Chapter 2. Policy developments in fisheries and aquaculture

This chapter provides an overview of the latest major policy developments for countries covered by the Review. Countries are advancing reforms in their fisheries management systems to improve both the profitability and sustainability of their fisheries sectors. In the pursuit of these objectives, and on the basis of their experience to-date, a number of countries are currently reviewing and revising the way in which fishing rights and quotas are both allocated and administered. Countries are also working actively to promote the sustainable development of aquaculture, which is seen as the primary source of future growth in fish production. These efforts include regulatory improvements and increased spending on research, as well as cost-sharing with the private sector to encourage investment in the sector.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

National plans for fisheries updated in some countries

Many countries maintain national planning documents outlining their main objectives and approaches for fisheries policies. In the European Union (EU), such planning documents are obligatory under the requirements of the Common Fisheries Policy (CFP) and EU members have been renewing theirs as part of the reformed CFP in force since 2013. A Multiannual Plan for the Baltic was adopted in 2016. Further plans for the North Sea, the Atlantic and the Mediterranean were at different stages of development and adoption by December 2016.

The **Australian** Government is currently updating both the Commonwealth Fisheries Harvest Strategy Policy and Guidelines and the Commonwealth Policy on Fisheries Bycatch. Important improvements will include operational guidelines and measures in the Bycatch Policy for assessing its effectiveness over time and providing explicit guidance on how to manage by-product species in the revised Harvest Strategy Policy.

Sweden has initiated development of management targets for nationally-managed stocks in territorial waters, which will be implemented in the coming years. Fisheries management will be linked with targets of environmental policies, particularly through adding management measures to the national programme of action for the EU Marine Strategy Framework Directive.

In 2016, **Korea** adopted a five year master plan (2016-2020) for the development of fishery-related industries and fishing villages. The plan supports sustainability of fisheries, food safety and fishing communities. This new integrated plan aims to increase policy effectiveness— formerly Korea's plan on fisheries consisted of disparate plans.

The National Development Plan 2013-2018 and Sectorial Program of Farming and Fishing of the Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA) are the main national guidance documents in **Mexico**. These emphasise the need to improve competitiveness through working towards natural resource sustainability, updating the regulatory framework, integrating production chains, supporting innovative projects through the country and encouraging regional development by promoting small-scale projects within the rural sector.

Some important changes in rights and quota allocation methods

Denmark launched a new scheme for coastal fisheries in 2017 that reallocated extra quotas to the coastal fishery. These extra quotas were transferred from the part of the quota reserved for vessels with individual transferable quotas (ITQs) to strengthen the coastal fishery. Under the new system, there are additional quotas added for cod, sole and plaice. Moreover, for the first time, Norway lobster, turbot, sprat, herring and saithe will be introduced to the scheme.

A new Fisheries Law in **Lithuania** extends the use of transferable rights to fishing quota, already in place for inland waters and the large-scale Baltic Sea fleet, to the long-distance fishing fleet and small-scale Baltic Sea fisheries—essentially covering all fisheries and fleet segments.

A reform of the existing quota management system for capture fisheries in **Norway** is planned to reduce the complexity within the system. A tax to recover resource rents is also under consideration.

A roadmap is being developed in **Indonesia** to introduce quotas, capacity rules, closed seasons, zoning laws and establish multi-stakeholder institutions managing 11 fisheries management areas. New laws are being prepared that will allow the use of rights or privileges in fisheries, an important step towards controlling access to resources.

The challenge of implementing the new landing obligation under the EU Common Fisheries Policy (CFP) spurred the introduction of a new management system for demersal fisheries in **Sweden** that allows limited, short-term transferability of fishing rights. This addresses species with small quotas that are often caught as bycatch with other species. These bycatches may fill up specific quotas and thus become "choke species" that act as a bottleneck and prevent efficient utilisation of quotas. The new regulatory scheme favours small-scale coastal fishers and promotes selective fishing.

Regulatory reforms to make rules more sustainable, efficient and effective

In 2015, **New Zealand** announced a review of the fisheries management system. The purpose of the fisheries review is to ensure the fisheries management system is future focused, and able to provide sustainable fisheries resources for all. A public consultation phase of the review was recently completed and policy development is underway.

In June 2015, the **Australian** Government released the Northern Australia White Paper which sets regulatory reduction goals for Australian fisheries management, promotes greater regulatory co-ordination on aquaculture and seeks greater sharing of fisheries management services to minimise costs through standardised services. The White Paper also sought a Productivity Commission Inquiry to identify duplicative or poorly implemented regulations that were harming investment in Australia's fisheries and aquaculture industries. The Commission's report was handed to the government in 2016.

In 2016, **Canada** began a review of the 2012 Fisheries Act amendments as one of several environmental legislative and regulatory reviews concurrently underway. The amendments established the fisheries protection provisions, which focus the Act's regulatory regime for the protection of fish and fish habitats on managing threats to the sustainability and on-going productivity of commercial, recreational and Aboriginal fisheries.

Italy introduced in 2016 a number of measures intending to enhance small-scale fisheries, including regulations to facilitate the development of consortia allowing small-scale fishers to build self-regulatory frameworks addressing local characteristics of fishing activities. Those are intended particularly for areas that are subject to special protection schemes, as in the case of marine protected areas (MPAs).

Regulations have been simplified in **France** through, *inter alia*, a harmonisation of the designation of competent police and fisheries control authorities and the creation of a single fisheries management advisory board *(Commission consultative de gestion des ressources halieutiques*, or CCRGH) by merging the former commissions responsible for quota monitoring and allocating fishing rights. In addition, in 2016 the procedures for entering and leaving the fishing fleet were reformed to improve the evaluation of the suitability of the application, reinforce consultation of professional committees and competent bodies in the process, and require applicants to justify the granting of a new permit upon the lapse of the existing one.

In 2016, the voluntary vessel buyback programme in **Korea** was revised and became obligatory for certain government designated vessels. The compulsory scheme enhances effectiveness and introduces special vessel types which are likely to cause overfishing

and subjects vessels demonstrating a history of illegal, unreported or unregulated (IUU) fishing to the programme as of 2017.

New initiatives in monitoring and control of fishing activity: Progress being made in the fight against IUU

Monitoring and control of fishing activity are actions at port or at sea to observe fishers as they catch, land and market fish products. The tools used to do this are being upgraded in many instances to take advantage of new technologies and methods in order to ensure that fisheries management is fair and effective, as well as to deter IUU fishing.

Denmark has had a risk-based control system for commercial fisheries since 2006. Since 2014 the risk assessment of the fishery and landings of Danish fishing vessels in Danish ports and abroad is fully automated. The Danish AgriFish Agency provides daily updates to a series of risk lists that identify critical vessels. The vessels are given a score between zero and ten, depending on their ability to comply with the rules on a number of selected issues. Fisheries inspectors, receive up-to-date information on PC and smartphones and target the control based on the resulting risk assessment. Denmark has also conducted trials for catch quota registration using CCTV cameras to deter misreporting.

Indonesia, having previously banned large (mainly foreign) vessels from operating in its waters, re-authorised in 2016 fishing vessels above 30 GT, though under more restrictive conditions than had been in place previously. All transhipment at sea is prohibited, and all boats above 30 GT have to install and activate vessel monitoring systems (VMS), of which data is shared with Global Fishing Watch. Vessel registration, the licence system and catch reporting documentation are being revised, eventually allowing domestically-built vessels of up to 200 GT to operate.

A new traceability system came into force in **Lithuania** in 2017. The new system is based on electronic record-keeping of catches and landings and is implemented by the Fisheries Service under the Ministry of Agriculture.

Ireland is investing heavily to further develop capacity in control and enforcement, as well as, data collection. Risk-based inspection of fishing activities and co-operation with other Member States of the EU will be further developed to ensure effective fisheries control and inspection in both Ireland and at EU level. This will be complemented with work to improve efficiency in data collection and management, where there is a focus on improving both scientific assessment of stocks and the knowledge on the state of the marine environment at sea.

In 2016, under the Magnuson-Stevens Act, the **United States** released the final rule establishing the Seafood Import Monitoring Program (SIMP). The Program establishes, for imports of certain priority seafood products, the reporting and recordkeeping requirements needed to prevent illegal, unreported and unregulated (IUU) - caught or misrepresented seafood from entering U.S. commerce, thereby providing additional protections for the national economy, global food security and the sustainability of shared ocean resources. Mandatory compliance for most of the species included in the programme is required by 1 January 2018.

A new application for smart devices for fishers is being implemented in **Estonia** to help speed up the transfer of catch data in real time. This allows the administration to carry out cross-checks of catch data, reduce paperwork and increase transparency. A similar application for coastal and inland fishers is forthcoming and will greatly simplify the production and distribution of obligatory reports.

An electronic fish product traceability system for catches and landings is under development in **Latvia**. The existing traceability system is based on paper documents with a unique traceability number. The new electronic system provides more flexibility, convenience and reduces the amount of paper used.

Regulatory change under **New Zealand's** Future of Fisheries work programme includes use of Integrated Electronic Monitoring and Reporting System (IEMRS), which would involve electronic reporting of catch and fishing effort by commercial fishers, monitoring and verification using automated geospatial position reporting and automated on-vessel cameras. It is expected that geospatial position reporting and electronic catch and activity reporting will be introduced on all commercial fishing vessels from 1 October 2017. Video monitoring will be phased in from 1 October 2018.

In **Germany**, the Sea Fisheries Act and related ordinances were amended in 2015 and 2016. This provides for the involvement of the customs agency and the federal police in fisheries monitoring and control and provides the opportunity to impose penalty points on fishing license holders for serious infringements.

In **Chinese Taipei**, the Five-Year Program for strengthening international co-operation on combating IUU fishing began in January 2016. It contains several elements, including a legal framework, an international economic and trade strategy, rules for traceability of fish and fisheries products, new regulations for control and management of coastal and offshore fishing vessels in port and at sea. This is supported by a National Plan of Control and Inspection (NPCI), established in 2015, to conduct MCS measures on domestic fishing vessels and to ensure their compliance with international regulations and domestic management measures to prevent, deter and eliminate IUU fishing activities. Landing declaration requirements and transhipment controls were also strengthened.

The new Fishing Vessel Monitoring System in **Turkey** (BAGİS in Turkish) was completed in 2016, expanding Automatic Identification Systems (AIS) monitoring to vessels over 12 m (from 15 m previously). 1 350 fishing vessels over 12 m that are collectively responsible for 90% of total production from the seas are now monitored continuously.

Argentina began planning in 2015 to implement a system of on-board cameras, which is now being improved to have the majority of vessels covered in 2018. National control at customs has also been expanded to include more detail for some species, as well as a new catch documentation scheme intended to ease certification of Argentinian catches according to international requirements.

A draft law against IUU fishing was produced in **Colombia** aimed at closing regulatory gaps and strengthening judicial and administrative penal procedures. It recognised the country's responsibility as a flag state by ensuring vessels are subject to national regulatory requirements even beyond national jurisdiction and are considered an extension of Colombian territory when fishing.

The OECD hosted a workshop in 2016 on the subject of tax crimes and other crimes in the fisheries sector, with a view to identifying the links between traditional IUU activity and the criminal activity that may be associated with it (Box 2.1). This workshop demonstrated the need for fisheries managers, police, prosecutors and tax administrations to work together if such activity is to be successfully curtailed. It also demonstrated that countries need to work together because of the multi-jurisdictional nature of criminal activities on the seas.

Box 2.1. OECD workshop on combatting tax crimes and other crimes in the fisheries sector

The OECD hosted a workshop in October 2016 with the FAO and the UNODC that brought together fisheries and tax administrations, enforcement agencies, intergovernmental organisations and non-governmental organisations. Together, they identified best practices in combatting tax crimes and other crimes in the fisheries sector:

Strengthen and enforce legislation

- A strong legal framework including fisheries law and relevant regulations, criminal codes, tax legislation, anti-corruption law, labour laws, and organised crime laws is needed. The framework should reflect the state's responsibilities as a flag state, coastal state, market state or port state and for their own nationals.
- Illegal operators exploit gaps in the law at every part of the value chain from fishing boat to consumer. Sector participants should build transparency into their operations to identify where crimes are likely to occur.
- Measures must be tailored to the varied legal powers, procedures and governance capacity of countries.

Build and improve inter-agency co-operation

- Fighting these crimes will require co-operation between police, prosecutors and fisheries managers within and across countries to tackle their increasingly transnational nature.
- An umbrella framework for co-operation can work across borders to combat fisheries related crimes by promoting the exchange of data and information.

Work with and receive support from international organisations

- Partnerships across organisations - such as the OECD, FAO, UNODC, WCO, INTERPOL and RFMOs - can help establish international co-operation and governance frameworks.
- Build on existing measures to fight illegal, unreported and unregulated (IUU) fishing and fisheries related crimes, such as the FAO Agreement on Port State Measures Agreement, the UN Convention against Transnational Organized Crime; and the OECD's work on best policy practices.

Involve stakeholders

- Private sector actors, such as seafood processors or financial service providers, can help ensure that their activities do not facilitate criminal activity.

Increase awareness and understanding

- Increasing awareness of the damage and costs of fisheries-related crimes can motivate a strong response by governments.
- Lessons can be learned from other countries' experiences fighting fisheries and other environmental crimes.
- Improved training and more resources for investigations are needed to build capacity to fight tax crime and other crimes in the fisheries sector.

Source: OECD (2016), Key Findings and Discussion Summary, www.oecd.org/tad/events/Fisheries-crimes-conference-summary.pdf.

Marine protected areas and spatial planning expanding in several places

Progress in expanding the coverage of marine protected areas is underway. With a push from the Sustainable Development Goals (SDGs) their global coverage is expected to increase even further. Marine protected areas are one of the policy instruments available to help ensure the conservation and sustainable use of our vast yet vulnerable ecosystems, in particular to over-fishing and exploitation and habitat destruction. In addition to protecting rare and threatened species and their habitats and other areas of ecological importance, MPAs can help ensure the sustainable provision of multiple other ecosystem services that are fundamental for human well-being, including for fisheries, coastal protection (buffering against storms and erosion), tourism and recreation (OECD, 2017[8]).

During 2015-16 the **Australian** Government undertook a review of Commonwealth Marine Reserves and the report was released by the Director of National Parks in September 2016. The review considered the views of commercial, recreational fishing and other marine users regarding access to marine resources, accounting for desired conservation outcomes. Based on the outcomes of this review, new management plans are being developed and are expected to be finalised during 2017.

On World Oceans Day, 8 June 2016, **Canada** announced its commitment to increase marine conservation from approximately 1% of Canada's marine and coastal areas to 5% by 2017 and 10% by 2020. In October of 2017, Canada announced that it had achieved the 5% target.

In 2016, **Denmark** held consultations with the European Commission (EC), ICES, the regional advisory councils and Member States with regards to an adequate protection of reef structures in the Kattegat and the western Baltic Sea for a total of seven sites. Ten other sites were decided in 2016 to be protected as of 1 January 2017. By the end of 2016, 31 sites were protected. Denmark is also in progress of developing a national strategy for the protection of harbor porpoises in all Danish waters. The strategy will focus on the areas with high risk of porpoise bycatch and it is expected to be implemented by 2020.

Spatial planning in the **Netherlands** is reflected in the 2016-2021 North Sea Policy Document. A ban on fisheries in protected Natura 2000 areas and in the areas that are destined for either offshore wind energy or oil and gas extraction has recently taken effect. Although the restricted area is a small portion of the North Sea, it often covers locations that have been traditionally considered fishing grounds.

Indonesia has committed to establishing over 20 million ha of marine protected areas (MPAs) by 2020. In early 2017, MPAs already covered over 17.97 million ha.

The *Zones de conservation halieutiques* (ZCH) in **France** constitute a new category of protected marine area created in 2016 for the recovery of biodiversity, nature and landscapes. This new tool is dedicated to the protection of the functional fisheries areas essential to the productivity of stocks, such as spawning grounds and nurseries. The classification of an area as a ZCH is carried out by a decree specifying the perimeter of the zone, the duration of the classification, the conservation objectives and the authority in charge of the implementation of the conservation measures. At the beginning of 2017, almost 22% of waters under French jurisdiction were protected, through the various tools for protecting biodiversity, compared with 4% at the beginning of 2014.

The marine protected area programme in **Korea** has expanded and now includes 27 registered areas. A recovery project for tideland ecosystem aims to rehabilitate marine ecosystems with 11 sites completely restored and four more expected in 2017.

Since 2015, owners of trawling licences in **Sweden** are obligated to take a course on the regulations specific for the Koster-Väderöfjorden MPA. Trawling was at the same time banned in five additional areas in the MPA (Kungsviksflaket, Björns, Yttre Vattenholmen, Ullvillarna/Berggylteskär, Grisbådarna) and only vessels equipped with AIS (Automatic Identification System) are permitted to fish for Nordic prawns. In 2016, a no-take zone was introduced within the Bratten MPA area of Skagerrak.

In accordance with its Basic Policy for Fisheries (revised in 2017), **Japan** has been implementing measures for ensuring sustainable fisheries while conserving marine ecosystems, which includes, *inter alia*, conservation of seagrass beds and tidal flats and, use of MPAs to protect spawning areas and to recover fish stocks.

The proposed Marine Protection Act, will replace **New Zealand's** existing framework for creating marine reserves, and include a mix of legislative tools that provide a graduated system of marine protection and allow trade-offs between competing uses. These tools include marine reserves, species-specific sanctuaries, seabed reserves and recreational fishing parks.

Several new policies introduced to improve environmental performance and protection

Latvia is currently working on a bio-economic strategy which will incorporate elements from Blue Growth. This is a complex strategy requiring co-operation between multiple ministries. This makes the process slow and the work is taking longer than anticipated.

Specific measures applicable to the **Portuguese** fishing fleet were adopted with the aim of protecting the seafloor of the continental shelf against any adverse impacts that may be caused by bottom fishing gears. The use of fishing gears that may adversely impact on vulnerable deep sea marine ecosystems is prohibited and information on natural resources of the seafloor will be collected to improve the available scientific data on the marine environment.

Fuel saving is a major goal in the **Netherlands**. Investments in fuel saving gear have led to a 24% decrease in 2014 of fuel consumption (in litres) per fishing day compared to the average between 2008 and 2013. Improvements in fuel economy have been widely observed in the EU fleet: the yearly aggregated fuel consumption of the EU fishing fleet reduced 15% in the period 2008-2015.

A project to remove abandoned fishing gears from the seas in **Turkey** swept 15 000 acres of water area at different locations, removing a total of 270 000 m² of ghost nets in different lengths and 1 700 fishing gears such as traps and fyke nets.

In 2016, the **United States** established a rule to complete the implementation of the Marine Mammal Protection Act (MMPA) which imposes ban on imports of fish that result in bycatch of marine mammals in excess of US standards.

The Sustainable Fisheries Framework (SFF) in **Canada** provides the policy basis for ensuring that fisheries are conducted in a manner which supports conservation and sustainable use, while also promoting economic prosperity. The implementation of

SFF policies has created concrete steps for policy-makers to take towards the application of an ecosystem approach to fisheries management.

Argentina is introducing ecosystem based management to its fishery resources. In 2016, a project was initiated with the Global Environment Facility (GEF) called "Governance Strengthening for the Management and Protection of Coastal- Marine Biodiversity in key ecological areas and the implementation of the Ecosystem Approach to Fisheries (EAF)".

Promoting aquaculture production high on the policy agenda

Governments, virtually without exception, have objectives and policies in place to promote the development of aquaculture. This is commonly motivated by its economic potential; aquaculture has been one of the fastest-growing forms of food production for many years and growth in aquaculture can provide jobs and regional development opportunities in areas with few economic alternatives. The emphasis is shifting from stimulating growth to putting the sector on a sustainable footing for the future by addressing environmental limits and focusing on new production technologies to increase competitiveness.

Development of aquaculture is supported by the **European Union** and is part of the reformed Common Fisheries Policy. In 2015, all Member States finalised Multiannual National Strategic Plans for the promotion of sustainable aquaculture in their countries (some specific details are in the following paragraphs). Six European Union Member States (**Czech Republic**, **Germany**, **Lithuania**, **Poland**, **Slovak Republic** and **Slovenia**) allocated the largest share of their European Maritime and Fisheries Fund (EMFF) spending to fostering environmentally sustainable, resource-efficient, innovative, competitive and knowledge-based aquaculture (Union Priority 2). All in all, EUR 1.2 billion (USD 1.3 billion) of EMFF resources are specifically allocated to aquaculture (21% of the funds available).

The National Aquaculture Development Programme (NADP) was established in **Greece** to identify national objectives for the development of the sector. It establishes the National Council for Aquaculture which provides for the formulation and implementation of the NADP and possible institutional reforms, including a "one-stop-shop" principle, with one single licensing authority (the Decentralized Authorities) executing the whole process.

In its 2015 National Strategic Plan for Sustainable Aquaculture Development **Ireland** introduced a set of 'Guiding Principles for the Sustainable Development of Aquaculture', and 'Scale Limits for Individual Offshore Salmon Farms'. A review of Ireland's regulatory framework for aquaculture licensing was initiated in 2016 with recommendations due in the first half of 2017.

The National Strategic Plan for Aquaculture in **Spain** includes among its main objectives improving environmental sustainability. Various actions have been designed to ensure the enhanced compatibility of the aquaculture with the goals of biodiversity conservation. Spain is also in the process of preparing a new aquaculture law. This new legal framework will support progressive development of the sector. Improvements to aquaculture information systems are also planned to unify information currently dispersed among different sources and establish a single register of authorised entities.

The **Danish** government published a "Growth plan for aquaculture" in 2016. Growth and development of the sectors are limited primarily by the possibility of discharging

nitrogen. It was decided to increase the allowed nitrogen discharges for both land-based and sea-based farms making increased production possible. The plan also incentivises land-based farmers to convert to the more environmental friendly recirculation systems (less discharge of nitrogen per produced fish volume) to allow expansion of aquaculture production in longer term. Furthermore, it was decided to allow increased nutrient discharge (in relation to what could be allowed within the previous legislation framework) from new sea-based farms, when this is accompanied by compensatory measures (such as mussel farming) that remove a specified part of the increased amount of nutrients.

Australia has developed a National Aquaculture Strategy in consultation with the aquaculture industry and the state and territory governments that is expected to be released in 2017. The aim of the Strategy is to double the value of the aquaculture industry by 2027.

The latest Development Plan (2014-2018) in **Turkey** prioritises development of aquaculture, specifically developing breeding stock management and breeding programmes, encouraging environmentally-friendly aquaculture systems, ensuring continuous supply of feedstuff for aquaculture production and investigating alternative feedstuffs sources.

In 2014, **Colombia** adopted a National Plan for Sustainable Aquaculture (PlaNDAS), which identifies areas that are most suitable for aquaculture development. PlaNDAS identified low economic productivity as a key challenge for aquaculture as it affects competitiveness and reduces profitability, even as the sector has to contend with low-cost imports of fishery products and a small domestic market.

The **United States** released its 5-year Strategic Plan to guide development of sustainable marine aquaculture and established the target of expanding marine aquaculture production at least 50% by the year 2020.

Korea enacted the Fisheries Seed Industry Promotion Act in 2015. Based on the law, five year master plans and annual plans for implementation will be established. To balance demand and supply of fisheries seed, the government can monitor facility capability, output, global market situation and share information to the public. Also, the act introduces the system of fisheries seed promotion such as registering of female brood fish and the broodstock rental and exchange system between public owners and private properties.

Aquaculture regulations are maturing as the sector becomes established

Icelandic authorities have implemented regulations that obligate sea cage companies to apply to the Norwegian NS-9418:2009 standard on all equipment used for sea farming in Iceland to minimise the risk of escapees. All Icelandic sea farms are obliged to contribute to a special aquaculture environmental fund. The objective of the fund is to promote research concerning the sea farming areas and the main beneficiaries of the fund has been The Marine and Freshwater Research Institute.

In July 2015, after four years of effort, the Aquaculture Activities Regulations (AAR) came into effect in **Canada**. These are the first national regulations of their type. The regulations build on existing provincial and federal regimes and allow for better co-ordination of the management of pesticides and drugs used to treat fish for pests and pathogens.

Planning is underway to refresh **New Zealand's** Aquaculture Strategy by early 2018. Part of the process will include an evaluation of the current Aquaculture Strategy and Five-year Action Plan to guide sustainable growth of the aquaculture sector, originally adopted in 2012. New Zealand is also undertaking a public consultation on a National Environmental Standard for Marine Aquaculture (NES: Marine Aquaculture), which would replace existing regional council rules. The proposed NES: Marine Aquaculture seeks to provide a more efficient and certain consent process for managing existing marine farms within environmental limits; and implement a nationally consistent framework for biosecurity management on all marine farms.

Ireland's National Strategic Plan for Sustainable Aquaculture Development includes a review of the regulatory framework for aquaculture licensing and associated administrative procedures. This review was initiated in 2016 with the setting of its terms of reference and the appointment of a 3-person Independent Review Group.

In 2016, the first regional regulatory programme in the **United States** for offshore aquaculture in federal waters was implemented. The Fishery Management Plan establishes a permitting process to manage the development of an environmentally sound aquaculture industry in federal waters of the Gulf of Mexico.

A new system for regulating growth in the salmon farming industry was introduced in **Norway** in 2017. The new system is based on environmental indicators and production areas. It introduces Innovation Licences, a hybrid of research licences and regular commercial licences, in order to stimulate productivity-enhancing innovations.

The **Slovak Republic** as part of their National Plan for Aquaculture is planning to reform the current law regulating the certification of aquaculture farms. The main changes are focused on clarifying the documentation necessary to gain approval in order to ease access to the sector and encourage new entrants.

In 2017, the OECD published the report "Red tape and administrative burden in aquaculture licensing" which looked into the relationship between regulatory systems and sector growth (Box 2.2). While the link between the degree of "red tape" and the rate of growth in production was unclear, it highlighted some of the other benefits that can arise from a systematic approach to developing effective regulations, and that there is no inherent trade-off between the stringency of regulations and their administrative burden.

Box 2.2. Aquaculture licensing

The study used survey data on aquaculture licencing systems to investigate the design of licensing schemes. It builds on existing OECD work on Product Market Regulation (PMR) indicators and the Burden on the Economy of Environmental Policies (BEEP), which provide a ready framework for analysis of the burden of licencing and permitting systems for aquaculture. The results highlight the need for better measurement of environmental outcomes of aquaculture operations to support regulatory evaluation and review.

Key findings

- Experts from governments agree that aquaculture licensing systems are generally achieving their goals for environmental and social protection, although in the majority of cases these systems are not currently as simple as they could be.
- The extent of administrative burden is highly variable, with no corresponding evidence that effectiveness is equally variable. This suggests that there is opportunity to reduce levels of administrative burden on aquaculture producers without sacrificing regulatory quality in the process.
- Administrative burden has some negative correlation to growth; licensing systems displaying high levels of administrative burden tend to have lower rates of growth. Higher levels of burden also imply higher costs for enterprises.
- Quality governance, as measured by institutional oversight, consultation and planning, helps to reduce administrative burden. Additionally, having formal processes to evaluate the effectiveness of regulation and review its impacts support good governance. The survey results show limited use of evaluation and review across countries, suggesting an opportunity for beneficial reforms by increasing their use in order to help reduce administrative burden over time.
- The observed significant negative correlations between the level of administrative burden to entry and both governance quality and evaluation and review are consistent with experiences in other sectors and provides empirical support to the use of these practices as a standard feature of policy design.
- It was not possible to compare the attributes of licensing systems with environmental performance due to a lack of suitable indicators. This highlights the need to measure environmental performance if regulatory effectiveness is to be evaluated further.

Source: Innes, J., R. Martini and A. Leroy (2017), "Red tape and administrative burden in aquaculture licensing", OECD Food, Agriculture and Fisheries Papers, No. 107, OECD Publishing, Paris, www.dx.doi.org/10.1787/7a56bfbc-en.

Aquaculture information systems also under development

In the **Netherlands**, a website has been set up that centralises information on licensing for aquaculture, including all the administrative documents which have to be filled by producers to obtain or renew a license.

Innovation

Australia is using its 2016-20 National Fishing and Aquaculture Research Development and Extension Strategy to plan for how research, development and engineering in fishing can become more focused, efficient and effective. The 2015-25 National Marine Science Plan outlines the research, infrastructure, skills, partnerships and investment needed to drive the changes required over the next ten years and deliver the best possible long-term returns to Australia.

The Primary Growth Partnership (PGP) in **New Zealand** is a joint venture between government and industry, that invests in long-term innovation programmes to increase the market success of the primary industries. An expected change by the end of 2017 under The Future of Fisheries work programme will enable innovative trawl technology (EITT) that focuses on reducing bycatch of undersized fish, reducing the quantity of unwanted fish, and enabling fishers to derive maximum benefit from their catch by improving catch quality.

Support for innovation in aquaculture is an important element of the EMFF, with 24 EU Member States allocating EMFF funds to it.

Restocking exercises are a common feature of stock recovery plans in several Asian countries

Governments can undertake several actions to aid the recovery of depleted fish stocks. Aside from better control of fishing pressure, actions include enhancing the productivity of the ecosystem by restoring its functions and releasing hatchery-grown fish to augment wild populations. Such actions can be linked to advances in aquaculture technologies that make producing juvenile fish for release feasible.

In 2015, **Japan** established the 7th Basic Plan for Fish Farming in Japan, which is revised every five years. The plan includes, among other elements, integrated implementation of releasing juveniles for stock enhancement and capturing fish.

Artificial restocking, artificial reefs and seasonal closures are some common measures adopted for further restoration and enhancement in the **People's Republic of China** (hereafter "China"). New reserves for aqua-germplasm resources are set up every year. Efforts to better measure fisheries stock status and identify spawning grounds continue to improve. Marine ranches (areas with artificial restocking and systematic management) are also being established for resource conservation and environment protection. Twenty demonstration marine ranches have been established in 2015, with more planned in the future based on lessons learned.

A project for generating fishery resources in **Korea** includes marine ranching and marine afforestation. This is in the context of plans to rehabilitate marine ecosystems – 11 sites have already been completely restored with four more expected in 2017.

Chinese Taipei established an activity called "2016 Love the Ocean, Fishery Sustainability: The Fingerling Release Activity." The government works with different universities regarding long-term plans for such restocking activities. "The Coastal Blue Economic Growth Plan" is a project to produce high-value fish such as blackfish (*girella punctate)*, and has been successful in producing good quality fingerlings.

Policy initiatives aimed at improving domestic market balance are tied to objectives for self-sufficiency

While most countries have policies in place promoting aquaculture growth as a means of economic and regional development, these are not usually aimed at changing domestic market conditions. However, several countries have policies designed to achieve a better balance between domestic supply and demand for fisheries products. Some market disruptions have been observed, particularly in the Baltic States, as a result of the loss of the market for fish products in the Russian Federation (Box 2.3).

The national growth objective in the **Slovak Republic** is to achieve 80% freshwater fish farming self-sufficiency in volume by 2020, up from the current level of 40%. The goal is to increase aquaculture production and achieve self-sufficiency in freshwater fish production and enhance competitiveness of the aquaculture sector, in part by introducing new species such as perch, pike, sturgeon and freshwater catfish.

Argentina is promoting local consumption of seafood. A policy is being developed that includes certification scheme for quality products of national origin, labelled "*Alimentos Argentinos"*.

Korea promotes the aquaculture industry as a means of maintaining production growth aligned with domestic demand. Part of this effort encourages the development of eco-friendly aquaculture technologies to ensure that growth is sustainable for the long-term. The government also provides monitoring and outlook data for produce and market prices for 14 species to fishers, distribution dealers, and consumers. Fishers can adjust their production based on this system.

Mexico promotes fish consumption and aims to stimulate demand for domestic fishery and aquaculture products. This is done through, *inter alia*, campaigns promoting local seafood, monitoring seafood consumption and organising commercial and gastronomic events.

China maintains considerable policy scope over production, which one aspect of policymaking is to ensure that aquaculture species produced are desired by the market.

To help fishers manage their businesses, **Japan** has established Annual Guidelines for Aquaculture Production for the harvest season, since 2014. Guidelines indicated the supply target quantity on a national scale, based on the Review Meeting on Demand and Supply of Farm Raised Fish. The 2016 guideline proposed 140 000 tonnes for amberjack and 72 000 tonnes for sea bream in supply.

Portugal has the highest per capita fish consumption rate in the EU (54 kg/year in live weight terms) and the overall import to export coverage rate for fish products is 58.4%. Portugal promotes both growth in output and diversification of the types of fish produced in the aquaculture sector to satisfy increasing national demand.

Box 2.3. Russian ban impacting markets

On 7 August 2014 the Russian government imposed an import ban on agricultural and processed food exports from the European Union (EU), the United States, Norway, Canada and Australia. The imposition of the ban was in response to sanctions previously imposed by Western economies on Russian business interests in connection with the crisis in eastern Ukraine. The ban includes most fish products.

The ban has most strongly impacted EU Member States for whom the Russian Federation is a traditional market. The best example may be smoked canned sprats from Latvia where the Russian Federation was the primary market, but other pelagics and farmed salmon have also been affected. Exporters have in some cases seen decreased market prices for their products as alternative destinations such as the Ukraine are more price-sensitive.

One of the intended outcomes of the ban is increased Russian production of agricultural and food products. Russian fisheries production has indeed been increasing, though this has more to do with on-going changes in the Russian fleet and the status of the fish stocks they target.

Recently the Russian government announced an extension of the embargo until the end of 2018.