Summary

Fisheries production increased by 17% to 636 824 tonnes in 1999 and decreased by 8.5% to 582 376 tonnes in 2000. The main species caught was anchovy, which accounted for 56% of the volume of catches. Aquaculture production was 79 031 tonnes in 2000, an increase of 25.5% above the 1999 level. In terms of the trade balance in fishery products, there was a surplus of USD 49.7 million in 2000, compared with USD 54.7 million in 1999. The per capita consumption of fishery products was 8.3 kg in 2000.

### 1. Legal and institutional framework

The Ministry of Agriculture and Rural Affairs (MARA) is the main state organisation responsible for fisheries (including aquaculture) administration, regulation, protection, promotion and technical assistance through four General Directorates. All activities in fisheries and aquaculture are based on the Fisheries Law 1380 enacted in 1971 as amended by Law 3288 of 1986. With this law, and its related bureaucracy, definitions were codified and regulations and circulars are prepared to regulate fisheries. In accordance with the Laws, every year commercial fisheries and sport fishing circulars are published and announced in the official Journal about certain restrictions and controls.

### 2. Capture fisheries

#### *Performance*

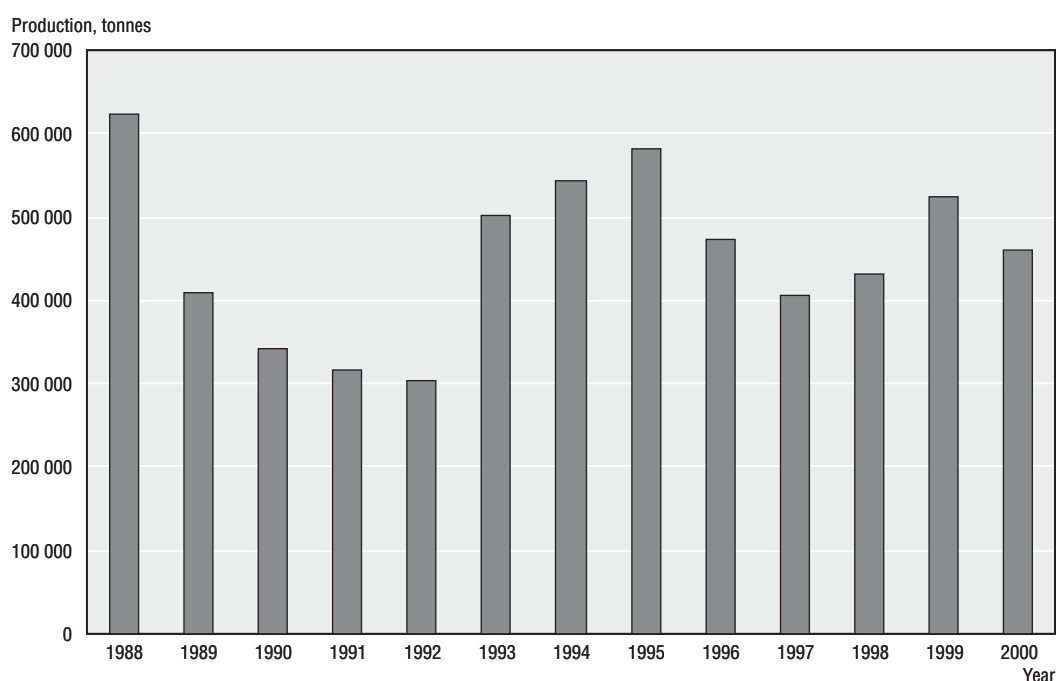
Fisheries production totalled 636 824 tonnes in 1999, of which 523 634 tonnes (82%) was of marine origin, 50 190 tonnes (8%) freshwater origin and 63 000 tonnes (10%) came from aquaculture. In 2000, total fisheries production was 582 376 tonnes, of which 460 520 tonnes (79%), 42 824 tonnes (7%) and 79 031 tonnes (14%) came from marine catches, freshwater catches and aquaculture, respectively. The total amount of capture production increased by 17% to 573 824 tonnes in 1999 and decreased by 8.5% to 503 345 tonnes in 2000. The major effect was a change in the catch of small pelagic fish, especially anchovy. The anchovy production in 1999 was approximately 350 000 tonnes, an increase of 122 000 tonnes from 1998 and 280 000 tonnes in 2000, a decrease of 70 000 tonnes from 1999. Trends in the capture fish production (including marine and freshwater) are shown in Figure III.25.1.

#### *Landings (including crustaceans, molluscs and freshwater)*

In 2000, total landings of fish fell by some 70 000 tonnes to 503 345 (–12%), compared with 1999. The total value of marine and freshwater landings for 1999 and 2000 are given in Table III.25.1.

The principal marine fishing grounds are the Black Sea (anchovy, mullet, bonito, whiting, horse mackerel, etc.) the Marmara Sea, (anchovy, mullet, bonito, whiting, tuna, shrimp, etc.), the Aegean Sea (sea bream, sea bass, octopus, squid, sardine, sword fish, bonito, tuna, shark), and the Mediterranean Sea (tuna, sardine, octopus, squid, calamari, shrimp, etc).

Figure III.25.1. Trends in capture fish production, 1988-2000



Source: OECD.

Table III.25.1. Turkish landings in 1999 and 2000

	1999 <sup>1</sup>		2000 <sup>2</sup>	
	Landings	Value (TL Million)	Landings	Value (TL Million)
All sea fish	510 000	250 716 500	441 690	318 193 500
Crustaceans, molluscs, etc.	13 634	7 211 460	18 831	15 194 100
Freshwater	50 190	27 852 751	42 824	34 453 050
<b>Total</b>	<b>573 824</b>	<b>285 780 711</b>	<b>503 345</b>	<b>367 840 650</b>

1. USD = 422 541.30 Turkish lira.

2. USD = 599 841.00 Turkish lira.

Source: OECD.

### 3. Fishing fleet

Trawling and purse seining are the chief methods used by the larger boats, while drift-netting and long-lining (widely used elsewhere) are uncommon among Turkish fishermen. Table III.25.2 shows the number of marine fishing vessels in 1999 and 2000. No license has been given for new vessels for the last two years. Fishing licenses given to fishermen and fishing vessels were checked and renewed by MARA in 2001. During renewal and verification of the licenses, some of the fishing licenses were cancelled and the fishers were restricted from undertaking fishing activities. The registration of fishing vessels has been recorded in a new database system in accordance with the FAO system, and in line with responsible fisheries.

In 1999, 55 320 people were directly employed in the fishing sector. This is an increase of over 8% in 1998, due to increased anchovy production.

Table III.25.2. **The number of marine fishing vessels**

Type of vessels	1999	2000
Trawler	685	750
Purse seiners	521	575
Carrier vessels	195	131
Other types	12 396	11 925
<b>Total</b>	<b>13 797</b>	<b>13 381</b>

Source: OECD.

The annual profit of the fishing fleet was almost threefold higher in 1998 than in 1999 and 2000, because of sixfold lower expenditures (especially liquid fuel and motor oil) and fixed capital investment for fishing activities and also because of higher production of some economical species (Red mullet, Bluefin tuna, Atlantic bonito).

### **Status of fish stocks**

Several assessment works on various stocks have been done in previous years. However, continuation of these assessments has been pursued only on a small scale and the stocks subsequently have not been monitored. Therefore, new assessment work is necessary to update information on the exact size of stocks.

### **Management of commercial and recreational fisheries**

According to the Fisheries laws and subsequent regulations, the main managing body responsible for fisheries in Turkey is the Ministry of Agriculture and Rural Affairs (MARA). Annually, the General Directorate of Protection and Control of the MARA issues a circular regarding restrictions for the catch of commercially important aquatic organisms. These restrictions are mainly temporal and spatial closures, mesh size and gear regulations, and minimum size for landing. Endangered and sensitive species under conservation are also stated in these circulars.

There are no other management measures such as landing quotas or exclusive regional or sub-regional fishing permits.

Provincial representatives of MARA, the Sea Police and the Coast Guard are responsible for implementing and enforcing the regulations issued in the Ministry's circulars.

For the reporting period, no major changes were implemented in the recreational fisheries management regime in Turkey.

### **Access**

According to the Fisheries Law 1380 of 1971 (as amended by Law 3288 of 1986) and Continental Waters Law of 2674, foreigners are not allowed to take part in commercial fishing activities.

## **4. Aquaculture**

### **Policy changes**

The collection and capture of juveniles from the wild for aquaculture purposes has been completely prohibited since 2000. Since 2000, demands of fish farmers for juvenile stock were met by both private and MARA hatcheries.

### Production facilities, values and volumes

Quantity and value of total aquaculture production by species for 1999 and 2000 are summarised in Table III.25.3. The contribution of aquaculture production to total fishery production has increased steadily from 10% in 1998 to 14% in 2000. Main species cultured are rainbow trout, sea bream, sea bass and to a lesser extent sea trout, mussel and shrimp. In contrast, the production of Atlantic salmon has gradually decreased due to unsuitable environmental conditions.

Table III.25.3. **Total aquaculture production in 1999-2000**

	1999 <sup>1</sup>		2000 <sup>2</sup>	
	Quantity (tonnes)	Value (million TL)	Quantity (tonnes)	Value (million TL)
<b>Inland water</b>				
Trout	36 870	40 557 000	42 572	53 215 000
Carp	900	751 500	813	772 350
<b>Marine water</b>				
Sea bass	12 000	28 200 000	17 877	46 480 200
Sea bream	11 000	23 100 000	15 460	35 558 000
Trout	1 700	2 295 000	1 961	2 941 500
Mussel	500	365 000	321	288 900
Prawn	30	285 000	27	297 000
<b>Total</b>	<b>63 000</b>	<b>95 553 500</b>	<b>79 031</b>	<b>139 552 950</b>

1. USD = 422 541.30 Turkish lira.

2. USD = 599 841.00 Turkish lira.

Source: OECD.

Turkey has a total of 1 719 aquaculture farms (346 marine farms) and 18 hatcheries (16 private sector and 2 belong to MARA). The total production of these hatcheries is some 90 million fry per annum. Restocking activities in inland waters were increased in the 1999-2000 review period. Recent studies indicate that there are good possibilities for mussel, shrimp, oyster culture in the country, targeting external markets.

In addition, cage culture in dam lakes has been started to further the spread of aquaculture. Hence, 1% of dam lakes surface area were separated for cage culture and in these areas, 75 farms were established which have a total production capacity of 4 970 tonnes/year.

Turbot culture was started in 1997 to develop seed production and rearing techniques of flatfish species in the frame of "Fish Culture Development Project In The Black Sea" which is being undertaken in collaboration with the Japan International Co-operation Agency. It is also expected to supply new resources of income through the development of aquaculture and the restoration of flatfish stocks in the Black Sea coast of Turkey. Approximately 50 000 juveniles of the Black Sea turbot with size of 100 mm in total length were produced between 1998-2001 and about 11 000 juveniles were released into the Black Sea after tagging. This was the first record of turbot rearing in Turkey.

A number of new species, such as sturgeon, grouper and dentex, are presently under research and being produced on a pilot scale.

A tuna farm has been established in 2001. Off-shore culture has been encouraged by MARA in this period.



## 5. Fisheries and the environment

There is increased consideration of environmental issues in Turkey. According to recent studies that have been carried out by the Fisheries Research Institute, there are no significant adverse effects on the marine environment of aquaculture (cage culture). A number of research projects have been initiated to monitor the environmental effects of fish farming activities.

## 6. Post-harvesting policies and practices

### *Policy changes*

MARA wishes to improve hygienic conditions of the processing plants, raw material and marketing chain. To ensure the quality of fish and fishery products, in line with the EU regulations, some measures have been taken by the government in recent years.

The health conditions are outlined in Fisheries Regulation. The regulation is supported by a series of circulars signed by the Minister, specifying more detailed requirements. On this basis strengthened control systems for the following have been introduced:

- Safety of process water.
- Bivalve molluscs.
- Veterinary medicines.
- Implementation of HACCP systems.

Recently, considerable progress has been made in the development of sound approval and monitoring systems in Turkey. This progress includes the health conditions, the introduction of certificate of origin system for fishery products, stricter controls for bivalve molluscs harvesting and bringing veterinary drug use in aquaculture under control. These measures are all effectively applied and this more rigorous application of approval measures has resulted in a reduction of the list of approved establishments to a manageable number.

The Ministry has been approving HACCP plans of the establishments. The plans are sufficient to meet the requirements of Directive 91/493. There is considerable evidence of the plans being implemented in practice.

All other aspects of the inspection and control system required for the EU exports are now operational. Turkey is a country which exports fish to the EU, and is also currently meeting the stringent EU sanitary control systems to export shellfish.

### *Processing and handling facilities*

The list of approved establishments contains 78 establishments, since considerable effort has been made by the industry to upgrade premises and food safety conditions.

## 7. Markets and trade

### *Domestic consumption*

The per capita consumption of fishery products is primarily dependent on the marine fisheries catch, especially anchovy. Annual per capita consumption increased slightly from 7.8 kg in 1999 to 8.3 kg in 2000.

### **Promotion efforts**

As the consumption of fishery products in Turkey is relatively low, compared to other countries in the Mediterranean and Black Sea regions, promotional activities were developed by MARA to increase fish consumption and to enlarge the external and domestic markets. In this frame, the Fish Promotion Group was established in 2001. NGOs, private sector organisations and MARA take part in these activities.

### **Trade**

In 2000, total imports of fish (excluding live fish) were 44 380 tonnes, worth USD 37 065 000. Among the imported fish, frozen fish comprised over 90% of the total. Frozen tuna is an important source of raw material for the canning industry, and now dominates imports. The EU is the dominant source of fishery product supply to Turkey (especially the Netherlands and the UK and Norway), and to a lesser extent Far East countries (Singapore and Thailand) and some African countries (Ghana and the Ivory Coast).

In 2000, 33 511 tonnes of fish and fish products (excluding live fish) were exported, worth USD 87 574 000. The major export markets were also the EU (especially Germany, UK, Italy, and France), accounting for almost 85% of both quantity and value of exports. The others are to a lesser extent Japan and Hong Kong for molluscs and crustacean, Lebanon for sea bream, and EFTA countries. The importance of export of canned products has increased in recent years. Among the exported fresh and chilled fish, sea bass and sea bream are the most important species. In terms of trade balance in fishery products, there was a surplus of USD 49 472 000 in 2000, compared with USD 68 714 000 in 1999.

The Tariff Regime of 2001, which is transparent, explicit and easy to understand for the importers and other users, has been prepared by taking into account the agreement establishing the WTO, of which Turkey is a member; the Customs Union Agreement between Turkey and the EU; free trade agreements signed with various countries; the preferential treatments granted by Turkey to the least developed countries and to the Republic of Bosnia-Herzegovina; as well as sector specific needs. Pursuant to the Association Council's Decision No. 2/95, and as part of the gradual phase-out by 2001 of the customs duty difference between Turkey's so-called "sensitive" products and the EU's Common External Tariffs, the final 50% reduction has been made and this reduction has been reflected in the Import Regime. Thus, duty rates of Turkey's sensitive products are in line with the EU's Common External Tariffs.

### **Controls made on imported fishery products**

The transactions regarding the collection of the permit for importation are carried out in accordance with the Legislation for Standardization in Foreign Trade, which takes place within the Importation Regime Decision prepared by the Prime Ministry Foreign Trade Undersecretariat upon collecting the views of the Related Ministries.

The control transactions on the imported fishery products, on the other hand, are carried out in accordance with Decree 560 at the Force of Law regarding Production, Consumption and Inspection, the articles taking place within Law 1380 regarding Fisheries and the parameters based on these articles and the related results of analysis. In this respect, at the document preparation and approval stage, the Control Document, Proforma Invoice or Invoice, Turkish Label Sample or Guarantee Document and other documents describe the product.

The other documents describing the product, on the other hand, are the CITES Document for the products within the scope of the CITES Document, Health Certificate and Certificate of Origin for the live fish products, and Chemical and Toxicological analysis reports for the processed, frozen and canned products. Where the designated documents are regarded as satisfactory by the exports of the Ministry's Provincial Directorate, the Control Document and the importation permit are granted for the product.

At the importation stage, on the other hand, samples are taken according to regulations specified for processed products and microbiological and chemical analyses are performed in accordance with the annex to the Fisheries Regulation. In case the analyses are regarded as satisfactory with respect to the related regulations, the Customs Directorate is notified, stating that the entry of the product into the country is permissible.

### **List of third countries and establishments**

Currently, the importation of products from the countries where diseases designated by OIE [Office International des Epizooties, World Health Organization (WHO)] are present is not permitted. Apart from this, the purchase of products from third countries are being realised in accordance with the warnings of the World Health Organization, European Union and Other International organisations.

## **8. Outlook**

It is recognised that fisheries and aquaculture provide a vital source of food, employment, recreation, trade and economic well-being for people, both for present and future generations, and should be conducted in a responsible manner. To ensure the effective protection, management and development of fisheries and aquaculture resources, the government would take further actions and wishes to put some measures into practice in order to:

- establish a General Directorate for fisheries and aquaculture;
- prepare a regulation on the wholesale fish market;
- improve the quality control systems from landing to consumer;
- have accreditation of laboratories, support and calibration both equipment and personnel and intercalibrations system training programmes;
- set up a remote control system for land based fishing control; and
- harmonise the Fishery Law and Regulation in accordance with relevant EU Directives.

PART III  
*Chapter 26*

## **United States**

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## Summary

The United States harvested a total of 4.4 million metric tons of fish, shellfish, and other aquatic products valued at USD 3.3 billion in 2001. In 2000, 4.2 million metric tons were harvested valued at USD 3.6 billion.

In 2001, over 12 million people made 84 million marine recreational fishing trips in the US. The estimated total marine recreational catch was 442 million fish, of which over 57% were released alive. The estimated total weight of harvested catch was 266 million pounds.

Various fishery management plans were revised to incorporate revisions in quotas, size limits, and gear restrictions.

Per capita consumption of fishery products decreased slightly to 6.7 kg (14.8 pounds).

US edible fishery exports have increased steadily since 1998 totalling USD 3.2 billion in 2001, an increase of USD 200 million compared to 2000. This represents a 41% increase from 1998 amount of USD 2 260 million and represents the third year in a row that US exports have increased. Fresh and frozen items were valued at USD 2.2 billion, principally consisting of salmon (USD 296.2 million), surimi (USD 297.6 million), and lobsters (USD 253.9 million). Exports of canned products amounted to USD 234.4 million, consisting mostly of salmon (USD 166.4 million). Exports of cured products were valued at USD 29.7 million, while caviar and roe exports amounted to USD 548.5 million, while other edible products totalled USD 31.3 million.

Seafood imports decreased 10% in 2001 to USD 9.9 billion from historic highs reached the previous year in 2000. The decrease in 2001 notwithstanding, US imports of edible seafood products have increased steadily since 1990, rising over 50% in the last decade. Edible imports consisted mainly of fresh and frozen products valued at USD 8.8 billion, canned products (USD 774.2 million), cured products (USD 150 million), and caviar and roe products (USD 43.2 million).

## 1. Legal and institutional framework

The major legal authority for managing fish in the US Exclusive Economic Zone (EEZ) remains the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), which was extensively amended in October 1996 with the passage of the Sustainable Fisheries Act (SFA). The SFA includes numerous provisions that require science, management and conservation actions by the US Department of Commerce/National Oceanic and Atmospheric Administration/National Marine Fisheries Service (NOAA Fisheries), and includes changes and mandates regarding fisheries management that had to be implemented by required dates from December 1996 to October 1998. Some of the key provisions of the SFA are:

- Prevent overfishing and end overfishing of depressed stocks.
- Rebuild depleted stocks to levels consistent with MSY.
- Reduce by-catch and minimise mortality of unavoidable by-catch.
- Designate and conserve essential fish habitat.

In 2000 and 2001, there were no changes in the MSFCMA. Although the 1996 Sustainable Fisheries Act amendments to the MSFCMA authorized appropriations only through 1999, the Act was not reauthorized in 2000. Congress is expected to reauthorize the MSFCMA later in 2002, but this not certain, and, in any event, the Administration is unable to predict what specific changes in the Act Congress will eventually pass.

Accordingly, NOAA Fisheries continued to implement the SFA mandate to establish management plans that will end overfishing in ten years; reported on essential fish habitats in US fisheries; and completed several congressionally mandated reports or reviewed the findings of other reports that were conducted by non-government panels or task forces.

Fishing operations in federally managed US fisheries are governed by Fishery Management Plans (FMPs) developed by the eight Regional Fishery Management Councils (Councils) or directly by the Secretary of Commerce, and approved by the Secretary of Commerce. At the present time (spring 2002), there are 42 FMPs, of which 40 were developed by the Councils and 2 by the Secretary. The 2 FMPs managed directly by the Secretary govern fisheries for Atlantic highly migratory species. Fisheries managed by FMPs account for more than three-quarters of total US fishery landings, with most of the remaining fisheries managed by the coastal States. Practically all or 96% by volume, of all US fishery harvests take place in State waters (generally 0 to 3 miles) or in the US EEZ (3 to 200 miles). Practically all federally managed fisheries operate under TACs and various restrictions on access, and three fisheries (halibut and sable fish; ocean quahog and surf clam; and wreckfish) are managed with individual transferable quotas (ITQs).

Foreign investments in the US fish harvesting sector are regulated by flagging, ownership, and cabotage that were most recently amended in the American Fisheries Act of 1998. Essentially, fishing vessels that participate in the US fisheries must be documented under US Coast Guard regulations, built in the United States, and subject to a 75% US ownership requirement. Foreign ownership of quota shares in the three ITQ fisheries is prohibited under the FMPs. Foreign investments in other sectors, like processing, trading, marketing, and aquaculture, are not subject to analogous restrictions and therefore are essentially free.

## 2. Capture fisheries

### *Employment and the structure and performance of the fleet*

Based on historical and fragmentary current data, it is estimated that there are 25 000 to 30 000 commercial fishing vessels (defined as vessels over 5 net tons) licensed to operate in the US EEZ, and that this number has probably not changed significantly in recent years. In addition, while the economic performance of the fleet varies substantially from fishery to fishery, overall performance in the last several years has been at a non-optimum level.

There is no current information on the number of fishermen employed in the various fisheries. However, employment in the processing and wholesale sectors indicate a yearly average of 83 000 workers employed in 4 817 plants divided between processing (54 000 workers; 1 297 plants) and wholesale (29 000 workers; 3 520 plants). US economists are developing survey methodology for the harvest component but the exercise has not yet been completed.

## **Landings**

Commercial landings (edible and industrial) by US fishermen at ports in the 50 states amounted to 4.3 million metric tons valued at USD 3.2 billion in 2001, an increase of 192 000 metric tons (up 5%) but a decrease in value USD 321 million (down 9%) compared with 2000. Finfish accounted for 87% of landings in quantity terms, but only 46% of the value. The 2001 exvessel price paid to fishermen was USD 0.34 compared to USD 0.39 in 2000.

Commercial landings by US fishermen at ports outside the 50 states or transferred onto foreign vessels (joint ventures) provided an additional 138 600 MT valued at USD 115.5 million. This was an increase of 5%, or 6 900 MT in quantity and USD 26.6 million (30%) in value compared with 2000. Most of these landings consisted of halibut, sea herring, Atlantic mackerel, snapper and tuna landed in Canada, Puerto Rico, American Samoa and other foreign ports.

The volume of 2001 US landings was increase due to landings of major species such as Alaska and Atlantic pollock, Pacific salmon, haddock, anchovies, yellow flounder, sea herring, Atlantic and Pacific halibut and jack mackerel. The decrease in value of 2001 landings occurred due to the low value associated with Alaska pollock, Pacific salmon, Sea scallops and shrimp.

## **Status of fish stocks**

The Sustainable Fisheries Act, which reauthorized the Magnuson-Stevens Act, requires the Secretary of Commerce to report to the US Congress annually on the status of fisheries within each of the Regional Management Council's geographical area of authority and identify those fisheries that are overfished or are approaching a condition of being overfished.

In accordance with the requirements of the SFA, the basis for the identification of overfished stocks is the current overfishing definition found in the FMPs. Prior to requirements under the new National Standard Guidelines, most existing overfishing definitions were based wholly or in part on either a fishing mortality rate or stock biomass, but not both. The new statutory definition requires that status determination criteria must specify both a maximum fishing mortality threshold or reasonable proxy, and a minimum stock size threshold, or reasonable proxy.

Thus, species must be assessed according to whether the fishing mortality threshold is being exceeded and whether the minimum stock size threshold is being met.

Based on the criteria specified in the MSFCMA, the most recent report on the Status of Fisheries, *Toward Rebuilding America's Marine Fisheries*, issued in April 2002, identified some significant improvements in federally managed fisheries. The number of stocks with sustainable harvest rates increased by 45% from 1999 to 2001, and the number with sustainable stock sizes increased by a third in the same period. Therefore, the United States is making progress on both the "overfishing" and "overfished stocks" fronts.

In 2001, a total of 81 stocks were "overfished", while 163 were not overfished, and 655 were unknown. This report now covers 959 individual stocks, of which about two-thirds are classified as "minor", i.e., with annual landings of less than 200 000 lbs.

Based on the identifications made in the Congressional report, the Councils are now required to develop programs to end overfishing and rebuild overfished stocks, and to prevent overfishing from occurring for the stocks that are approaching an overfished

condition. The rebuilding programs must be as short as possible, but not exceed 10 years, except in cases where the biology of the stock of fish, other environmental conditions, or management measures under an international agreement in which the United States participates dictate otherwise.

In the NOAA Fisheries publication, “Our Living Oceans”, the terms “overfished” and “overfishing” are not used but a similar concept, “Long Term Potential Yield (LTPY)” is used which is analogous to MSY. In this publication, it is estimated that, of 203 “stock groups” under Federal management, 36% are considered below LTPY, 31% are near their potential yields, 11% are above, and 22% are unknown.

### **Resource management**

NOAA Fisheries and the eight Regional Fishery Management Councils have implemented 40 formal fishery management plans (FMPs) to regulate fisheries within the 3 to 200-mile EEZ, and work with the coastal States to manage other fisheries in waters under State jurisdiction, usually from zero to three miles. In addition, NMFS manages two FMPs directly – the FMPs for Atlantic highly migratory species (tuna, swordfish, sharks, etc.) and Atlantic billfish, fisheries that are conducted both within and outside the US 200-mile EEZ.

Fisheries managed by FMPs account for an estimated 70% (by value) of all US commercial fisheries. The largest single US fishery by a wide margin that is not managed by an FMP is the coastal fishery for Atlantic menhaden, which in 1998 accounted for 773 690 metric tons valued at USD 103.8 million, or almost 19% by volume and a little more than 3% value of the respective totals.

During the period under review, there were no fundamental and major changes in management instruments, and NOAA Fisheries and the Regional Fishery Management Councils concentrated on implementing the 1996 Sustainable Fisheries Act amendments to the MSFCMA. Within this management framework, fisheries regulations generally became stricter, as the United States focused increasingly on dealing with overfishing and poor stock health. Hence, the number of FMPs increased from 32 in 1990 to 42 in 1999, and, within these FMPs, there was a progressive evolution away from reliance on quotas and gear restrictions, and toward other measures to control effort and restrict entry. As a result, by the late 1990s, various limited access measures had been introduced in the large majority of federally managed fisheries. These limited access measures range from:

- Control date (date after which licenses are not issued).
- License or vessel moratorium.
- License or vessel limitation.
- ITQ.

### **Commercial fisheries**

#### **Management instruments**

The United States employs a wide range of management instruments, including TACs, gear and vessel restrictions, seasonal and area closures, restrictions on size/weight, and individual fishery quotas in three fisheries (halibut/sablefish; wreckfish; and surf clam/ocean quahog). Mainly in response to the MSFCMA’s mandate to end overfishing within 10 years, the United States will no doubt modify the use of these management instruments in the years to come.



### Access

No significant changes in fishery access arrangements have occurred with respect to US fishery resources and US access to fisheries outside the US EEZ during the review period. Only a few Governing International Fishery Agreements are now in force and generally only small quantities of Atlantic herring and Atlantic mackerel are available for joint venture operations (i.e., operations in which US-flag vessels harvest fish specified as available for joint ventures and sell their catches over-the-side for processing by authorized foreign vessels) in US waters. Atypical was 2001, when in addition to amounts available for joint venture processing, specifications included 5 000 metric tons of Atlantic herring and 5 000 metric tons of Atlantic mackerel available for directed fishing by authorised foreign vessels. Directed fishing allocations in 2001 were linked to joint venture purchases by foreign vessels (i.e. greater joint venture purchases resulted in greater allocations for directed fishing). In 2002, 10 000 metric tons of Atlantic herring and up to 30 000 metric tons of Atlantic mackerel are available for joint venture processing.

US access to foreign fisheries is primarily for the tuna purse seine fisheries in the central and western Pacific Ocean. This access is governed by the provisions of the 1987 Multilateral Treaty on Fisheries between the Governments of Certain Pacific Island States and the Government of the United States of America (also known as the South Pacific Tuna Treaty). On March 24, 2002, the Parties to the Treaty agreed to amend the Treaty and to extend its operation for an additional ten years beyond June 14, 2003. Under the terms of the Treaty, US-flag tuna purse seine vessels have access to fisheries in the waters of the 16 Pacific island nations that make up the Forum Fisheries Agency (FFA). The US tuna industry currently pays USD 4 million in annual access fees. Although the numbers fluctuate from season to season, approximately 30 to 35 US-flag tuna purse seine vessels have operated in these Pacific fisheries in the period under review.

### Recreational fisheries

Recreational fishing in the US EEZ is defined by the Sustainable Fisheries Act of 1996 as “fishing for sport or pleasure”. Additionally, “charter fishing” is defined as “a vessel carrying a passenger for hire who is engaged in recreational fishing”. Federal regulations do not provide for the sale of recreational caught fish. However, each state sets regulations for its waters and, in some cases, state regulations allow for the sale or barter of recreational caught fish.

With the exception of highly migratory species, recreational fishing regulations in the United States are, in most cases, set by each state. For species under Federal regulation, it is normal procedure for state and Federal governments to come to a common decision regarding appropriate regulations. There is no Federal saltwater sport-fishing license in the United States. However, several states require a license. Daily recreational catch limits vary by state and generally by species. Catch limits vary from zero (depleted species) to unlimited amounts. Size limits are imposed for certain species. Gear restrictions vary but usually involve the collection of baitfish and generally apply only to nets.

In 2001, over 12 million people made 84 million marine recreational fishing trips in the US. The estimated total marine recreational catch was 442 million fish, of which over 57% were released alive. The estimated total weight of harvested catch was 266 million pounds.

The Atlantic coast accounted for the majority of total marine angling participation (53%), trips (63%), and catch (55%). The Gulf coast (excluding Texas which is not covered by the NMFS survey) accounted for 25% of participation, 27% of trips, and 37% of the catch.

The Pacific accounted for about 21% of participants, 12% of trips, and 8% of the catch. Nationally, most (57% in numbers of fish) of the recreational catch came from inland waters, 31% from state territorial seas, and 12% from the EEZ.

### **Aboriginal fisheries**

The Western Alaska Community Development Quota (CDQ) Program provides a unique harvesting privilege to 65 rural communities on the Bering Sea coast of Alaska. The total population of these communities is about 27 000 persons of which about 79% are Alaska natives. Although the program is not designed specifically for the indigenous people of western Alaska, they stand to benefit from CDQ economic activity as well as the non-native people who reside in the specified communities.

The CDQ Program allocates 10% of the pollock, 20% of the sablefish, up to 100% of the halibut quota in some areas, and 7.5% of the remaining groundfish species, prohibited species, and crab to eligible western Alaska communities. The objective of the CDQ Program is to provide the means for starting or supporting commercial seafood activities in western Alaska that will result in ongoing, regionally based commercial seafood or related businesses. The CDQ communities may harvest their allocations directly, as is frequently done in the halibut fishery, or they may contract with vessels and processors to catch and process CDQ in exchange for direct royalty payments and employment opportunities for community residents. The estimated value of the CDQ allocations to the CDQ communities is about USD 40 million per year.

The operations and effectiveness of these CDQ programs were formally assessed in a congressionally mandated report, *The Community Development Quota Program in Alaska*, prepared by the National Research Council in 1999. Essentially, this report concluded that the CDQ program has by and large made significant progress in meeting its principal goals, especially promoting economic and social benefits for residents of these communities, although some problems of governance and communication among the communities were also reported. In addition, a bill was introduced (but not passed) in Congress in 2001 that would modify in some important ways the administration of the western Alaska CDQs. This bill, the “Western Alaska Community Development Quota Program Implementation Improvement Act of 2001”, would transfer oversight authority from the State of Alaska to the National Marine Fisheries Service and give the CDQs more flexibility in the choice of investment options.

## **3. Monitoring and enforcement**

The NOAA Fisheries Office for Law Enforcement is the primary investigative arm of the Federal government regarding the enforcement of Federal fisheries laws and regulations. The office utilises a four tiered approach to the conservation and protection of living marine resources.

**Investigation and patrol:** The NOAA Fisheries Office for Law Enforcement investigates both criminal and civil violations. The office has increased its emphasis and the focus of resources on the detection of the most egregious violators. On-going investigative work has revealed the existence of complex and deeply integrated illegal fishing operations, which have a significant impact on fisheries stocks. Elimination of such activities serves to protect existing stocks and enhance future commercial opportunities. In addition to investigative work, agents and uniformed enforcement officers provide a balanced approach to policing by spending significant time conducting patrols and inspections.

These functions primarily involve the monitoring of dockside operations and some near shore activities, and are intended to detect and deter potential violations.

**Community oriented policing and problem solving:** Current enforcement strategies also involve significant efforts to gain compliance with laws and regulations through use of Community Oriented Policing and Problem Solving (COPPS). Voluntary compliance is promoted through outreach, public awareness, community interaction. The COPPS program was adopted as a proactive means to further involve others in the challenges of conservation law enforcement. COPPS is designed to involve communities and other persons who may be considered stakeholders by encouraging them to focus on results. The foundation of COPPS rests on education and understanding through teamwork and partnerships. It employs voluntary, rather than punitive measures, to encourage and increase overall compliance in the regulated community.

**Use of technology to enhance investigations and compliance:** The exponential growth of technology in recent years has provided a number of potential solutions for use in the management of fisheries and persons involved in fishing. The intent is to develop national fisheries enforcement operations using advanced technologies such as satellite based Vessel Monitoring Systems (VMS). VMS provides satellite-based tracking of, and communications with, fishing vessels. This is a powerful new tool with potential benefits ranging from control and monitoring to cost savings for fisheries enforcers, managers, and fleet owners. The United States currently monitors the operations of driftnet vessels and numerous US-flag vessels in several fisheries. The United States is also engaged in global efforts to apply VMS to various international arenas. Current operational systems include the successful Hawaiian pelagic long-line project, which involves over 120 longline vessels operating from Hawaii and the New England Scallop Project which includes VMS tracking of approximately 270 scallop fishing vessels in New England. The NOAA Fisheries National VMS project is nearing completion and will soon incorporate the existing Hawaiian long-line and New England Scallop systems in addition to the Atlantic Highly Migratory Species Fishery and the Alaska Atka Mackerel Fishery. There are a number of additional fisheries under consideration as well. VMS is just one example of useful technology. A number of other endeavours, including remote radar applications, are also being explored.

**Development and fostering of partnerships:** NOAA Fisheries currently has co-operative agreements in place with nearly 25 US States and Territories. These cooperative agreements extend the capacity of NOAA Fisheries Office of Law Enforcement by utilizing state personnel in targeted areas of mutual concern. In addition to these partners, NOAA Fisheries has agreements or works closely with a number of other Federal agencies, tribes and other organisations.

### **Multilateral agreements and arrangements**

During the review period, the United States engaged in a number of global, regional, and bilateral negotiations and began to implement several agreements and other less formal arrangements, all of which are intended to promote US international fisheries policies. The examples given below selectively review these negotiations and agreements, highlighting the most important international developments:

### **Negotiations**

- Engaged in discussions with Canada to: 1) Amend an agreement on cooperation in matters concerning the Pacific albacore tuna fisheries off both countries = coasts; and 2) Negotiate an agreement on sharing the coast-wide Pacific whiting resource.
- Strongly supported the clarification and improvement of WTO disciplines on fisheries subsidies and effects of environmental measures on market at the 4th WTO Ministerial Conference in Doha, Qatar, in November 2001.
- Participated in a number of Multilateral High-Level Conferences culminating in the adoption in September 2000 of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. The Convention will, upon entering into force, establish a Commission and set up the framework governing participation in the fisheries for highly migratory species in the region.
- Actively preparing for the World Summit on Sustainable Development to be held in Johannesburg, South Africa, in late August – early September 2002. The United States views the World Summit as an opportunity to take stock of the numerous initiatives in the oceans and fisheries sector that have occurred as a result of the 1992 UNCED meeting in Brazil, identify priority areas where implementation of these initiatives still needs to take place, and form new public/private partnerships to address the priority areas identified in the WSSD process.
- Participated in the development by the International Commission for the Conservation of Atlantic Tunas of criteria for the allocation of fishing possibilities. These allocation criteria were adopted by ICCAT at its 2001 annual meeting and represent a significant step forward for the organisation. Unfortunately, ICCAT failed to adopt conservation and management measures consistent with scientific advice for over-fished eastern Atlantic and Mediterranean bluefin tuna at its 2001 meeting. The next opportunity to resolve the ongoing dispute regarding appropriate management for this fishery will be in the fall 2002. In the meantime, the United States intends to work with the European Commission to try to find common ground.

### **Implementation of agreements and other arrangements**

- Continued to strongly support in international fora implementation of the provisions of the FAO Code of Conduct for Responsible Fisheries, and the ratification and implementation of the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks and the FAO Agreement to Promote Compliance With International Conservation and Management Measures by Fishing Vessels on the High Seas.
- Continued to encourage and assist other FAO members to implement the FAO international plans of action (IPOA) on: 1) Mitigating seabird mortality in longline fisheries; 2) The management of shark and shark-like species; 3) the management of fishing capacity; and 4) The prevention, deterrence and elimination of illegal, unreported and unregulated fishing. To implement these plans domestically, the United States has completed, or is in the process of completing, national plans of action for each of the IPOAs.

## 4. Aquaculture

### Policy changes

During the period under review, the Administration took steps to promote environmentally and economically sound aquaculture through several initiatives. NOAA Research, in a national competition, awarded USD 5 million for innovative research, policy and regulatory analysis and development of marine aquaculture in the United States. NOAA Fisheries conducted a series of public meetings to solicit stakeholder input in the development of a Code of Conduct for Responsible Aquaculture in the EEZ. The Environmental Protection Agency began developing effluent guidelines for specific sectors of the aquaculture industry in coordination with the Joint Subcommittee on Aquaculture (JSA). The JSA also established a task force to develop a national aquatic animal health plan and drafted an update of the National Aquaculture Development Plan. Legislation developed by the Department of Commerce to provide leasing authority for aquaculture sites in the EEZ was reviewed by other federal agencies; however, additional Administration review is needed prior to introducing the legislation to Congress.

Table III.26.1. **Estimated US Aquaculture Production, 1994-1999**

	Metric tons ('000)	Value (USD '000)
1994	302	751
1995	313	815
1996	315	886
1997	348	910
1998	358	939
1999	382	987

Source: OECD.

## 5. Fisheries and the environment

In terms of fisheries and the environment, the US implements the National Environmental Policy Act (NEPA) for all fishery management actions that may have a significant impact on the quality of the human environment (physical, biological, socio-economic). For every major federal action, an environmental assessment (EA), environmental impact statement (EIS) or categorical exclusion (CE) is completed in accordance with NEPA regulations. Environmental impacts generally associated with fishery management actions include effects resulting from: 1) Harvest of fish and invertebrate stocks which may result in changes in food availability to predators and scavengers, changes in population structure of target fish and invertebrate stocks, and changes in the marine ecosystem community structure; 2) Changes in the physical and biological structure of the marine environment as a result of fishing practices, *e.g.* effects of gear use and fish processing discards; and 3) Entanglement/entrapment of non-target organisms in active or inactive fishing gear. To the extent practicable, the appropriate NEPA review (EA, EIS, and CE) is integrated with fishery management documents developed under the MSFCMA. Opportunity for public review and comment prior to final action is afforded through both the NEPA and MSFCMA processes.

For the period under review, the United States undertook a number of domestic and international initiatives relating to the “fisheries and the environment” theme. The following selectively reports on a few highlights.

### **External environmental threats to aquatic ecosystems**

- The United States continues to support a wide variety of means of conserving and protecting endangered and threatened salmon runs in the Pacific Northwest, and has committed increased public resources to that end.
- The United States funded a number of “disaster relief” measures under Section 312 (a) of the MSFCMA, most of which provided Federal assistance to fishing communities in response to a natural disaster, such as a hurricane.

### **Adverse impacts of capture fisheries and Aquaculture on non-targeted species and the environment**

- Under the 1996 Sustainable Fisheries Act amendments to the MSFCMA, NOAA Fisheries was required to conduct research on incidental harvests taken in the shrimp trawl fisheries in the Gulf of Mexico and the South Atlantic, and to establish a program to reduce those incidental harvests.
- In developing a policy to promote the domestic marine aquaculture industry, the Administration has consistently sought through a variety of means to achieve that goal on an environmentally sound basis.
- NOAA Fisheries has placed added emphasis on the need for a broader approach to fisheries management that takes into account the impacts of directed fishing operations on fish habitats and the surrounding ecosystems. The 1996 Sustainable Fisheries Act amendments to the MSFCMA mandated that NOAA Fisheries identify and describe essential fish habitats in all federally managed fisheries.

## **6. Government financial transfers**

The following Table III.26.2 shows the US Government financial transfers to marine fisheries 1999-2001.

### **Social assistance**

The United States does not have a fisheries sector social assistance program per se – a transfer of Government funds directly to fishermen “to ensure some minimum level of welfare”. However, in various ways, the United States is increasingly addressing impacts on fishing communities.

One example is the establishment, under the 1996 amendments to the MSFCMA, of a new National Standard #8, which states that “conservation and management measures shall take into account the importance of fishery resources to fishing communities in order to: A) Provide for the sustained participation of such communities, and B) To the extent practicable, minimise adverse economic impacts on such communities”. Under this standard, NMFS has had to define and describe “fishing communities” and conduct social impact analyses for all federally managed fisheries.

One other means whereby the United States may be said to be moving cautiously toward a social assistance policy in fisheries is disaster relief. Under Section 312 (a) of the 1996 amendments to the MSFCMA, the Secretary of Commerce may, in order to assist a fishing community that is adversely affected by a commercial fishery failure, provide Government-funded relief to, *inter alia*, “... assist a fishing community affected by such a failure”. The federal share of such relief shall not exceed 75% of the total cost.

Table III.26.2. **Government financial transfers marine fisheries**

Million USD

	1999	2000	2001
<b>Revenue Enhancing Transfers (from consumers):</b>	<b>42.8</b>	<b>37.9</b>	<b>49.9</b>
<b>Market price support (1)</b>			
– Transfer effects of US tariffs on fishery imports <sup>1</sup>	42.8	37.9	49.9
<b>Revenue enhancing transfers (from Government budgets):</b>	<b>96.6</b>	<b>32.1</b>	<b>8.1</b>
<b>Direct payments (2)</b>			
USDA market promotion program	3.0	3.18	2.85
USDA surplus commodity removal <sup>2</sup>	15.7	0	5.2
Fisheries disaster relief	77.9	28.9	0
<b>Total direct payment revenue enhancing transfers (3) = (1) + (2)</b>	<b>139.4</b>	<b>70</b>	<b>58</b>
<b>Cost reducing transfers (4)</b>	<b>165.7</b>	<b>13.5</b>	<b>53</b>
Treasury/IRS fuel excise tax exemption <sup>3</sup>	150.0	–	–
NMFS fisheries development program <sup>4</sup>	10.6	10	49.5
NMFS fisheries finance program <sup>5</sup>	1.7	0	0
NMFS capital construction fund (tax deferral program) <sup>6</sup>	2.5	2.5	2.5
NMFS fishermen's contingency fund	0.9	1.0	1.0
<b>Total revenue enhancing and cost reducing transfers (5) = (3) + (4)</b>	<b>305.1</b>	<b>83.5</b>	<b>111</b>
<b>General services transfers (6)</b>	<b>798.0</b>	<b>952</b>	<b>1 056.3</b>
Information collection and analysis	188.8	200.1	255.3
Among resources information	133.8	144.9	193.2
Among fishery industry information	30.1	30.9	37.5
Among information analysis and dissemination	24.9	24.3	24.6
Acquisition of data	25.1	25.8	26.8
Conservation and management	140.5	168.7	289.8
State and industry assistance <sup>7</sup>	12.5	11.8	12.7
Sea grant college program <sup>8</sup>	3.0	1.9	4.8
Saltontall-Kennedy development grants <sup>9</sup>	3.0	1.68	3.94
Dept. of transportation/coast guard fisheries law enforcement <sup>10</sup>	425.1	542	463
Fisheries infrastructure <sup>11</sup>	n.a.	n.a.	n.a.
Expenditures of state fisheries agencies <sup>12</sup>	n.a.	n.a.	n.a.
<b>Total transfers (7) = (5) + (6)</b>	<b>1 103.1</b>	<b>1 035.5</b>	<b>1 167.3</b>
Total ex-vessel fisheries revenues (8)	3 609	3 638	3 344
Transfers/total revenues (%) (9) = (7)/(8) × 100	30.6	28.5	34.9
Revenue enhancing and cost reducing transfers/total revenues (%) (10) = (5)/(8) × 100	8.5	2.3	3.3
General services transfers/total revenues (%) (6)/(8) × 100	22.1	26.2	34.9

n.a. Not applicable.

- These figures represent total US tariff revenues for imports of edible fish and shellfish products. Since most fishery imports are duty-free, the lion's share of these amounts is accounted for by imports of a handful of processed products such as canned tuna, sardines and oysters, smoked salmon, and frozen crabmeat. Hence, only a small group of processors derive most of the benefits of these transfers. More fundamentally, the reported amounts do not capture the entire transfer because they exclude the dead-weight loss to society caused by the increase in prices for domestically produced and imported fish. Measuring this dead-weight loss requires assessing supply and demand elasticities of fish products subject to tariffs. Thus, an accurate and comprehensive estimate of these transfers from consumers to producers would give higher amounts than the figures given here.
- During the three year period under review, this programme was used to purchase processed (canned, nuggets, and pouched) salmon and canned tuna products.
- Recent changes in the US tax code (Public Law 105-178 of the Surface Transportation Revenue Act of 1998) clarified that revenue collected by this excise tax goes directly to the Highway Trust Fund for the construction of roads and highways. It can be therefore considered a user fee and no longer a GFT for 2000 and 2001.
- Significant increase in 2001 is the result of one time disaster assistance funding: the Alaska Salmon Disaster Program (USD 40 million).
- The FFP program provides direct loans to industry for various purposes (some repair and maintenance of fishing vessels; aquaculture; buybacks; and purchase of IFQ shares in the halibut and sablefish fisheries). It is important to note, that due to the relatively high interest rates charged on these loans and the relatively low default rate, FFP is a self-financing program. In other words, the program historically has not resulted in a net outflow of government funds.
- The figures given for the CCF tax deferral program represent an estimate of the economic impact on industry of deferring these taxes. Annual deferred taxes have averaged USD 25 to USD 30 million in recent years, but these taxes are for the most part recaptured at a later date through lower depreciation allowances. The effective annual transfer to industry in the form of lower taxes has been calculated at about USD 2-USD 2.5 million.
- This budget line provides funds for various grants to coastal States.
- The entire Sea Grant program has been funded at between USD 103.7 and 105.6 million in 2000-2001, and the transfer amount given in this table represents a rough estimate of that share of the Sea Grant program that supports fisheries programs, as opposed to other NOAA programs (oceans, weather, etc.).
- The entire S-K grants program is listed under "general services" because practically all of these grants are awarded to support basic scientific and management missions, but it may be noted that a small share of these grants fund projects that assist the fishing industry and could therefore be placed under the "cost reducing" category of transfers.

10. The US Coast Guard is responsible for at-sea enforcement of fisheries regulations, while NOAA Fisheries deals primarily with the investigation and prosecution of criminal and civil violations. US Coast Guard fisheries law enforcement has domestic and foreign components, with the bulk of spending allocated to domestic enforcement. In FY 1999, for example, domestic activities were budgeted at USD 377.5 million and foreign at USD 47.6 million. Coast Guard fisheries law enforcement accounted for between 12 to 14% of their entire operational budget in the three-year period under review.
11. Fisheries infrastructure, including the construction, maintenance and modernisation of fishing ports and landings facilities, is funded by many Federal and local agencies, such as the Army Corps of Engineers and various Port Authority and other local public works agencies. These transfers to fisheries infrastructure were not calculated and are therefore not included in this submission.
12. About 20 of the 50 US States have coasts of meaningful length, and perhaps a dozen or so have reasonably large agencies responsible for marine and inland fisheries, with marine responsibilities usually extending to three miles. States with fairly large fisheries agencies include: Maine, Massachusetts, New York, New Jersey, Virginia, Florida, Texas, California, Oregon, Washington, Alaska, and Hawaii. These agencies generally deal with both freshwater and marine fisheries, and are funded from both State and Federal sources. It is assumed that the large bulk of their programs fall in the "general services" category of transfers. No estimate of these State transfers was made.

Source: OECD.

### **Structural adjustment**

The United States does not have a statutory structural adjustment program per se, but has implemented specific programs that address some of the same objectives as structural adjustment (reduction of fishing capacity). One such program is Government-funded buybacks of fishing licenses and vessels. Another is Section 312 (b) of the 1996 Sustainable Fisheries Act amendments to the MSFCMA, the "Fishing Capacity Reduction Program", which seeks the "maximum sustained reduction in fishing capacity at the least cost and in a minimum period of time", and will be funded from multiple sources, including fees paid by industry. Finally, in the course of MSFCMA reauthorization, NMFS has examined various ways to improve the effectiveness of Section 312(b) – (e) and offered a specific proposal for Congress to consider.

Buybacks funded entirely from Government sources have been implemented for many years on a case-by-case basis, and usually with special appropriations. Capacity reduction plans under Section 312 (b) may be implemented in the future when the recently completed framework regulations are approved. However, one such capacity reduction plan – for Alaska pollock – was enacted directly in late 1998 through the American Fisheries Act.

## **7. Markets and trade**

### **Markets**

Per capita consumption of fishery products decreased in 2001 to 6.7 kg (14.8 pounds), 0.2 kg (0.4 pound) less than revised 6.9 kg (15.2 pounds) consumed in 2000. Although consumption decreased slightly in 2001, total consumption remains about 91% of the record high of 16.2 pounds (7.4 kg) reached in 1987. Most of the seafood consumed in the United States is in fresh and frozen forms, followed by canned products consisting mostly of tuna.

Fresh and frozen finfish accounted for 5.7 pounds (2.6 kg), slightly down from 5.8 pounds in 2000, while fresh and frozen shellfish consumption was 4.6 pounds (2.1 kg) per capita, down from 4.7 pounds in 2000. The fresh and frozen finfish includes approximately 1.1 pound of farm raised catfish. Consumption of canned fishery products was 4.2 pounds (1.9 kg) per capita in 2001, down from 4.7 pounds in 2000. Cured fish accounted for 0.3 pounds per capita, the same as in previous years. Imports of edible seafood made up 76% of the consumption.



Table III.26.3. **Per capita consumption**  
Pounds, edible meat

	Fresh and frozen	Fillets and steaks	Shrimp	Canned	Cured	Total
1987	10.7	3.6	2.4	5.2	0.3	16.2
1988	10.0	3.2	2.4	4.9	0.3	15.2
1989	10.2	3.1	2.3	5.1	0.3	15.6
1990	9.6	3.1	2.2	5.1	0.3	15.0
1991	9.7	3.0	2.4	4.9	0.3	14.9
1992	9.9	2.9	2.5	4.6	0.3	14.8
1993	10.2	2.9	2.5	4.5	0.3	15.0
1994	10.4	3.1	2.6	4.5	0.3	15.2
1995	10.0	2.9	2.5	4.7	0.3	15.0
1996	10.0	3.0	2.5	4.5	0.3	14.8
1997	9.9	3.0	2.7	4.4	0.3	14.6
1998	10.2	3.2	2.8	4.4	0.3	14.9
1999	10.4	3.2	3.0	4.7	0.3	15.4
2000	10.2	3.3	3.2	4.7	0.3	15.2
2001	10.3	3.4	3.4	4.2	0.3	14.8

Source: OECD.

## Trade

### Imports

US imports of edible fishery products in 2001 were valued at USD 9.9 billion, USD 189.6 million less than in 2000. The quantity of edible imports was 1 860 652 metric tons, a 56 133 ton increase from the quantity imported in 2000. Edible imports consisted mostly of fresh and frozen products valued at USD 8.8 billion, canned products (USD 774.2 million), cured products (USD 150.1 million), and caviar and roe products (USD 43.2 million).

The quantity of shrimp imported in 2001 was 400 336 tonnes, 55 260 tonnes more than the quantity imported in 2000. Valued at USD 3.6 billion, shrimp imports accounted for 37% of the value of total edible imports. Imports of salmon, including filets, were 175 092 tonnes valued at USD 818.2 million in 2001. Imports of fresh and frozen tuna were 183 621 tonnes, 18 326 tonnes less than imported in 2000. Imports of canned tuna were 132 542 tonnes, 9 419 tonnes less than in 2000. Imports of fresh and frozen fillets and steaks amounted to 360 848 tonnes, an increase of 27 585 tonnes from 2000. Regular and minced block imports were 66 534 tonnes, a decrease of 25 956 tonnes from 2000.

### Exports

US exports of edible fishery products totalled 1 139 744 tonnes valued at USD 3.2 billion in 2001, compared with 948 025 tonnes at USD 2.8 billion exported in 2000. Fresh and frozen exports consisted principally of 93 932 tonnes of salmon valued at USD 296.2 million, 26 662 tonnes of lobster (*Homarus spp.*) valued at USD 253.9 million, and 181 279 tonnes of surimi valued at USD 297.6 million. Canned items were 81 699 tonnes valued at USD 235.4 million. Salmon was the major canned item exported, with 49 405 tonnes valued at USD 166.4 million. Cured items were 10 013 tonnes valued at USD 29.7 million. Caviar and roe exports were 47 747 tonnes valued at USD 548.5 million.

Concerning multilateral negotiations/discussions on market liberalisation, the United States is actively involved in realising a successful conclusion of the Doha Development Agenda, including clarifying and improving WTO disciplines on fisheries subsidies and greater market access for US fish and fish product exports.

The United States will also continue to support and contribute to initiatives on trade liberalisation sponsored in other intergovernmental fora such as the Fisheries Working Group of APEC.

## 8. Outlook

The United States will continue to implement changes and mandates regarding fisheries management required under the MSFCMA. NOAA fisheries will focus on reducing overfishing and overcapitalisation of the US fishery resources by improving stock assessment and prediction, improving essential fisheries habitat and reducing fishing pressure, including downsizing of fishing fleets.

The following are some key activities for 2000-2001.

- Improve and expand stock assessment and prediction through increased stock surveys, fisheries oceanographic projects, and a West Coast Observers program.
- Work toward liberalising trade in the fisheries sector through bilateral arrangements, regional and multilateral intergovernmental organisations, and other forums as appropriate.
- Continue to implement the Sustainable Fisheries Act, refine essential fish habitat designations in the fishery management plans, and to reduce fishing impacts on essential fish habitat.
- Implementations of a national fishing vessel registration and fisheries information system, quality standards for regional programs, and integrate the results into a unified system. This system will also fill critical gaps through initiation of new data collection programs that will subsequently reduce the risk and uncertainty of living marine resource policy decisions.
- Implement priority recommendations of the Task Force on coral reefs by identifying, developing, monitoring and enforcing no-take fishery reserves in US waters. This program will provide the management tools for NOAA Fisheries and the Regional Fishery Management Councils to effectively utilise “no-take” fishery reserves as a fishery management tool. It will provide baseline assessments and long-term monitoring of both coral reef fishes and the associated ecosystem in identified coral reef “no-take” zones; and provide enforcement support for such zones.
- Continue to attain economic sustainability in fishing communities by establishing a Fisheries Assistance Fund as a contingent emergency appropriation to provide flexible, uniform, and timely assistance through buybacks to address disasters, overfishing, or overcapitalisation. Collect fisheries statistics and perform economic and social analyses required by the new Standard 8 of the Sustainable Fisheries Act. The importance of such economic data has increased in recent years as additional management measures have been implemented to end overfishing and rebuild stocks.
- Promote public and private sector aquaculture, which includes funding for research and an extension program to develop environmentally sound marine aquaculture.
- Work with the US Congress on MSFCMA reauthorization, supporting changes in the Act that will improve the effectiveness of NMFS and the Councils’ fishery management operations.
- Continue to support an expiration in October 2002 of the moratorium on new individual fishing quotas (IFQs), which will enable NMFS to work with the Councils to implement new IFQs in several federally managed fisheries.

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