

**FISHERY COUNTRY PROFILE**

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

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**July 2005**

**PROFIL DE LA PÊCHE PAR PAYS**

**Organisation des Nations Unies  
pour l'alimentation et  
l'agriculture**

**RESUMEN INFORMATIVO SOBRE  
LA PESCA POR PAISES**

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

**GEORGIA****GENERAL ECONOMIC DATA - July 2005**

Area:	70 000 km <sup>2</sup>
Length of the coast:	315 km <sup>2</sup>
Inland waters area:	287 km <sup>2</sup>
Population (2003):	5.1 million
GDP (current) (2003):	US\$ 3.9 billion
GNI per caput (current) (2003):	US\$ 830
GDP fisheries (2003):	1.1 % of GDP

**FISHERIES DATA****Commodity balance (2001):**

	<b>Production</b>	<b>Imports</b>	<b>Exports</b>	<b>Total supply</b>	<b><u>Per caput supply</u></b>
	tons live weight				kg/year
Fish for direct human consumption	1,910	3,225	642	4,493	0.9

Fish for animal feed and other purposes	-	-	-	-	
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Employment (2004):	about 3 200
Trade (2003):	
Value of imports:	US\$ 2.2 million
Value of exports:	US\$ 362 000

## SUMMARY

Georgia is rich in hydrobiological resources. The Black Sea and the numerous rivers, reservoirs and lakes make the country suitable for marine and inland capture fisheries and aquaculture activities. The abundance of pelagic species such as anchovy and sprats in the Black Sea Exclusive Economic Zone (EEZ) of Georgia provides good opportunities for marine fisheries development. In 2003 total catches of anchovy in the Georgian EEZ reached 12 200 tonnes while total marine catch in the same area was estimated at 14 450 tonnes. As the total catch in 2001 and 2002 was much lower, at 9 300 and 7 770 tonnes respectively, it appears that the marine capture sector is developing rapidly. It should be noted however that more than one-third of the total catch in 2003 was achieved by foreign fleets from Ukraine and Turkey. Compared with these two countries the catch in the Black Sea in recent years by the Georgian fleet is of limited importance.

Georgia's marine fishing fleet is small. It consists of 36 medium-sized seiners (110-225 HP) which were all constructed during the Soviet period. No significant modernization of the fleet has taken place since independence in 1991 and many of the vessels are in a bad condition because of lack of funds for maintenance and repair. There are also an estimated 324 small-scale fishing vessels involved in coastal capture fishery activities; these are equipped with seine nets, gillnets, bottom lines, cast nets and fishing rods.

The catch in inland waters in 2004 increased slightly compared with 2003. In 2003 inland capture fisheries production was estimated at 388 tonnes, which increased in 2004 to around 400 tonnes. The productivity of most of the lakes and reservoirs is poor, since many of these have not been restocked with fingerlings over the last decade. Nevertheless, some lakes provide favourable conditions for increasing the production of trout and carp in particular. The area of the ponds, lakes and reservoirs currently being restocked by six hatcheries and 81 farms with fingerlings is estimated to be in the order of 3 200 ha. Total culture-based capture fisheries production may reach up to 1 000 tonnes of fish annually (among which an estimated 600 tonnes of common carp and 250 tonnes of grass carp). Total production of the 35 identified trout farms in the country was estimated at 120 tonnes in 2003, showing little signs of an increase in 2004. Aquaculture and culture-based capture fisheries production is constrained by lack of good-quality feed and fingerlings.

In recent years the fishery products processing plants located in Tbilisi, Kutaisi, Batumi, Sukhumi and Gagra have not been operational. In 2004, only two fishmeal plants and a number of small-scale artisanal workshops for curing fish were operational in Tbilisi and other cities. The marketing of fish on the domestic market takes place mainly through

some specialized fish markets in Batumi, Poti, Ureki and Mattakva and large food markets in the capital and other main cities. Supermarkets increase the diversity of fishery products for sale with a large variety of imported products, since there is consumer demand for value-added products that are not currently being produced in Georgia.

The volume of imports of fishery products in 1999 was 4 180 tonnes. This volume decreased considerably in 2000 and 2001 to just over 2 500 tonnes and increased again to almost 4 840 tonnes in 2003. Imports of fishery products in terms of value have increased steadily over the last few years, from US\$1.1 million in 1999 to US\$2 million in 2003. Over the last decade imports of fishery products by Georgia have always been higher than exports, but this has changed in recent years. In 2001 and 2003 exports in terms of volume were higher than imports. This is largely caused by the fact that Ukrainian and Turkish fleets catch anchovy in Georgian waters and land the fish in Turkey and in Ukraine. The catch of these fleets is thus registered as exports.

It is estimated that present consumption of fishery products is less than 2 kg (live weight equivalent) per capita per year. By comparison, during the 1980s the average per capita consumption of fishery products was stable at around 19 kg. Demand for fishery (including aquaculture) products is high, and is estimated to be even higher than the consumption levels of the 1980s; however, market supply of fish is limited and prices and quality do not correspond with demand.

Total employment in the fishery sector was estimated at 3 200 persons in 2004. The majority work in coastal small-scale fishing activities. Fishery sector research, education, training and extension are all currently being undertaken at very low levels. There is no education or specific training programme for capture fisheries and aquaculture. Fisheries research is only kept going by funds from foreign donors.

Georgia has ratified a number of international agreements on fisheries in the last decade. However, the lack of a fishery law, policy and planning has made it impossible to follow up on these agreements. In 2004 efforts were initiated to fill these gaps and the draft new fishery law and the present Master Plan are two examples of the Government's willingness to comply with international laws and agreements.

Improvements in the collection and analysis of fisheries statistics are currently being made by the Department of Fisheries and it is thus expected that the quality of fishery statistics will increase considerably over the next few years. Access to formal credit and investment sources for fishery and aquaculture entrepreneurs is lacking at present. No financial institution is willing or in a position to provide the credit services that are required for the sustainable development of the fishery sector.

International assistance to development in the Georgian fishery sector has been limited over the last decade since the Government did not prioritize the sector. It is hoped that this situation will change with the approval of the legal and policy framework for fisheries, including the new fishery law and the Master Plan. These will help bilateral and international donor agencies to identify the assistance needs of the sector.

## **FISHERIES AND AQUACULTURE IN GEORGIA IN THE PERIOD 1970-1990**

Over the period 1930-1990, the highest marine capture fisheries landings were recorded in 1980. In that year a total catch of 211 889 tonnes was recorded.

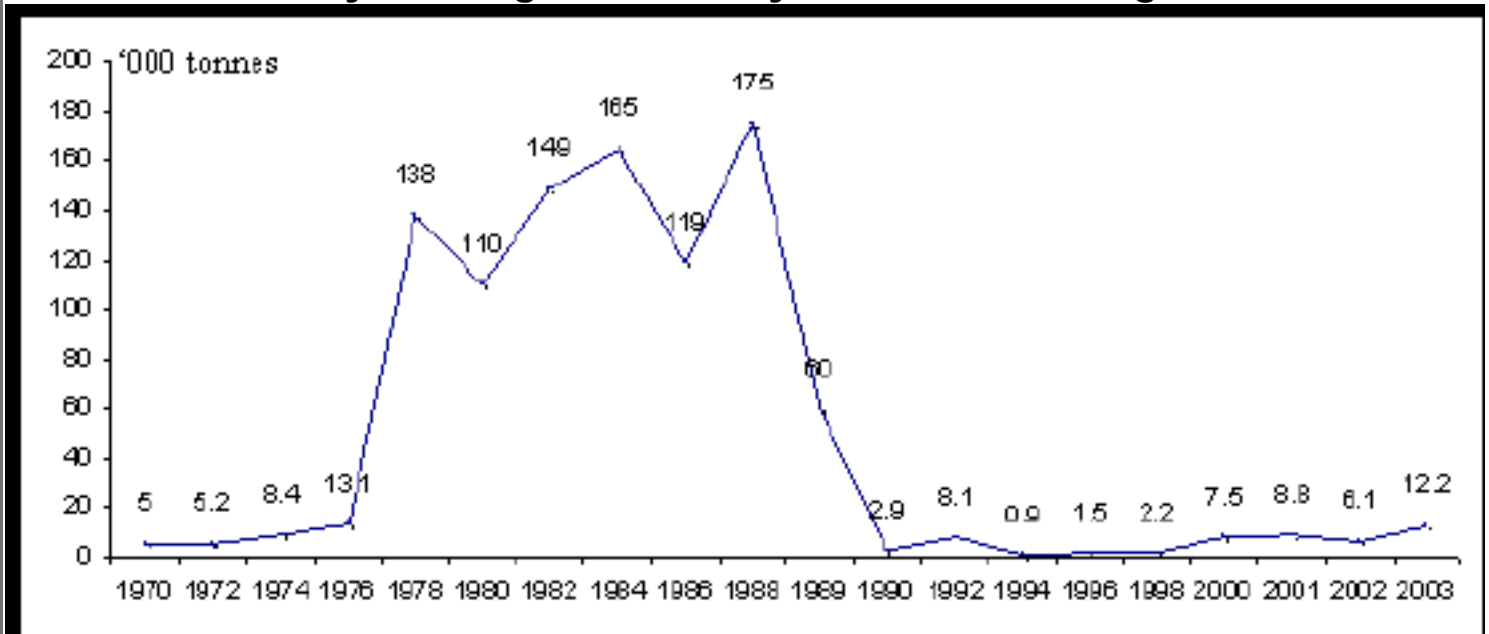
In Black Sea fish landing statistics, anchovy is the dominant species. It constitutes 30-40 percent of total coastal catches in Georgia. The average annual volume of anchovy caught in the 1980s was around 80 000 tonnes (Shlyakhov, Chaschin and Korkov, 1990). This

volume decreased to between 2 000 and 7 000 tonnes in the 1990s (Shavlakadze, 1998). Because of the adoption in 1982 of the Law of the Sea and the establishment of 200-mile exclusive economic zones (EEZs) by many coastal states, the Government of the former Union of Soviet Socialist Republics (USSR) had to move a large part of its fishing fleet into its EEZ, including the Black Sea. Consequently, at one point, 220 seiners were involved in anchovy fishing near the Georgian coast.

In 1988/89 anchovy landings by seiners from Turkey and the former USSR reached their peak with a catch of 488 000 tonnes. Both stocks and catch of anchovy were reduced in the early 1990s. The estimated stock in Georgian coastal waters declined from approximately 550 000 to 270 000 tonnes and the catch from about 170 000 to less than 3 000 tonnes in 1991 (Figure 1).

**FIGURE 1**

**Catches of anchovy in Georgian waters by national and foreign fleets, 1970-2003**



In the period 1980-1990 the Georgian fishing fleet incorporated 48 industrial fishing vessels belonging to state companies or to fishing cooperatives. Ten of these vessels were trawlers with an engine power of up to 2 856 HP. They had a large capacity for ocean fishing and the necessary facilities on board to stay at sea for prolonged periods. Each ocean-going vessel caught and processed on board an average of 4 000 tonnes of fish per year. Mediterranean scad (*Trachurus mediterraneus*), mackerel (*Scomber scombrus*), oil sardine (*Sardinella longiceps*), captain fish (*Pseudotolithus brachygnathus*, *Pseudotolithus senegalensis*) and bluefish (*Pomatomus saltator*) were some of the species that were landed frequently. Some industrial vessels looked like factories at sea and had processing and freezing facilities on board.

In addition to the industrial fishing fleet, Georgia also had an important small-scale coastal fishing fleet in the late 1980s. This fleet included three *motofelugas* or motorized wooden boats (engine power 14.6 HP) and 300 small-scale fishing boats (average engine power 3.65 HP). These boats used a variety of gears - among others, fixed nets, hooks for catching spiny dogfish and seines.

As an indication of the importance of the fishing industry for the coastal economy at that time, in 1980 the state fishing companies Adjartevzi, Potitevzi and Mebaduri employed 1 200, 1000 and 254 people, respectively. Additionally, the Fishermen's Trade Union had

947 members. The total number of people employed in marine capture fisheries in 1980 was estimated at around 3 400.

The number of people employed in these fisheries in Georgia decreased considerably in the 1980s to less than 1800 in 1990. In 1990 the fleet of Potitevzi comprised 800 fishermen. Moreover, the Trade Union of Adjarian Industrial Fishermen and Fish Processors involved 300 fishers, and 124 fishermen were members of the Georgian Trade Union of Fishermen, which included fishery enterprises in Poti, Batumi, Khobi, Gagra, Grigoleti and Sokhumi. In the 1980s, aquaculture was considered a less important source of fish since marine production increased considerably. The number of aquaculture farms declined from the 1950s to the 1980s in particular, from around 50 to fewer than 20 farms. In the mid-1980s there were 13 fish farms in Georgia where mirror carp was cultivated in ponds. Only two fish farms were involved in rainbow trout culture. Fifteen reservoirs and 20 lakes with a total water surface of around 30 000 ha were used for the grow-out to market size of these freshwater fish (Elanidze, 1983). In the light of a huge programme of fish ranching in the former USSR, which aimed to increase the marine capture of sturgeon and salmon, the River Rioni sturgeon hatchery and River Kodori salmon hatchery were constructed in the late 1970s. These two state hatcheries released more than 2 million juvenile fish into the Black Sea over the period 1981-1991. In addition, a number of hatcheries were built in the 1980s for the restocking of inland waterbodies.

In 1980 the then Ministry of Agriculture and Food established the GruzSelRybKhoz fisheries agency, which was responsible for inland waterbodies (rivers, lakes and reservoirs) and artificial fish ponds, with a total surface area of 700-800 ha. Average annual inland capture fisheries and aquaculture production in the 1980s fluctuated widely, between 2 700 and 5 000 tonnes. Two-thirds of the production came from aquaculture and about one-third from culture-based inland capture fisheries.

Inland fisheries and aquaculture production in the 1980s was considerably higher than it is now. For example, Lake Tabatskuri produced between 60 and 100 tonnes annually, while currently only a production of 40 tonnes is reached; on the same lake, fisheries provided employment in the 1980s to around 40 persons but now to only eight. Similarly, annual production in Lake Paravani in the 1980s was almost 200 tonnes, compared with between 60 and 80 tonnes at present. At the end of the 1980s, the annual capture fisheries production in the Krami reservoir was estimated at 100 tonnes, while currently only 25 tonnes are being caught.

## **FISHERIES AND AQUACULTURE IN GEORGIA AFTER INDEPENDENCE (1991-2000)**

From 1991, the difficult economic and social situation in the country, lack of financial resources, inflexible banking and credit policies, and loss of the former USSR consumer market all had an extremely negative impact on the Georgian economy in general and especially on the fishery sector.

The ocean-going fishing fleet was largely sold to Ukraine and the remainder of the fleet appeared to be non-profitable since access to fuel was restricted (because of high prices), as was availability. Container materials, nets and other gears and facilities for vessel maintenance were similarly limited.

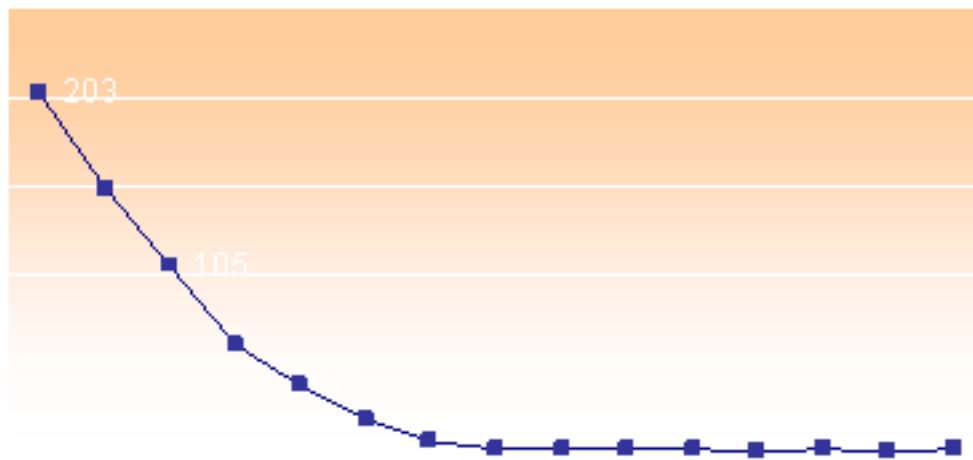
Figure 2 shows that fisheries production in Georgia declined rapidly between 1988 and 1995. In the year of independence (1991) production was still around 61 000 tonnes, while this figure went down to 3 800 tonnes in 1995. In 1992-1993 oceanic fishing by the Georgian fleet came to a halt. It is generally estimated that annual fisheries production

between 1996 and 2002 was around 2 500 to 3 000 tonnes, although some maintain that the actual production levels were as low as 1 500 tonnes in 1999.

The fact that not only Georgia's capture fisheries production declined in the late 1980s and early 1990s, but also that of some of its neighbouring countries, is depicted in Figure 3. The figure shows that capture fisheries production in the Black Sea decreased considerably from 1988 to 1991 from almost 796 000 to 201 000 tonnes. Over this period, catches from Turkey, Ukraine, the Russian Federation and Georgia all had a declining trend. However, from 1992 onwards it seems that Turkish catches increased again to above 250 000 tonnes annually, while those of other Black Sea countries continued to be below 50 000 tonnes. It was only in 2001 that the Ukrainian Black Sea fishing fleet achieved a catch similar to that of 1990.

FIGURE 2

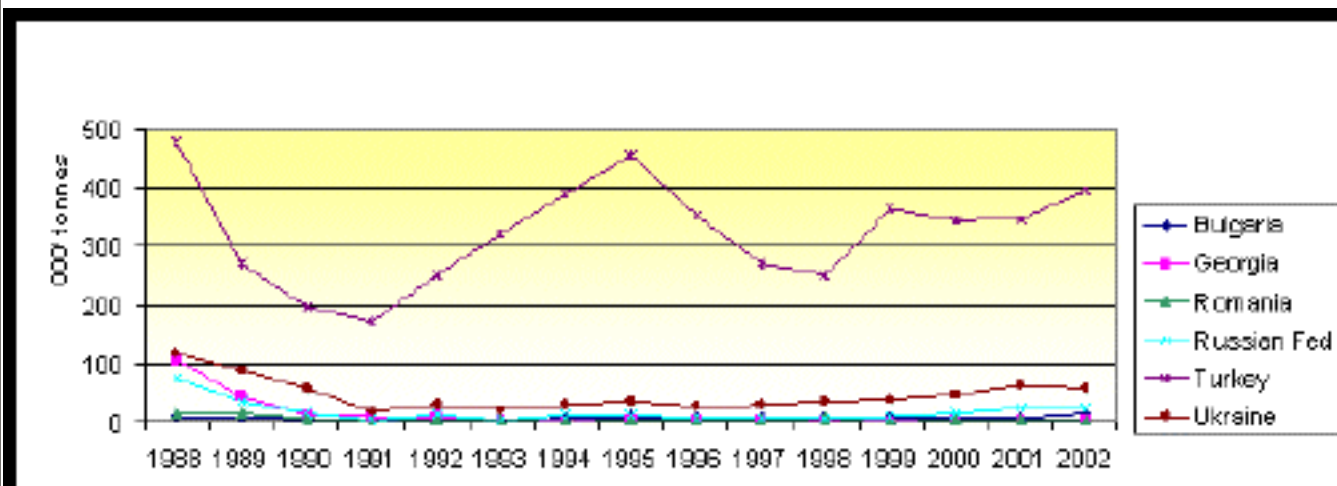
Total fishery production in Georgia, 1988-2002



Source: FAO FishStat+

FIGURE 3

Capture fisheries production in the Black Sea by selected countries, 1988-2002



Source: FAO FishStat+.



Since 1997 Ukrainian and Turkish vessels have started to fish again in the Georgian EEZ. The volume caught in Georgian waters increased from 1 400 tonnes in 1995 to 12 200 tonnes in 2003 and, according to the season, from 2 500 tonnes in 1997/98 to 9 400 tonnes in 2003/04.

Fishing activities using passive gears (trammel nets, marine keepnets, gillnets, longlines, fyke nets, rod and line and others) in the Soviet period were largely conducted by semi-military organizations which consequently contributed to the security of the country. Fish resources - particularly places where species such as red mullet, gobies, picarel and mullet were abundant - were designated as reserves. Since independence, illegal, unregistered and unreported (IUU) fishing takes place more frequently, since the above form of security, which also prevented illegal fisheries activities, no longer exists.

At the beginning of the 1990s the privatization of aquaculture farms and specific lakes suitable for aquaculture took place. Unfortunately, the farms were sometimes in the hands of farmers who were both quite incapable and incompetent. As a result of lack of financing and fish culture experience some of the farms were transformed into agricultural areas. This led to the destruction of shops, hatcheries, ponds and hydrotechnical structures. Several farms were not worked for many years and as a result the total aquaculture production of commercially valued species fell from 300 to 500 tonnes. Some small-scale farms remained and new private industrial farms were founded. Towards the end of the 1990s these farms produced approximately 650 tonnes of fish annually.

## **NATURAL RESOURCES AND POTENTIAL OF THE FISHERY SECTOR**

### **Geography**

Georgia is situated in Eastern Europe, in the central and western parts of the Caucasus. Its territory is approximately 69 500 km<sup>2</sup>. The country is rich in hydrobiological resources. There are 25 075 rivers and streams with a total length of 54 768 km. The rivers belong to the basins of the Black Sea and the Caspian Sea. There are 860 lakes with a total surface area of 170 km<sup>2</sup> and 12 reservoirs with a total surface area of 107 km<sup>2</sup> (Vladimirov, 1981). The country borders the Black Sea to the west. The length of its coastline from Psou (40°01'E, 43°39'N) to Sarpi (41°55'E, 41°52'N) is 330 km.

The narrow continental shelf off the Black Sea coast of Georgia and the quantity of hydrosulphide in coastal waters are the main reasons for the abundance of pelagic fish species (anchovy and sprats) and the scarcity of bottom (turbot) and demersal (whiting, red mullet, shad and others) fish species.

### **Aquatic resources**

Of the 184 fish species and subspecies known to inhabit the Black Sea (Rass, 1987), 104 species were also to be found in the Georgian coastal zone in the early 1980s (Meskhidze and Burchuladze, 1984). However, at the beginning of the twenty-first century only 69 species and subspecies were recorded (Komakhidze *et al.*, 2003).

At present, there are five main fish species of commercial value: Black Sea anchovy (*Engraulis encrasicolus ponticus Alexandrov*), Black Sea sprat (*Sprattus sprattus phalericus*), Black Sea whiting (*Merlangius merlangus euxinus*), spiny dogfish (*Squalus acanthias*) and Black Sea red mullet (*Mullus barbatus ponticus*).

The most abundant species in the Black Sea is anchovy, which has significant environmental importance and commercial value (Prodanov *et al.*, 1996). Its exploitation is

mainly connected to wintering of the species in southern and southeastern parts of the sea (Anatolian coast of Turkey and Georgian coast), which are sheltered by the main Caucasus range from the influence of winds. Furthermore, the cold current from the west does not reach these areas and water temperature falls no lower than 6°C (Knipovich, 1932).

From 1997/98 to 2002/03 the biomass of anchovy resources was assessed by the use of acoustic methods during the fishing season. The average quantity of stocks estimated was around 288 000 tonnes (Table 1) and maximum sustainable yield (MSY) was calculated to be around 100-120 000 tonnes. Taking the stocks into consideration and the currently active fleet of 36 seiners which, using purse-seine nets, can catch some 10-12 tonnes per vessel per day during an average season of 55-60 fishing days, the maximum catch of the fleet would not be much higher than 25-30 000 tonnes annually. This means that a considerable part of the stocks would be underexploited if it were not harvested by foreign vessels.

TABLE 1

Anchovy resources and catches recorded in 1997/98 to 2003/04

Seasons	Stocks (tonnes)	Catches in Georgian waters (tonnes)
1997/98	178 500	2 454
1998/99	350 000	4 202
1999/00	380 000	7 977
2000/01	280 000	7 833
2001/02	250 000	5 063
2002/03	-	7 200
2003/04	-	9 444

The recent increase from 200 to 361 vessels (unofficial data) in the Turkish fleet fishing for anchovy in the waters near the Turkish-Georgian border and coast is a serious threat to anchovy resources.

Biometrical parameters of anchovy are used to describe the current condition of the stock in Georgian waters. Over the period 1997/98 to 2003/04 a reduction in anchovy age groups is visible as a significant percentage increase of the 0+ age group. Moreover, a significant reduction of mean weight combined with a decrease in fatness of stocks was noted.

### **Pollution of the aquatic environment**

Pollution, bottom-trawling and other anthropogenic influences have resulted in a decline in fish biodiversity and biomass. The consequences of Georgia's lack of national fishery policy also contribute to this decline.

Georgia is a European gateway for raw material (oil, gas) transfer from Asia. This gateway function is considered by scientists to be a threat to the aquatic environment because of the risk of oil pollution. In spite of the fact that environmental policy is not a priority for many developing countries, Georgia has initiated a process to assess and monitor the environmental conditions of the coast, following the agreements made at the Bucharest Convention in 1992 and in the Odessa Declaration and Black Sea Strategic Action Plan.



An example of aquatic pollution is the invertebrate predator-ctenophore (*Mnemiopsis leidyi*) (see photo) that was accidentally introduced into the Black Sea environment in the 1980s.

Ctenophores are competitors of anchovy since the species predate on anchovy eggs and larvae. The mass distribution of ctenophores in the Black Sea, which coincided with a period of overexploitation in the mid-1980s of anchovy resources near the Georgian coast, resulted in a decline in these resources and also negatively affected stocks of scad and red mullet.

The biomass of ctenophores reached its peak towards the end of the 1980s and was estimated at around 1 billion tonnes (Shuskina and Musayeva, 1990; Shushkina and Vinogradov, 1991; Zaitsev, 1996; Prodanov *et al.*, 1996). These authors suggest that sea pollution and the mass distribution of ctenophores caused changes in plankton composition. In particular, the amount of *Copepoda* and other edible zooplankton organisms declined by 15 to 40 times.

Acoustic and oil pollution is considered to be affecting the anchovy stocks that winter in an area near Supsa where there is an oil terminal operated by British Petroleum. An example of acoustic pollution is the shooting range which, since the Soviet period, is located in Gonio, south of Batumi. The range has a negative influence on fish populations in that area and prevents fish migration towards the Georgian coast.

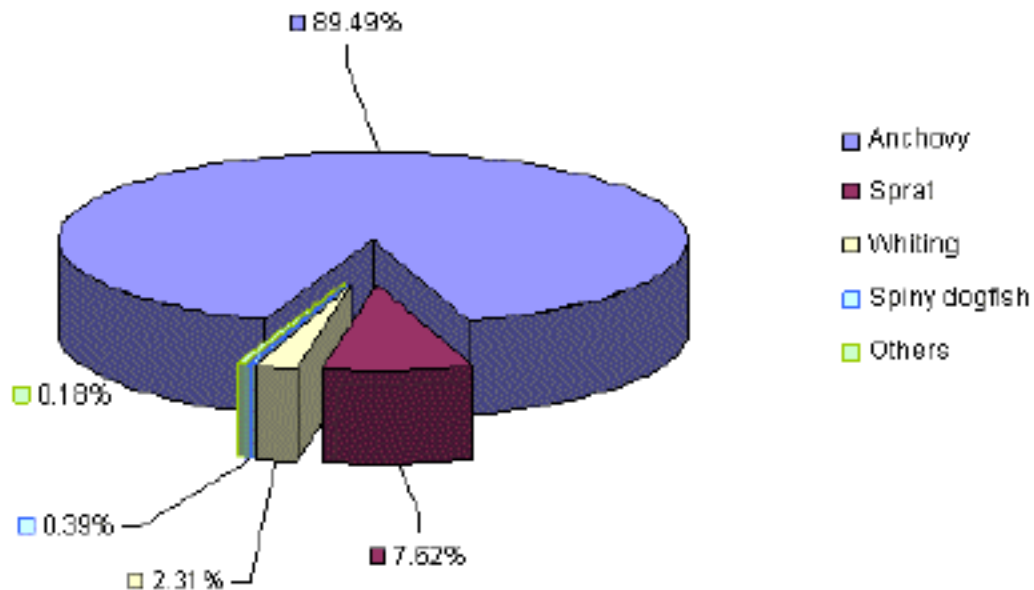
Recent analysis of widespread fish species showed that stocks of demersal spawners are depressed, i.e. those that lay eggs on aquatic plant and underwater subjects, make nests and take care of their progeny. Some species that entered the Black Sea from the Mediterranean in previous decades are also disappearing - pollution and heavy traffic in the Bosphorus Strait are the main reasons for this change. In recent years, stocks of scad seem to have increased again. Bonito stocks, which are very susceptible to mackerel and water quality, have also reappeared - a sign of ecological improvement (Komakhidze *et al.*, 2003).

## **MARINE CAPTURE FISHERIES**

Anchovy is the main target species for the Georgian marine capture fisheries fleet. Other targeted species of commercial interest are sprats, whiting and spiny dogfish. The average amount of sprats, whiting and dogfish stocks in Georgian waters in stocks calculated over the last seven years is 2 700, 1 000 and 1 000 tonnes, respectively. The share of these commercial fish in the total catch is limited to less than 10 percent (Figure 4).

FIGURE 4

Average catch composition, 1996-2003



At present, the marine fishing fleet consists of 36 seiners of medium engine power (110-225 HP). As the fleet is targeting mainly anchovy stocks it is equipped with purse-seine and trawl nets. Sprats, whiting and spiny dogfish are caught by trawl in summer.

The fleet consists of vessels constructed during the Soviet period. They have not been modernized and are repaired and maintained only to a limited extent. All vessels could therefore be considered as depreciated. Their engines vary between 150 and 225 HP (see photos). Twenty-nine of the 36 seiners are registered in Poti. Five of these originally belonged to the fishing companies that moved from Abkhazia (Gagra Ltd and Sokhumi -2 Ltd). Because of difficulties in taking purse seines from Abkhazia these seiners are allowed to fish with trawls.

The seiners generally operate at a maximum distance of 5 miles from the shore. Together with the medium-sized seiners mentioned above, there are 324 small-scale fishing boats involved in coastal capture fisheries. They are equipped with 103 seine nets, 324 gillnets, 12 bottom lines, 26 cast nets and 100 fishing rods. Most of these small-scale boats are motofelugas (motorized wooden boats).

### **INLAND CAPTURE FISHERIES**

Georgia is endowed with a large number of rivers and lakes and, in addition, there are a number of artificial reservoirs. In many of these inland waterbodies capture fisheries activities are undertaken. For this review study MEFRI investigated the current situation in the main lakes and reservoirs: Lake Paravani (3 700 ha), Khrami reservoir (2 770 ha), Lake Kartsakhi (2 650 ha), Lake Tabatskuri (1 452 ha), Sioni reservoir (1 280 ha), Lake Jandari (1230 ha), Tkibuli reservoir (1 210 ha), Shaori reservoir (1 022 ha) and Lake Saghamo (458ha).

The main commercial fish species caught in these lakes and reservoirs are the following: lake trout (*Salmo trutta caspius lacustris*), Romanov lake trout (*Salmo trutta caspius romanovi*), common carp (*Cyprinus carpio*), vendace (*Djoregonus albula*), chub (*Leuciscus cephalus orientalis*), crucian carp (*Carassius carassius*), silver carp (*Hypophthalmichthys molitrix*), bighead carp (*Aristichthys nobilis*) and various barbels (*Barbus tauricus escherichi*, *B. capito* and *B. lacerta cyri*, among others).

The average annual capture fisheries production in the lakes and reservoirs investigated is difficult to measure since poaching is a widespread practice. Based on discussions with

fishers, lake managers and local authorities, the inland capture fisheries production of the nine lakes and reservoirs mentioned above is estimated at around 350 tonnes in 2003, while the total inland capture fisheries production of Georgia is estimated at 388 tonnes. This total production increased slightly to an estimated 400 tonnes in 2004.

Productivity of most of the lakes and reservoirs is poor, mainly as a result of low water temperatures, lengthy coverage of the water surface with ice, wide fluctuations in water levels, limited natural reproduction of the main commercial species and no restocking of fingerlings as many hatcheries are not currently operating because of lack of funding.

Nevertheless, some lakes such as Paravani provide favourable conditions for spawning for some carp species and trout. There are some tentative initiatives from a few dedicated local people who aim to increase the fish stocks in some of the lakes (e.g. Paravani and Jandari) through stocking with fingerlings of trout, vendace and ripus (*Coregonus albula*). Some lakes have favourable water conditions (quality, temperature, mineral contents, vegetation and PH) for algae blooms that stimulate fish productivity. Hardly any hydrobiological, hydrochemical and ichthyologic information is available at present for other reservoirs and lakes (such as Kartsakhi), which makes it difficult to assess their fish production capacity.

Recently the ownership of some of the lakes and reservoirs (e.g. Lake Jandari, Shaori reservoir and Tkibuli reservoir) was transferred to the private sector. This resulted in more frequent restocking of these privatized waterbodies with fingerlings. In order to make profit from the waterbodies, the private sector establishes and enforces management measures, carries out research and tries to attract anglers (hobby fishers) to whom (temporary) licences are sold.

## **AQUACULTURE**

While aquaculture in Georgia was well established in the 1950s, the number of aquaculture farms and hatcheries for restocking of inland waterbodies has gradually declined.

Unfortunately, no official statistical data and information on aquaculture have been collected in the country over the last 15 years.

The official register of the Department of Fisheries (DoF) contains 84 inland waterbodies (ponds, lakes and reservoirs) that are used for fisheries purposes. It is estimated that there are some 50 unregistered small waterbodies that are used for fisheries in addition to these official figures. Officially registered are 25 small trout farms; however, it is estimated that there are currently some ten more that are unregistered. In early 2004 it was found that there are at least 81 farms where fish production takes place in ponds. In addition, at least six hatcheries are reproducing a range of species, including *Cyprinus carpio* (common carp), *Hypophthalmichthys molitrix* (silver carp), *Ctenopharyngodon idella* (grass carp), *Varicorhinus capota* (barb), *Carassius carassius* (crucian carp) and *Silurus glanis* (catfish).

The area of ponds, lakes and reservoirs currently being restocked with fingerlings is estimated to be in the order of 3 200 ha and total aquaculture production may reach up to 1 000 tonnes of fish annually (among which an estimated 600 tonnes of common carp and 250 tonnes of grass carp). The total production of the 35 (registered and non-registered) trout farms is estimated in recent years to be in the order of 120 tonnes of fish annually.

Most of the fingerlings (particularly those of common and grass carp) used by aquaculturists are produced in Georgia. Some aquaculturists are self-supporting with regard to fingerling production, while others have to purchase their fingerlings in nearby hatcheries. Unfortunately, a number of inland waterbodies (including ponds) cannot be restocked periodically because the owners or operators cannot afford to purchase fingerlings.

Approximately 70 percent of the trout eggs, fry and fingerlings for trout farms are produced in Georgia while the remainder is imported. The fingerlings of carp, trout and other species produced domestically are generally considered to be of poor quality. The absence of research programmes for genetic improvement, fish health management and fish feeding is considered to be one of the main reasons.

The lack of good-quality feed for trout culture in Georgia is one of the main constraints to development of the subsector. Fishmeal for the production of fish feed is generally imported from Turkey and/or Denmark, which makes it very expensive (about US\$1.20 per kg). Aquaculturists sometimes also import commercial fish feed of well-known brands at high prices. Georgia's capture fisheries fleet catches anchovy and other marine species, some of which could be used for the preparation of fishmeal and aquaculture feeds, but at present the limited quantities of fishmeal produced in the country are exported for hard currency. This practice prevents Georgian aquaculturists from taking advantage of the raw material produced within the country for the preparation of the quantities of fish feed they need.

The pond culture of common and grass carp benefits from fertilization with both organic and non-organic fertilizers. Unfortunately, the majority of aquaculturists cannot afford at present to invest in fertilizers because they do not have enough working capital or access to formal credit sources.

Aquaculture is considered to have good prospects for future development in Georgia. In the short term, the production of carp in ponds, lakes and reservoirs is being encouraged by the domestic market demand, which is far from being satisfied. Demand for low-priced fish in rural areas and small towns is particularly high. Doubling the annual aquaculture production of carp to almost 2 000 tonnes seems a possibility with only slight improvements in access to and availability of fertilizers, fish feed and fingerlings. In the longer term, the establishment of an aquaculture extension and monitoring system, improvements in the supply of high-quality fingerlings and access to credit would make it possible for an annual production of around 5 000 tonnes of fish to be achieved.

The demand for trout on the domestic market seems to be showing a positive trend, which is reflected in the development of trout aquaculture in Georgia in recent years. As trout culture is constrained largely by limited access to and availability of domestically produced fish feed and fingerlings, it would be possible to increase domestic production of this species in a relatively short period provided that these two constraints are lifted.

Many inland waterbodies are not monitored or restocked periodically with fingerlings because the owners and/or operators do not have sufficient financial resources to purchase the necessary fingerlings. In many cases, fish depend only on natural circumstances for their growth, since producers also fail to provide fertilizers.

## **FACILITATING INDUSTRIES**

Fish production facilitating industries are not very well developed in Georgia. Few companies produce or trade in fishing gears and icing and freezing equipment, and shipyards that construct modern fishing vessels are non-existent. Vessel engines (inboard as well as outboard) are rarely on sale and spare parts are scarce; fuel and other lubricants are expensive and not always available.

Support from facilitating industries for aquaculture is also fairly limited. Only a few hatcheries sell a small variety of species. Carp are generally fed with a mix of corn, wheat and sunflower and soybean cake. Commercial feed for trout culture is being imported since

no animal feed producer makes fish feed in the country. Prices for purchased feed range from US\$0.22/kg for carp feed to US\$1.30/kg for trout feed (pellets). Inorganic fertilizer that can be used for fertilization of fish ponds is available but not widespread in Georgia. The current market price of the most commonly used inorganic fertilizer nitrogen  $\text{NH}_4\text{NO}_3$  is around US\$148 per tonne; however, prices of other imported fertilizers are higher (around US\$600 per tonne). Chemicals and drugs for treatment of ponds to improve the water quality for fish culture and for treatment of fish diseases are not used and are therefore not available on the market.

## **FISH PROCESSING**

There used to be a dynamic fish processing industry in Georgia with plants in Tbilisi, Kutaisi, Batumi and Sukhumi. To date, for various reasons, no large processing plant is operational. The main reason is probably that the former market for non-food anchovy (USSR, Ukraine and Moldova) was gradually lost after Georgia's independence in 1991. In 1998 (Eastfish, 1999) only six fishing companies were still involved in processing fishery products and three other specialized plants were functioning. The only fish processing carried out at that time was cleaning, chilling and salting of anchovy, freezing of rapana meat and smoking of a small variety of species. All companies listed in 1998 stopped their fish processing activities soon afterwards.

In 2005 it is planned that three companies will (re)start processing fishery products in Georgia. These plants will focus on the production of anchovy flour and oil. Two of them (Kapadokia Ltd and Laguna Ltd) are located in Poti and one (Tedoradze Ltd) is located in Batumi. The maximum production capacity of Kapadokia and Laguna is 250 tonnes/shift and 300 tonnes/shift, respectively. The processing plant in Batumi is less industrial and will produce 50 tonnes/shift at maximum capacity. Employment generated by the three plants will be a total of approximately 220 people.

In addition to large-scale industrial processing, smaller volumes of fish are being processed in an artisanal fashion by some wholesalers and retail shops. This fish, processed in several small shops in Tbilisi, is mainly oriented at adding value to cheap imported fish. Smoking and salting of fish are the most common practices. According to data collected by the Ministry of Economics only 8.6 tonnes of fish were processed in Georgia in 2003.

The lack of modern fish processing facilities has significant negative effects on the Georgian fishing fleet and on fishery products. Although the fleet could catch more than it has in recent years, since stocks of certain species such as anchovy are currently relatively large, the lack of processing facilities and limited market demand for fresh anchovy prevent the fleet from using a larger share of its fishing capacity. Consequently its economic viability is constrained.

## **MARKETING OF FISH AND FISHERY PRODUCTS**

At present there are specialized fish markets "or alternatively parts of larger food markets designated for the sale of fish" in every major city in Georgia. In the coastal area, fish markets can be found in Batumi, Poti, Ureki and Mattakva. Some of the fish markets are privately owned while others are owned, managed and maintained by the community/city authorities.

The fish market in Batumi is characterized by clean and hygienic facilities. The market has concrete floors and stone tables, a freezer facility, roofs, electricity, tap water and a fence.



On average days some 12 retailers sell fishery products there. The main products sold are sardines, horse mackerel, mullet and trout. Prices range from US\$1.5/kg for small sardines to US\$4.5/kg for small trout. Smoked sardines and mackerel are generally sold at prices of around US\$5.5/kg. Retailers wanting to sell fish at the market pay a market fee of US\$80 per month per table and a further US\$80 per month is added if they use the freezer facility, which is managed by the market owner. Average sales of fishery products are estimated at 100kg/retailer/day. Daily sales for the whole market range between 1 and 1.5 tonnes, depending on supply and demand, which fluctuate with the seasons and days of the week. Marketing margins for retailers at the Batumi fish market are generally between US\$0.25 and US\$0.55/kg, depending on the species and the value added.

The largest food market in Tbilisi is called the "peasant market". Here some 20 retailers sell fishery products daily, originating from catches by the national fleet, from aquaculture and from imports. The variety of fish offered is limited to sprats, sardines, mackerel, sea bream, flathead mullet, hake, salmon, crawfish, sturgeon and trout. Prices range between US\$1/kg for Baltic sprats to US\$9/kg for sturgeon from Azerbaijan. A considerable part of the fish for sale is imported (e.g. frozen salmon from Norway). Trout is the only domestic aquaculture product at the market. It is sold fresh or alive at US\$4.5/kg for fish of  $\pm$  200 g. Market fees vary largely - a counter outside is just US\$2.5 daily, while inside shops pay between US\$20 and US\$25/day (including electricity and freezer rental fees).

It is believed that in the metropolitan area of Tbilisi some 50 fish retailers are active daily in the various markets. Total sales of fishery products by market retailers in Tbilisi are estimated to be between 5 and 6 tonnes per day in summer and between 10 and 12 tonnes in winter.

In wholesale activities, including transport of fishery products from coastal areas to Tbilisi, an estimated 100 intermediaries are involved. The relatively more expensive fishery products, such as sturgeon, salmon and trout, are often sold directly to restaurants by intermediaries and aquaculture producers, since restaurants constitute the main market for these species.

Cold storage facilities exist in Tbilisi, Kutasi and Poti. They are used for storage of fish among other food items. Imported frozen fish is generally stored by wholesalers/importers until distribution to markets and supermarkets takes place. Moreover, part of the fresh fish is frozen there.

The market share of supermarkets in Tbilisi (and other major cities in Georgia) in the sale of fishery products is increasing steadily. This is a recent trend and information on the extent of the increase is not yet available. In general, fishery products are more expensive in supermarkets than in city food markets and specialized fish markets. Frozen salmon and trout are sold for US\$3.5 and US\$5/kg, respectively, while smoked fillets of catfish and sturgeon reach customers at prices of US\$9 and US\$21/kg, respectively.

A large proportion of the imported fishery products sold in supermarkets is packed at origin, labelled and sometimes branded. An increasing number of more affluent citizens (particularly in Tbilisi) have a preference for these products since prepacked imported products are generally considered to be of better quality. The selection of fishery products in some supermarkets is often larger than in marketplaces and includes upmarket value-added speciality products. For example, the Khvamli supermarket in Tbilisi sells more than 20 different species of frozen fishery products (including black tiger shrimp from Thailand, New Zealand mussels, Norwegian salmon, sea bream from the Mediterranean and mackerel from the Indian Ocean); it has a selection of more than 30 different canned fish products (including fish liver, sprats, anchovy, sardines, crab and shrimp); and it sells



more than ten smoked fish products (such as catfish fillets, sturgeon, mackerel and salmon). Above all, the supermarket sells live trout, which is in great demand and daily delivery is guaranteed.

Apart from the formal retail channels for fishery products there are a number of coastal and inland areas in Georgia where small-scale artisanal fishers sell part of their catch at roadside stalls. For example, these roadside vendors can be found in considerable numbers on the road between Kobuleti and Batumi. They sell fish (mainly small mullet) for prices between US\$1.5 and US\$2.5/kg, depending on supply and demand. Some of the roadside vendors do not fish themselves but buy their products from fishers. Their average marketing margin is US\$0.25/kg. Average daily sales per vendor vary largely but are generally below 20 kg/day.

Common and grass carp reared through aquaculture are mainly marketed in rural areas with some small quantities reaching the markets of Tbilisi and other big cities during the main harvest periods. The retail price for these fish species is between US\$1 and US\$1.5/kg. Trout produced by aquaculture farms is sold mainly in Tbilisi at a market price of US\$3 to US\$3.5/kg.

Prices of fishery products tend to fluctuate over the year. The prices of fresh fish are generally lower in winter than in summer; consequently, demand for fresh fish is higher in winter. Canned fishery products generally sell better in summer.

The 2004 average off-vessel and off-farm prices of the main fish species are presented in Table 2. Anchovy and sprats are the least valuable species, but their marketed volume is such that they occupy an important share of the total market for fishery products in Georgia. Sturgeon and Black Sea salmon are caught only in small quantities but demand is high and this is reflected in the price.

**TABLE 2**

Average off-vessel and off-farm prices of the main fish species, 2004

Species	US\$/tonne
Anchovy	150
Sprats	200
Black Sea whiting	1 000
Mullet (small)	1 000
Shad	1 250
Mullet (large)	1 500
Spiny dogfish	1 250
Black Sea salmon	15 000
Trout	3 000
Sturgeon	12 500
Gobies	1 000

Turbot	7 500
Sea bream	1 000
Common and Chinese carp	1 500

## **FISH TRADE**

To satisfy domestic demand for fishery products, Georgia imported between 2 500 and 5 000 tonnes in recent years. Most of these imported products come from Armenia (fresh, salted, frozen and smoked trout), Azerbaijan (frozen and smoked sturgeon), Turkey (smoked mackerel and bonito) and Russia (various species in frozen, salted and canned form).

More than 95 percent of fishery imports in 2003, both in volume and value, were in frozen form. The main imported species was mackerel. The volume of imports in 1999 was 4180 tonnes. This volume decreased considerably in 2000 and 2001 to just over 2500 tonnes and increased again to almost 4 840 tonnes in 2003. Initial (unofficial) data show that the volume of imports is increasing rapidly, reaching almost 6 000 tonnes in 2004.

Imports of fishery products in terms of value increased steadily over the years, from US \$1.1 million in 1999 to US\$2.2 million in 2003. In particular, the value of imported frozen fish increased from US\$1 million in 1999 to US\$1.9 million in 2003. It is estimated that the value of imports in 2004 will have reached over US\$3.5 million.

Whereas imports of fishery products by Georgia were always higher than exports in the 1990s, this has recently changed. In 2001 and 2003 exports in terms of volume were higher than imports, largely resulting from the fact that Ukrainian and Turkish fleets catch anchovy in Georgian waters and land it in Turkey and in Ukraine (frozen). The catch of these fleets is thus registered as exports.

Exports of fishery products have fluctuated widely in recent years. The volume of exports in 1999 was estimated at 2 637 tonnes but it decreased to 879 tonnes in 2000. This fluctuation is primarily caused by the access regime used for foreign fleets to Georgian-owned and controlled parts of the Black Sea. In some years many vessels are allowed access and in others hardly any permits are given out to foreign vessels.

In terms of value, exports of fishery products by Georgia are small. In the period 1999 to 2003 the value of exports fluctuated between US\$115 000 in 2002 and US\$362 000 in 2003. It is expected that the value of exports in 2004 will have been less than in 2003, again resulting from less catch by foreign fleets in Georgian marine waters.

The port of Poti is the most important for imports and exports of fishery products. In 2003 some 36 percent of total imports of fishery products (by volume) entered the country via the port. In the same year, imports of fishery products through the second most important fishing port in Georgia, Batumi, were 4 percent of total imports in volume. In terms of value, imports through customs in Poti were some 40 percent of total imports of fishery products in 2003. It is clear that a large part of these imports enter the country by road. Most fishery products were exported in 2003 through the port of Batumi - some 77 percent of total exports. Another 22 percent were exported via the port of Poti, even though Poti had been generally more important for exports of fishery products in earlier years.

## **FISH DEMAND AND CONSUMPTION**

Fish consumption levels in Georgia are low. It is estimated by the Department of Statistics

that annual per capita consumption is around 7 kg. However, other sources estimate that consumption of fishery products is less than 2 kg (live-weight equivalent) per capita per year at present. By comparison, average per capita consumption was stable at about 19 kg during the 1980s. MEFRI recently carried out some research on the demand for fishery products and subsequently estimated that current demand is between 30 and 35 kg per capita per year. Per capita consumption in coastal areas appears to be higher because of better access to fresh products and the wider availability of fish.

In Georgia there is no tradition of consumption of molluscs and aquatic plants. Before independence, most fishery products sold in Tbilisi were in frozen form. Frozen fish is still one of the main products and chosen by a sizeable proportion of the population, although preference is gradually being given to fresh products.

At present fish is sold fresh, frozen, salted and smoked and as *balik* (fish products) in the city markets, on the Sarpi-Psou highway and on the Red Bridge in Tbilisi. A considerable proportion is sold to consumers at landing sites in or near coastal towns.

The current domestic demand for fresh anchovy is estimated at 440 tonnes per year. This equals the catch of around 55 fishing days by the Poti fishing fleet. During the fishing season some 8 tonnes are marketed each day - about 3 tonnes in Adjara and 5 tonnes in Poti. This means that of a total catch of 9 000 tonnes of anchovy (as in 2003), less than 5 percent currently reaches the domestic market because of lack of demand for fresh anchovy.

Limited landings (in terms of volume) of commercially valuable species with high market demand and the abundance of small-sized fish with low market demand create a great discrepancy between supply and demand in Georgia. The current low production levels of aquaculture and inland capture fisheries cannot supply the market with sufficient produce of carp, trout, vendace, catfish and other freshwater and brackish water species that were in high demand in earlier decades and apparently still are.

There is evidence that much of the population prefers larger-sized frozen fish, such as mackerel, scad, hake, captain fish, salmon and sturgeon, which form a considerable part of imported frozen fishery products.

## **FISHERIES EMPLOYMENT**

In recent years a sharp decrease in employment in marine capture fisheries in Georgia has been noted. The main reason for this decrease is the lack of investment in the fishery sector and in marine fisheries in particular. Fishing vessels are often not maintained or repaired properly and the number of non-operating vessels has increased as a result. A similar situation can be seen in inland capture fisheries and aquaculture. A slight increase in employment in the processing and marketing of fishery products and recreational fishery-related activities has occurred over the last few years. Moreover, since IUU fishing is widespread in Georgian inland and marine waters, an unknown number of people find a source of income and employment in these activities.

The official fishery sector employment figures of the Department of Statistics in Georgia can be found in Table 3. Interviews with fishermen show that they earn 200 lari per month, which corresponds to the minimum amount for survival.

TABLE 3

Fisheries employment figures in Georgia, 2000-2003

Years	2000	2001	2002	2003
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People involved in fishing	800	600	600	700
Average monthly salary in Georgian lari	22.1	43.0	37.5	46.2

It is widely believed that the official statistics are an underestimation. Other unofficial information sources estimate that in 2004 around 3 300 persons found employment and income in fishery-related activities in Georgia. Of these, some 300 were working as skippers, captains or sailors in the marine fishing fleets based in Poti and Batumi. Moreover, it is estimated that Georgian small-scale coastal fisheries currently provide employment for approximately 1 500 full-time fishers and 300 part-time/seasonal fishers. A further 500 are employed in processing, distribution and marketing and another 400 earn an income from aquaculture. Capture fisheries and management of the lakes and reservoirs officially provide employment for approximately 80 people (fishers and administrators). It should be noted here that most of the inland catch is taken by poachers. The number of people involved in IUU fishing activities is hard to estimate and is therefore not included in the total of 3 200 (Table 4), although the number of IUU fishers probably runs in the hundreds.

TABLE 4

Estimated fishery sector employment, 2004

Employment field	Estimated number of persons
Marine fishing fleet	300
Coastal small-scale fishing	1 500
Processing and marketing	500
Inland capture fisheries	200
Aquaculture	400
Administration and research	100
Total	3 200

The average age of people employed in the fishery sector is about 40 and most fishers are men. Distribution and marketing is an area where many women are also involved. Most of the fishers have completed secondary technical education, while seiner captains and administrative staff of fishing companies generally have a higher education degree.

## FISHERIES ADMINISTRATION

### Institutional setting

Over the last decade the Government of Georgia did not consider the fishery sector as important, which resulted in limited funding and staffing of the DoF under the MoA and an unclear division of tasks and responsibilities between the DoF and other government institutions. On the one hand, the MoA - through the DoF - is the lead ministry in the area of fisheries policy and sector development. On the other, the Ministry of Environment Protection and Natural Resources (MEPNR) - through the Fishery Branch of its Department



of Biodiversity - bears responsibility for the conservation of fisheries resources and the ecosystems to which they belong. Other government ministries involved in fisheries-related activities are the Ministry of Economics (trade issues), Ministry of Finance (taxation), Ministry of the Interior (border control) and a number of ministerial-linked and semi-independent institutions, such as MEFRI, the Coastguard, the Marine Authority of Georgia, the Institute of Zoology, the Maritime Transport Administration and the Bucharest Convention through its Commission.

TABLE 5

The main institutions involved in fisheries in Georgia

Institutions and their current activities with regard to fisheries	Definition of resources	Determination of max. allowable catch	Issue quotas	Issue licences	Enforcement and control	Development planning	Drafting the law	Data collection and Information	Increasing abilities of training	Control of output quality	Liaise with stakeholders	Cooperation with other governmental organizations	Scientific research	International relationships
Ministry of Agriculture	-	-	-	x	x	xx	xx	x	x	x	x	xx	xx	x
Department of Fisheries	-	-	-	x	x	xx	xx	x	x	-	x	xx	xx	x
Ministry of Environment Protection and Natural Resources	x	x	xx	xx	xx	xx	xx	xx	xx	x	x	xx	xx	x
Marine Ecology and Fisheries Research Institute (MEFRI)	x	xx	xx	-	-	x	x	x	x	-	x	xx	xx	x
Coastguard	-	-	-	-	xx	-	xx	-	-	-	-	x	-	-
Institute of Zoology	x	xx	xx	-	-	x	x	xx	x	-	x	xx	xx	x
Maritime Transport Administration	-	-	-	-	x	x	x	x	x	-	x	xx	-	x
Bucharest Commission	-	-	x	-	xx	-	-	x	-	x	-	-	-	-

Notes: - no function in this field/area; x = partly involved; xx = largely involved. In the Ministry of Agriculture three departments/agencies are relevant for fishery sector

development and management. These are the:

- Department of Fisheries, with a policy-making function within the sector;
- Veterinary Department, which implements food safety measures;
- Food Products' Expertise and Monitoring Agency, which issues licences for fish production activities.

The Ministry of Environment Protection and Natural Resources has two dependent agencies which are relevant for the Georgian fishery sector: MEFRI, which carries out marine fishery research and recommends allowable catches for the Black Sea; and the Institute of Zoology, which carries out fishery research in inland waterbodies.

The Ministry of Agriculture of Georgia, and particularly its agency for the property management, -Kumi Ltd- is responsible for (fish) production in watersheds within the country.

The Ministry of the Interior of Georgia has two departments that play a role in fisheries development and management:

- Eco-police Department - is responsible for control of fishing activities and resource conservation.
- Georgian State Border Guard Department - provides control of fishing activities in waters under Georgian jurisdiction.

The Ministry of the Interior, through its Coastguard, controls and provides surveillance over fishing activities in Georgian marine waters.

The state Department of Statistics in Georgia is responsible for gathering, analysing and publishing data, including fishery sector data.

Until recently the DoF was staffed with only eight people, who were unable to carry out their tasks properly since their budget was extremely limited, at about US\$6 000 annually. In February 2005 considerable changes took place, which included an increase in staffing (up to 20 people), an increase in staff salaries to the current national civil servant level and a new DoF director.

Although the situation improved in early 2005, the DoF is still lacking the technical and managerial capacity to carry out its duties efficiently. For example, it is not equipped with modern communication equipment such as e-mail, Internet and fax. The staff have not yet been trained in the use of computers and the number of computers available is extremely limited. Many of the staff have not received training in technical or administrative issues over the last decade, which means that some of them are unaware of the current situation with regard to fisheries in Georgia. The absence of travel funds to carry out work in the field has largely contributed to their limited awareness. There is a clear need to increase the competence of the staff so that they can contribute effectively and efficiently to the duties and responsibilities of the DoF, which are to:

- elaborate a comprehensive government development policy on fisheries in Georgia and set priorities for all types of fisheries;
- make optimal use of the export potential of fish and fishery products originating from all types of fisheries resources (marine and inland waters plus aquaculture);



- elaborate draft normative acts within the competence of the Department and present them for approval in accordance with existing regulations;
- prepare a fishery investment programme and support its implementation;
- promote the employment of qualified fishery specialists in fishery enterprises;
- produce and deliver fish products to satisfy domestic needs.

In the same DoF charter, the rights and obligations were defined as follows:

- promote the establishment of fisheries enterprises and the introduction of modern production technologies to attract investments. Together with other agencies, participate in the assessment of fishery stocks;
- maintain a list of fishery enterprises and create a data bank in accordance with international requirements;
- make recommendations for fish reproduction, grow-out to commodity fish and for taking preventive measures against fish diseases;
- study systematically the market for fishery products and provide information on the current situation and trends;
- prepare plans for the rehabilitation and development of existing fishery enterprises;
- within specified time periods and as required, present proposals for projects, modifications to laws and regulations, plans, government budget, target programmes, etc.;
- submit proposals to higher authorities to decide on issues within the Ministry's competence;
- fulfil the rights and obligations determined in the Law on Entrepreneurs with regard to those enterprises and state property with management delegated to the Department.

It is clear that with its limited human and financial resources the DoF cannot possibly realize all these objectives. The lack of a comprehensive fisheries policy in the government and especially in the MoA exonerates the DoF from being accountable for its activities.

## **FISHERIES TRAINING AND RESEARCH**

At present there are no formal fisheries or aquaculture education and training facilities in Georgia. This means that Georgian children and students do not have the opportunity to learn about fisheries and aquaculture at school. Both university education and vocational school/practical training are lacking in fisheries. This will have consequences in the medium and long term for sustainable fisheries and aquaculture development in the country. The lack of a university education in fisheries is a problem that could be addressed through cooperation with universities in neighbouring countries (e.g. Ukraine, the Russian Federation and Turkey) and European countries where fisheries education at higher levels already exists. However, the lack of a vocational school for practical training in fisheries and aquaculture is something that would better be addressed within Georgia. Informal training (by sailors and captains) currently takes place in marine fisheries together with aquaculture (by fish farmers), although the trainers' knowledge is often based on what they have learned previously and the skills they have obtained in doing their jobs. Modern technologies and insights are therefore generally not part of their

capacity building activities.

MEFRI, located in Batumi, conducts scientific research on marine stocks and biodiversity together with the Ukrainian Department of Fisheries. The overall aim of the research is to restore the overexploited resources along the Georgian Black Sea coastline. MEFRI's mission statement is to survey and protect the natural biodiversity and living resources of the Black Sea and its coastal wetlands and play a leading role in fulfilling Georgia's international obligations under the Bucharest Convention on the Black Sea and the Black Sea Strategic Action Plan (BSSAP). In the 1990s much of MEFRI's research focused on sturgeon stocks, Black Sea salmon, anchovy and sprats.

The Institute of Zoology at the Georgian Academy of Sciences has carried out scientific research in Georgian inland waters to determine their hydrobiological resources. The Institute aims to study the main species in Georgia and undertake hydrobiological and ichthyologic research on inland reservoirs. The scientific work of the Institute on inland fisheries stopped in recent years because of lack of funding.

Over the last few years, research institutes have managed to send some of their staff abroad for M.Sc. and doctorate studies, funded by foreign donor institutions and projects. In this way they have been able to increase the capacity of the staff. Unfortunately, the number of these positions is low and the scholarships offered are, in principle, only a temporary solution. It is generally felt that an educational system should be established in Georgia to create awareness among young people of opportunities in the fishery sector and provide an adequate, tailor-made and modern education for those, young and old, who are interested in working in the fishery sector or wish to increase their skills in certain aspects of fisheries. Such a formal system would make it easier for fisheries research institutes and fishing enterprises to recruit young professionals to work in the sector, for it is currently extremely difficult to find young professionals with interest and the appropriate skills.

It should be noted that in the last few years fisheries research institutions have largely followed the government's limited funded research programme and the research agenda of some foreign donors (European Union [EU], World Bank), abolishing the basic research (e. g. in stock assessment) which was carried out in Soviet times.

## **POLICY AND REGULATORY FRAMEWORKS**

### **Policy framework**

A national fishery sector policy with objectives or goals for the sector is currently non-existent in Georgia. However, the MoA is preparing a Master Plan for Fishery Sector Development in Georgia, 2005-2020, in collaboration with other relevant ministries and fishery sector stakeholders such as fishers' associations, research institutes and fishing companies.

The current governmental Economic Development and Poverty Reduction Programme (EDPRP) of Georgia, which provides an established overall framework of national economic policy, does not recognize fisheries as a priority sector. Among the objectives, sphere, functions and tasks of the MoA, the fishery sector is not even mentioned. In the 2004 version of the EDPRP, the only references to fisheries and fish were those in relation to the consumption of meat, fish and dairy products and the investments to be made for the rehabilitation of the fishery sector and artificial restocking of sturgeon in the Black Sea. The Master Plan for Fishery Sector Development in Georgia, 2005-2020 should therefore be considered a framework of policy guidance and as such might assist in incorporating fisheries in the national economic development agenda and future updates of the EDPRP. At the international level, Georgia became party to a number of conventions and

agreements over the last decade. These are listed in Table 6.

TABLE 6

Georgian conventions and agreements, 1994-2001

Convention	Ratification
Convention on Biodiversity (CBD)	31 August 1994
Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)	12 August 1996
Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)	6 January 2000
Convention on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)	March 2001
United Nations Convention on the Law of the Sea (UNCLOS)	21 March 1996
Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (Compliance Agreement)	1994
Bucharest Convention on Protection of the Black Sea against Pollution	1994
Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention on Wetlands)	30 April 1996

Among the agreements listed in Table 6, the Convention on Biodiversity, the Convention on International Trade in Endangered Species of Wild Flora and Fauna, the Bucharest Convention on Protection of the Black Sea against Pollution, the UN Convention on the Law of the Sea and the Compliance Agreement should be emphasized.

*The Convention on Biodiversity (CBD)* provides for the conservation and sustainable use of biodiversity, defined as "the variability among living organisms", including "diversity within species and of ecosystems". Biodiversity conservation and sustainable use are to be pursued by adopting specific strategies, plans and programmes and by incorporating relevant concerns into any plans, programmes and policies. The sustainable use of biodiversity must be a consideration in national decision-making. Parties to the CBD should establish a system of protected areas, rehabilitate and restore degraded ecosystems and promote recovery of endangered species. More information can be found at <http://www.biodiv.org/chm/default.aspx/>

*The Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)*. Appendices 1, 2 and 3 to the Convention list the endangered species, including several fish species, of which trading has or might have a negative impact on their existence. CITES emphasizes the strict control to be imposed on trade in these species in order not to jeopardize their survival. The Convention determines the mechanisms for trading in such species. More information on CITES can be found at <http://cites.org/>

The *Bucharest Convention on Protection of the Black Sea against Pollution* is a regional convention aimed at facilitation of cooperation between states on protection of the Black Sea environment and maintenance of its living resources. The Commission on the Black Sea against Pollution, established under the Convention, supports its implementation. The Commission is currently preparing a draft Convention for Fisheries and Conservation of

Living Resources of the Black Sea, which foresees the establishment of a Black Sea Fisheries Commission. The Commission has also produced the Black Sea Strategic Action Plan, which is relevant for Georgia. The text of the Convention can be found at [http://www.blacksea-commission.org/OfficialDocuments/Convention\\_iframe\\_main.htm/](http://www.blacksea-commission.org/OfficialDocuments/Convention_iframe_main.htm/)

The UN Convention on the Law of the Sea (UNCLOS) establishes the legal framework for the use of the sea. In addition, Georgia has ratified one international fisheries agreement that implements several provisions of UNCLOS, i.e. the Compliance Agreement. This Agreement - approved by the FAO Conference in 1993 and which entered into force in 2003 - was created to respond to concerns about depletion of fish stocks in the high seas as a result of increasing IUU fishing. In particular, the Compliance Agreement attempts to address the problems of "reflagging" and "flag of convenience" practices used by vessels engaged in IUU fishing. Reflagging in the context of fishing involves the registration of a vessel in the jurisdiction with lax or inefficient control and enforcement regimes so as to avoid capture and other fisheries enforcement action. It also allows registration to be switched from one jurisdiction to another in the event of a history of fisheries violations so as to overcome the cancellation or suspension of fishing rights in the first jurisdiction. This enables offenders to continue operating despite earlier violations. Generally, flag of convenience practices are prevalent in states that are either unwilling or unable to police the fishing rights that they grant. It should be noted that some fishing vessels under the Georgian flag have been quite recently reported as being involved in IUU fishing. The text of the UN Convention on the Law of the Sea and related agreements can be found at <http://www.un.org/Depts/los/index.htm/>

It should be borne in mind that Georgia has not ratified the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks Agreement).

Apart from the obligations under the above-mentioned agreements, the Government of Georgia decided on 21 September 1997 through Resolution N829 (on harmonizing Georgian and EU legislation) that the country is obliged to bring all existing and future normative acts in harmony with the EU regulatory framework.

Georgia, as a member of the Food and Agriculture Organization of the United Nations (FAO), has agreed to the Code of Conduct for Responsible Fisheries. The Code, which was adopted on 31 October 1995 by the FAO Conference, is an influential non-binding or "soft law" instrument, which sets out principles and international standards with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for ecosystems and biodiversity. More information on the Code, technical guidelines on its implementation and the international plans of action developed under the Code, such as the International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries, the International Plan of Action for the Conservation and Management of Sharks, the International Plan of Action for the Management of Fishing Capacity and the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, can be found at <http://www.fao.org/fi/default.asp/>

Georgia is not yet a member of a number of relevant regional and international fisheries bodies, although interest to join has been shown on various occasions. The main reason for not having joined these bodies has been the lack of government funds available for the fishery sector in the past. The relevant regional fisheries bodies for Georgian fisheries

would be the General Fisheries Commission for the Mediterranean (GFCM), the European Inland Fisheries Advisory Committee (EIFAC), EUROFISH in the field of marketing of fishery products and trade, in the area of research through membership in the Network of Aquaculture Centres in Central and Eastern Europe (NACEE) and the Black Sea Fisheries Commission, to be established under the Convention for Fisheries and Conservation of Living Resources of the Black Sea.

### **Regulatory framework**

Currently, Georgia has no fisheries law. Recently, however, it has pursued various legal and administrative initiatives that have resulted in the adoption of a number of laws and regulations that address the fishery sector in various aspects including, *inter alia*:

- The Georgian Constitution (1995, as amended)
- The Law on the Protection of the Environment (1996)
- The Law on Wildlife (1996)
- The Law on Protected Areas (1996)
- The Law on Environmental Permit (1996)
- The Law on Water (1997)
- The Law on General Procedures for Granting Business Licences and Permits (2002, as amended in 2004)
- The Law on Maritime Areas (1998)
- The Marine Code (1997)
- The Law on Food and Tobacco (1999, as amended in 2003)
- The Law on Standardization (1999)
- The Sanitary Code (2003, as amended)
- The Veterinary Law (1995, as amended)
- The Law on Agricultural Quarantine (1997)
- The Law on Veterinary Activities and Licensing and Permits (2003)
- The Tax Code (1997, as amended)
- The Administrative Penalties Code (1984, as amended)
- The Criminal Code (1999)
- The Law on Control of Entrepreneurial Activity (2001)
- The Law on the Privatization of State Property (1997)
- The Law on Promoting and Ensuring Investment Activity (1996)

At the very beginning of the twenty-first century the MoA started to prepare a new law on fisheries for Georgia. The drafting of this new law stopped for some time because of lack of expertise on this issue within the Ministry. In 2004 the drafting process continued with inputs from specialized international lawyers, fishery sector stakeholders, experts from various ministries and national legal experts. An almost final draft law is now available. Governmental approval of this law is likely to take place before the end of 2005, after which a number of regulations under the law will still need to be produced.

### **FISHERIES STATISTICS**

There have been several collection programmes for fishery data, involving the Department of Statistics, the Ministry of Environment Protection and National Resources, and the Department of Fisheries of the Ministry of Agriculture. Data collection of fisheries-related data was not coordinated among the different government units in the past.

Data collection for estimating fishing effort did not use sampling techniques. Basic



variables such as production by species and prices were obtained directly from the landings of licensed fishing units and/or from market research. Information gaps appeared to exist in the small-scale fishing units sector, since most of these operate without a licence.

Production was usually reported for the species included in the licence. Transboarding of fish and seasonal migration of fishing units seem to constitute two possible factors for unreported catch. A third factor concerns fishing activities that take place using beach seines and other methods that do not use a registered or licensed fishing craft.

Fishing effort information is not collected on a regular basis, thus preventing the formulation of basic indicators such as catch per unit effort (CPUE) by boat/gear categories.

The level of local experience in sampling methods and in the effective use of data for basic analyses does not seem to be very high. Inland capture fisheries represent a subsector that, from a statistical viewpoint, is less known than marine capture fisheries. Aquaculture statistics are still a question mark.

However, in 2004 and 2005, with support from the FAO Technical Cooperation Programme, statistical activities are described in much more detail in technical notes on statistics and data collection and in reports of workshops organized by the project. Some general findings and observations are given below.

A frame survey undertaken in Achara has provided up-to-date information relating to approximately 300 fishing units that constitute the coastal small-scale fisheries in the Achara region. There are indications that the uncovered areas contain about twice this number; it would thus seem reasonable to assume that the small-scale fleet comprises close to 1 000 small fishing units. The average length of a fishing unit is 4.5 m and about two-thirds of the fleet is motorized. The fishing gears (at least in the region under study) are fairly limited in variety, consisting mostly of hook and line, trammel nets, seine nets and gillnets.

Data collection should be carried out through sampling operations. Initially, sampling frequency should be eight days, spread over the month and focusing on the two main sites of Bartskhana and Qobuleti. Several trial tests indicated that data collection on catch, fishing effort and prices can be achieved by one agent, possibly an outposted officer of the DoF. A single data collection form can be used for both landings and boat activities. Volumetric tests indicate that the pilot Achara system can be sustained by the DoF, provided that practical training continues and that an agent is available for collecting data from the Bartskhana and Qobuleti sites.

Initially, data collection will aim at an accuracy level of 90 percent, which is achievable if sampling is conducted according to the standard modalities provided by FAO. A set of guidelines has been prepared and printed on the back of each data collection form. The same system can be applied to the industrial vessels that operate from Batumi. Basic variables such as production by species, trip duration and prices can be obtained directly from the landings of licensed fishing. In this manner the entire statistical programme will be integrated and capable of providing estimates on catch, effort and values at any level of detail.

Inland capture fisheries appear to represent a sector that, from the statistical viewpoint, is less important in volume terms than marine fisheries, and would thus justify only a limited investment in data collection. It would possibly suffice to consolidate the existing typology



of the sector and make use of some kind of empirical knowledge for the preparation of annual reports on production.

Aquaculture statistics are still fairly unknown, although aquaculture typology is registered at regional offices operating under the aegis of the Ministry of Environment Protection and Natural Resources. A module for gathering information with the view of establishing a sampling frame for future data collection operations has been prepared. Assuming that a reasonably accurate register of farming units could be established, it would then be a matter of implementing the data collection and computer software instruments already made available through the FAO project to the DoF. Data collection should be much less intensive than that required for marine capture fisheries.

The experience gained from the Achara pilot system over the course of 2005 will allow the government to extend the system to the entire marine zone.

### **CREDIT AND INVESTMENT IN FISHERIES**

There is a two-tier banking system in Georgia: the National Bank of Georgia (NBG) and commercial banks (CBs). The NBG has a supervising function over the CBs. CBs that do not meet the requirements established by the NBG lose their banking licence. This has led to a reduction in CBs from 47 to 12 in recent years.

At present the CBs provide institutional credit with an average interest rate between 18 and 24 percent. Most institutional credit currently given has a duration of between one and five years. For long-term credit a guarantee is generally required.

The lack of flexibility in the Georgian banking system together with the relatively high interest rate of bank loans constrain local entrepreneurs from investing in their means of production, and thus present an obstacle for development of the fishery sector. Credit is needed not only for investment in fishing vessels and gear, fish ponds, fish handling, processing and marketing facilities and services, but also - or even more so - for the smooth day-to-day capture, culture, handling, processing and distribution of fish. Fisheries equipment and facilities have to be replaced or repaired, salary advances have to be provided for crew members and labourers, working capital requirements have to be met and rarely does liquidity generated by previous earnings match current expenditure.

There are no institutions that provide flexible credits to meet the needs of small- and medium-scale fishery and aquaculture producers in Georgia at present. For the rehabilitation of the fishery sector it is important that there be access to credit for those willing to invest in the sector.

As institutional credit is not accessible at the moment for most entrepreneurs in the fishery sector, they will have to rely on non-institutional sources of credit from fish merchants, professional moneylenders and boat owners. In general, the amounts of credit obtainable from these sources are fairly limited and mainly intended for working capital requirements and for short-term finance. In addition, most of these non-institutional credit arrangements have a number of disadvantages, such as high costs and unfavourable terms and conditions attached to loans.

As institutional credit is neither available nor accessible in the short term, and as non-institutional microcredit is generally only suitable for small-scale operations in the harvesting, processing and marketing areas, urgent attention from the government to this constraint to development is required. A fishery sector that is not subject to any special line of credit in the country is extremely precarious.

## **INTERNATIONAL ASSISTANCE IN FISHERIES DEVELOPMENT**

As already mentioned, the fishery sector in Georgia was not considered a priority sector in the national economic development of the country in the early 1990s. This was also reflected by the lack of international assistance to the sector in that period. Towards the end of the millennium a few internationally funded projects on fishery sector activities were formulated and initiated.

In Batumi MEFRI received support from the EU/TACIS Programme over the period 1998-2000 to carry out specific tasks defined under the Black Sea Environmental Programme. Within the research institute the following groups were established, trained and equipped.

- Wetlands Monitoring Team
- Marine Monitoring Team
- Geographic Information Systems Team
- Eco Education Team
- Black Sea Salmon Team

More information can be found at <http://mefri.iatp.org.ge/index.html/>

Since 1998 the World Bank and the Global Environmental Facility (GEF) have been funding the Integrated Coastal Management Project in Georgia. This project aims at institutional strengthening for a better management of the coastal resources of the Black Sea. In order to achieve economic development along the coastal areas, the project seeks to integrate environmental planning and management effectively through the development, testing and evaluation of different methods.

To this end, the project includes five components. The first is the establishment of an institutional and legal framework, thus facilitating intersectoral planning and participation. With the creation of agencies and other groups, in addition to drafting legislation, this component will support coastal management through training and mass media awareness. Second, the protection and management of forests and natural habitats will be supported for the conservation of biodiversity. A third component is the establishment of a coastal environment quality monitoring and information system, setting standards at major sources of pollution. The fourth component addresses the evaluation of coastal erosion, towards integrated water management. Finally, the development of a national oil spill contingency plan and marine oil pollution control plan will provide support for a Regional Black Sea Strategy Action Plan. One of the components is also dealing with the Kolkheti National Park, a water area on which a number of coastal fishing communities are dependent for their livelihoods. Detailed information on the various project components can be found at <http://www.iczm.org.ge/entry.html/>

In these first years of the twenty-first century the Government of Georgia has asked FAO for technical assistance. This assistance is being provided under Technical Cooperation Programme Project TCP/GEO/2904(A): "Strengthening the Capacity of the Department of Fisheries to Support Fisheries Sector Rehabilitation". The two-year project (2004-2005) aims to increase the effectiveness and efficiency of the DoF in leading and assisting the rehabilitation of the fishery sector in Georgia in a structured and responsible manner, with specific emphasis on the achievement of food security and alleviation of poverty, where the fishery sector could play a more prominent role.

The specific objectives of the project are to:

- review existing national fisheries legislation and draft appropriate amendments to the draft law on fisheries in order to facilitate its finalization and governmental approval;
- produce a national master plan for fisheries development, in consultation with the main stakeholders in the Georgian fishery sector, as part of the general fisheries policy framework;
- develop data collection and evaluation systems as well as information retrieval to be used as tools for fisheries management and planning.

The present *Review of the current status of fisheries resources and utilization in Georgia* has also been produced with technical and financial support from this FAO project. Additional information can be obtained from [http://www.fao.org/world/regional/REU/Content/FProgramme/index\\_en.htm/](http://www.fao.org/world/regional/REU/Content/FProgramme/index_en.htm/)

Preliminary contacts by the staff of the project and the FAO Representation with a number of active international donors have shown the willingness of several of these donors to include fisheries and aquaculture development and management actions among their programmes. However, most of the donor agencies face difficulties in identifying the fishery activities to be supported by them because of their lack of fishery expertise and the weakness of the fishery institutions to advise them on the needs and opportunities for development of the fishery sector. The Master Plan for Fishery Sector Development in Georgia, 2005-2020, currently being developed should help potential donors to address national priorities for sectoral development.

## **DEVELOPMENT PROSPECTS**

### **Strength**

- Georgian hydrobiological marine and inland water resources are generally underexploited or moderately exploited. For example, a large part of the anchovy resources in Georgian waters has not been utilized or harvested in recent years.
- The marine fishing fleet is relatively small and overcapacity of the fleet, as is the case in many countries, does not exist.
- Georgia has environmental conditions suitable for the development of aquaculture, such as many rivers and reservoirs with good water quality.
- The current fishery administration, the DoF of the MoA, is small and as such does not require many financial resources from the Government of Georgia.
- The majority of Georgian marine fishers are organized in fishermen's associations and cooperatives, which makes them relatively easy to reach for government services and incorporation in government decision-making processes.

### **Weaknesses**

- There is no national fishery sector policy or regulatory framework to assist the sector in its sustainable development.
- The division of responsibilities between various governmental agencies with regard to fishery-related matters is not clear. This leads to non-management of the sector. The Government needs to decide as soon as possible which ministry will be

responsible for management of the fishery sector. It would be most logical for either the MoA or the Ministry of Environment Protection and Natural Resources to have a mandate for fishery management.

- Financial means in the MoA are lacking to ensure that the DoF is the centre of excellence it should be, equipped with highly qualified staff and modern means of communication and transport.
- The fishery sector research institutes do not have the financial capacity to undertake the necessary research to assess fisheries resources and support the development and monitoring of fisheries management regimes.
- The marine fishing fleet, fishing ports and fish landing facilities are old, badly equipped and lack proper safety (e.g. for sailors at sea and food safety) and quality measures.
- The fish processing industry for human consumption has been virtually destroyed.
- Most hatchery facilities for restocking of inland waters and aquaculture ponds with fish have been destroyed and others are in a very bad state.
- No good-quality fish feed for aquaculture is being produced in Georgia.
- There is a lack of restocking of inland waterbodies and of monitoring and control of IUU fishing in both inland and marine waters.
- Many of the inland waterbodies are not very productive during part of the year, as they are covered with ice and water temperatures are low in winter, which means that the fish do not consume much feed and have little growth during that period.
- The collection of fishery statistics is not coordinated at present and the responsibility for data collection and analysis has not been determined, which affect decision-making in a negative manner.

## **Opportunities**

- The fishery sector is now being prioritized by the Government and, therefore, the sector should be included in future phases of the Economic Development and Poverty Reduction Programme of Georgia and obtain funding accordingly.
- With the participatory preparation of the Master Plan for Fishery Sector Development in Georgia, 2005-2020, the Government has initiated discussions with all relevant stakeholders. Increased stakeholder collaboration and involvement in decision-making processes seem possible with only limited efforts.
- The Master Plan and the new fishery law will (once approved by the Government) provide a basis for sustainable development of the sector in the coming years and will allow international donors to support the Government in its efforts towards sustainable development.
- Georgia has ratified a number of international agreements that relate to fisheries and their resources and utilization. Under these agreements there are generally mechanisms and funds available that support countries in their implementation.
- Uniting international and regional fishery bodies will increase Georgian access to information and collaboration on fisheries resources, research, management, education, techniques, marketing and trade.
- The hydrochemical and biological conditions of Lake Paliastomi provide possibilities for stocking the lake with common and Chinese carp, foreseeing an increase in the annual production.

- Prices paid for fish and fishery products on the domestic market are relatively high compared with those in Europe and neighbouring central Asian countries.
- Demand for low-priced fishery products on the domestic market is high, which may be regarded as an incentive to develop the capture fisheries sector.
- As there is currently no fisheries management system in place, it is possible to adapt modern cost-effective management systems, taking advantage of the lessons learned by other countries and building on up-to-date information on comanagement schemes and programmes.
- Anchovy and other small pelagics that are abundant in Georgian marine waters can be used for human consumption and for the production of fishmeal.
- Feasibility studies on the fishery fleet (both large- and small-scale) could assist the sector in modernizing the fleet, including facilities on board such as navigation, gears, safety and product quality maintenance.

## **Threats**

- If the new fishery law is not approved by the Government and no decision is taken on the establishment of a national fisheries management body, it will be extremely detrimental for sectoral development. Urgent action and commitment are required.
- The Turkish fleet is currently fishing for anchovy and other pelagics in Georgian waters. Unless the Government of Georgia makes firm agreements with the neighbouring Black Sea coastal states and ensures enforcement of these agreements, IUU fishing in Georgian waters by foreign fleets will continue.
- As long as the national financial institutions that provide formal credit do not consider the fishery sector and its needs properly, investment levels in fishing vessels, fish processing and related activities will remain low.
- Oil spillage, pesticides and other wastes that enter coastal waters have created pollution such that water quality in some coastal areas of the Georgian Black Sea is not good. Consequently, the environment is not suitable for fish reproduction and the fish caught in these waters are detrimental to human health.
- The few formal education and practical training/capacity building and extension institutions that address the needs of the fishery sector limit the number of people that can be trained in fisheries, which will hinder sectoral development in the near future.