

Chapter 2.

Selected Case Studies of Decommissioning Schemes

This chapter presents a number of case studies of decommissioning schemes from recent experience in OECD and non-OECD economies. The types of schemes vary widely and include examples of mandatory vessel buybacks, ongoing decommissioning schemes, industry-funded buybacks and an NGO-funded permit acquisition. The objective in presenting the case studies is to highlight the lessons learned from the range of experiences in the design and implementation of the schemes. In particular, it is instructive to identify the key factors that influence the success or failure of the schemes in meeting their objectives. The schemes covered in this chapter include:

- Industry-funded buyout in the United States Bering Sea/Aleutian Islands King and Tanner Crab Fishery;
- NGO-funded permit buyout in the United States Pacific Groundfish fishery;
- Australia's Business Exit Assistance scheme under the *Securing our Fishing Future* structural adjustment package;
- Mandatory vessel decommissioning scheme for tuna longline vessels in Chinese Taipei;
- Decommissioning schemes in France; and
- Decommissioning schemes for the coastal and offshore vessels in Korea.

Industry-Funded Buyout in the United States Bering Sea/Aleutian Islands King and Tanner Crab Fishery

This case study presents details of an industry-funded buyout that preceded implementation of an Individual Fishery Quota (IFQ) program in the Bering Sea/Aleutian Islands (BSAI) crab fisheries off Alaska. This fishery is managed under a Fishery Management Plan (FMP) that was developed by the North Pacific Fishery Management Council (NPFMC) under the Magnuson-Stevens Act. The Plan was implemented in 1989, and defers management of the fisheries to the State, with Federal oversight by the National Marine Fisheries Service (NMFS) and NPFMC. The fishery includes seven species of crab, three of which are overfished and under a rebuilding plan. Average annual gross ex-vessel landings over the period 2000-2005 were around USD 135 million. In addition to limited entry, management measures include catch limits, closed areas and seasons, gear restrictions (pot only), catch of males only, and bycatch measures (escape rings/tunnel size, degradable escape), and pot limits.

Domestic capacity in the fishery grew rapidly following the exclusion of foreign crab vessels after the declaration of the United States 200-mile EEZ. The fishery was an open access fishery up until a moratorium on the entry of new vessels was proposed by the NPFMC in 1992. Vessels were required to obtain a transferable Moratorium Vessel Qualification which would enable the vessel to later fish when the moratorium came into effect.¹ The vessel moratorium was approved and finally put in place by NMFS in 1995, and remained in effect until the end of 1999. Up until the introduction of the moratorium, the fishery was an open access fishery with all permits being issued by the State of Alaska. The Olympic nature of the fisheries encouraged a race to fish, with the result that many of the fisheries was subject to an extremely short fishing season (as little as two or three days in some cases) (Leal *et al*, 2004). The short seasons forced fishers to deliver all of their catch to processors in a very short period, resulting in a glut of crab on the market and lower dockside prices for fishers. Moreover, the high pace of fishing increased fishing costs, complicated stock assessment and management, and exacerbated dangerous conditions for fishers. The fishery was also heavily overcapitalised.

Table 2.1. Timeline for Management Changes in the Bering Sea/Aleutian Islands King and Tanner Crab Fishery

Year	Event
1992	Vessel Moratorium recommended by NPFMC. In addition, the Council approved a problem statement in December 1992 describing the need for and purpose of a Comprehensive Rationalisation Plan.
1995	Vessel Moratorium approved by NMFS and Final Rule implementing Vessel Moratorium published. Licence Limitation Program adopted by the NPFMC
1996	First year of fishing under Vessel Moratorium
1997	LLP FMP Amendments approved by NMFS
1998	Final Rule implementing LLP published
1999	Last year of Vessel Moratorium (it was originally to intended to finish at the end of 1998, but was extended a year because the LLP was not ready)
2000	First year of fishing under LLP
2001	Final Rule published to amend the LLP required "re-implementation" of crab LLP eligibility under an FMP Amendment that added a new "recent participation period" as an additional eligibility test for a crab licence. Extant crab LLP licences without requisite history were revoked permanently. Consolidated Appropriations Act of 2001 required buyback program (subsequently amended twice)
2002-03	NPFMC adopted a series of Crab Rationalisation measures
2003	Final Rule to establish the buyback program published
2004	Buyback implemented NPFMC consolidated all Crab Rationalisation measures into a single Motion, adopted as FMP Amendment 18. Congress amended section 313(j) of the Magnuson-Stevens Act through the Consolidated Appropriations Act of 2004. As amended, section 313(j)(1) required the Secretary to approve and implement by regulation the Program, as approved by the North Pacific Fishery Management Council (Council) between June 2002 and April 2003, and all trailing amendments, including those reported to Congress on 6 May 2003.
2005	Last crab fisheries under LLP for rationalized crab fisheries (winter 2005, thereafter some crab fisheries remained under LLP) Final Rule Implementing Crab Rationalisation (including IFQ/IPQ system) published First rationalized crab fishing year began July 2005 (first fisheries opened August 2005).

Source: National Marine Fisheries Service, personal communication, March 2007.

In June 1995, the NPFMC adopted the Licence Limitation Program (LLP) which established criteria for holding a licence, including requisite landings during a specified qualification period (see Table 2.1 for a history of management initiatives in the BSAI fishery). The LLP came into effect in 1999. Despite the moratorium and the LLP, however, the BSAI crab fishery remained considerably overcapitalised. The Alaska Department of Fish and game, which monitors fishing activity, reports that in 1995, some 299 vessels participated in the crab fishery (portion under LLP), while in 1996 and 1999, the first and last years of the LLP, respectively, 273 and 282 vessels participated. Under LLP and after appeals, there were 288 LLP licences. Clearly, the number of permitted vessels as well as the active vessels was not significantly reduced by the LLP.

Design of the Decommissioning Scheme

The industry-funded buyback program was launched in 2001 following passage of legislation (PL 106-554) which directed the Secretary of Commerce to promulgate rulemaking to implement a fishery reduction program.² The legislation provided USD 100 million for a loan to the vessels remaining in the fishery. The objective of the program was to increase productivity, help conserve and manage crab resources, and foster the potential for rationalising harvesting effort. The buyback preceded the implementation of an individual fishing quota (IFQ) program. The industry-funded buyout was a useful “jump start” to the IFQ program, providing a smaller universe of vessels with which to conduct the relatively burdensome and participatory process of implementing individual quotas. The buyback itself took place in 2004 with the IFQ program being implemented in 2005.

Vessel owners interested in selling out were requested (by official Federal Register notice as well as more popular media processes) to send in their “bids” for exiting the fishery. By submitting a bid, vessel owners indicated the sum of money required for them to surrender all fishing permits and fishing history associated with that vessel, and to ensure that their vessel would never be used in any fishery anywhere in the world. Each bid by a particular vessel was accorded a “bid score” based on the formula which weighted the bid price by the value of catch history for each vessel (Box 2.1).

Box 2.1. An Example of the Bid Score System

In the Bering Sea/Aleutian Islands King and Tanner Crab Fishery buyout, each bid by a vessel (say, vessel i) was given a bid score based on the following formula:

Bid score for vessel i = bid price by vessel i / sum over past five years of gross revenue from vessel i .

The bid price was the offer made by the seller of vessel i . Quantities landed over the past five years by each vessel i were obtained from NMFS logbook/landings data, and Alaska state-wide average prices were used (rather than prices received by that particular vessel). The bid score allowed the agency to purchase the most catch history (in terms of value) for the least amount of money. The ratio reflects the fact that a low buyout bid combined with a high history of catch value is preferred over other combinations of bids and so receives preferential treatment in the ranking of bid scores. In the illustrative example given in the table below, vessel C would be preferred even though its bid is higher than that of the other vessels because of its relatively higher performance in terms of catch value. Vessel A would be the next preferred vessel even though vessel D had a higher catch value.

Vessel	Bid price	Total revenue	Bid score
A	200 000	280 000	0.714
B	200 000	265 000	0.755
C	350 000	500 000	0.700
D	350 000	480 000	0.729

Source: National Marine Fisheries Service, United States; OECD.

In a reverse auction fashion, bids were ranked from lowest to highest bid score. Vessels were selected starting with the lowest score, until all USD 100 million of the appropriated funds were exhausted. In the end, NMFS accepted 25 bids totalling USD 97.4 million. These 25 vessels held 62 fishing licences or permits.

A post-bidding referendum was held, as required by law, to determine whether all members of the fleet would approve both the buyout and the industry fee system that would be imposed on vessels remaining in the fleet, in order to repay the loan over 30 years. At least two-thirds of qualified ballots must be cast in favour of the buyout in order for the referendum to pass. The referendum did pass, and the buyout was completed. Vessels remaining in the fleet are currently paying a landings fee ranging from 1.9% to 5% (the actual rate varies by region of the fishery) to cover their cost of the buyout. These landings fees are collected by ex-vessel purchasers, and are capped at 5%. During periods when the fishery is closed (*e.g.* in case of

resource failure), fees are not collected, although interest continues to accrue on the loan.

The interest rate charged on the loan is 2% over the United States Treasury's cost of borrowing equivalent maturity funds, averaged over the year in which the loan program was finalized (7.44% in this case). This interest rate remains fixed over the 30-year term. The 30-year loan period is specified by law. Annual payments of approximately USD 8.1 million are required to amortize the USD 100 million loan over 30 years at this interest rate.

Outcomes

The decommissioning scheme was an interim step between LLP and the IFQ program. An IFQ system was implemented in the crab fishery in March 2005, and the first fisheries under this “rationalisation” program opened in August 2005. Note that this IFQ program was part of a “three-pie system” that included quotas for individual processor (IPQs), harvesters (including crew), and communities, with additional measures to protect coastal communities historically dependent on crab fisheries. The IPQs are highly controversial, allocating exclusive rights to purchase and process crab at the ex-vessel level. IPQs are legislatively prohibited in all United States fisheries other than this crab fishery. Community quotas are just that — exclusive fishing rights allocated to various small fishing communities in Alaska, including indigenous groups.

Active participation in the fishing fleet under rationalisation has definitely declined. In all BSAI king and Tanner crab fisheries except Eastern Aleutian Islands red king crab and Norton Sound red king crab and some other minor fisheries (which remained under State management), 101 vessels were used in the 2005/06 crab fishing year and 89 in the 2006/07 crab fishing year so far (Table 2.2). These reductions are market-driven as fishing activities are consolidated. Most participants in the IFQ program have joined voluntary harvesting cooperatives under the program's provisions that encourage them to do so; this allows these vessels an exclusion from certain restrictions.

There are no reports of any of the decommissioned fishing vessels being scrapped. There is some information regarding their use in non-fishing businesses, as well as scientific research charters. Stripped of their fishing permits as well as the right to participate in fisheries anywhere in the world, the market value of these vessels is quite low.

Table 2.2. Changes in Vessel Participation in the Bering Sea/Aleutian Islands King and Tanner Crab Fishery

Year	Number of vessels used	Event
1995	299	Last year before Vessel Moratorium
1996	273	First year of Vessel Moratorium
1999	282	Last year of Vessel Moratorium
2000	230	First year under Licence Limitation Program (LLP) ^a
2001	264	
2002	250	
2003	256	
2004	259	Last full calendar year under the LLP. Buyback implemented.
2005	169	
2005-06	101	First year of rationalisation program and introduction of IFQ
2006-07	89	Second year of rationalisation (last fisheries close 31 May)

a. Under the Licence Limitation Program, there was a cap in the final number of crab licences of 288 licensed vessels.

Source: National Marine Fisheries Service, personal communication, March 2007.

Lessons Learned

One of the most positive aspects of the decommissioning scheme was how it served as a precursor to the IFQ program. The buyout essentially set the stage for the rationalisation program by having a smaller fleet, with vessel operators/managers who were better prepared for the rationalisation implementation process, both in thought and by having their catch records at hand (the latter of which avoided some data confidentiality and disclosure problems that always arise in such implementations). By the time the buyout was completed, the NPFMC essentially had a rationalisation plan. Despite these advantages, the lack of a clear picture of the IFQ program that would follow the buyback hampered somewhat the design of the decommissioning scheme.

Industry involvement is an essential part of the formula to a successful transition. In the case of the BSAI crab fisheries, industry was a prime player in the push for the buyback and the shift to IFQs. While the State of

Alaska supported the idea as a step towards improving fisheries management, safety at sea and profitability, the major impetus came from industry. The prospect of improved profitability in a rationalised fishery was sufficient to enable those who would wish to remain in the sector to commit to a long period (30 years) of landings fees in order to finance the buyback. The shift to stronger access rights in the form of IFQs was, therefore, an essential element in allowing the fishers to engage constructively in the design and implementation of the buyback.

One of the challenges was the lack of clarity in the statutory language that authorized the buyback and the associated loan. The absence of communication between regulators and legislators led to statutory language that was either unworkable, did not address critical issues, or that required substantive and time-consuming legal interpretation. For example, it was necessary to work around the problem that LLP licences were held by persons and not vessels. Delays in analyses and preparation of regulatory documents ensued.

Another challenge stemmed from the data confidentiality issue. Under Alaska Statute, fish ticket data (which provided the underpinning data for the buyout) are confidential except to the individual who signed the fish tickets. In many cases the government agency is unable to share underlying data with persons who are entitled to apply for and receive the benefit. This compromises the ability to address inconsistencies in the data, and affects how benefits are distributed. This issue will have to be addressed in the future via changes in statutes concerning confidentiality.

NGO-Funded Permit Buyout in the United States Pacific Groundfish Fishery

The United States Pacific groundfish fishery is conducted off the coast of Washington, Oregon, and California. The species complex includes 80 species (including 60 rockfish species), of which nine are overfished and under a rebuilding plan. These stocks have traditionally supplied a commercial fishery, a for-hire recreational sector (*i.e.* charter boats) and a private recreational fishery (*i.e.* individuals). All sectors of the fishery have been severely impacted by drastic reductions in fishing effort required for stock rebuilding. Overcapacity is a key issue in this fishery, particularly for stocks that will take a very long time to rebuild (up to 100 years in some cases). Revenues from Pacific groundfish trawling fell from USD 110 million in 1987 to USD 35 million in 2003.

Commercial fisheries off the West Coast represent an important impact on marine habitat and biodiversity. Bottom trawling and bottom-tending

longline gears are widely used in the groundfish fishery and are likely to have contributed to physical alteration of benthic habitats and a loss of biodiversity. Prior to 2005, there were no systematic habitat protections in place to address these concerns.

In 2003, NOAA Fisheries conducted a buyout of the groundfish trawl fishery. The buyout was industry financed with a government loan that is being reimbursed through industry repayment by a tax on landings. The goal of the buyout was to reduce the number of vessels and permits for groundfish trawling and to financially stabilize the fishery and contribute to conservation and management of the fishery. A total of 240 permits were purchased in the buyout from 92 vessels, including permits for groundfish, crab and shrimp. In 2006 there were 179 trawl permits in the fishery. While the buyout did not specifically target habitat protection objectives, it did substantially reduce capacity. Although the buyout was geographically dispersed along the west coast of the United States, some unbalanced and unintended localised effects occurred. For example, in some ports a disproportionate number of permit holders opted to sell. This has since made it difficult to maintain working waterfronts (processors, harbor fees, etc.) due to reduced economic activity from the commercial fishery.

The Nature Conservancy (TNC), and Environmental Defense (ED), two private, environmental non-government organisations, have formed a partnership to use market-based approaches in the conservation of marine resources. TNC, founded in 1951, is expanding from its tradition in the United States of land conservation to work on marine issues in a more comprehensive and systematic manner. Their successful strategies on land include the acquisition and management of natural resources through ownership, easements and leases, and working cooperatively with communities. TNC has moved into the marine environment with the goal of using community-based approaches and transactional expertise to achieve biodiversity conservation objectives, (e.g. purchasing or leasing marine or submerged lands to protect habitat). With over 100 marine conservation projects in 22 countries around the world and all coastal states of the United States, TNC's engagement in the marine environment is increasing around the world.

The TNC/ED team is participating in a collaborative effort to develop a local fisheries management strategy for the central coast of California. Central to this collaborative effort has been the participation of fishing industry representatives and community leaders from ports in the central coast of California. The strategy focuses on sustainable harvest, protection of seafloor habitat, and economic stability for the communities of Morro Bay, Monterey, Moss Landing, and Half Moon Bay. The purchase of limited entry trawl permits as a means of offsetting the economic costs of

habitat protection is a novel approach, the first of its kind in the United States.

During the analysis of essential fish habitat for the Pacific Coast groundfish fishery, the TNC/ED team engaged in a public-private partnership under which private funding was used to purchase groundfish trawl licences and vessels to offset the economic impacts of designating no-trawl zones off the central California Coast (The Nature Conservancy, 2006). The no-trawl zones were identified cooperatively by conservation NGOs and members of the affected fishing community and were established through the fishery management process, *i.e.* the Pacific Fishery Management Council (PFMC) (the constituent-based body that develops Fishery Management Plans) as well as NOAA Fisheries (Box 2.2).

Box 2.2. Managing the United States Pacific Groundfish Fishery

Fishery management in the United States is conducted by both Regional Fishery Management Councils and the National Marine Fisheries Service (NOAA Fisheries) under the legislative mandate of the Magnuson-Stevens Act (MSA) and its ten National Standards for fishery management. The Pacific Fishery Management Council (PFMC) manages fisheries off the west coast (excluding Alaska) including the Pacific groundfish fisheries. The PFMC prepares the Fishery Management Plans (FMPs) and FMP Amendments, including the groundfish FMP, which was prepared in 1982. Regulatory measures based on these FMPs are prepared by NOAA Fisheries, and these regulations apply to Federal waters and Federally permitted vessels in state waters within the EEZ. In addition to catch limits, the Pacific groundfish fishery is managed through limited entry, gear restrictions, and fishing seasons. The trawl and fixed gear fisheries (longline or fish pot) are subject to limited entry. Because of the multispecies nature of the groundfishery, the need to control harvest of the nine overfished stocks severely limits the fishing opportunities for the fleet. Bycatch of the more vulnerable species while targeting healthy stocks is a key problem in this fishery.

Source: National Marine Fisheries Service, United States.

Design of the Decommissioning Scheme

Through the partnership, a proposal based on technical analyses was provided to the Councils and NOAA Fisheries by TNC/ED. The project area features estuaries, nearshore rocky reefs, kelp forests, soft and mixed bottom habitats, deep canyons, banks and seamounts. These habitats are characterized by high biological diversity and ecological value to groundfish and therefore protection is likely to be a key factor in rebuilding these stocks. In addition to a wide variety of marine mammals, seabirds, fish and invertebrate species, this area includes benthic biodiversity peaks in upwelling zones.

Through the use of logbook data and community involvement, TNC/ED identified, and began negotiating with, those permit holders who were active in the project area. Deals were negotiated with individual permit holders, although several group meetings were held to provide status reports, explain the general components of the project, design No-Trawl Zones, explain the appraisal process, etc. The purchase price for each permit was based on catch history which varied from permit to permit, rather than a flat rate per permit. This recognised the likelihood that the fishery would soon be managed under an individual fishing quota (IFQ) regime where the quotas would be allocated to each permit holder based on catch history (Squires *et al*, 2006).

The effort culminated in 2006 when NOAA Fisheries implemented, through federal regulation, No-Trawl Areas initially proposed by TNC/ED, fishery participants, and community leaders. Essential to the success of this effort was an acquisition agreement contingency that the closures must be secured before TNC would complete the purchase of permits. This contingency provided the Morro Bay fishermen's support to the closure proposal made to the Council. A key strategy employed by TNC/ED has been to partner with the Council and NMFS to encourage their use of the Magnuson-Stevens Act to implement the regulatory components of the project.

Outcomes

The outcomes of the project addressed the goals of three distinct groups involved:

- TNC and ED engaged in this effort to address the impact of trawling on representative high-biodiversity areas of seafloor habitat in the central coast. Specifically, TNC sought to reduce by half the number of trawlers fishing in these areas and secure protection of at least 60% of the areas identified by TNC's Ecoregional Assessment of the Central California Coast to be of high biodiversity significance³.
- The fishing community's goal was to address increasing costs of doing business in the region and to secure the future of the fishery in what they perceive as a threatening regulatory climate.
- NOAA Fisheries and the Pacific Fishery Management Council, as mandated by the Magnuson-Stevens Act, are required to minimise to the extent practicable adverse impacts to essential fish habitat

The outcome of the project was to reduce effort in the groundfish fishery by removing six active permits (100% of the permits in the project area), and protecting 3.8 million acres of important habitat from bottom trawling (67% of areas of high biodiversity significance in central California). Four vessels were also purchased as the fishers had no further use for them and needed to sell the vessel in conjunction with their permit. TNC is investigating alternative uses for the vessels, such as oceanographic research, marine debris removal, or marine surveillance and enforcement (The Nature Conservancy, 2006). If new owners or uses cannot be found, the vessels will be scrapped. One vessel associated with the acquired trawling permit remained with its owner who had permits in other fisheries (e.g. crab, salmon). However, the vessel is legally constrained from bottom trawling for groundfish in the future.

The permits purchased through the TNC/ED buyout were not actually retired but are now held by TNC. TNC is investigating strategies to allow fishers to utilise the permits in low impact fisheries. The cost of the buyback is not publicly available due to confidentiality constraints.

Another benefit has been the development of a functional collaboration between communities (fishermen, processors, etc.) of central California and the TNC/ED team. This collaboration is continuing to investigate how permit acquisition may be used to leverage additional habitat protection and encourage transformation into more sustainable fisheries. The closed areas proposed through this project were unanimously accepted by the Pacific Fishery Management Council and approved by the Secretary of Commerce to satisfy statutory requirements.

Lessons Learned

This case study demonstrates that, if done properly, public-private partnerships can work. Key factors to success include a highly participatory, community-based approach, with local conditions driving the planning and decision-making. The Federal mandate was important, but only the NGO investment and community willingness actually led to the permit buyout and trawling closure. The private investment required a guarantee of a “return” which came in the form of the regulatory measures to protect those fishing zones. The localised focus is likely something that federal regulators could not achieve, and yet was essential to successful outcome of the project.

The most critical aspect of this innovative engagement of NGOs in a decommissioning scheme is the amount of time and effort invested in a collaborative process. The Pacific groundfish fishery has been subjected to considerable litigation (over a dozen cases) by primarily NGO plaintiffs (other than those engaged in the buyout). It was therefore all the more a

challenge for the organisations engaged in the decommissioning scheme to acquire the trust and engagement of the fishing community.

Future questions include how and whether the two NGOs will use the permits they have acquired, and if the PFMC will consider alternative approaches. For example, the TNC/ED partners may pursue leasing of these permits for use with habitat-friendly fishing gear. The discussion continues, and will shed light on how non-traditional permit ownership (including potentially IFQs in the future) might be workable in a fishery management context.

Australia's Business Exit Assistance Scheme under the *Securing our Fishing Future* Structural Adjustment Package

In November 2005, the Australian government announced a major package of one-off structural adjustment and improved management measures for those fisheries managed by the Commonwealth government.⁴ The *Securing our Fishing Future* package addressed the profitability and sustainable future of the industry by seeking to buyout fishing concessions in those Commonwealth fisheries that are subject to overfishing or are at significant risk of overfishing in the future. The announcement of the package was accompanied by an announcement by the Australian Fisheries Management Authority (AFMA) of significant reductions in allowable catch and effort levels for 2006 and beyond in a number of fisheries, and by the establishment of a Marine Protected Area network in the South-East Marine Region.

The centrepiece of the package was a AUD 149 million one-off, capped fishing concession buyout known as the Business Exit Assistance scheme. The scheme involved a voluntary tender process which would allow individual fishing businesses to exit from the industry or to rationalise their business and remain in the industry. In addition to the fishing concession buyout, the structural adjustment package provided for AUD 70 million in complementary assistance for:

- Business Advice Assistance to assist fishers in obtaining professional advice relating to their financial options under the Business Exit Assistance scheme (capped at AUD 1 500 per concession holder);
- Assistance for Skippers and Crew who lost employment as a direct result of a successful tender under the Business Exit Assistance scheme (AUD 5 000 for skippers and AUD 3 000 for crew members);
- Onshore Business Assistance for those onshore businesses that were significantly affected by the structural adjustment (a total of

AUD 30 million, less expenditure for Business Advice Assistance and Assistance for Skippers and Crew, was available for either onshore business development assistance or onshore business exit assistance);

- Fishing Community Assistance to provide funds for projects aimed at generating new economic and employment opportunities in communities affected by reduced fishing activity as a result of the structural adjustment package, and the establishment of the Marine Protected Area network in the South-east Marine Region (the latter was announced at the same time as the *Securing our Fishing Future* package) (a total of AUD 20 million); and
- AFMA Levy Subsidy and Research under which the government provided AUD 15 million over three years to subsidise the AFMA management fees,⁵ as well as a further AUD 6 million for science, compliance and data collection to improve the management of Commonwealth fisheries.

The 2005 Ministerial Direction

Linked to the package was a ministerial direction by the Minister for Fisheries, Forestry and Conservation to AFMA pursuant to section 91 of the Fisheries Administration Act 1991. The direction stated that ‘decisive action is needed immediately to halt overfishing and to create the conditions that will give overfished stocks a chance to recover to an acceptable level in the near future’. The direction specified a number of measures to be implemented to improve the management of Commonwealth-managed fish stocks. In the two years following the ministerial direction, AFMA implemented additional management measures intended to halt overfishing and bring about recovery of overfished stocks. For example, in the Southern and Eastern Scalefish and Shark Fishery those measures included Total Allowable Catch reductions and additional area and depth closures.

The 2005 ministerial direction has had a significant impact on the management of Commonwealth fisheries, and this has flowed on to changes in stock status, particularly for stocks subject to overfishing. It also brought about the development of the Commonwealth Fisheries Harvest Strategy Policy under which individual harvest strategies are developed for each fishery that will pursue maximum economic yield from the fishery and ensure that stocks remain above levels at which risk is unacceptably high. (Larcombe and Begg, 2008).

Design of the Scheme

The Business Exit Assistance scheme involved a voluntary tender process under which Commonwealth fishing concessions were surrendered. Concession holders in all Commonwealth-managed fisheries (except internationally managed and Joint Authority fisheries) were eligible for Business Exit Assistance. However, the following fisheries were particularly targeted due to high levels of current and expected over-capacity and concerns about individual fisher profitability:

- the Southern and Eastern Scalefish and Shark Fishery (excluding the Great Australian Bight Fishery, which was not subject to overfishing);
- the Eastern Tuna and Billfish Fishery;
- the Bass Strait Central Zone Scallop Fishery; and
- the Northern Prawn Fishery.

At the beginning of the tender process in March 2006, fishers were advised that a second round of tenders may be conducted at the Government's discretion if the first round of tenders did not meet the Government's objectives, within the allocated budget of AUD 150 million. However, fishers were told that, if they wished to submit a bid, they should not rely on the second round as it may not eventuate. The Department of Agriculture, Fisheries and Forestry (which conducted the tendering process) did not release targets or funding allocations prior to the tender process as this would have distorted the tender process and led to bid engineering. As it eventuated, a second round of tenders was required in November 2006, although only two fisheries were targeted under the second round – the Bass Strait Central Zone Scallop Fishery and the Northern Prawn Fishery.

Fishers were required to submit a bid based on the price that they believed reflected the amount that they would require to retire the offered fishing concessions. For example, this may have been equivalent in some cases to the amount required to exit the industry, less revenue from selling other parts of their business which could not be tendered under the structural adjustment package. However, the total price of the tender was a matter for each concession holder. A single tender could contain multiple concessions and these concessions could be from multiple fisheries. Fishers were allowed to submit one or more primary tenders – in cases where they held more than one fishing concession, however no two primary tenders could contain the same concessions. They were also allowed to submit an alternative tender for each of their primary tenders.

While the purchase of vessels was not the target of the Business Exit Assistance scheme, operators could apply for a boat scrapping incentive if

they wished to scrap any vessels as part of their surrender of fishing concessions. The government paid a set amount of AUD 25 000 for each boat scrapped where it was part of a successful bid, and that evidence was provided of the boat actually being scrapped in an environmentally responsible manner. In the end, only two operators took advantage of this incentive.

In both tender rounds, the Department followed procedures laid out in the request for tender documents (DAFF, 2006a, b) and evaluated the tenders based on the total price of the tender and the total number of concessions offered in the tender. Each tender was compared with other tenders that included the same types of fishing concessions and any other fishing concessions that were also included in these tenders. Nominal targets and funding allocations were set for the target fisheries in each round. In this way, value for money was assessed within and between fisheries.

The evaluation process was initially undertaken using only primary tenders. Where the reduction targets could not be met using primary tenders, alternative tenders were then also considered. Separate evaluation plans were developed for round 1 and round 2. In accordance with probity requirements (overseen by the Australian Government Solicitor), these plans were finalised and approved before any tender evaluation processes commenced. A computer model was developed to implement the rules of each evaluation plan and this was used to compare the tenders.

Round 1 Evaluation

In accordance with the evaluation rules, the Department first tried to achieve all of the reduction targets within the total available funding. To ensure value for money was obtained, there were constraints on the maximum amount that could be spent in each fishery. This recognised the fact that the value of licences varies significantly between different fisheries. These maximum amounts were exceeded by the tenders submitted in round 1, so in accordance with the evaluation plan, the Department moved to the second method of evaluation which evaluated tenders on a fishery by fishery basis. The second evaluation method meant that results could be achieved in those fisheries that were tendered at value for money prices. In the fishery specific approach, the Department determined funding allocations and target reductions for each of the four target fisheries. The Department sought to achieve the reduction target for each target fishery within the nominal funding for that fishery.

The need to obtain value for money in the target fisheries was the primary factor in evaluating the tenders. For example, the evaluation process did not give any weighting to: indications by fishers that they intended to

leave the fishery; the length of time a fisher had been active in the fishery; whether or not the concession was “active”; offers to scrap a vessel; or tenders that offered to submit many or all of their Commonwealth concessions. However, in the first round, the Department was required to take into account certain preferences in evaluating tenders. For example:

- in all fisheries, primary tenders were preferred over alternative tenders for each operator;
- in the Southern and Eastern Scalefish and Shark Fishery, Statutory Fishing Rights (SFRs) for Gillnet, Scalefish Hook, Shark Hook and Trawl Boat concessions were preferred over other concessions, and catch landing information was considered;
- in the Eastern Tuna and Billfish Fishery, Longline Permits were preferred rather than Minor Line Permits, and the future value of the concessions in the fishery was a consideration; and
- in the Bass Strait Central Zone Scallop Fishery, the Department preferred operators to surrender all of their Eligible Fishing Concessions in the fishery rather than part of their holdings.

All remaining funds left over from the evaluation process in the first round were set aside for Round 2 of Business Exit Assistance.

Round 2 Evaluation

There were only two Target Fisheries in Round 2 – the Bass Strait Central Zone Scallop Fishery (BSCZSF) and the Northern Prawn Fishery (NPF) – as targets for these fisheries were not met in the first round. The Department determined funding allocations and target reductions for each of the Target Fisheries. The Department also set indicative prices for each eligible fishing concession. The indicative prices were determined with reference to a variety of information including prices paid for fishing concessions successfully tendered in Round 1, the Gross Value of Production of the fishery and other economic information. The evaluation was then undertaken in three stages:

- The initial step was to identify the greatest number of surrenders that could be achieved within budget for each Target Fishery without exceeding the indicative price.
- Once the maximum number of surrenders had been achieved in each of the Target Fisheries without exceeding either the indicative price or the defined pool of funds for each fishery, the remaining funds were directed to the Non Target Fisheries. The Department then undertook

the same evaluation process for the Non Target Fisheries (*i.e.* the greatest number of surrenders that could be achieved within the budget without exceeding the indicative price).

- When no further concessions could be bought from any fishery without exceeding the indicative price, the best value tenders that slightly exceeded but were closest (in percentage terms) to the indicative prices were identified across all fisheries, until the remaining funds were exhausted.

In both rounds of tenders, the Department also considered the impacts from the proposed Marine Protected Area (MPA) network when evaluating tenders. For each impacted operator, a discount factor of up to a maximum of 10% was applied to the tender price for evaluation purposes. The discount factor was calculated by reference to the operator's gross value of production that was affected by the proposed MPAs and the discount factor was applied relative to the operator whose impact was the highest (so that the most affected operator received the maximum discount of 10%). So, for example, if the most affected operator submitted a tender for AUD 100 000, the Department would evaluate that tender as if it was submitted for AUD 90 000 (*i.e.* 10% less than AUD 100 000) and if the tender was successful, the operator would receive the full AUD 100 000. This afforded impacted operators a modest advantage in the evaluation process.

Outcome

Tables 2.3 and 2.4 provide details of the total number of concessions purchased under the Business Exit Assistance scheme and the total expenditures for each round of tenders, respectively. The first round of tenders achieved high levels of concession surrenders in two of the target fisheries, the Southern and Eastern Scalefish and Shark Fishery and the Eastern Tuna and Billfish Fishery. The majority of first round of tenders from the Northern Prawn Fishery and the Bass Strait Central Zone Scallop Fishery were not considered to be value for money and thus prompted the Department to focus heavily on these fisheries in the second round of tenders. In the case of the Northern Prawn Fishery, this resulted in 45% and 34% of Class B SFRs and Gear SFRs eventually being purchased, respectively. The buyout in the Bass Strait Central Zone Scallop Fishery resulted in a lower number of concession packages (14%) being surrendered.

Table 2.3. Total Number of Concessions Purchased in Tender Process in the Business Exit Assistance Scheme^a

Fishery	Type of concession	Total number of concessions in fishery prior to buyback	Quantity of concessions surrendered from Round 1	Quantity of concessions surrendered from Round 2	Total reduction	% reduction
Northern Prawn	Class B Statutory Fishing Right (SFR)	95	7	36	43	45
Fishery	Gear SFR	53 844	4 734	13 631	18 365	34
Southern and Eastern Scalefish and Shark Fishery	Gillnet Boat SFR	88	26	0	26	30
	Scalefish Hook Boat SFR	122	48	15	63	52
	Shark Hook Boat SFR	30	12	5	17	57
	Trawl boat SFR	118	56	3	59	50
	Trap Permit / Auto Longline Permit	20	5	3	8	40
	East Coast Deepwater permit	18	5	3	8	44
	SA Coastal Waters Permit	41	6	11	17	41
	Tasmanian Coastal Waters Permit	82	19	19	38	46
	Victorian Coastal Waters Permit	51	21	7	28	55
	Redfish Quota SFR	586 720	112 822	0	112 822	19

Table 2.3. Total Number of Concessions Purchased in Tender Process in the Business Exit Assistance Scheme (cont.)

Fishery	Type of concession	Total number of concessions in fishery prior to buyback	Quantity of concessions surrendered from Round 1	Quantity of concessions surrendered from Round 2	Total reduction	% reduction
	John Dory Quota SFR	235 784	30 889	0	30 889	13
	Silver Trevally Quota SFR	538 740	74 912	0	74 912	14
	Jackass Morwong Quota SFR	1 480 633	106 064	8 808	114 872	8
	Royal Red Prawn Quota SFR	485 394	103 296	0	103 296	21
	Total Longline Permits	218	98	1	99	45
Eastern Tuna and Billfish Fishery	Minor Line Permits	230	103	9	112	49
Bass Strait Central Zone Scallop Fishery	Packages (Boat SFR [round 1 only] + 3 500 Doughboy Scallop Quota SFRs)	152	5	17	22	14
Other Fisheries	Other Permits	~360	20	19	39	11
Total		~1 600	>400	~150	>550	

a. SFRs refers to Statutory Fishing Rights.

Source: Australian Department of Agriculture, Fisheries and Forestry.

Of the total budget for the Business Exit Assistance scheme of AUD 148.6 million, around AUD 89.2 million was spent on purchasing fishing concessions in the first round (Table 2.4). A further AUD 50 000 was spent on boat scrapping. A total of AUD 59 million was expended in the second round.

It is too early to assess the impact of the Business Exit Assistance scheme on the profitability and sustainability of the target fisheries. Much depends on the management arrangements that were in place, or were put in place, following the buyout of fishing concessions. The scheme focused on retiring fishing concessions, rather than on decommissioning vessels, so the success of the scheme will depend in large part on the ability of the management arrangements to ensure that capacity and effort remaining in the fisheries does not expand following the buyout, particularly in the target fisheries. The capacity of the various fisheries to self-adjust to changing market and environmental conditions is crucial. The target fisheries are subject to a variety of management arrangements. For example, in the East Coast Tuna and Billfish Fishery, there is a shift underway in the management regime towards individual transferable quotas, which is an improvement over the previous regime of regulated open access. The Northern Prawn Fishery is also of interest in that it has been the subject of almost continuous fleet restructuring and capacity reduction since the early 1980s (Newby *et al.*, 2004). Further changes in the management of the fishery away from input controls will be required to secure ongoing benefits from the buyout.

Table 2.4. Final Budget for Business Exit Assistance

Expenditure item	AUD
Round 1 tenders	89 219 466
Round 1 boat scrapping (2 boats)	50 000
Round 2 tenders	59 360 238
Total	148 629 704

Source: Australian Department of Agriculture, Fisheries and Forestry.

Lessons Learned

Funded at AUD 220 million, the *Securing our Fishing Future* package was the largest structural adjustment program ever undertaken in Australia's

fishing sector. The government chose to take a “big bang” approach to the adjustment problem, with a strong emphasis in the announcement of the package that this was to be a one-off opportunity for fishers to rationalise their operations or to exit the industry. This is in stark contrast to previous structural adjustment and decommissioning schemes in the sector which were more piecemeal, being undertaken on a fishery-by-fishery basis. While the basic philosophy underlying Australia’s Commonwealth fisheries policy since the late 1980s has been on ensuring autonomous adjustment in the sector (generally through the use of economic instruments such as individual transferable quotas), there has been a series of adjustment programs for individual fisheries over the past twenty years. This may have had the effect of altering fishers’ expectations regarding the future availability of government assistance in the event of financial difficulty.

Whether the big bang approach is sustainable in terms of policy credibility remains to be seen. As was discussed in the previous chapter, much will depend on the adequacy of the future management arrangements in the sector. The introduction of the mandated harvest strategy policies for individual fisheries goes a long way towards ensuring that there are clear rules for future fisheries management decisions. While the focus of such policies on attaining maximum economic yield, there is a need to ensure that fisheries management continues to focus on using the range of economic instruments to encourage autonomous adjustment of fishing capacity in order to achieve sustainable and profitable fisheries.

A key feature of the structural adjustment package was the emphasis on a holistic package for the fishing sector, encompassing business advice assistance, community assistance and adjustment assistance for onshore businesses that may be adversely affected. This highlights the need to ensure that there is broad community support for the adjustment and reform package. A particular aspect that is noteworthy is the use of the buyback scheme to provide assistance for fishers from numerous fisheries simultaneously and fishers who may be adversely affected by the proposed establishment of an MPA network. This effectively rolled multiple adjustment processes into one measure, as least as far as some parts of the fishing sector were concerned and may have improved the prospects of community support for the MPA network.

The highly targeted approach undertaken by the government in determining which bids would be accepted used a combination of market forces and command and control regulation. By obtaining competitive bids, the Department allowed fishers to reveal their willingness to be assisted to leave the sector. However, by selecting successful bids on the basis of pre-declared preferences and considerations, as well as by using Departmental

expertise in specific fisheries, the Department was able to achieve its objective of obtaining maximum value for money.

Mandatory Buyout of Large-Scale Tuna Long-line Vessels in Chinese Taipei

Large-scale tuna long-line fishing vessels have played a significant role in the development of commercial fishing in Chinese Taipei. This section of the industry developed over a period of time, increasing rapidly during the 1990s due to improved access to markets and logistical support provided by the government. The vessels operated in three oceans and used foreign ports as bases for replenishment of supplies, repairs and transshipment of catch. Some 71 foreign ports have been approved as base ports for fishing activities which made it difficult for effective governance to be applied to the vessels. As a result, Chinese Taipei began to undertake measures to address the issue of vessels complying with the related rules.

As early as 1991, Chinese Taipei began conducting fishing fleet reduction programs, at least partly in response to the call for international conservation and management of tuna resources. Since 1991, Chinese Taipei has adopted the policy of limited fishing entry and implemented two voluntary vessel buyback programmes, one in 1991-95 and a second from 2000-05. A total of 2 319 vessels were purchased by the government during the first programme at a total cost of TWD 1 721 million (USD 52.16 million) (Sun, 2006). A further 432 vessels were purchased in the 2000-05 program, making a total of 2 751 vessels of various sizes being purchased between 1991 and 2005 (a reduction of 138 698 gross tonnes in capacity). Among the vessels decommissioned were 136 large-scale tuna long-line vessels.

The conservation and management of major tuna and tuna-like species is the responsibility of five regional fisheries management organisations (RFMOs).⁶ Over the years, expansion of high seas tuna fisheries in the world has placed significant pressure on many tuna stocks. In some oceans, specific tuna stocks are now at the stage of full exploitation or nearing full exploitation. In particular, global stocks of bigeye tuna show signs of over fishing. This has caused concerns among international fisheries management organizations and ecologists, urging states and RFMOs to manage bigeye tuna stock, and to restrain the harvest of the stock by means of limitation of catch levels or fishing efforts.

Owing to market demand, Chinese Taipei's tuna long-line fleet size was larger than necessary to catch the quotas allocated by the relevant RFMOs. The most recent challenge came in November 2005 when the International Commission for the Conservation of Atlantic Tunas (ICCAT) requested

Chinese Taipei to tighten the control of its tuna fishing fleets and cut Chinese Taipei's quota for bigeye tuna from 14 900 tonnes that had applied in 2005 to 4 600 tonnes in 2006, a cut of almost 70% due to non-compliance (ICCAT, 2005). The ICCAT decision also called for the mandatory buyback of 160 large scale tuna long-line vessels during 2005 and 2006, as well as further measures to combat illegal, unreported and unregulated (IUU) fishing.

Design of the Decommissioning Scheme

In February 2005, the Fisheries Agency in Chinese Taipei launched the mandatory vessel reduction programme to purchase 160 large-scale tuna longliners in two phases (in 2005 and 2006). The first phase in 2005 resulted in 59 vessels being decommissioned and their licences cancelled. When target vessels returned to their home port pending their scrapping, they were required to berth at designated docks and their identity was checked and confirmed by the Taiwan Tuna Association and other relevant agencies. Scrapping of the vessels was made under the supervision of personnel from the Taiwan Tuna Association and other relevant agencies, in accordance with the required scrapping procedure. The scrapping process was jointly monitored by the Fisheries Agency and staff of the Taiwan Tuna Association, and, in addition, the China Corporation Register of Shipping was requested to carry out a survey of the process and issue scrapping certificates.

The second phase of the program resulted in a further 101 vessels being decommissioned, predominantly focusing on those vessels fishing in the Indian and the Pacific Oceans. In this second phase, hydraulic cutting has been used to break the vessels to minimize pollution, instead of using torch cutting. In view of the pressing time schedule for vessel reduction, it was decided that some of 101 vessels be sunk for use as artificial reefs. In addition, all engines and freezers of these vessels would be destroyed to ensure they could not be reused in any fishery.

The price for the purchase of the vessels was fixed at TWD 70 000 (approximately USD 1 212) per vessel tonnage. The cost was shared between the government and the industry in the ratio of 3:4 (*i.e.* the government contributed TWD 30 000 while the industry contributed TWD 40 000, per vessel tonnage). Half of the industry contribution was paid by the tuna boat owner association with whom the remaining vessels are affiliated, while the other half came from the government in the form of a low interest loan which is to be repaid by remaining vessel owners over a seven-year period.

Outcomes

Table 2.5 details the results of the vessel decommissioning scheme. The estimated total cost to the government and industry was TWD 5.6 billion (USD 170 million). In 2005, 59 large-scale tuna long-line vessels were scrapped, among which were 15 vessels were from the Pacific Ocean, 24 vessels from the Indian Ocean and 20 vessels from the Atlantic Ocean. In 2006, 101 vessels were scrapped, including 10 vessels were from the Pacific Ocean, 83 vessels from the Indian Ocean and 8 vessels from the Atlantic Ocean.

Overall, Chinese Taipei reduced the size of its tuna longlining fleet by more than 26%. Scrapping of 110 vessels was completed in time and the remaining 50 vessels were sunk for use as artificial reefs before the end of 2006. The total numbers of large-scale tuna long-liners in Chinese Taipei were reduced from 614 to 444 and met the targets imposed.

The mandatory buyback will also help to resolve the problem of Chinese Taipei's insufficient quotas for bigeye tuna and ensure that all the remaining vessels fishing for bigeye tuna will have access to sufficient quota to enable profitable operations (Sun, 2006). Prior to the buyback, the tuna quota allocations from the various RFMOs were evenly split among all longline vessels which then fished the quotas under a system of seasonal area closures. The reduced number of vessels will improve the profitability, but there may need to be further restrictions to prevent effort creep. An additional benefit is that improving vessel profitability will reduce the incentive for IUU fishing and misreporting of catches.

Table 2.5. Reduction Numbers of Large-Scale Tuna Long-line Fishing Vessels in Chinese Taipei

Ocean	Fishing targets	2005		2006		
		Before Reduction ^a (A)	Reduction numbers (B)	Operational vessels on 1 Jan 2006 (=A-B)	Reduction numbers in 2006 (C)	Operational vessels at start of 2007 (=A-B-C)
Atlantic	Bigeye tuna	90	18	72	8	64
	Part time	10	2	8	0	0
	Albacore	41	0	41	0	49
	<i>Sub-total</i>	<i>141</i>	<i>20</i>	<i>121</i>	<i>8</i>	<i>113</i>
Indian	Bigeye tuna	208	24	184	73	111
	Part time	78	0	78	10	68
	Albacore	46	0	46	0	46
	<i>Sub-total</i>	<i>332</i>	<i>24</i>	<i>308</i>	<i>83</i>	<i>225</i>
Pacific	Bigeye tuna	85	15	70	10	60
	Albacore	46	0	46	0	46
	<i>Sub-total</i>	<i>131</i>	<i>15</i>	<i>116</i>	<i>10</i>	<i>106</i>
Total		614^a	59	545	101	444

a. Including ten vessels retired before 2005.

Source: Chinese Taipei Fisheries Agency.

Lessons Learned

Pressure from the international community was a major factor driving the mandatory buyout in Chinese Taipei's tuna fleet. It also coincided with a realisation by the Chinese Taipei government that it needed to effectively manage its large fleet operating on the high seas, by means of strict control and verification of catch in order to comply with the conservation and management measures adopted by the international fishery organizations. The buyback programme demonstrated the determination of Chinese Taipei to be regarded the international community as a responsible player in world fisheries. By taking such radical action, Chinese Taipei has ensured a profitable tuna industry can co-exist with compliance with international regulations on the management and conservation of tuna resources.

The use of a mandatory, rather than voluntary, decommissioning scheme appears to have been driven by three factors. First, the experience of the previous two voluntary buybacks was not encouraging, particularly as fishers seem to have mastered the strategic game of waiting for the government to raise purchase prices. Second, there was a sense of urgency surrounding the need to reduce the fleet's capacity, flowing from the ICCAT decision. It was abundantly clear that the long-term future of the Chinese Taipei tuna industry depended on a rapid adjustment of fleet size to available fishing opportunities: while there was certainly a high short-term cost, the longer term benefits in terms of international acceptance and possibility of increased fishing opportunities in the future were significant. Third, the demonstration effect resulting from a mandatory buyout sent clear and transparent signals to both domestic industry and the international community about the seriousness with which Chinese Taipei accepted its international responsibilities.

This latter point is reflected in proposals by Chinese Taipei to continue strengthening its fisheries management by implementing a six-year program spanning from 2006 to 2011 with a total budget of approximately USD 113 million. The outline of the program includes adjustment of the structure of the fishing industry, continuing to conduct port samplings, increasing observer coverage, data collection, scientific research, and taking measures to deter IUU fishing activities.

Decommissioning Schemes in France

The French fishing fleet is one of the largest in the European Union (EU). The vessels mainly operate in the North East Atlantic area as well as in the Mediterranean, harvesting stocks partly shared with the fleets of other EU Member States. A large proportion of the fleet consists of coastal vessels less than 12 metres in length. The French government, like other countries in the

EU, launched fleet capacity management programs in the early 1990s in response to a series of four Multi-Annual Guidance Programmes (MAGPs) that imposed cuts to the allowable tonnage (GRT and later GT) and power (kW) (see Box 2.3 for an overview of capacity management and decommissioning policy under the EU Common Fisheries Policy). Since 2002, the maximum capacity of EU national fleets is set to a reference level within which governments must manage their capacity according to an “entry/exit” regime which imposes strict limits on capacity changes, subject to various rules regarding the use of public funds (Box 2.3).

Decommissioning schemes are a major feature of the capacity management programs in France, starting in 1991 with the “Plan Mellick” which was a program to achieve the objectives for fleet reductions specified under the second MAGP (MAGP II). A succession of decommissioning schemes followed, operating more or less continuously up till the present time. These involved a series of one or two year plans responding to targets under the MAGP III, MAGP IV, the fleet reference level, as well as domestic fishing management priorities. The decommissioning schemes are funded through both the French government and the EU Financial Instrument for Fisheries Guidance and, from 2007, the European Fisheries Fund. In most years, the cost of decommissioning is met almost equally by the EU and the French government.

The data used in the following case study are based on the practices current in 2005-2006. These practices have been modified under the reform of the Common Fisheries Policy and the decommissioning scheme initiated in 2007 incorporates most of the provisions of previous plans. The decommissioning grant scheme is financed by both domestic and Community funds through the European Fisheries Fund (EFF), and is characterised by the priority given to reducing the fishing effort for the most vulnerable species to which special conservation and stock recovery measures apply. The fishing licences of the vessels selected are in fact withdrawn definitively and may not be reused by other vessels. Some 130 vessels were selected, for an overall amount of approximately EUR 40 million. The long-term objective of the decommissioning scheme is still to adapt the fleet to the available resources and to enable vessels that continue to operate to do so profitably.

In conjunction with the decommissioning schemes, France relies on a system of limited entry based on the issue of fishery permits (*permis de mise en exploitation* or PME). These licences were allocated to vessels and regions on the basis of specified criteria, but are not necessarily tied to a vessel. A fisher can scrap their vessel and retain the PME, using it in the same or another fishery if they are able to get quota (which is allocated in a hierarchical fashion from the EC to the French government to Producer Organisations and then amongst fishers).

Box 2.3. Fleet Capacity Targets and Decommissioning Schemes Under the Common Fisheries Policy

From 1983 onwards, a series of programmes called “Multi-Annual Guidance Programmes” (MAGPs) for dealing with overcapacity in the European Community fishing fleet were successively adopted by the European Commission and implemented at a national level by Member States under the Common Fisheries Policy (CFP). While the third set of MAGPs (1992-97) was relatively successful in reducing fleet capacity, the fourth MAGP was not as effective due to the increasing technological efficiency of fishing vessels outstripping efforts to scrap vessels and limit fishing activity (Cueff, 2007). Attempts to tackle the overcapacity problem were also often undermined by the public aid that was granted for the modernization or renewal of the fleet (Surís-Rugueiro *et al.*, 2003).

The 2002 reform of the CFP removed public aid for the construction of new vessels (from the end of 2004, and from 2006 for the outermost regions (French overseas departments, the Azores, Madeira, and the Canary Islands)) and introduced a simpler system to limit the capacity of the European fleet. The new system gives Member States greater responsibility for managing their fleet capacity within effort constraints determined by the Council and within fleet capacity reference levels (expressed in terms of number and total tonnage of vessels) set according to the MAGP IV objectives for each national fleet on 31 December 2002. Under the new “Entry/Exit regime”, no increase in fleet capacity is allowed and any reduction in capacity achieved with public aid is not able to be replaced. For entries of new vessels between 100 and 400 GT built with public aid prior to the end of 2004, the Member State has to withdraw 35% more capacity than it introduces (CEC, 2004). Decommissioning, or buyback, programmes have been used in most EU countries in order to achieve their target capacity levels.

Up until 2006, assistance with funding of decommissioning schemes in the EU was provided through the Financial Instrument for Fisheries Guidance (FIFG) programme, with the Member States sharing the cost of the schemes. In the funding period from 1994-1999, a total of EUR 769.5 million was spent on decommissioning schemes in the EU with the FIFG contributing EUR 462 million (or 60% of the total) (Surís-Rugueiro *et al.*, 2003). Decommissioned vessels were to be either scrapped or permanently reassigned for non-profitable purposes other than fishing or, until the end of 2004, exported to third countries. The FIFG also provided funds for socio-economic measures aimed at easing the transition out of fishing and thereby facilitating capacity reduction. These include providing grants to fishers to allow them to either retrain for activity outside of marine fisheries, or to diversify their activity outside marine fisheries (i.e. reduce fishing activity but not cease fishing). For the 2000-2006 funding period for the FIFG, around EUR 520 million of FIFG funds (of a total FIFG budget of EUR 3.7 billion) was earmarked for vessel withdrawal (final data on actual expenditures are not available at this stage). From 2003, the EC set restrictions on the level of compensation that can be paid to fishers for decommissioning their vessels (see table). Although a premium of 20% is available under EC Council Regulation No 2370/2002 for fleet segments that required a reduction of fishing effort greater than 25% to achieve the target effort reductions in fisheries subject to stock recovery programmes, it has not been taken up by any Member state. These restrictions on the level of compensation have not been applied under the EFF.

(cont.)

Upper limits on EU contributions to decommissioning grants from 2003

Vessel category (GT)	Upper limit (EUR)
< 10	11 000 per tonne + 2 000
10 - 25	5 000 per tonne + 62 000
25 - 100	4 200 per tonne + 82 000
100 - 300	2 700 per tonne + 232 000
300 - 500	2 200 per tonne + 382 000
> 500	1 200 per tonne + 882 000

These restrictions on the level of compensation will no longer apply under the European Fisheries Fund,(EFF) which succeeds the FIFG for the period 2007-2013, and which will operate on a similar basis (although there have been some modifications to simplify the management of the Fund. A total budget of EUR 3.8 billion has been allocated to the EFF and it is up to Member states to decide how they will allocate their funds between the different priorities of the CFP. Public support will continue to be available for the decommissioning of fishing capacity, as well as for temporary cessation of fishing activities, but not for public funding of vessel construction.

Design

The design of decommissioning schemes in France works on the basis of a fixed rate of payment rather than through an auction system. The government sets an overall target for reduction in vessel capacity (in number of vessels, power and length, as well as by target species) and determines an overall budget envelope for each scheme. The government then determines a flat rate (or *premium*) to be paid to vessel owners to permanently remove their fishing vessel from commercial fishing activity. The premium is defined by the administration and is revised for each scheme. The premium is composed of a fixed payment for each tonnage category plus a variable payment based on the tonnage of each vessel. The fixed payment increases with vessel size while the payment per GT declines as vessels get bigger. The premium level is increased for vessels for which the GT/kW ratio is relatively low and under certain limits. The premium also varies according to age criterion, consistent with EC regulations. In case of vessel scrapping in the 2006 scheme:

- Vessels between 10 and 15 years old receive the maximum amount;
- Vessels between 16 and 29 years old receive the maximum amount reduced by 1.5% per year the vessel is over 15 years old; and
- Vessels of more than 30 years old receive the maximum amount reduced by 22.5%.

Vessel owners who wish to decommission their vessel apply for a grant and priority is determined on a first come, first served basis. Grants are made until the total amount of budgeted financial aid is distributed.

To qualify for financial aid, the vessels must be more than ten years old and have been at sea for 75 days during each of two previous 12-month periods before the application for decommissioning. They also have to be operational vessels of at least 9 meters in perpendicular length or 12 meters in the case of trawlers. Financial aid for vessel decommissioning is only available to the domestic French fleet, and not to the overseas territories. Once accepted for decommissioning, a vessel must be scrapped, used for non-commercial fishing activities, or transferred to non-EU countries (note that vessels with a tonnage under 25 GRT cannot be exported to third countries).

The schemes target particular segments of the fleet, differing from year to year in response to priorities determined by the government and, up until the end of the MAGPs, reduction targets externally imposed for different fleet segments. For example, past schemes have targeted:

- Atlantic trawlers of less than 30 meters, dredgers, non-trawlers of more than 12 meters, and Mediterranean Sea trawlers and purse seiners (in 1998);
- Trawlers of less than 30 meters and Mediterranean trawlers subject to the beam trawl ban by the EC (in 1999); and
- Non-trawlers of less than 12 meters and more than 25 meters, trawlers of more than 30 meters, and specific segments of Mediterranean purse seiners (in 2000).

For the 2006 decommissioning scheme, additional aid was given to vessels targeting threatened species. For example:

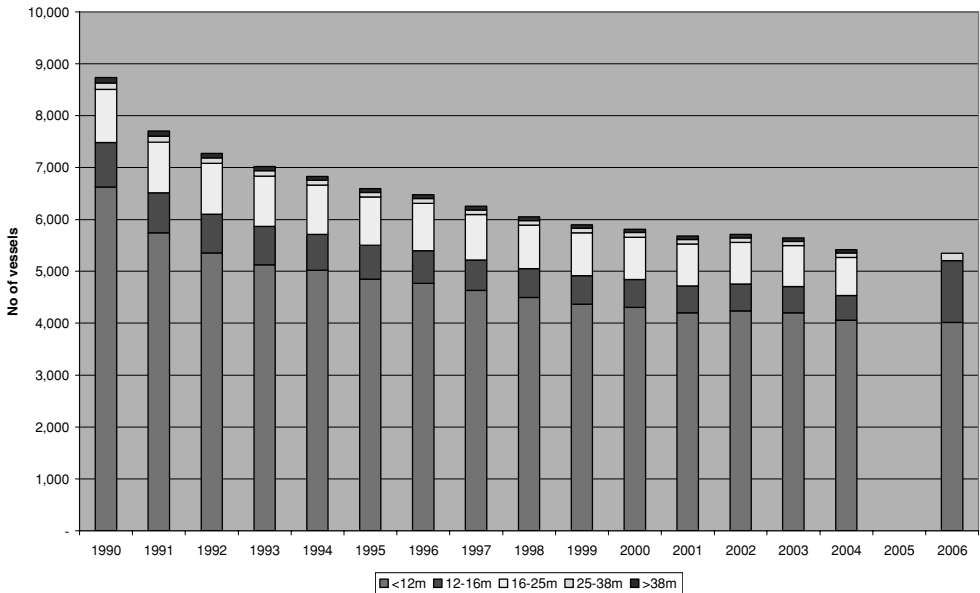
- 100% of the maximum amount of aid was available to trawlers in the Mediterranean Sea, sole fishers in the Gulf of Biscay, vessels targeting mostly anchovy, mackerel, horse mackerel, vessels targeting some deep-sea species;
- 80% of the maximum amount of aid was available to vessels targeting nephrops, megrim and hake in some specific ICES area; and
- 50% of the maximum amount of aid for the rest of the fleet.

In addition, France has two social schemes that provide fishers with financial assistance when their vessels are decommissioned. An early retirement scheme is available for fishers that do not gather enough annual fees paid to apply for pension scheme but are 50 years old or above (213 fishers

have taken advantage of this scheme since 1991). In the second scheme, a special premium is available for younger fishers that provides them with support while they are looking for another job (450 fishers have used this scheme since 1994).

Outcomes

The size of the French fishing fleet has declined steadily since the introduction of the decommissioning schemes in 1991, with an average annual decline in the number of vessels of 3% since 1990 (Figure 2.1). The total tonnage and power of the fleet has also declined (detailed data to come). The biggest decline occurred in the early 1990s as large numbers of vessels took advantage of the decommissioning payments to exit the industry. There has also been a change in the structure of the fleet with many smaller vessels leaving the industry, particularly in the early 1990s (Giguelay, 1999; Daurès and Guyader, 2000). Many of these vessels were smaller and less powerful than the fleet average and so had the effect of raising the average size and power of the remaining fleet. These vessels were also relatively inefficient and uncompetitive and so many vessel owners jumped at the chance to exit. Giguelay (1999) and Daurès and Guyader (2000) also point to the fact that the age distribution of the owners of decommissioned vessels was heavily skewed towards the older age groups, indicating that the decommissioning schemes also served as a *de facto* early retirement scheme for many older owners (particularly in small-scale vessels where there is a high proportion of owner-skipper).

Figure 2.1. Evolution of the French Fishing fleet, by Vessel Length Category ^a

a. Includes only the French domestic fleet and excludes overseas territories.

Source: INSEE and OECD.

Detailed data on expenditure for the decommissioning schemes are still being sought from the French authorities and will be included in a further revision of this paper. However, some data are available for recent years. Over the period 2003-2004, the expenditure on decommissioning was EUR 40 million, divided evenly between the FIGG and the French government, and achieved a reduction of 6 200 GT and 25-27 000 kW of power. In 2006, the budget for the decommissioning of vessels is EUR 26 million, of which EUR 13 million is from EU funds and EUR 13 million from the French government. The target fleet reduction is 80 vessels comprising at least 5 500 tonnes GT and 23 300 kW in power, which is around 3% of the reference level.

The level of the premiums that are paid to decommission vessels has increased markedly over the years across all vessel categories (Guyader *et al.*, 2004). This increase is likely to be due to a combination of factors. First, the early rounds of decommissioning saw inefficient and marginal vessels exit first, leaving more efficient, and hence more valuable, vessels in the fleet. These are, of course, more expensive to decommission and the value of the premiums has risen accordingly. Second, this is reflected in the rising prices

paid for sales of vessels, particularly since 1997 when the decommissioning schemes became more targeted. However, the second-hand vessel market serves as an implicit market for PME and, in some cases licences, with the value of the vessel accounting for around 50% of the total value. (This is an informal transfer market as such transfers are not formally allowed in France.) In an analysis of the second-hand vessel market and the cost of resource access in Bretagne, Guyader *et al.* (2006) found that the value of the PME and licence for the right to exploit quota (issued by the Department of Maritime Affairs and managed by Producer Organisations) had increased substantially while the value of second-hand vessels had declined marginally.

A third factor behind the rising premiums is that the expectations of future government assistance for exiting the industry have been built into the amount that fishers are willing to be compensated for leaving the industry. Acting as rational agents, fishers have learnt to anticipate the buyouts and these expectations have become capitalized in asset values, forcing them up over time.

The impact of the decommissioning schemes on the profitability of the remaining fleet is difficult to isolate but, overall, the economic performance of many segments of the French fleet has been declining in recent years despite the continuous provision of adjustment assistance. According to economic indicators for French fishing fleet over the period 2002-2004, the economic position of eight of the twelve fleet segments for which comparable data on net profits are available has declined over the period (Table 2.6). The position of the remaining four fleet segments is stable or improving. In particular, the demersal trawl and seine fleet segments have experienced declining net profits and average net profits per vessel. It must be recognized that these indicators do not reflect resource rent in particular fisheries as they are fleet-based rather than fishery-based, and are an accounting, rather than an economic, concept in that they do not include the opportunity costs of labour and capital or the costs of management (Rose *et al.*, 2000, Gooday and Galeano, 2003). In addition, it is difficult to isolate the effects of the decommissioning schemes from the impacts of other factors that may influence economic performance (such as prices, fuel costs, stock recovery plans, etc.). Nevertheless, it is noteworthy that the combination of capacity reduction, in the form of decommissioning schemes, and limited entry to the fishing fleet does not appear to be providing improving economic performance, at least in recent years.

Table 2.6. Indicators of Economic Performance of the French Fishing Fleet, 2002-04

Fleet segment	Indicator	2002	2003	2004
Demersal trawl and seine (<12m)	Net profit ^a	9.8	3.6	2.3
	Net profit/vessel ^b	26	10	7
Demersal trawl and seine (12-24m)	Net profit ^a	12.4	4.1	-2.3
	Net profit/vessel ^b	20	7	-4
Demersal trawl and seine (24-40m)	Net profit ^a	3.4	2.4	-0.2
	Net profit/vessel ^b	23	19	-2
Demersal trawl and seine (>40m)	Net profit ^a	5	5	4.8
	Net profit/vessel ^b	217	250	300
Pelagic trawl and seine (12-24m)	Net profit ^a	6.2	8.1	6.7
	Net profit/vessel ^b	50	65	57
Pelagic trawl and seine (>40m)	Net profit ^a	25.9	22.3	23.7
	Net profit/vessel ^b	682	587	641
Dredge (<12m)	Net profit ^a	3.1	2.2	2.4
	Net profit/vessel ^b	20	13	15
Dredge (12-24m)	Net profit ^a	4.3	0.3	2.3
	Net profit/vessel ^b	31	2	19
Mobile polyvalent (<12m)	Net profit ^a	2.2	0.3	0.7
	Net profit/vessel ^b	33	5	11
Mobile polyvalent (12-24m)	Net profit ^a	0.2	-13.1	0.3
	Net profit/vessel ^b	6	-385	10
Passive gears (<12m)	Net profit ^a	12.8	23.9	22.5
	Net profit/vessel ^b	5	9	8
Drift and fixed nets (12-24m)	Net profit ^a	6.2	3.6	4.9
	Net profit/vessel ^b	32	20	29

a. EUR million.

b. EUR thousand per vessel.

Source: Derived from Scientific, Technical and Economic Committee for Fisheries (2006, pp. 67-74).

Lessons Learned

The provision of continuous decommissioning schemes has enabled a smooth and steady adjustment of the French fleet towards the MAGP and reference level targets. The schemes have been progressively modified from 1991 to become more efficient and targeted. The schemes are now targeting vessels fishing more threatened or overexploited species. Such a process of continuous gradual adjustment has clearly involved less short-term social disruption than can result from a “big bang” approach or major fishery-specific structural adjustment initiatives. The labour market has the capacity to adjust more gradually to the capacity reductions, provided that the markets are sufficiently flexible, and unemployment peaks are avoided. This may have been less of a concern for France as a large proportion of the vessels retired have been owned by older fishers who were rapidly approaching retirement. Such a smooth adjustment process has also helped to mitigate potential adverse impacts on social patterns in coastal regions, a key objective in French policy towards the fishing sector.

However, the continuous provision of funds for decommissioning is not without its drawbacks. First, many of the owners who did scrap their vessels, and who did not retire, reinvested their aid in more modern vessels (Guyader *et al.*, 2004). The fact that the vessel was retired but the PME retained assisted fishers to do this. This was compounded by the provision of financial assistance for vessel construction up until the end of 2004 when such assistance was stopped throughout the EU.

Second, the risk adjusted rate of return required for investment in new vessels would be lowered in the knowledge that the continuous adjustment programs that would provide them with financial support in case of economic. Jorgensen and Jensen (1999) have demonstrated that the EU funded buybacks created a stimulus for the expansion of fleet capacity, as well as influenced the behaviour of investors’ bankers, who offer better credits than would normally be the case in this situation. If owners were not able to build the regular provision of decommissioning funds into their expectations, they would be reluctant to invest in another fishing vessel whose value is likely to be fluctuating.

Third, the continuous provision of funding served to ratchet up the value of fishing vessels and access rights (PMEs) as expectations of future funding became embedded into asset values. This had a flow-on effect on the price at which vessels were purchased under the schemes. This is reflected in the increasing premiums that were paid under successive decommissioning schemes. Indeed, it is understood that the premiums are now close to the upper limits for decommissioning grants set by the EC (Box 1.2).

The system used in France of providing a flat rate payment for decommissioning vessels is transparent and administratively simple and is not open to manipulation by fishers or governments. This is especially the case when it is combined with a first come, first served system of granting assistance. This removes the need for the regulators to evaluate applicants (except for due diligence checks such as security of title, freedom from debt and financial liabilities, etc). Whether or not this system is the most suitable for the French situation in terms of providing value for money is open to debate. As discussed in Chapter 2, decommissioning payments should ideally be based on an individual fisher's willingness to receive compensation to leave the fishery. In principle, this is best elicited through an auction process. Based on an empirical analysis of adjustment in the inshore scallop fishery in the St Brieuc Bay, Daurès and Guyader (2000) demonstrate that the fishers' average willingness to receive compensation to leave the fishery was significantly less than the premium paid by the government over the period of the study (1998-2000). This implies that the government actually overspent in this particular fishery and that the exiting fishers made a windfall gain as funds were transferred from taxpayers to the fishers.

Decommissioning Programmes in Korea

Since 1994, the government of Korea has undertaken a series of decommissioning programs with the intention of improving the sustainable management of fishing resources. They were also partly in response to demands from fishers for compensation to cover reduced income due to the loss of fishing grounds as a result of fishery agreements with adjacent countries.

The programs can be divided into three phases (Table 2.7). The first phase started in 1994 when the Fisheries Administration, a former government organization of the Ministry of Maritime Affairs and Fisheries (MOMAF), recognized the necessity of downsizing the Korean fishing fleet. In the early 1990s, Korea's fishing industry had experienced financial difficulties due to declining fishery stocks in Korea's waters as a result of over-fishing, overcapitalisation of fishing fleets, and large-scale reclamation projects along the coastline.

However, the total budget for the program in its early stage was relatively limited and the number of surrendered vessels was quite small, consisting mostly of coastal vessels rather than offshore vessels. In 1999, there was strong demand to expand the program from outside the government. The new fishery agreement between Korea and Japan entered into force in January 1999 and some fisher groups in Korea insisted that their interests were not fully taken into consideration in the negotiation of the agreement. After intensive debate,

the Korean government decided to expand its budget for the decommissioning program. At the same time, the government increased the proportion of its direct payment for buying fishing boats which were fishing on grounds that were no longer available due to the agreement. The decommissioning schemes in the later part of the first phase therefore focused exclusively on the offshore fleet. This first phase of the decommissioning programs came to an end in 2004.

Table 2.7. Brief History of Decommissioning Programmes in Korea

Year	Event
1992	Preliminary research on decommissioning program in Korea by the Korea Rural Economic Institute funded by the Fisheries Administration
1993 (Aug)	The Fisheries Administration decided decommissioning program (period: 1994-2001; target vessels: 6 673; budget : KRW 223.7 billion)
1994	First phase of decommissioning program (1-A) started (priority given to coastal boats)
1995 (Dec)	1 st amendment of the program (period: 1994-2004; target vessels: 7 133, budget: KRW 314.6 billion)
1996 (May)	2 nd amendment of the program (period: 1994-2004; target vessels: 7 355, budget : KRW 521.4 billion)
1998 (Nov)	Fishery agreement between Korea and Japan signed and entered into force in January 1999.
1999	Decommissioning program (1-B) started
2001 (Jan)	3 rd amendment focusing on offshore vessel buyback approved (period: 1994-2004; target vessels: 2 990 (mainly offshore boats); budget: KRW 902.4 billion)
2002	Further buyback of coastal boats was suggested by the Presidential Commission on Agriculture, Fishery and Rural Policies
2004	First phase of decommissioning program ended and second phase started
2005 (Dec)	Fishery stock rebuilding program established by the MOMAF
2006	Korea-US Free Trade Agreement negotiation started officially
2007	Third phase of decommissioning program started

Sources: Ministry of Maritime Affairs and Fisheries, Korea Fishers Association, Korea Maritime Institute.

However, prior to the end of the first phase, it became evident that there was a need to further reduce coastal fishing capacity. There had been a year-long discussion in the Presidential Commission on Agriculture, Fishery and Rural Policies on how to sustainably manage coastal fishery resources. In 2002, the Commission recommended the launch of a second phase of decommissioning program focusing on coastal boats. The relevant government agencies agreed with the recommendation and the program started in 2004 and is due to finish in 2008.

While the second phase of decommissioning programs proceeded, new demands for further assistance in capacity adjustment came from the offshore fishing sector. Even though the first phase program was evaluated to have contributed to an increase in the productivity of offshore vessels, fishery resources were not yet fully recovered. In response, the MOMAF launched a comprehensive fish stock recovery program in 2005 which covers various types of resource management methods including further buyback of fishing vessels targeting over-fished stocks. At the same time, free trade agreements with several nations, especially with the United States, played a significant role in raising fishers' concerns over future profitability in the fishery industry due to further opening of fish market. This created additional pressures for fishers who were already having difficulties due to stock depletion and oil price increases. As a result, many fishers wanted to exit from the industry and requested assistance to do so in the form of additional decommissioning assistance.

In 2006, the Korean government therefore decided to start a third phase of decommissioning programs for offshore fishing vessels which aims to buyback 30% of its offshore fleet (approximately 1 050 vessels) by investing KRW 419 billion. The third phase started in 2007.

Design of the Decommissioning Scheme

The specific designs of the individual decommissioning programs were markedly different and reflected an evolution in the government's approach to program design. The phase 1 decommissioning program actually encompassed two sub-phases, which are designated 1-A and 1-B for the purposes of this case study. The first of these (1-A) started in 1994 and was based on the special law to stimulate the development of rural areas and targeted both offshore and coastal boats. Under this program, vessel owners received two types of payment: one payment was for the depreciated value of the vessel; and the second payment was compensation for business closure.

Government funding for the two types of payment differed depending to the type of vessel. In the case of offshore vessels, the depreciated value of the vessel was fully paid by the MOMAF while compensation for the loss of their

business was covered by a direct payment from MOMAF covering 50% of the compensation and a government-guaranteed loan (to be repaid by those fishers who leave the industry) covering 30%. The fishers themselves bore the remaining 20% of the cost so that fishers received only 80% of the estimated total compensation for leaving the sector, and 30% of that had to be repaid to the government. In the case of coastal vessels, the payment for owners was met by MOMAF (80%) and local governments (20%). The payment included the depreciated vessel prices as evaluated by professional institutions, and compensation for the loss of business.

Under the phase 1-A program, the compensation for the loss of business was evaluated based on the annual average income and cost of a model fishing boat which differed according to the size and type of vessels. However, the evaluation had limitations in terms of accuracy and transparency because the information and statistics on which they were based were not fully documented.

Phase 1-B of first phase decommissioning program placed priority on the vessels which used the fishing grounds which were lost as a result of the fishery agreement with Japan. Under this program, the level of payment by the government was increased relative to the 1-A program. While the depreciated value of the boats was fully covered by the MOMAF (as for the 1-A program), the ratio covered by the MOMAF for the closure of businesses increased from 50% to 90%. The burden that had to be borne by fishers decreased from 20% to 10%, and there was no government-guaranteed loan. In addition, unlike the case of the Phase 1-A program, crews who lost their jobs because of the decommissioning program were paid by the government with the payment covering six month's average salary of the crews.

The phase 2 program adopted a new system to determine the level of payment. Under the previous system, the valuation of vessels and business losses took too long to determine and implement and resulted in delays to vessel exit and on-going transfer of MOMAF budget to the next year, which was criticized by the Ministry of Budget and the National Assembly. Furthermore, fishers were not satisfied that their previous revenue, which had not been fully reported or collected as data, had not been reflected in the government's payments. As a result, the MOMAF proposed that an auction system serve as an alternative mechanism for determining payments. After a long process of consultation with experts and fisher groups, an auctioning system was adopted to determine the level of payment for the loss of business opportunities. The depreciated value of vessel was still determined and fully paid by the government.

The MOMAF budget covered 80% of the total amount of the Phase 2 program while local governments covered the remaining 20%. The local

governments were responsible for implementing the decommissioning program under the Ministry's guidelines and the MOMAF channelled the funding through the local governments. In the guidelines, the Ministry describes the broad range of vessel type and standard prices for the payment for depreciated vessels. The local governments then proceed with the auction and decide the final target vessels based on the submitted prices by vessel owners. Once a target vessel is determined, the depreciated value of the boat is assessed by professional institutions. The vessel owner then receives a payment covering the depreciated value of the vessel plus the price the owner bid in the auction process to cover business losses.

The most recent decommissioning program (Phase 3) started in 2007 and focused on offshore vessels. This program is being implemented based on a fixed price system in 2007, although there is a consensus among government agencies (including the Ministry of Planning and Budget) that the program will adopt the auction system from 2008. The details of the auction system for the offshore vessels are not yet settled, although the basic structure will be the same as in the phase 2 system with some modifications. In particular, the MOMAF and other experts are working on how to prevent possible price manipulation by fisher groups due to the small number of vessels in many of the target vessel groups.

A feature of all the decommissioning programs in Korea is that the vessel owners must surrender their fishing permit to the government when their vessels are decommissioning. As the government has a fixed ceiling on the number of fishing permits and no longer issues new permits, this results in a decrease in the number of fishing permits in the sector.

Outcomes

The phase 1 decommissioning program reduced the number of vessels and licences significantly. The number of offshore vessels reduced from 6 676 to 3 816 (a decrease of 44%), while the number of licences declined from 7 944 to 4 456 (Table 2.8). Even though there were other factors affecting the sharp decrease, it is evident that the decommissioning program of offshore vessels has contributed to the fishing fleet adjustment.

The outcome of the decommissioning program with respect to the coastal fleet is more complicated. While 1 923 coastal vessels were decommissioned under the Phase 1 program, a further 18 000 vessels (approximately) were officially added to the fleet as these previously illegal vessels were legalised by the government in an effort to bring the coastal fleet under better management. This situation was one of the reasons why the second decommissioning program focused on the coastal fleet.

Table 2.8. Outcome of the Phase 1 Decommissioning Program

	Fleet status December 1993		Number of vessels decommis- sioned	Changes for other reasons	Fleet status December 2004	
	Number of vessels	Number of licences			Number of vessels	Number of licences
Offshore vessels	6 676	7 944	1 897	-963	3 816	4 456
Transport vessels	158	97	45	43	156	163
Coastal vessels	46 487	83 592	1 923	17 687	62 251	81 489
Total	53 321	91 633	3 865	16 767	66 223	86 108

Source: Korean Ministry of Maritime Affairs and Fisheries.

By the end of 2006, the latest year for which data are available, a total of 5 114 vessels had been decommissioned under both the Phase 1 and 2 programs: 1 942 vessels were offshore vessels and 3 172 vessels were coastal vessels. The central government paid KRW 947.7 billion (approximately USD 1 billion).

At least partly as a result of the decommissioning programs, the productivity of the offshore fleet has increased significantly. The average catch per vessel ton increased from 3.5 tons in 1994 to 4.5 tons in 2004. Even though it cannot be evaluated by this single factor, it is clear that the productivity of offshore fishing industry has been improved by the decommissioning program.

While it is too early to evaluate the outcomes of the phase 2 coastal vessel decommissioning program, there have been several attempts to evaluate the phase 1 program. In one study, Korea Fishers Association and the Korea Maritime Institute found that the financial conditions of six offshore fishing industries, out of the 14 industries that were analysed, had improved mainly due to the decommissioning program (Korea Fishers Association and Korea Maritime Institute, 2003).

In another study, 959 former fishers were surveyed on their activities since they surrendered their boats and licences (Hwang and Eom, 2003). About 70% of the fishers surveyed had left the fishing industry while 30 % were still involved in fishing related activities. The latter could be categorized into two groups: one group comprises those fishers who had more than one vessel and were able to continue fishing by using the remained vessel; the second group comprises those fishers who bought a vessel from another fisher and remained in the industry. In this latter case, the fishing permit was transferred with the vessel. Even though the Korean government has set a ceiling on the number of fishing permits and no longer issues new permits, fishers can sell their vessels with the permit. (Most fishers who re-entered into the fishing industry were involving the areas where they were familiar with. This was the case especially to those who were in their late 30s and 40s.)

Lessons Learned

The driving forces behind the series of decommissioning programs in Korea originally came from the government and demands from the fishing industry to address the poor financial situation of the sector resulting from over-exploitation of stocks. The agreement between Korea and Japan also played a significant role in the push for assistance to adjust to changing circumstances in the sector. The type and scale of downsizing were determined by the central government based on scientific research and analysis of the productivity, costs and earnings of each particular fishing industry. While the parameters of the programs were basically established by the central government, the programs themselves were implemented by local governments. This was effective in implementing the program in a relatively short period of time. Once this program was evaluated to contribute to the improvement of the financial situation of offshore fishing industries, fishers strongly supported the expansion of the program.

The major innovation over the series of programs in Korea was the shift from a fixed pricing system to an auctioning system for determining the amounts to be paid for the closure of businesses as a result of decommissioning vessels (Table 2.9). Under the fixed price system, there were concerns over how the precise prices could be calculated given limitations on the information available to the government. The final price may bear little relation to the actual willingness for fishers to be compensated for leaving the industry. This system may well have been more costly than necessary in meeting its targets. This was evidenced by the fact that, by adopting the auctioning system, the Korean government was able to reduce the payment per vessel and shorten the time for implementation. In the case of the coastal vessel decommissioning program in 2006, the number of vessels surrendered (1 249 vessels) was 25% greater than the expected number (1 000 vessels). At the same time, the

average payment to each vessel of KRW 42 million was 20% lower than the expected level of KRW 53 million that was included in the budget for the program.

It is clear, therefore, that the auction system contributed to improving the efficiency and cost-effectiveness of the decommissioning system, generating cost savings for government and providing an opportunity for a greater number of fishers to benefit from decommissioning payments. Meanwhile, it should be noted that the fishing industry still argues that the government payments are not sufficient for them to exit from the industry because most fishers have debt from banks in purchasing the vessel or fishing gears and, therefore, the payment by the government for surrendered vessel cannot cover the debts. However, under an auctioning system such concerns can be met by the vessel owners submitting a bid that covers the cost of exit, even though there is a two-part system in place (fixed price for the vessel scrapping and bid price for the business closure).

As with the other case studies examined in this report, it is clear that decommissioning programs alone cannot solve overcapacity and overexploitation problems. The re-entry issue is one of the most important issues that the Korean government confronts. Thirty percent of surrendered vessel owners are still involved in fishing industry partly because they had difficulties in finding alternative jobs and partly because the legal system discourages but does not prohibit the purchase of a vessel with a permit by recipients of decommissioning payments. In order to minimize re-entry, the Korean government limits the eligibility of vessel owners for participating in decommissioning program: they should hold the vessel and fishing permit at least two years; they should operate the vessels at least 60 days in a year; the vessel should be older than six years in coastal vessels and ten years in offshore vessels; and, most importantly, at least ten years should be passed if the owner had participated in any type of decommissioning program.

In addition, the decommissioning programs have been introduced in conjunction with changes in the fisheries management systems for some, but not all, species. From 1998, the Korean government began to introduce a Total Allowable Catch (TAC) system in a number of fisheries. For example, the Korean government is trying to manage its squid resources by adopting the TAC system and downsizing the squid fleet from 2007.

Table 2.9. Summary of Decommissioning Programmes in Korea

Phase	Phase 1-A (General fleet)	Phase 1-B (International fleet)	Phase 2	Phase 3
Purpose	To match the fishing vessel fleet to the level of fishery resources	To cope with the loss of fishing grounds caused by fishery agreements with Japan	To match the fishing vessel fleet to the level of fishery resources	To match the fishing vessel fleet to the level of fishery resources
Legal basis	Special law to develop rural areas	Special law to support to fishers in regards to fishery agreement	Special law to develop rural areas	Special law to develop rural areas
Target vessels /eligibility	Coastal fishing vessels (older than 6 years) and offshore fishing vessels (older than 10 years)	Offshore vessels which have fished in the grounds lost by the agreement	Coastal fishing vessels only	Offshore vessels only
Priority	Vessels fishing over-exploited species. Less competitive vessels		Vessels fishing over-exploited species. Less competitive vessels - purse seine boat, gill netter, etc.	Vessels fishing over-exploited species Less competitive vessels

Table 2.9. Summary of Decommissioning Programmes in Korea (cont)

Phase	Phase 1-A (General fleet)	Phase 1-B (International fleet)	Phase 2	Phase 3
Period	1984 – 2004	1999 - 2004	2004 - 2008	2007 - 2011
Vessel price	Evaluated by expert institution MOMAF funded 100% for offshore boats	Evaluated by expert institution MOMAF funded 100%	Evaluated by expert institution MOMAF funded 80% Local government 20%	Evaluated by expert institution in 2007, MOMAF funding 50% with remainder from local government backed loan to industry. 2008 funding mechanism yet to be decided.
Payment for Business Closure	Annual average revenue x 3 years MOMAF funded 50%, loan 30%, self 20% for offshore boats MOMAF 80%, Local government 20% for coastal boats	MOMAF funded 90%	Auction MOMAF funded 80% Local government 20%	Fixed price in 2007 and auction from 2008
Compensation for unemployment	None	Average monthly payment x 6 months for crew members who lost jobs	None	None

Table 2.9. Summary of Decommissioning Programmes in Korea (*cont*)

Phase	Phase 1-A (General fleet)	Phase 1-B (International fleet)	Phase 2	Phase 3
Results / Future Plan	KRW 217.2 billion expended 1 809 vessels decommissioned (1 175 coastal, 634 offshore)	KRW 644 billion 1 308 offshore vessels decommissioned	Total planned expenditure KRW 310 billion and 6 709 coastal vessels decommissioned Expenditure for 2004- 2006: KRW 110.4 billion and 2 709 vessels decommissioned	Total planned expenditure: KRW 419.4 billion with 1 050 offshore vessels targeted for decommissioned Planned expenditure in 2007 of KRW 29.4 billion

Source: Ministry of Maritime Affairs and Fisheries, Korea.

Another pertinent lesson from the Korean experience is that different views on the decommissioning program will be a continuous challenge for the government. Fishers tend to consider decommissioning programs as a way of supporting the fishing industry rather than as a policy option for helping to manage fishery resources in a sustainable manner. This is one of the reasons why fishers apparently have conflicting attitudes towards the programs. According to a survey done by the Korea Maritime Institute in 2003, fishers showed low satisfaction about the decommissioning programs, with an average satisfaction score of 2.69 out of a possible 5.0 (the average score of five selected policies surveyed was 3.18). However, in the same survey, the fishers also gave the highest priority to expansion in the decommissioning program when asked about future government priorities in the sector.

Finally, attempts to employ the beneficiary pays principle in the funding of the decommissioning programs has met with mixed success in Korea. While the Korean government has recognised the potential usefulness of the principle as a policy tool to better align incentives for the industry and reduce the budgetary cost of decommissioning, the administrative and legal system in Korea is not, at this stage, sufficiently ready to implement it on a wide scale. In addition, further efforts are required to improve fishers' understanding of the principle.

Nevertheless, under Phase 1-A program, three offshore large purse seine fleets (each comprising six vessels, including a mother ship, transport ships and lighting ships) stopped fishing from the early 1990s. Part of the cost of the vessel surrender was met by the industry through the provision of government-backed loans that were to be repaid by the remaining participants in the sector. This was largely due to the relative ease of specifying and enforcing rights in the offshore sector compared to the coastal sector. This demonstrates that such arrangements are indeed possible if the regulatory institutions are appropriately constructed.

The Korean government did, employ a modified version of the beneficiary pays principle in the Phase 1-A program. Thirty percent of the cost of the scheme directed at the offshore fleet (except for the purse seine fleets described above) was met by the industry through the provision of a government-backed loan that was repaid by fishers who left the sector (rather than those who remained). This was likely to have reduced the incentive for fishers to participate in the decommissioning program and this particular mechanism was not used in the subsequent programs.

NOTES

1. The Vessel Moratorium Qualification (VMQ) was the prerequisite for obtaining a Vessel Moratorium Permit, which would enable a vessel to fish during the moratorium. The VMQ depended on a vessel's participation history and was transferable, thus acting as an access right for when the fishery came under the vessel moratorium. A market for the VMQs developed during the period before the moratorium (1992-95).
2. Note that the NMFS is located within the Department of Commerce.
3. As defined through The Nature Conservancy's Ecoregional Assessment for the Central California Coast.
4. The Commonwealth government manages those fisheries that are beyond the 3 nm State boundary and has joint management arrangements with a number of States under the Offshore Constitutional Settlement. The Commonwealth fisheries are managed by the Australian Fisheries Management Authority, a statutory authority.
5. Australia's Commonwealth fisheries operate under a cost recovery regime whereby AFMA levies fees on industry to cover a proportion of the costs of management.
6. These are the International Commission for the Conservation of Atlantic Tuna (ICCAT); the Inter-American Tropical Tuna Commission (ITTAC); the Indian Ocean Tuna Commission (IOTC); the Commission for the Conservation of Southern Bluefin Tuna (CCSBT); and the Western and Central Pacific Fisheries Commission (WCPFC). Although Chinese Taipei is not a member of the five tuna RFMOs, it has a special "cooperating status" within the organisations and is entitled to fish for tuna under the condition of maintaining sustainability of tuna stocks.

List of Acronyms

AFMA	Australian Fisheries Management Authority
BSAI	Bering Sea/Aleutian Islands Crab Fisheries (Alaska, US)
BSCZSF	Bass Strait Central Zone Scallop Fishery (Australia)
CFP	Common Fisheries Policy (EU)
DFE	Development Fund of the Fisheries (Iceland)
EC	European Commission
ED	Environmental Defense (US)
EEZ	Exclusive Economic Zone
EFF	European Fisheries Fund
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FIFG	Financial Instrument for Fisheries Guidance (EU)
FMP	Fishery Management Plan (US)
GAO	US General Accounting Office
GRT	Gross Registered Tonnage
GT	Gross Tonnage
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
IFQ	Individual Fishing Quota (US)
IPQ	Individual Processor Quota (US)
ITQ	Individual Transferable Quota
IUU	Illegal, Unreported and Unregulated Fishing

Kw	Kilowatt
LLP	Licence Limitation Program (US)
LRP	Licence Retirement Program (Canada)
MAGP	Multi-Annual Guidance Programme (EU)
MOMAF	Ministry of Maritime Affairs and Fisheries (Korea)
MPA	Marine Protected Area
MSY	Maximum Sustainable Yield
NASF	North Atlantic Salmon Fund
NGO	Non-Governmental Organisation
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration (US)
NPF	Northern Prawn Fishery (Australia)
NPFMC	North Pacific Fishery Management Council (US)
PFMC	Pacific Fishery Management Council (US)
PME	Permis de mise en exploitation (France)
RFMO	Regional Fisheries Management Organisation
SFR	Statutory Fishing Right (Australia)
TNC	The Nature Conservancy
TAC	Total Allowable Catch
VMQ	Vessel Moratorium Qualification (US)

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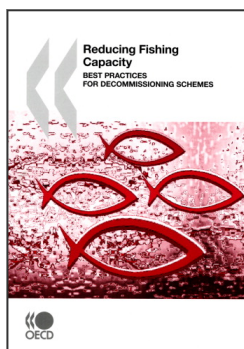
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