

**FISHERY COUNTRY PROFILE**

**Food and Agriculture  
Organization of the United  
Nations**

**FID/CP/IRN**



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**PROFIL DE LA PÊCHE PAR PAYS**

**Organisation des Nations Unies  
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l'agriculture**

**RESUMEN INFORMATIVO  
SOBRE  
LA PESCA POR PAISES**

**Organización de las Naciones  
Unidas para la Agricultura y la  
Alimentación**

**THE ISLAMIC REPUBLIC OF IRAN****GENERAL GEOGRAPHICAL AND ECONOMIC DATA**

Area:	1 648 000 km <sup>2</sup>
Water area:	12 000 km <sup>2</sup>
Shelf area:	196 000 km <sup>2</sup>
Length of continental coastline:	2 700 km
Population (2003):	68 920 000

GDP current (2003):	US\$ 137.1 billion
GDP per head (2003):	US\$ 2 010
Agricultural GDP (2003):	11.3% of GDP

**FISHERIES DATA**

<b>Data for 2003</b>	<b>Production</b>	<b>Imports</b>	<b>Exports</b>	<b>Total supply</b>	<b>Per capita supply</b>
	tonnes liveweight				kg/year
Fish for direct human consumption	401 087	34 156	18 580	416 664	6.1

Fish for animal feed and other purposes	39 748				
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<b>Estimated Employment (2003):</b>	
(i) Primary sector (including aquaculture):	156 470
(ii) Secondary sector:	234 705
Gross value of fisheries output (2002):	US\$ 394.2 million
Trade (2003):	
imports:	US\$ 80 573 000 17 541 t
exports:	US\$ 68 999 000 90 958 t

## FISHERY SECTOR STRUCTURE

### Overall Fishery Sector

#### Structure and characteristics of the industry

The long Iranian coastline, coupled with a diversified climate in the land area suitable for various type of aquaculture system, makes Iran the biggest fishing nation in the region. There are three categories of fisheries activities in Iran: the southern Fishery; the northern Fishery (the Caspian Sea); and inland fishery and aquaculture. In 2003, these produced 299 000 t, 32 000 t and 110 000 t, respectively. Catch from wild natural resources is very limited due to overfishing, pollution and illegal fishing. Attempts are in progress to improve matters through a fish stock enhancement programme, conservation, fishing management and a buy-back scheme for reducing the number of existing fishing licences.

In contrast, aquaculture is very promising due to the vast areas suitable and diverse climate conditions.

#### Southern fisheries

Total fish landings in southern Iran have been almost stable since 1989, with a recorded 282 319 t in 2003, comprising demersal species (61 271 t), big pelagics (142 065 t), small pelagics (15 197 t) and other (11 573 t, including discards and by-catch). Purse seine fisheries for tuna fishes in the Indian Ocean have been expanded, and in 2003 landed 11 830 t. Trawl fishing outside Iran coastal areas has also increased, with more than 2 000 t landed in 2003.

#### Northern fisheries

Total landings along the Iranian portion of southern Caspian coast reached 32 500 t, including sturgeon (463 t), kilka (15 500 t) and bony fishes (16 573 t) in 2003. The bony fishes include kutum (*Rutilus frisii*; locally called "white fish"), mullets, carp, pikeperch, breams, herrings, mullet and a few others. Harvesting of sturgeon resources are controlled exclusively by the Fisheries Research Organization in collaboration with the Deputy for Fishing and Ports Affairs. Kilka resources have been exploited totally by the private sector, operating motorized vessels equipped with conical nets and light attractors.

### **FISHING PRODUCTION MEANS**

Industrial and semi-industrial fishing fleets owned by private enterprises carry out almost all fisheries in the Gulf and the Gulf of Oman. The main fishing gears used include drift gillnets, wire traps (local name: *gargoor*), longline, shrimp trawl, angling and beach seine, purse seine and some other traditional forms, such as set nets and set barrier nets. Many boats use a combination of fishing gear. In 2003, there were 62 steel-hulled trawlers, 3 011 wooden vessels and 6 764 outboard-powered small boats active in commercial fishing.

Fishing operations in the Caspian Sea are carried out with a fleet of about 750 wooden vessels (dhow type). Beach seine fishermen catching bony fish species are organized into about 150 working groups or cooperatives (2003 data). Three types of fishing gears are used in the Caspian Sea, including beach seine (*pareh*) for bony fishes along the coastline; lift net (conical net with light attraction) for kilka (a small pelagic fish similar to anchovy); and set gillnet for sturgeon. Fishing for sturgeon is restricted to the state-owned company due to conservation concerns.

### **MAIN RESOURCES**

Gulf fish resources are mainly shared stocks with the other coastal states. There is no EEZ in this area and conflicts over fishing areas are frequent. Demersal species have a better chance of management by the states in the region because of their localized distribution, but migratory species are exploited without effective controls.

Despite lack of recognition of EEZ in the Gulf of Oman, there are no conflicts. The continental shelf is narrow (within 12 nautical miles from the coast) and deep sea fisheries have their own tradition; no one complains about others' activities in the area. Since 1998, deep sea fishing by artisanal fishers has developed and Iran's share of tuna resources in the NW Indian Ocean increased from 5% in 1995 to more than 12% in 2003.

In the Caspian Sea fisheries, the situation is similar. The valuable sturgeon are migratory species and have no specific fishing ground. Despite huge investment in stock enhancement by Iran, neighbouring states exploit the resources with no reciprocal investment. This holds true also for the valuable bony fishes like kutom, carps, mullet and others. Annually, more than 250 million fingerlings are released to the southern Caspian Coast under the Iranian Stock Enhancement Programme, and fishers enjoy the returns in the form of mature fishes. Recently, with the intervention of CITES, other states of the Caspian Sea have been encouraged to establish the same programme for stock enhancement and protection. Unofficial reports indicate that similar catches are taken by other coastal nations in the Caspian Sea.

### **MANAGEMENT OF THE MAIN FISHERIES**

Although total landings have increased, catches of certain preferred species, such as sturgeon and kilka in the Caspian Sea, and shrimp, silver pomfret and demersal species in the Gulf, have declined dramatically in the last decade. Fisheries legislation is in place, but

compliance has been limited. Despite huge investments by government in conservation and surveillance activities, illegal fishing methods are still common. Like many other nations, Iran has overcapacity in its fleet and fishing capacity, resulting in too many fishers chasing limited wild fish resources, while simultaneous political, social and economic pressures exist for further expansion of fishing effort. It is extremely difficult to make management decisions and proper action on resource allocation between competing user groups. In addition, environmental challenges continue, with extremely high water temperatures in summer, and environmental degradation from dredging, land reclamation and dam construction on the southern coast of the Caspian Sea.

Each coastal state in the Gulf has their own legislation for fisheries management in place, but the Regional Commission for Fisheries (RECOFI) – the only regional body for fisheries management in the Gulf and the Gulf of Oman – has not been successful yet in harmonizing fishery measures in the area. Overfishing and overcapacity exists in the area, yet there is no arena to negotiate a balance between fishers and living marine resources.

In order to protect fish resources in the Gulf, the Iranian government recently launched a buy-back scheme for vessels engaged in bottom trawl fishing, which led to a substantial reduction in the number of steel-hulled vessels. Shrimp fisheries are open in each province ( Bushar, Hormozgan, Khozistan) only on 45 days/year. If the CPUE below a certain level, the fishery will be closed.

In 2001, a jellyfish, *Mnemiopsis leidyi*, origin

ating from South America, affected marine resources of the Black Sea, and from there it spread to the Caspian Sea and was identified by Iranian scientist in early 1999. This species feeds on the larvae and eggs of kilka and other fishes, which has had a negative effect on kilka resources. Catches fell from 95 000 t in 1999 to 15 500 t in 2003, although there are some signs of recovery.

In order to promote sustainable exploitation of the fish resources of the Caspian Sea, a number of preventive measures were taken, but lack of communication and collaboration among the coastal states has led to difficulties. Although official landings of sturgeon and bony fishes have reduced, illegal fishing has increased. Despite lack of proper management in the Caspian Sea, big investments have been made unilaterally through a buy-back scheme (purchasing issued fishing licences) in Iran to eliminate further erosion of the resources. Gillnet fisheries for bony fishes by the private sector are banned, because of its negative effect on the resources, especially sturgeon. In another programme in 2002, parliament gave permission to the government to reduce the kilka fishing fleet in the Caspian Sea, and about 40 vessels were bought back as their licences expired in 2003.

To counteract the reduction in sturgeon resources in the Caspian Sea, a stock enhancement programme was started in 1973, and since then millions of fingerlings have been released to the sea. In 2003, more than 13 million post-larval (>45 days) indigenous shrimp species were released in the northern side of the Gulf and more than 220 million fingerlings of various fish species released to the southern Caspian Sea under rehabilitation programmes. From monitoring of landings, it is apparent that some species, including Persian Sturgeon, Caspian salmon and Kutum, derive *inter alia* from the rehabilitation programmes. Table 1 shows numbers of fingerlings released to the Caspian Sea between 1992 and 2002.

**Table 1. Releases of fingerlings (millions) to the Caspian Sea for fish stock enhancement, 1992–2002**

Species	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Sturgeon	2.93	3.57	4.66	8.05	11.02	18.75	22.59	19.10	18.27	20.00	19.60
Kutum	144.7	100	142.7	117.9	142	154	143	148	147	232	225
Caspian salmon	0.36	0.33	0.64	0.80	0.42	0.34	0.51	0.50	0.64	0.36	0.34
Bream	5.93	5.52	10.40	11.20	8.40	12.90	13.80	14.20	14.30	15.50	16.50
Perch	2.44	1.16	2.88	2.27	2.41	5.43	3.61	4.00	4.00	7.40	5.50
Sea carp	0	0	0	0	0	6.50	24.00	9.00	32.00	17.90	7.60
Barbus	0	0	0	0	0	0	0	0.30	0.70	2.00	0.15
Caspian roach	0	0	0	0	0	15.80	13.90	10.70	16.20	19.10	12.23
Total (rounded)	156	111	161	140	164	214	221	206	233	314	314

## FISHER COMMUNITIES

### Inland Subsector

Lakes, reservoir and pools with a total area of 1.5 million hectares provide a huge capacity for freshwater aquaculture in Iran. Among them, some 489 water bodies with an area of 0.5 million hectares have good potential for aquaculture and sports fishing. At present, some 514 000 ha of natural and semi-natural water bodies are used for production.

Extensive culture systems are practised in inland lakes, dams and agricultural reservoirs, especially along the Caspian coast of Iran, mainly with artificial fish stocking, utilizing government funds with fishermen's participation. In 2003, more than 23% of the total warm-water aquaculture production came from reservoirs and natural and semi-natural waters. Most of the reservoirs are stocked mainly with Chinese carp (common carp, silver carp, bighead carp and grass carp). Figure 3 shows fish production trends for aquaculture and inland fisheries. In 2002, to conform to the FAO statistical guidelines for data collection, there was a change in categories, as a portion of the production from inland waterbodies was now classed as aquaculture.

Aras Dam in west Azerbaijan Province, Hamon Lake in Sistan and Baluchistan, Hoor-al-Shadegan and Hoor-al-Hovize in southern Khuzestan are the main large waterbodies for fish stocking and inland fisheries.

### Recreational Subsector

In Iran, recreational fisheries focus on freshwater ornamental fish breeding and distribution. There are over 800 people involved in this business, with a turnover of more US\$ 15 million. There are at least 85 different species currently bred in Iran. It is planned

to expand the business by importing annually five new species to be bred and distributed in the country. The main producing cities are Kashan, Tehran, Arak and Gilan. It is expected (Iran's 4th Five-Year Plan) that employment in this subsector will double, turnover will double to US\$ 30 million and production expand to include 115 species in the Plan period.

Sport fishing in Iran is not popular and is not recognized as a business or commercial activity.

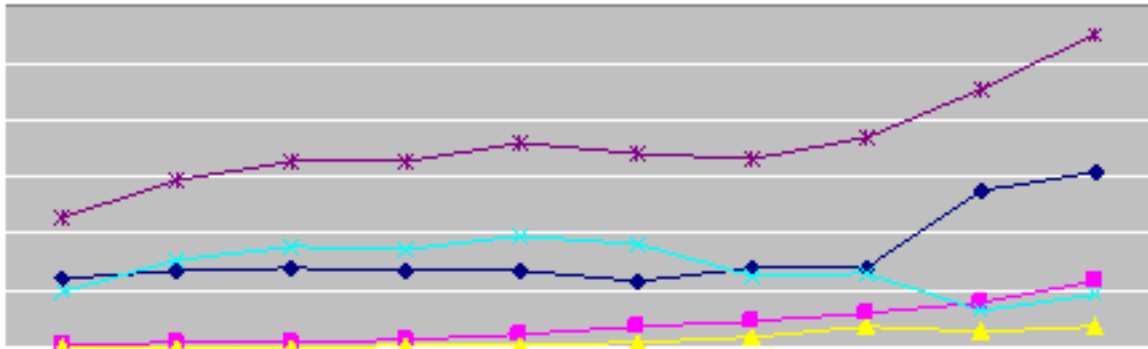
### **Aquaculture Subsector**

The production of farmed fish has risen constantly since 1985, and expanded rapidly due to suitable environmental conditions and climate diversity in Iran. Inland fisheries extend to over 1.5 million hectares. Rivers, natural lakes, artificial reservoirs, irrigation canals, aqueducts and ponds are used for fish culture, organized as fish farms. The most popular species are pikeperch, salmon, rainbow trout and Chinese and common carps. Recently, sturgeon, barbus (Benni) and grey mullet have aroused interest from government and private enterprises for potential aquaculture use. Since 1968, when the first hatchery was established, significant progress has been made in aquaculture development. Every year, more than 360 million fingerlings of various species are released into water bodies, primarily the Caspian Sea for fish stock enhancement. In 2003, aquaculture was 91 700 t up from 31 800 t in 1999. Species were shrimp (7 500 t), trout (23 000 t) and carps (60 000 t).

Shrimp culture (*Penaeus indicus*) started in 1995, and expanded rapidly to more than 2 000 ha in four southern provinces in 1999. In 2003, shrimp production exceeded 7 500 t from 3 590 ha of coastal ponds along the Iranian coast of the Gulf and the Gulf of Oman. In order to provide post-larvae for shrimp culture, some 32 modern hatcheries have been constructed and were in operation in 2003, but sited distant to farm sites because of pollution consideration. Expansion of shrimp culture has been very rapid and investors from the private sector are waiting for permits.

Recently, special care and emphasis is being placed on the development of sturgeon culture (cold- and warm-water species) along the Caspian coast; rainbow trout in the central and western parts of the country; and shrimp along the coast of the Gulf and Gulf of Oman.

### **Figure 1. Fish production (tonnes) from inland waters in Iran, 1994–2003**



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## POST-HARVEST USE

### Fish Utilization

Fish consumption in Iran is very low. Per capita consumption was only 1 kg in 1980, and had reached only 6.12 kg in 2003. Inland communities have no tradition of fish eating and prefer other sources of animal protein. Coastal communities prefer fish. Very little data are available on processed fish, which is a minor activity, with the exception of canning, which has been increasing. Processing plants have developed alongside increased shrimp catches for export, and most of the shrimp plants have EU certification and the potential to export their product to any market.

### Fish markets

Fish marketing and distribution is poorly developed. In 1998, the Iranian Fisheries Organization created a new position in its organization for directing and improving fish marketing in Iran. Since then marketing has become a major priority in fisheries development. Most people in Iran live in central cities and have beef and chicken in their diet rather than fish or fisheries products. The type of food they usually cook and their culture has harmonized with red meat. Fish is of little interest, even having a negative image in some parts. Therefore, changing the diet and eating habits of people in these areas requires long-term planning and significant investment.

The main international market for Iranian fish and fish products is Europe, especially through Spain. There have been some recent attempts to enter the Japanese and the USA markets, but quantities are small.

### Table 2. Fisheries processing industry capacity in the coastal area, 1995-2003

	1995	1996	1997	1998	1999	2000	2001	2002	2003
Canning (million cans)	150	203	203	203	203	321	364	374	446
Fish plant (t/day)	500	600	625	1030	1020	1110	1200	1230	960
Freezing (t/day)	83.3	83	81	78.5	103	94.6	96	102	105

## FISHERY SECTOR PERFORMANCE

### **Economic Role of Fisheries in the National Economy**

Fisheries is a minor component in the national economy, being 0.23% in 2002. Fisheries income in the agricultural sector is about 2.2% of total agriculture value. Although there is potential for fishing and aquaculture, the market is not ready for fish consumption and,

culturally, fish is not acceptable in many populated area, especially in the central cities.

## **Demand**

A major objective of national policy since 2000 has been to increase annual per capita fish consumption in non-coastal cities in Iran, with a target of 10 kg in 2009. Exports of seafood are allowed only when there are adequate supplies to meet local demand, with the exception of some species, namely: shrimp, cuttlefish, squid, hair tail, catfish, lobster and of course caviar and sturgeon flesh that are export commodities. Because of the proximity of other states in the southern part of the Gulf, some other species, such as silver pomfret, Indian threadfin, seabream, snapper and grouper go to these markets without official permission and custom procedures. In 2003, the total value of recorded fishery trade was US\$ 139 million.

## **Supply**

The fisheries industry has shown substantial development in recent years, reflecting the privatization process implemented as part of the First Five-Year Development Plan (1986-1990). In 2003, fisheries production including aquaculture increased to 440 835 t. There was a sharp increase in fish landings from industrial fleets, attributable to the launching of the deep-sea fishing programme, whereby entrepreneurs were encouraged to venture into the deeper waters of Iran's coastal waters in the Arabian Sea and Indian Ocean to fish the big pelagic species, e.g. tuna. The tuna catch went from 54 415 t in 1997 to 119 248 t in 2003.

## **Trade**

Exports of sturgeon fish and fish products have fluctuated since 1989 due to decline and recovery of sturgeon stocks. After an increase from US\$ 49 million in 1989 to US\$ 63.5 million in 1990, it decreased to US\$ 52 million in 1994 and to US\$ 45 million in 1995 (mainly due to reduced caviar production). Since then, there has been a steady increase, to US\$ 55.5 million in 1999 and then back to US\$ 32.7 million in 2003. Caviar accounted for nearly 41% of fish exports in 2003, and shrimp culture has extended its position in non-oil exports of the country to more than 40%, worth US\$ 32.7 million, with a promising future for foreign exchange earning in the agricultural sector. In 2003, about US\$ 69 million of fish products, mainly fish meal, were imported to Iran, and about US\$ 80.8 million was exported, representing a sectoral positive trade balance of US\$ 11.6 million. The imported fishmeal is mainly used for poultry, and some for aquaculture.

## **FOOD SECURITY**

Fish production is concentrated in the remote areas of southern Iran, where the food security situation in the absence of sophisticated infrastructure is very important to the government. The expansion of aquaculture has therefore played a significant role in rural areas, where access to food is limited. Aquaculture provides both food security and job opportunities and so the fisheries industry has received government support. A fish consumption campaign was initiated in 1998 by the Fisheries Organization, focusing on inland urban areas, and it seems to have had a positive effect on the people's diet.

The 4th Iranian Five-Year Plan, which started in 2005, projects that fish consumption in Iran will increase from the 6.12 kg per capita of 2003 to 10 kg per capita in 2009. This will increase the share of fish protein in the people's daily diet from 1.7 g to about 3 g.

## **EMPLOYMENT**

The establishment of infrastructure facilities in coastal areas, as well as provision of services supporting the private sector, mainly small-scale fishermen, has contributed to better management and safer fishing operations. Employment in the fisheries sector, including fish farmers and fishers, exceeded 155 000 in 2003. The number of registered fishers in the Caspian Sea increased only slightly, from 11 600 in 1994 to 14 200 in 2003, due to resource limitations, but in the Gulf of Oman fisheries increased from almost 75 000 in 1994 to more than 125 000 in 2003, thanks to deep sea fishing developments and increased opportunities for artisanal fishers. In the same period, employment in aquaculture and inland fisheries increased from almost 11 000 in 1994 to more than 17 000 in 2003, and in the fourth development plan, with increased investment in aquaculture field, job creation in this field is projected to increase.

## RURAL DEVELOPMENT

Most government investment and expenditure in the fisheries subsector, especially in the south, is in remote areas. Fishing harbours and shrimp farming sites are located in coastal areas where there are no income-generation opportunities for the coastal communities apart from fisheries-related activities. Although the fisheries industry is relatively insignificant overall in Iran's economy, at a local level it can be very important, in terms of rural development and promoting community stability. Investment in fishery infrastructure, primarily harbours, was between US\$ 5 million and 8 million from, 1995 to 2001, but increased sharply to US\$ 14 million in 2002 and US\$ 28 million in 2003.

## FISHERY DEVELOPMENT SECTOR

Iran's future fisheries development plans aim to increase fish production, improve the welfare of fishers and farmers, promote exports, increase fish consumption and provide greater food security. The per capita availability and consumption of fish is expected to increase to 10 kg/year and production will have to increase proportionately.

Aquaculture is recognized as an important source to meet future fish demand. A number of schemes have been instituted by state and central sectors to increase brackish-water and saltwater aquaculture and fish production from cages and ponds, and freshwater production from lakes, reservoirs and rivers. The private sector has emerged as a major player in aquaculture investment, particularly in shrimp and warm-water farming.

Seafood export is now recognized as a major source of non-oil export earnings. In order to satisfy EU regulations, considerable central-government support has gone into schemes to provide infrastructure at fishing harbours and landing centres in order to improve fresh fish handling and provide sanitation and other support for high quality processing of fisheries products.

Shilat Iran, the Iranian Fisheries Organization, in line with local governments countrywide, developed its 4th Five-Year Plan for Fisheries, for 2005–2010. This plan expects to follow up on:

- Food security through increased of domestic fish production.
- Quality improvement and waste reduction in fisheries.
- Fish export promotion.
- Market improvement.
- Fish conservation and enhancement.
- Deep sea fisheries development.
- Improved aquaculture productivity.
- Expansion of applied research.
- Increased fish consumption.

Table 3. Aquaculture production projections in the 4th Five-Year Plan for Fisheries, 2005-2009

	2003	2005	2006	2007	2008	2009
Shrimp farming	7 492	14 110	23 800	32 300	40 500	47 200
Cold-water fish farming	23 138	35 000	40 000	46 000	51 000	59 000
Warm-water fish farming	79 545	106 527	129 158	153 806	173 314	208 206
Mariculture	0	800	1 500	2 900	4 400	7 000

Total	110 175	156 437	194 458	235 006	269 214	321 406
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It is expected that total annual fish production will increase from 442 000 t in 2004 to 810 000 t, in 2009. The main sources of production will be shrimp culture (about 47 000 t) and warm- and cold-water fish culture (about 274 400 t). In marine fishery, production is projected to increase to 488 400 t/year, deriving mainly from increases in high sea fishery (178 600 t), mesopelagics (16 000 t) and small pelagics (60 000 t).

Shrimp culture is a very promising area for potential production increases, and all the coastline in the south (Gulf and Gulf of Oman) and some of the northern coast (Caspian Sea) are suitable.

In the late 1970s and early 1980s, researchers, including a Norwegian team, investigated the feasibility of development of a commercial fishery for mesopelagic fishes in the northern Arabian Sea (Oman Sea). These studies indicated that such fishery might be commercially feasible, especially for *Benthosema pterotum* in the Gulf of Oman. Concentration of this species is usually divided into two deep daytime layers (upper level d1 and deeper layer d2). The d1 is centred about 150 m depth, while the d2 layer is more diffuse and is centred around 250 m depth. Using the most recent estimates, the maximum average catch rate in the d1 layer would be about 37 t/hour and potential annual maximum sustainable yield is 2.3 million tonne. The processing of this species shows that direct and indirect (fish meal or powder) consumption is possible. With the expansion of aquaculture and the poultry industry in Iran, the only available source of fishmeal would be lantern fish. In the Five-Year Plan, a 15 000 t catch of this species is indicated.

Table 4. Capture fisheries production projections in the 4th Five-Year Plan for Fisheries, 2005-2009

	2004	2005	2006	2007	2008	2009
Caspian Sea						

Kilka	15 497	5 000	5 000	7 000	8 000	10 000
Bony fishes	16 573	18 000	19 000	21 000	23 000	28 000
Sturgeon	463	400	400	400	400	400
Southern fisheries						
Demersals	105 841	104 600	104 700	104 800	105 400	107 000

Shrimp	7 855	7 200	7 300	7 400	7 600	8 000
Large pelagics	91 432	81 500	81 500	81 500	81 500	81 500
Deep sea species	69 000	93 500	130 500	152 000	166 500	178 500
Small pelagics	25 000	30 000	36 000	42 000	50 000	60 000
Mesopelagics	0	3 000	7 500	10 000	12 500	15 000

Total production	331 661	343 200	391 900	426 100	464 900	488 400
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## RESEARCH

The Iranian Fisheries Research Organization (IFRO), established in 1990, covers research activity. It has six affiliated centres situated on the Caspian Sea coast (Gilan and Mazandaran) and the Gulf and Oman Sea coasts (Khozestan for freshwater; Boushehr for Gulf Area; Hormozgan for Sea of Oman; and Chabahar for high seas fisheries).

The objective of IFRO is to perform scientific applied research relevant to aquatic organisms and their environment, to provide optimum protection for stocks, including promoting stock recovery, and sustainable exploitation from living aquatic resources in Iranian waters, as provided for in relevant legislation.

There is another research institute that is specialized in sturgeon resources of the Caspian Sea. The International Institute for Sturgeon Research encourages scientists from around the world to conduct research in Iran (Caspian Sea).

The Supreme Committee of Research is responsible for approving fisheries research projects in the country. The committee comprises university professors, representatives of executive departments of Iranian Fisheries Organization, and experienced researchers and experts.

Results from research projects pass to the Fisheries Organization for application, initially through pilot projects. The results are then transmitted to farmers, fishers and relevant industries by the extension services, using short training courses, workshops and guideline manuals. In this process, the Fisheries Organization training centres play a significant role in dissemination of results.

Since 2000, all research departments affiliated to the Ministry of Agriculture have been gathered into a single scheme under the Vice Minister of Agriculture for Research and Training.

Universities have an extensive capacity for research activities, but there is currently no systematic linkage between universities and industry. According to the 3rd Five-Year Plan, for joint projects with industry the Minister for Science, Research and Technology would grant 60% of funds for research projects against 40% coming from industry.

Since 1970, the Ministry of Science, Research and Technology has supported a Fisheries Science Course in Iran's University programme. At present, some eight state and twelve open universities offer B.S. courses, and four state and two open universities offer M.S. and PhD courses, in various field of fisheries and aquaculture sciences. Tehran University (in Tehran Province), Chamran (in Khuzestan Province), Tarbiat Modarres (in Mazandaran Province) and Gorgan (in Golestan Province) universities are prominent in this sector, and have the longest tradition in fisheries sciences.

In addition, the University of Applied Sciences offers fisheries training courses in two faculties located on the Caspian Coast (Rasht) and the Gulf (Boushehr). The University gives priority to practical topics to meet needs in fisheries industries. Training and Extension centres affiliated to the Fisheries Organization are another source for applied training courses for improving labour skills. These centres provide short training courses in various fields for both illiterate and literate farmers, fishers and industries, as well as for more advanced groups.

## AID

There is currently no direct foreign assistance for Iranian fisheries. UNDP and FAO have provided support for development of fishery in many ways, including shrimp culture, southern fisheries development, stock assessment, and by-catch reduction. Japan International Cooperation Agency (JICA) has been providing extension programmes for many years in the fisheries sector, and fisheries experts have benefited from the high level of training and technical support thus provided. In the past, there were various aid programmes to assist local fishermen. These have included training, equipment subsidies, equipment repair, cheap bank loans, and support for infrastructure, including roads, ports and cold storage facilities.

## FISHERY SECTOR INSTITUTIONS

The Iranian Fisheries Organization is responsible for fisheries development in Iran. The Organization was a state-owned company with power to act in various fields of fisheries (catching, processing, marketing, etc.). In early 2005, with the aim of monitoring fisheries development and leading the subsector, the Iranian parliament approved a change and it became a governmental organization with a developmental function. The Organization has four General Directorates for fisheries in the south and three for the Caspian coast. The head of the Organization is the vice minister for Jihad Agriculture, with a mandate to lead fisheries development in all Iran. Fisheries departments in non-coastal provinces have an indirect relation to the Organization through the Jihad Agriculture Organization in each province.

IFRO was established in 1990 and is responsible for fisheries research activities. The head of the Fisheries Organization is a member of the IFRO Board and has indirect authority for identification and implementation of research projects. It has six affiliated centres, situated on the Caspian Sea coast (Gilan and Mazandaran) and the Gulf and Oman Sea coasts (Khozestan for freshwater; Boushehr for Gulf Area; Hormozgan for Sea of Oman; and Chabahar for high seas fisheries).

The International Institute for Sturgeon, located on the Caspian Coast, is responsible for research projects related to sturgeon biomass in the Caspian Sea, and tries to strengthen stocks and guide the Fisheries Organization in managing the resources.

The *Artimia* Research Centre, located in northwest Iran, is responsible for *Artimia* spp. shrimp research projects, and monitors and gives advice to the Fisheries Organization on management of the *Artimia* harvest in Orimia Lake.

## GENERAL LEGAL FRAMEWORK

The legal framework for the Iranian Fisheries Organization (Shilat Iran) derives from the *Protection and Exploitation of Natural Aquatic Resources Law* approved in 1995. On the base of that law, the Fisheries Organization prepared a Code of Practice, which was approved by the government council in 1999. The guideline indicates the authority of and clarifies responsibilities for four major related organizations: the Environment Organization; the Veterinary Organization; the Natural Resources and Forest Organization; and the Ministry of Energy (Department of Water Resources). According to the Code, a formal licence is required for construction and operation of aquaculture farms and fishing operations. Some traditional aquaculture activities, including some fish farming in irrigation canals and reservoirs (where aquaculture is not the major activity) are subject a much simpler requirement, namely a letter of approval from the nearest Fisheries office.