

Korea

Developments in fisheries and aquaculture policy, 2015-16

- In 2016, Korea adopted a five year master plan (2016-2020) for the development of fisheries related industries and fishing villages. The plan supports the sustainability of fisheries, food safety and fishing communities. The new integrated plan aims to increase policy effectiveness, by harmonising previously fragmented plans.
- The government's support to the fisheries sector in 2015 was KRW 482 billion (USD 426 million), a 29% decrease compared with the 2009-2011 average. Support policies for the sector continue to provide low interest loans to small fishers to secure their businesses, and vessel decommissioning to maintain fleet size at sustainable levels.
- In 2016, the vessel buyback programme underwent reforms. The government can now designate special vessel types which could deplete fisheries resources and require vessels demonstrating a history of illegal, unreported and unregulated (IUU) fishing to register for the programme starting in 2017.
- The government enacted the Fish Seed Industry Development Law in 2015 to develop the aquaculture industry and launched a pilot project to provide consultant services to fish seed businesses. An aircraft-mounted camera monitoring system, introduced in 2015, improved analysis and estimation of production and market prices.

Fisheries and aquaculture statistics in Korea

Value of production

in global context

USD 5 444 million

Total value of fisheries and aquaculture



2.9%

Share of global fisheries landed value

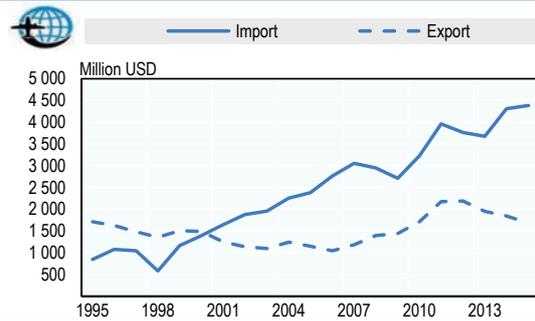
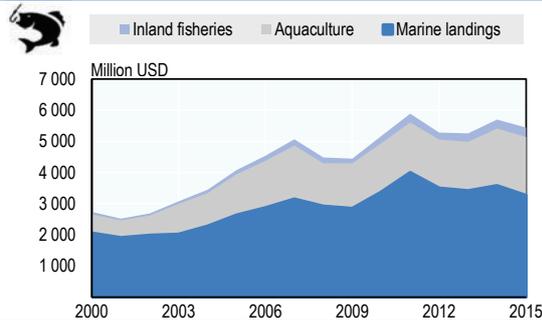


0.9%

Share of global aquaculture production value

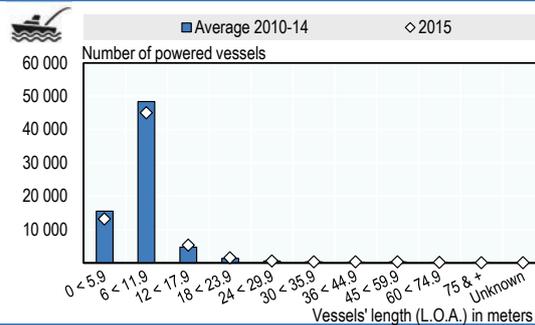
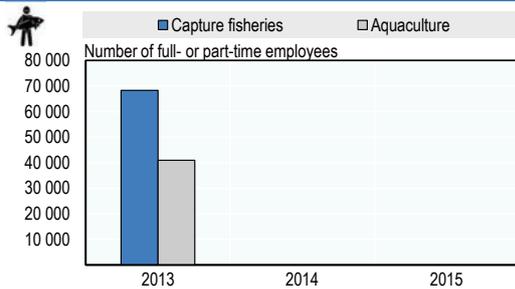
Trends in production value and trade

Total production value in USD decreased at an annual average rate of 1.9% between 2011 and 2015



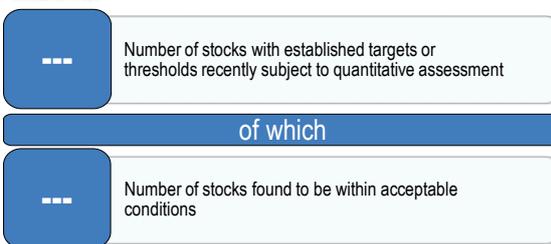
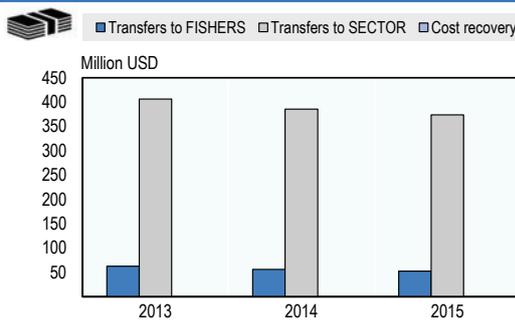
Employment and fleet

Total number of the fleet decreased by 8.5% in 2015 versus the average in 2010-2014



Government support and resource management

88% of total budgetary support was directed to management of resources in 2015



Note: Reference year is 2015. The 'Transfers to SECTOR' numbers reported here include estimations for management and enforcement expenditures, where missing.

Source: OECD Fisheries Database. World's total values of production for catch and aquaculture were sourced from the *FAO Yearbook, Fishery and Aquaculture Statistics, 2015*. Both numbers have been corrected adding the value of seaweed production; aquaculture has also been adjusted to account for the value of Chinese production reported to the OECD.

Policies and policy-making

Newly implemented master plan encourages inclusive development of fisheries, aquaculture and fishing villages

Korea has focused on sustaining and restoring fisheries resources, creating business value, and revitalising fishing villages during the review period. To achieve these goals, a five-year master plan for the development of fisheries, fisheries related industries and fishing communities was established in 2016.

The master plan (2016-2020) is an integrated approach which provides a comprehensive package of policies. Previously, two individual basic plans included fisheries-related strategies:

- a fisheries development plan;
- an agriculture, fisheries, rural community and food industry development plan.

The divided policy framework engendered difficulties in the implementation and monitoring of fisheries policies. The fisheries development plan did not cover the processing and distribution industries. The latter could not provide tailored policies to fisheries sector. For these reasons, the new master plan was launched to broaden the scope of fisheries policies for inclusive development.

The objectives of the master plan include a stable supply of fish products, guaranteeing food safety and revitalisation of fishing villages. Research for assessment and predictions of fish stock status have been developed based on this plan. Aquaculture was promoted to enhance productivity through the introduction of information and communication technologies to aquaculture industries. Monitoring of ocean health in aquaculture areas and a place-of-origin indication system were strengthened for food safety. Lastly, the government encourages multi-sectoral development of fishing villages to increase income and support rural revitalisation. Fishing communities will be guided to combine their fisheries outputs with other local resources such as natural landscapes, specialty food products and cultural traditions to attract tourism.

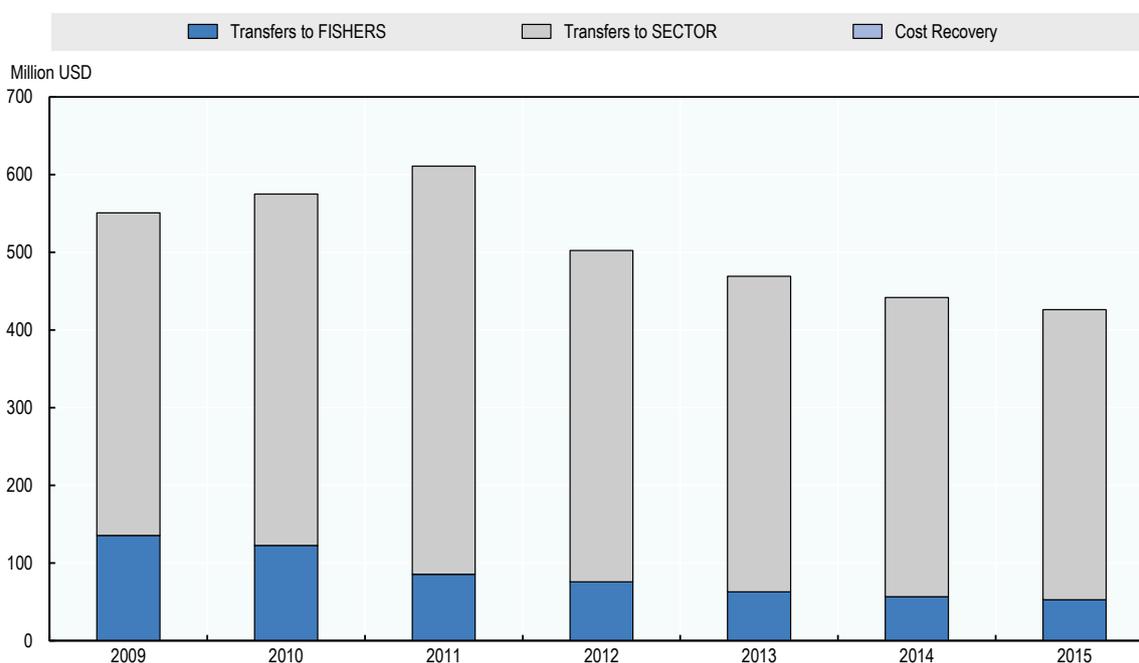
Policies continue to allocate support for vessel decommissioning and secure small-scale fisheries businesses

According to the OECD Fisheries Support Estimate (FSE) database, Korea's FSE in 2015 was KRW 482 billion (USD 426 million). The total FSE decreased by 29% compared with the 2009-2011 average. FSE numbers reported here include estimates for management and enforcement expenditures, where missing.

In 2015, FSE includes transfers to individual fishers of KRW 60 billion (USD 53 million) and transfers to the fisheries sector of KRW 422 billion (USD 373 million). The latter supported providing management and enforcement services. As for transfers to individual fishers, the government continues to allocate support in two programmes;

- A vessel buyback programme for which KRW 23 billion (USD 20 million) was spent on vessel decommissioning;
- And a programme supporting low-interest loans for fishers. The purpose of the programme is to secure small-scale business in fisheries sector. KRW 37 billion (USD 33 million) was spent on relieving the financial burden on fishers.

Figure 4.36. Budgetary support to fisheries in Korea, 2009-15



Note: The 'Transfers to SECTOR' numbers reported here include estimations for management and enforcement expenditures, where missing.

Source: OECD Fisheries Database.

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Policies to reduce fishing capacity and protect fish resources are progressively implemented

Based on acceptable biological catch thresholds, a TAC scheme is applied for 11 species: mackerel, squid, red snow crab, blue crab, red crab, horse mackerel, sandfish, comb pen shell, purple Washington clam, mottled skate, and turban shell. In 2015, total TAC amounts (392 000 tonnes) decreased by 5.5% from amounts (415 000 tonnes) in 2014. The government held a consultation with fishers to explain the methodology behind setting TAC targets and as a way to mitigate potential conflict. The TAC system is designed to allocate quotas to each fish species based on historical catch records.

In 2015, the government tightened protections for fingerlings and brood stocks during spawning. The number of species concerned by the new size restriction increased from 31 to 40. Species limited during closing seasons increased from 33 to 40. New fishing permits are prohibited and licensed fishing vessels are now banned from increasing their size to better control fishing efforts in coastal areas.

The voluntary vessel buyback programme, set up in 1994, was revised in 2016 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 IUU fishing to the programme as of 2017.

The government established the Management of Bycatch Order in 2015. According to the order, bycatch reduction devices have been mandatory for special types of vessels showing high levels of bycatch. The order prescribes specific size, shape, and the way of attachment of bycatch reduction devices, depending on the vessel type.

Fishers often use illegal fishing gears and throw fishing gears into the ocean. These abandoned fishing gears destroy marine ecological systems and can cause accidents by trapping ships. Government initiatives to solve this issue led to the submission of the Fishing Gear Management Bill to the National Assembly in 2016. The bill needs the approval of the National Assembly to be enacted. If the Bill is enacted, manufacturers and vendors of fishing gear will be required to enrol and fishers must report the number of fishing gears used. Disposal of fishing gears into the ocean will be banned.

The main fisheries, by value of landing are anchovy, mackerel, and squid. They are managed using a combination of input and output controls (Table 4.12).

Table 4.12. Management tools by major species, Korea

Anchovy	
Management goals	Managing the number of fishing permits
Output controls	No control over output
Input controls	The issuance of new fishing permits is prohibited. Night fishing (anchovy boat seine) is prohibited and anchovy fishery is closed for one month in the period between April 1 and June 30.
Mackerel	
Management goals	Managing the volume of catch with the aim of achieving MSY
Output controls	A TAC limit was set at 122 000 tonnes in 2015. This volume was assigned to individual vessels on the basis of fishing records over the past three years (2012 to 2014).
Input controls	The issuance of new fishing permits is prohibited. Night fishing is banned for large-scale commercial fishing vessels and fishery is closed for one month in the period between April 1 and June 30. Fishing of mackerels smaller than 21 cm is prohibited.
Squid	
Management goals	Managing the volume of catch with the aim of achieving MSY.
Output controls	A TAC limit set at 186 000 tonnes in 2015. This volume was assigned to individual vessels on the basis of fishing records over the past three years (2012 to 2014).
Input controls	The issuance of new fishing permits is prohibited. The use of trawls is banned in certain areas. The fishery is closed between April 1 and May 31.

Aquaculture fish seed industry set a framework for development

Korea promotes the aquaculture industry as a means of maintaining production growth aligned with demand. As fish seed is an essential factor for aquaculture, the government enacted the Fish Seed Industry Development Law in 2015. Based on the law, five year master plans and annual plans for implementation will be established. To balance demand and supply of fish seed, the government can monitor facility capability, output, global market situation and share information to the public. Also, the law introduces the system of fish seed improvement: setting a measurable goal for important seeds and designating a responsible agency to achieve the goal, registering system of female brood fish that have desirable characteristics such as fast growth and resistance to disease, the broodstock rental and exchange system between public owners and private properties.

In 2015, the government started a pilot project to sponsor consultant services to fish seed businesses. Services include all fields relating to operating business, such as rearing broodstock, nutrition, disease, marketing, cost reduction, and replacing fish species. In

2017, outcomes of the project will be analysed and a decision on whether to expand the sponsorship of such services will be taken.

Since 2004, the government has provided monitoring and outlook data for produce and market prices for 14 species to fishers, distributors, and consumers. Fishers can adjust their production based on this system. Price information is also shared among fishers, dealers, and consumers which increases transparency and stabilises prices for all transactions. For the outlook, monitoring aquaculture facilities in ocean previously relied on satellite data, but aircraft-mounted cameras were introduced in 2015 to provide more accurate estimations of production. The data also is used as a basis for fishing grounds management and policy-making such as monitoring illegal facilities, and decisions on the issuance of new licences.

Negotiations are underway on four new international co-operation agreements

No trade agreements have been signed during the review period, but four agreements are under negotiation to reduce or eliminate tariffs on fisheries products:

- a free trade agreement between the Republic of Korea, the People's Republic of China and Japan;
- a Regional Comprehensive Economic Partnership between the 10 member states of the ASEAN;
- a free trade agreement with Central America; and
- a free trade agreement with Ecuador.

Regional Fisheries Management Organisations (RMFOs):

- Asia-Pacific Fishery Commission (APFIC)
- Northwest Atlantic Fisheries Organization (NAFO)
- Fishery Committee for Eastern Central Atlantic (CECAF)
- Western Central Atlantic Fishery Commission (WECAFC)
- Southwest Atlantic Fisheries Organization (SEAFO)
- Southern Indian Ocean Fisheries Agreement (SIOFA)
- South Pacific Regional Fisheries Management Organization (SPRFMO)
- North Pacific Fisheries Commission (NPFC)
- International Commission of Conservation of Atlantic Tunas (ICCAT)
- International Ocean Tuna Commission (IOTC)
- Commission for the Conservation of Southern Bluefin Tuna (CCSBT)
- Western and Central Pacific Fisheries Commission (WCPFC)
- Inter-American Tropical Tuna Commission (IATTC)
- International Whaling Commission (IWC)
- Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)
- Central Gering Sea Pollock Convention (CBSPC)
- North Pacific Anadromous Fish Commission (NPAFC)

Health of the sector

Between 2011 and 2015, production from marine landings decreased annually by 3.7%, while aquaculture production increased by 3.2%

Figure 4.37 shows trend values and volume of fisheries production since 1995. There is a sharp decline in graphs between 1999 and 2000, because data for marine landings in foreign ports has not available since 2000.

In 2015, the total value of production from marine landings, aquaculture, and inland fisheries was KRW 6.2 trillion (USD 5.4 billion). The total value decreased at an annual average rate of 1.4% between 2011 and 2015.

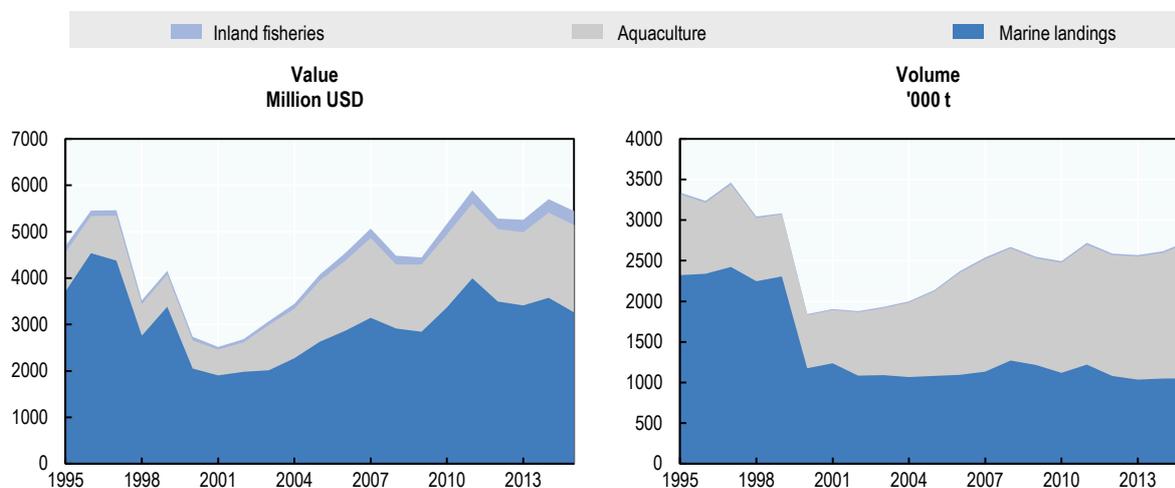
Each sector shows slightly different trends in 2011-15. The value of marine landings decreased to KRW 3.7 trillion (USD 3.3 billion) in 2015, at an annual average rate of 4.4%. Aquaculture production value increased to KRW 2.1 trillion (USD 1.9 billion), at an annual average rate of 4.5%. The value of inland fisheries increased to KRW 341 billion (USD 302 million), at an annual average rate of 2.2%.

The total volume of fisheries production from three sectors recorded in 2015 amounted to 2.7 million tonnes: marine landings 1 million tonnes (38%), aquaculture 1.7 million tonnes (61%), and 23 921tonnes (1%).

Between 2011 and 2015, production of marine landings decreased at annual average rate of 3.7%, due mainly to the lower production of anchovy, and squid. Aquaculture production annually increased by 3.2% and this was driven by growth of production from laver, a species used in the production of *gim*, a seaweed wrap similar to paper and used in sushi and snacks.

The export value of fisheries products totalled USD 1.7 billion in 2015. It decreased at an annual average rate of 6% between 2011 and 2015. Mainly, tuna, laver, oyster and squid were exported. Meanwhile, import value increased to USD 4.4 billion in 2015, at an annual average rate of 2.5% in 2011-15. Major import products were pollack, shrimp, long-arm octopus and salmon.

Figure 4.37. Fisheries and aquaculture production in Korea, 1995-2015



Note: Aquaculture and inland fisheries volumes are expressed on a live weight basis; marine landings in landed weight. Volumes reported provide an indication of production magnitude and trend. Data may be heterogeneous and not directly comparable.

Source: OECD Fisheries Database.

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The number of vessels has diminished over the past five years, but people have started returning to fishing villages

In 2015, the fleet totalled 67 226 vessels: 0 to 5.9m (19%), 6 to 11.9m (67%), 12 to 17.9m (8%), 18 to 23.9m (2%), and others (4%). When compared to the average total number of the fleet between 2010 and 2014, the number decreased by 8.5% in 2015. In 2015, the gross tonnage of fleet (544 626 tons) decreased by 9.5% during the same period. The decline was mostly attributed to the reduction of vessels in length 6 to 11.9 m.

The vessel buyback programme and control of issuing on a new fishing license influenced this decline. The reduction of gross tonnage influenced the increase of productivity per ton and this improved profitability of operating fisheries businesses.

Total employment reached 109 311 persons in 2013, an increase of 0.03% from 2011. Workers in the harvest sector decreased by 7.6%, while workers in aquaculture sector increased by 12.8%. This trend may be caused by simpler penetration of land-based aquaculture industry by workers, while capture fisheries remain competitive due to exclusive fishing rights.

In 2015, the government launched a new system to monitor those households returning to the fishing industry or fishing villages. This is based on the Law of the Promotion on Returning to Agriculture, Fisheries and Rural Areas, enacted in 2015. The statistics shows that in 2015, the households returning to fisheries industry (991) increased by 8.1%. They totalled 917 in 2014. The average age of those who return is 50 years. The households resettling rural areas, including farm areas and fishing areas, increased by 6%, from 299 357 in 2014. People returning to rural areas are 40 years old on average. Coastal

areas seen revitalisation due to new business opportunities based on the use of various local resources such as fisheries products, landscapes, festivals, culture, and leisure spots.

Areas for ecosystem restoration expanded

Ocean desertification areas, where fish resources cannot live with lack of marine plants, are spread around southern part of Korea. These are caused by the rise of sea temperatures, inflow of land based pollutions, and etc. To restore marine resources habitat, the marine ranching project and the marine afforestation project began in 2009. The government set a target to build 50 marine ranching areas by 2020. As of 2016, 14 were completed and 26 areas were under construction. The marine afforestation project, aims to plant 54 000 ha by 2030. As of 2016, 12 208 ha were completed. In 2001, the government started to designate Marine Protected Areas (MPAs) to protect and restore coastal ecological system and has continued to expand MPAs. As of 2016, there were 26 MPAs, including 4 newly-designated MPAs in 2015 and 2016.

Institutions and authorities

The Ministry of Oceans and Fisheries is responsible for fisheries and aquaculture policy formulation. Four government bodies contribute policy implementation:

- The National Fisheries Products Quality Management Service (NFQS) is in charge of quarantine and inspection of fish and fish products.
- The National Institute of Fisheries Science (NIFS) leads research and development of the sector.
- The East Sea and West Sea Fisheries Management Services (ESFM and WSFM) monitors illegal fishing and guides safe fishing.
- Eleven Regional Offices of Oceans and Fisheries manage the implementation of laws and regulations.

More information can be found at www.mof.go.kr/english/index.do.



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