

# Estonian Fisheries and Aquaculture Sector 2009





## *Foreword*

This report provides a detailed review of the Estonian fishery sector which has undergone drastic changes since the early 1990s when the Soviet Union collapsed and Estonia regained its independence. The fishery sector, as other sectors of the economy, transformed to adapt to conditions of market economy. In undertaking this adaptation process, the main management measures adopted by Estonia were volume quotas (ITQs) in the open sea fisheries (Baltic and Atlantic trawling) and gear quotas in the Baltic coastal and inland fisheries. All fishing rights in Estonia are based on the historic usage principle and are fully transferable within the country. Most quotas are owned by companies which hire fishers to undertake fishing on company owned vessels or on vessels owned by the fishers themselves.

The basis of the Estonian fisheries legislation is the Fisheries Act (1995), with its major amendments, and the 'Fishing Regulation'. The Estonian Fisheries Act entered into force on 1 January 1996. The Estonian marine fishery in the Baltic Sea and in the Atlantic Ocean is covered by the EU Common Fisheries Policy (CFP) since Estonia joined the EU in May 2004.

The institutional set-up of the fisheries administration in Estonia is fairly unique. Since 2000, responsibility for administration and governance is divided between the Ministry of the Environment and the Ministry of Agriculture. The Estonian Environmental Inspectorate (EEI) of the Ministry of Environment has overall responsibility for the Estonian fisheries control. EEI is responsible for administrative and port controls. The EEI is also responsible for the control of fisheries at sea. To achieve the best results, the EEI operates in full cooperation with the Estonian Coast Guard, the Fish Resource Department of the Ministry of the Environment, the Fishery Economics Department of the Agricultural Ministry and other relevant authorities. The Estonian Veterinary and Food Board, under the administration of the Ministry of Agriculture, is responsible for the fisheries control in the processing, wholesale and retail sector and for the control of compliance with market regulations in fisheries.

This report is intended to highlight the key insights and lessons from Estonia's experiences. The report has been prepared as background material in support of the process for Estonia's accession to the OECD. It provides an overview of the Estonian fisheries and aquaculture sector and was discussed at the 104th Session of the Committee for Fisheries in October 2009. With the agreement of the Estonian ministries of Agriculture and Environment, the Committee for Fisheries decided to make the report publicly available.

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## *Acronyms*

BAFICO	Baltic Fishery Commission
CFP	Common Fisheries Policy
EEI	Estonian Environmental Inspectorate
EU	European Union
FAO	Food and Agriculture Organization
ICES	Convention for the International Council for the Exploration of the Sea
ITQ	Individual Transferable Quota
NAFO	Northwest Atlantic Fisheries Organisation
NEAFC	North East Atlantic Fisheries Commission
PO	Producer Organization
TAC	Total Allowable Catch
UNCLOS	UN Fish Stock Agreement, the United Nations Convention on the Law of the Sea
VFR	Fishing Vessel Register



## Executive summary

### *Legal and institutional framework*

The basis of the Estonian fisheries legislation is the ‘Fisheries Act’ (1995), with its major amendments, and the ‘Fisheries Regulation’. The Estonian fisheries legislation entered into force on 1 January 1996. The Estonian marine fishery in the Baltic Sea and in the Atlantic Ocean is covered by the EU Common Fisheries Policy (CFP) since Estonia joined the EU in May 2004. The CFP is regulating main areas in fisheries, including data collection, advice formulation and surveillance. The Estonian fisheries legislation and the related secondary legislation are harmonized with the provisions of relevant international conventions and agreements to which the European Community is a contracting party. The most important among these conventions is the United Nations Convention on the Law of the Sea (1982).

The Estonian fisheries legislation, fisheries management, control and enforcement measures and fishing and aquaculture practices are strongly influenced by the UN FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas. The Code of Conduct for Responsible Fisheries was translated into Estonian in 1995. The Estonian fisheries legislation is harmonised with the provisions of that Agreement preventing, for example, ‘re-flagging’ of vessels to fly flags of states that are unable or unwilling to enforce necessary management measures.

The institutional set-up of the fisheries administration in Estonia is fairly unique. Since 2000, the responsibility for administration and governance is divided between the Ministry of the Environment and the Ministry of Agriculture. The Estonian Environmental Inspectorate (EEI) of the Ministry of Environment has the comprehensive responsibility for the Estonian fisheries control. EEI is responsible for administrative and port controls. EEI is also responsible for the control of fisheries at sea. To achieve the best results EEI operates in full cooperation with the Estonian Coast Guard, the Fish Resource Department of the Ministry of the Environment, the Fishery

Economics Department of the Agricultural Ministry and other relevant authorities. The Estonian Veterinary and Food Board, under the administration of the Ministry of Agriculture, is responsible for the fisheries control in the processing, wholesale and retail sector and for the control of compliance with market regulation in fisheries.

The main institution engaged in fisheries data collection and scientific advice formulation is the Estonian Marine Institute of the University of Tartu. Fisheries research on Lake Võrtsjärv is conducted by the Estonian University of Life Sciences. This university also includes a small unit dealing with aquaculture and fish genetics.

The most important fisher's organization used to be the Estonian Fisher's Association. Nowadays, three producer organizations (POs set up in accordance with the common EU market for fishery products) represent almost 90% of the Estonian Total Allowable Catch (TAC).

### *Management*

Access to commercial fishing in Estonia is subject to a fee. This fee is used, through the Centre of Environmental Investments, to cover expenses for fish stock research, surveillance, restocking, fisheries data collection, etc. Commercial fishing-related data are stored in a web-based database in the Ministry of Agriculture.

The coastal and inland fisheries employ mainly passive gears and use a multitude of small ports and hence the compliance with the volume quotas system in these segments has been deemed to be difficult to control. However, according to agreements with the Russian Federation, national quotas for the most important commercial species in the Lake Peipsi-Pihkva have also been set (block quotas).

In addition to quotas, there are numerous technical management measures employed in Estonian fisheries: minimum mesh sizes (for gill nets, fyke nets and trawl bags), closed areas and seasons, minimum landing sizes for fish and limits on by-catches.

Data collection for stock assessment for regulated species in the Baltic Sea, NEAFC and NAFO is regulated by the EU Fisheries Data Collection Program which Estonia joined after joining the EU. Stock assessment and advice formulation for Lake Peipsi-Pihkva stocks is regulated by the corresponding Estonian-Russian Intergovernmental Commission.

Financial transfers to the fisheries sector include direct payments, cost-reducing transfers and general services. Historically there were no mechanisms to increase revenues or for market intervention in Estonia.

Since 2005 there are three approved producer organizations (PO) who have the right to apply for market intervention measures in Estonia in accordance with the EU Common Market Organisation for Fish and Fish Products (EU Council Regulation no 104/2000, Art. 23). In 2008 the intervention measures covered 3.1% of the Baltic herring TAC and 3.6% of the sprat TAC in Estonia. This carry over mechanism provides for the processing and storing of fish for human consumption until market disturbances are over. The carry over support in 2008 was EUR 735 000.

The main source of the financing of the Estonian fisheries sector is the European Fisheries Fund. The financing of the Operational Program in Estonia foresees the total expenditure to be EUR 84.6 million during the period 2007 – 2013. With the Estonian co-financing the total public expenditure will amount to EUR 112.7. This amount is distributed between five priority axes:

- adaptation of the fishing fleet,
- aquaculture, inland fishing, processing and marketing of the fishing products,
- measures of common interest,
- sustainable development of fisheries areas and
- technical assistance.

All fishing rights in Estonia are based on the historic usage principle and are fully transferable within the country. Most quotas are owned by companies which hire fishers to undertake fishing on company owned vessels or on vessels owned by the fishers themselves. Main management measures in Estonia are volume quotas (ITQs) in the open sea fisheries (Baltic and Atlantic trawling) and gear quotas in the Baltic coastal and inland fisheries. With respect to international fisheries in the NAFO area, as NAFO distributes some fishing rights as fishing days, fishing day quotas are also used in this segment.

#### *International arrangements*

Adherence to and national implementation of international agreements such as the 1995 UN Fish Stock Agreement, the United Nations Convention on the Law of the Sea (UNCLOS), the FAO Code of Conduct for Responsible Fisheries, Best practices in the fisheries and aquaculture field and IUU issues are included in the EU Common Fisheries Policy and are mandatory for Estonia as EU member State.

Estonia is a contracting party to the following conventions and agreements: Convention for the International Council for the Exploration of the Sea (ICES), the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention of the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stock Agreement).

Fisheries issues (including fisheries research, surveillance) on the cross-border Lake Peipsi-Pihkva are regulated by the Estonian-Russian Intergovernmental Commission. Until joining the EU, Estonia had also bilateral fisheries agreements with Latvia, Russia (in the Baltic and in other seas) and USA. These relations are now managed by the EU.

### *The industry*

Estonia's commercial capture fishery is sub-divided in four fleet segments:

- Atlantic distant water fisheries,
- Baltic trawlers,
- Baltic coastal fishery,
- Inland water fishery.

As a member - until joining the EU in 2004 - of NAFO, NEAFC and still of the Svalbard Treaty, Estonia has fish quotas in these regulatory areas. According to the Fishing Vessel's Register (VFR), the Estonian distant water (Atlantic) fleet consists of 10 trawlers (segment 4S3), which are mostly targeting shrimp in the NAFO area. Among the EU countries, Estonia has the biggest shrimp quota in the NAFO area. Another important quota species for Estonia is redfish. Greenland halibut, rays and other species are also fished. Occasionally, unregulated species in these and other areas are also taken. About 170 fishers are employed in this segment of the sector and due to quota limitations, there is an overcapacity in this segment of the Estonian fleet. Catches of this segment of the fleet are landed outside Estonia. Taking into account the considerable surveillance, administration and data collection costs of this segment the net contribution to the national economy is limited.

There are 62 trawlers in the Baltic Trawl fishery, targeting mostly regulated species of the Baltic Sea – herring, sprat and some cod. Open-water fishery for salmon was performed in the past. Among the unregulated

species, smelt and some other species are also caught. Quota use is high for sprat (89-99% of the quota is taken) and herring (73-96%). About 600 fishers are active in this segment of the sector. Fish is sold fresh or frozen (mostly to the eastern markets but occasionally also to western fish meal factories) or processed in Estonia before being sold in the local market or abroad.

The Baltic coastal fishery uses passive gear (various traps and gill nets), operated from over 800 small vessels. By volume, herring dominates the catches in the coastal zone, followed by perch, flounder and other species. However, due to its high market price, perch dominates the revenues (over 50% of the total), followed by herring, pikeperch and flounder. Fish prices have been rather stable in recent years. This has serious implications for the fishery sector, as costs for personnel, fuel etc. have increased significantly over this period. This applies also for other fisheries. There are about 2 600 coastal fishers in Estonia, mostly in coastal communities, but on average they make only 10-20% of their income from fishing. Most stocks of valuable species (perch, pikeperch) were seriously overfished in the 1990s, but are slowly recovering. The coastal fishery faces serious impacts from increasing populations of cormorants and seals.

About 900 fishers are employed in inland water fisheries, most of them part-time. This segment uses 362 small vessels (up to 12 m in length) and mostly passive gear (except for 20 Danish seiners on Lake Peipsi). Most of the inland commercial fishery is concentrated in Lake Peipsi-Pihkva (and in waterbodies of the watershed of these lakes – the Emajõgi River, Lake Võrtsjärv). Over the last 10-20 years, the population of pikeperch has substantially increased in this lake, but at the same time, stocks of vendace, smelt and whitefish were depleted. Pikeperch and perch represent the largest share of catches and revenues. Illegal fishing is widespread, not only on the Estonian side but also in coastal waters of the Baltic Sea and in other inland waters. Commercial catches in other inland waters are low while the importance of recreational fishing is increasing.

A baseline study by the Estonian Marine Institute (2005) estimated the overcapacity of the trawling fleet to be around 30%. Based on that study the first decommissioning scheme took place in 2005 – 2006. According to the Operational Programme of the European Fisheries Fund 2007–2013, the Estonian national fleet is still dominated by fishing vessels built in the 1970–1980s, characterised by extremely low-quality steel and weakly functioning engines.

In 2007, another adjustment scheme was planned and is still ongoing. The target is set as follows: in 2006 the effort of the maritime fishing fleet was 20 826 GT and 53 340 kW. Control level in 2010 should be -5% and the

target level is -10%. The same programme sets also another target: the percentage of the modernised fishing vessels of the total fleet should be 15% by 2010 and 40% by 2015. The vessel adjustment plan is in accordance with the OECD C(2008)78 “Recommendation of the Council on the Design and Implementation of Decommissioning Schemes in the Fishing Sector” and corresponds to EU legislation.

There are about 20 commercial companies whose main activity is fish farming. Many other companies are engaged in fish tourism (angling for fish purchased from other fish farms) or holding small “hobby” farms with an annual production of less than 100 tonnes. Approximately 100 people are employed in fish farms. Rainbow trout (*Oncorhynchus mykiss*), common carp (*Cyprinus carpio*) and European eel (*Anguilla anguilla*) are the three major cultured species. The proportion of reared freshwater crayfish (*Astacus astacus*) and Siberian sturgeon (*Acipenser baerii*) is increasing. For trout farmers an important additional by product is trout roe which is salted and sold as red caviar. The total commercial aquaculture production has been increasing reaching 784 tonnes in 2007. Most of the trout and carp production is sold on the domestic market. Due to its small size, the aquaculture sector has little influence on the national economy, fish consumption or social situation in rural areas.

An important branch of aquaculture is rearing for restocking, which is financed by the state. Two fish farms are dealing exclusively with restocking, including the state-owned Põlula Fish Farming Center. Most of the effort is placed on restocking salmon and sea trout.

During the post-soviet period, the importance of fish processing decreased but recently the sector has more or less stabilized. Still, fish (herring and sprat) is mainly frozen and sold mostly to the eastern markets. The total number of fish processing enterprises is 90. There is a steady increase of the importance of larger, horizontally and vertically integrated companies, with direct ownership of all production activities from fishing to fish processing and export. The production of value added salted, spiced, dried, deep-frozen or breaded fish products is also very important. In recent years, production of smoked fish and high value added products have increased and the production of canned fish decreased. The most valuable species in coastal and Lake Peipsi-Pihkva fisheries, perch and pikeperch, are filleted and sold to western markets. During 2004-2008, Estonia exported fish and shellfish into 61 countries and imported fish and invertebrates from 53 countries. Estonia has a positive trade balance for fishery products.



### *Recreational fishing*

The recreational value of Estonian waters, especially inland waters and coastal shallow-water bays, is comparatively high. In general, angling can be performed without a licence and there are no official statistics about catches. Gillnet fishing requires a fishing card which can be acquired in a bank or via mobile phone.

A remarkable part of the catch is made of juvenile fish which have not reached the minimum legal size and a substantial part of the catch is sold to fish processing companies. There is currently a discussion going on among stakeholders if recreational fisheries need stricter regulation in the future, including a long-term strategy to manage conflict between professional and recreational fishers.



## Chapter 1.

### Introduction

The following is an overview of the Estonian fishery sector which has undergone drastic changes since the early 1990s when the Soviet Union collapsed and Estonia regained its independence. The fishery sector, as other sectors of the economy, transformed to adapt to conditions of market economy.

This overview is based on official statistical data from Statistics Estonia, the Estonian Fisheries Information System, data of the Ministry of the Environment ([www.envir.ee](http://www.envir.ee)), the Ministry of Agriculture ([www.agri.ee](http://www.agri.ee)), etc., data collected and analysed by the Section of Fish Biology and Fisheries of the Estonian Marine Institute, University of Tartu (reports and other unpublished data) ([www.sea.ee](http://www.sea.ee)) and research publications (mostly by the staff of the Estonian Marine Institute), both in international peer-reviewed journals and in national publications (e.g. *Eesti kalandus – Estonian Fishery 2002, 2005*).<sup>1</sup>

**Figure 1.1. Administrative map of Estonia (counties)**



Source : [www.eramets.ee](http://www.eramets.ee)



## Chapter 2.

### Capture fisheries

#### Major fish stocks

##### *Atlantic*

Currently, Estonia, as a member, (until joining the EU on 1 May 2004) of NAFO, NEAFC and still of the Svalbard Treaty, has access to rather limited internationally regulated fish resources in some regulatory areas of the Atlantic and Arctic Oceans. The Estonian distant water fishing fleet relies almost exclusively on these limited resources, with only occasional fishing for other (regulated and not regulated) species in other areas of the world oceans.

The distant water fishery is essentially a shrimp fishery. The biggest quota is for the northern shrimp, *Pandalus borealis*, mostly in NAFO 3M but also in NAFO 3L and the Svalbard area (Table 2.1). In NAFO 3L, Estonian companies additionally often buy quotas from companies of other countries. Estonian landings of shrimp are much bigger than for other EU members operating in the NAFO area. Other species of great commercial interest are Greenland halibut, redfish *Sebastes* sp., and rays (*Rajidae*). Among these resources, only shrimp stocks in NAFO 3LM are in good shape

**Table 2.1. Estonian fish and crustacean fishing possibilities (including additional possibilities transferred from other States) in NAFO, NEAFC and the Svalbard area (tonnes or \*fishing days)**

Species	Area	2002	2003	2004	2005	2006	2007	2008	2009
Northern Shrimp	NAFO 3M*	1 667	1 667	1 667	1 867	1 987	1 937	1 967	1 767
	NAFO 3L	67	144	144	576	1 225	1 405	1 390	668
	Svalbard*	377	377	377	377	377	377	377	377
Redfish	NAFO	21 359**	21 350**	1 571+7 500**	3 142	1 571	1 471	1 571	1 571
	NEAFC	1 175***	500**	350	10	284	210	0	210
Squids	NAFO	1 133**	128	128	256	128	128	128	128
Reinhardtius hippoglossoides	NAFO	2 169**	2 070**	985**	760	371	366	251	321
	NEAFC				10	8	6	6	4
Rays and skates	NAFO				1 092	546	396	546	546
Yellowtail flounder	NAFO	65**	73**						
Mackerel	NEAFC, NAFO	600***	511**	150	10	0	45	124	165
Roundnose grenadier	NEAFC				509	77	67	67	57
Black scabbardfish	NEAFC				18	17	17	17	15
Ling	NEAFC				6	5	4	3	3
Deep-water sharks	NEAFC				11	10	4	2	0
Deep-water species				163**					
<b>TOTAL</b>		<b>28 612</b>	<b>26 820</b>	<b>13 035</b>	<b>8 644</b>	<b>6 606</b>	<b>6 433</b>	<b>6 449</b>	<b>5 832</b>

\* Fishing days

\*\* Block-quota shared with other states

\*\*\* Total quota for non-members of NEAFC

Since 2005, real quotas (taking into account quota transfers)

Source: Ministry of the Environment

### ***Baltic Sea***

Several stocks in the Baltic Sea are regulated by the European Community and Estonia has quotas for four regulated species (Table 2.2).

**Table 2.2. Estonian fish quotas in the Baltic Sea in 1996-2008 (tonnes)**

Year	Species				
	Herring	Sprat	Cod	Salmon	Total
1996	56 800	51 500	2 937	102	111 339
1997	56 800	56 650	3 200	93	116 743
1998	56 800	56 650	2 492	94	116 036
1999	48 270	48 210	2 243	88	98 811
2000	41 070	41 200	1 869	88	84 227
2001	41 070	41 200	1 869	88	84 227
2002	39 000	41 200	1 353	74	81 627
2003	26 036	31 930	1 335	71	62 417
2004	28 536	38 260	1 336	64	73 189
2005	31 900	57 050	1 079	10	79 275
2006	33 442	51 061	1 290	55	85 848
2007	32 227	53 023	1 171	53	85 511
2008	33 816	52 060	1 054	46	86 976

\*Salmon quota in numbers is transferred to tonnes, 1 t = 200 specimens

Source: Statistics Estonia; Ministry of the Environment

The Estonian herring *Clupea harengus* quota is composed of two parts, the Gulf of Riga herring and the open sea herring. The stock in the Gulf of Riga has been at a high level during the last decade. The open sea herring stock is recovering and overall, herring quotas have increased in recent years. Nationally, the herring quota is divided between the coastal fishery (pound net fishery on spawning grounds; approximately 1/3 of the total quota) and the open-sea (trawl) fishery.

The stock of sprat *Sprattus sprattus* has been at a historic high level for more than 10 years, partly due to low pressure by predators (cod). Cod *Gadus morhua* stocks are at a low level, due to overfishing and (the eastern stock) due to impaired recruitment (unfavourable salinity and oxygen conditions in the depths where cod spawns). The Estonian quota includes mostly the eastern stock, SD 25-32 (868 tonnes in 2008) and a smaller fraction of the western stock (186 tonnes). Abundance of cod in the Estonian EEZ has increased somewhat over recent years but is still too small for commercial exploitation. The Estonian fleet targets cod in the western Baltic

using mostly trawls (occasionally also gill nets). The quota for salmon *Salmo salar* also consists of two components, the open sea (SD 23-31, 7 674 pieces in 2008) and the Gulf of Finland (1 581 pieces). The situation with the Gulf of Finland salmon is alarming as it spawns naturally only in some relatively small Estonian rivers in this area. In order to protect natural stocks, ICES advises that the salmon fishery should be targeting the restocked salmon (which, however, is hard to achieve).

All other (non-regulated) fish species are taken predominantly or totally by the coastal fishing fleet and include migratory species such as river lamprey, anadromous whitefish and smelt – also in rivers going into the sea. The following species are the most important:

- Among marine species, the flounder *Platichthys flesus* stock has increased over the last decade, but this species is not fully exploited partly due to marketing problems. Garpiki *Belone belone* is taken on spawning grounds with pound nets in spring.
- Among freshwater species (almost all Estonian freshwater species also inhabit the Baltic coastal waters of low salinity), perch *Perca fluviatilis* is a valuable subject for commercial fishing all over the coast, especially in warmer areas with more stable recruitment and higher growth rate (Gulf of Riga, the Väinameri). An even more desirable (higher price) species is pikeperch *Sander lucioperca* which is more abundant in the Gulf of Riga (especially in Pärnu Bay). Also pike (*Esox lucius*) and some cyprinids like vimba bream *Vimba vimba*, ide *Leuciscus idus*, roach *Rutilus rutilus* and in recent years also an alien species, crucian carp *Carassius gibelio*, are of remarkable commercial interest.
- Among migratory species, sea trout *Salmo trutta* is much more abundant than salmon (sea trout spawns in rivers and streams all over the coast), and it is fished mostly in the Gulf of Finland area. Eel *Anguilla anguilla* catches increased in the 1990s, due to increased fishing pressure accepted by the Ministry of the Environment, but this fishery has almost lost its importance nowadays due to the very low level of the stock. The smelt *Osmerus eperlanus* stock has increased in recent years and this species is taken mostly by the coastal fishery but also as bycatch in the trawl fishery for herring. River lamprey *Lampetra fluviatilis* is mostly fished in the spawning rivers, but it also appears as by-catch in the trawl fishery.



## Inland waters

The most important inland fishery occurs in the cross-border Lake Peipsi. Fish resources of this lake system are managed together with Russia and all commercially important species are TAC regulated. The quotas (Table 2.3) reflect the state of stocks.

**Table 2.3. Estonian quotas on Lake Peipsi (tonnes)**

Species	1998	2003	2008
Whitefish <i>Coregonus lavaretus</i>	55	30	7
Smelt <i>Osmerus eperlanus</i>	2 300	1 500	5
Vendace <i>Coregonus albula</i>	0	0	0
Bream <i>Abramis brama</i>	300	600	700
Roach <i>Rutilus rutilus</i>	250	500	475
Pike <i>Esox lucius</i>	100	175	95
Burbot <i>Lota lota</i>	35	50	50
Perch <i>Perca fluviatilis</i>	700	450	750
Pikeperch <i>Sander lucioperca</i>	1 100	1 500	1 000
Total	4 840	4 805	3 082

Source: Ministry of the Environment.

There have been drastic changes in the fish community of this lake since the 1990s. First, the abundance of pikeperch has increased to the highest historic level. Second, stocks of formerly extremely abundant pelagic planktivorous species – vendace and smelt – have collapsed, and the stock of whitefish has also drastically decreased. These changes are related to the increased level of eutrophication, warm summers, and - to a lesser extent - to the increase in the pikeperch stock and to fishing pressure. The stock of benthivorous bream is at a high level.

Fisheries in other inland waters are regulated by technical measures (e.g. closed areas and closed seasons) and there are no catch quotas. The main species in other inland waters are eel (in Lake Võrtsjärv and its tributaries, due to restocking), pike, perch, bream and other cyprinids, and pikeperch in some water bodies.



## Chapter 3.

### Main fisheries and fleets

#### General

The Estonian fishing vessel register has four segments: 4S1 (Baltic open-sea trawling), 4S2 (Baltic coastal fishing), 4S3 (Atlantic distant water fisheries), 4S4 (fishing in inland waters). After the accession to the European Union the ceiling of the total capacity of the Estonian fishing fleet was set as follows (by 1 May, 2004): GT – 26 613 tonnes; engine power – 64 967 kW. Due to the vessel adjustment programs the fleet capacity in June 2008 was somewhat smaller (Table 3.1). The total number of fishing vessels is currently 1 282. Most of them are small (up to 12 m) and are used in the Baltic coastal and inland fisheries (Table 3.2).

**Table 3.1. Total engine power and storage capacity of the Estonian fleet by fishing segment (June 2008)**

Segment	Engine power (kW)	Storage capacity (GT)
4S1	14 313	5 381.4
4S2	15 075	1 785.1
4S3	19923	12 215
4S4	12 100	831.9
Total	61 411	20 213.4

Source: Ministry of Agriculture

#### *Baltic trawlers – segment 4S1*

In terms of total revenue generated the most important segment of the Estonian fishing fleet is the Baltic trawl fleet targeting herring and sprat. During the Soviet period the trawling sector was rather big and its production was sold over the whole of the Soviet Union. However, it consists of used vessels which were old-fashioned and uncompetitive. The disintegration of the centrally planned economy resulted in the discontinuation of cheap fuel and other inputs provided by the state. Additionally, whereas the small-scale fishery found new markets in Western Europe, the products of the trawling sector (canned herring and sprat) were

still competitive only in the eastern market (mainly Russia and Ukraine). The price level on these markets was low and Russia tried to enforce several trade barriers to “punish” Baltic states for their independence as well as to force those states into closer alliance with the Russian Federation. Due to the introduction of an ITQ system for quota distribution between licence owners and low profitability of this segment the number of vessels decreased year by year.

**Table 3.2 Number of vessels in the Estonian Fishing Vessel Register (June 2008)**

Fleet	Segment	Number of vessels
Demersal trawlers, 12-24 m (Baltic Sea)	4S1	15
Netters/seiners, 12-24 m (Baltic Sea)	4S1	3
Pelagic trawlers, 12-24 m (Baltic Sea)	4S1	43
Passive gears, up to 12 m (Baltic Sea)	4S2	882
Demersal trawlers, 24-40 m (Atlantic Ocean, distant water fleet)	4S3	2
Netters/longliners, 24-40 m (Atlantic Ocean, distant water fleet)	4S3	1
Pelagic trawlers 24-40 m, (Atlantic Ocean, distant water fleet)	4S3	7
Passive gears, up to 12 m (inland waters)*	4S4	362
<b>TOTAL</b>		<b>1 315</b>

\* Including ca 20 vessels used for Danish seining, numbers subject to permanent change due to vessel adjustment program

Source: Ministry of Agriculture.

In conclusion, while in 2001 the number of trawlers of 12 – 24 m and of 24 – 40 m was 62 and 81 respectively, in 2007 the numbers were only 28 and 34. The average vessel age is rather high, around 25 years. During the Soviet period two main types of vessels dominated: steel trawlers type of “MRTK” (around 25 m, 220 kW, 120 BRT) and wooden vessels (around 13 m, 55 kW, 12 BRT). Today, most of the old vessels have been replaced or scrapped and most of the catch is taken by big and powerful vessels of western origin, typically bought as second hand vessels already in service for a decade.

### ***Baltic coastal fishery – segment 4S2***

By the total number of vessels and fishers the largest segment of the Estonian fleet is the coastal fishery employing mainly passive gears like gill

nets and trap nets (Table 3.2). This fishery targets mostly freshwater species such as pikeperch, perch and pike, but also marine species such as flounder and spawning stocks of herring and garfish, as well as migratory species such as sea trout, salmon and whitefish.

The development of this fishery has been different from all other segments. At the beginning of the nineties, the opportunity to export fish to the European market emerged. Opening of this new market resulted in rapidly increasing pressure on fish stocks. While during the Soviet period this segment was moderate in size, partly due to the strict border regime at the sea, in the beginning of the nineties this fleet grew rapidly. After the increase in fleet and fishing effort, stocks started to decline. Also, fishing costs grew. These developments have resulted in a decline in the importance of the coastal fishery during recent years. Even if the size of the fleet and the number of fishers in this segment still remains relatively high, the bulk of fishers are today employed only part-time and receive most of their income from other sources.

#### ***Atlantic distant water fisheries – segment 4S3***

After the re-establishment of the national independence in 1991 the Estonian distant water fishing fleet changed considerably. Due to the so-called “soviet plan economy” the number of distant water fishing vessels was very high during the soviet period – around 100. However, under the conditions of the free market most of these vessels proved to be inefficient, mainly due to the low fuel efficiency and limited storage capacity (many of them used to fish for big freezer ships). In addition, Estonia had to find alternative fishing possibilities for the Estonian fishers which could not use the fishing rights which belonged to the former Soviet Union. In order to guarantee fishing rights to the fishers, Estonia joined different regional fisheries management organizations. So, today only a few vessels operate outside the Baltic Sea, mostly in the NW Atlantic Ocean (Table 3.2). The main target species is shrimp.

#### ***Inland waters – segment 4S4***

Estonia has a comparatively well-developed and large inland water fleet. The reason is the existence of two large lakes: L. Peipsi-Pihkva (border lake with the Russian Federation) and L. Võrtsjärv. The first accounts for approximately 90% of the total freshwater catch in Estonia. Due to the few alternative employment possibilities, the freshwater fishery has high regional importance. The number of vessels in this segment is presented in Table 3.2.



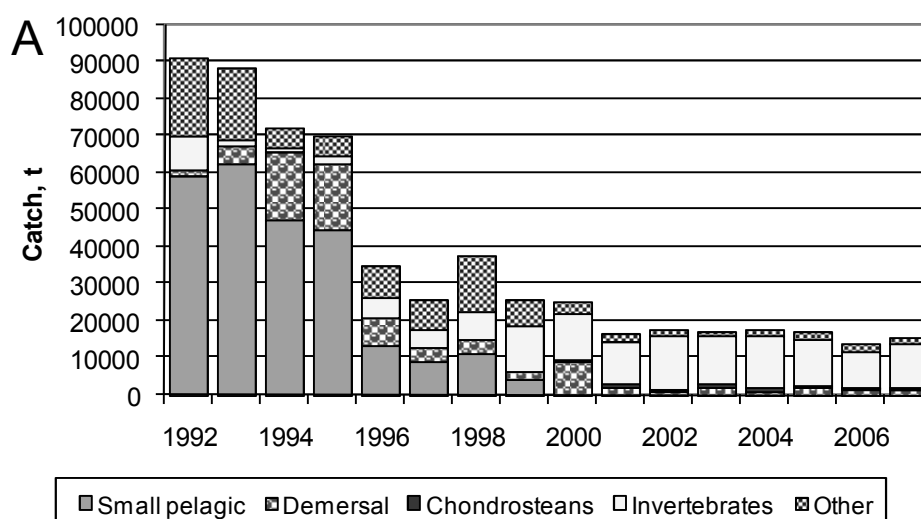
## Chapter 4.

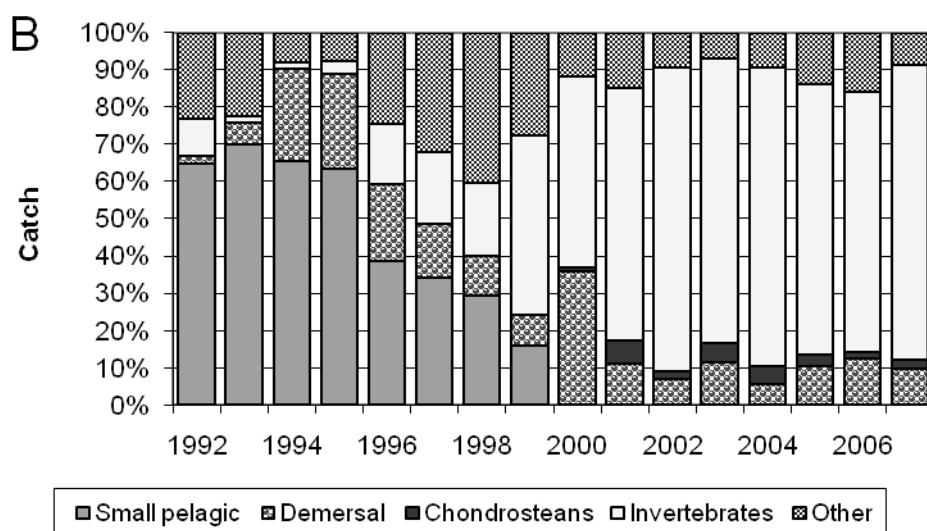
### Landings and revenues

#### Ocean fishery

The fishery has changed substantially, both in terms of landing volume (Fig 4.1A) and in the composition of landings (Fig 4.1B). Since 2001, landings have been rather stable. The main landed species is nowadays shrimp, followed by Greenland halibut, redfish, rays, and other species.

**Figure 4.1.A Catches of the Estonian distant water fleet in 1992-2007 (tonnes) and B Proportion of different species in catches**





Source : [www.stat.ee/fishery](http://www.stat.ee/fishery)

### Baltic trawl and coastal fishery

The landings of Baltic Sea internationally TAC-regulated species since 1996 are listed in Table 4.1:

**Table 4.1. Landings of the Baltic Sea TAC-regulated species, 1996-2007 (tonnes)**

Year	Species				Total
	Herring	Sprat	Cod	Salmon	
1996	45 296	22 493	1 392	10	69 191
1997	52 435	39 693	1 174	10	93 312
1998	42 721	32 165	1 070	8	75 964
1999	44 038	36 406	1 060	14	81 518
2000	41 735	41 394	514	21	83 664
2001	41 738	40 777	755	14	83 284
2002	36 250	40 717	37	16	77 020
2003	27 359	29 366	560	10	57 295
2004	27 380	34 113	1 279	7	62 779
2005	22 098	55 285	589	8	77 980
2006	23 192	46 689	702	6	70 589
2007	26 108	51 007	946	6	78 067

Source: Ministry of the Environment



The share of the coastal (mostly pound net) fishery in the herring catches has been 6 000, 6 997 and 6 465 tonnes in 2005, 2006 and 2007, respectively. The trawl fishery has almost totally used the available quotas in the recent years, while the coastal fishery has failed to do so. This is related to the environmental conditions in spring and decreased spawning stocks (the coastal fishery takes herring mostly at spawning grounds in spring) (Table 4.2).

**Table 4.2 Quotas (tonnes) and their usage (%) in the herring and sprat fishery, 2001-2007**

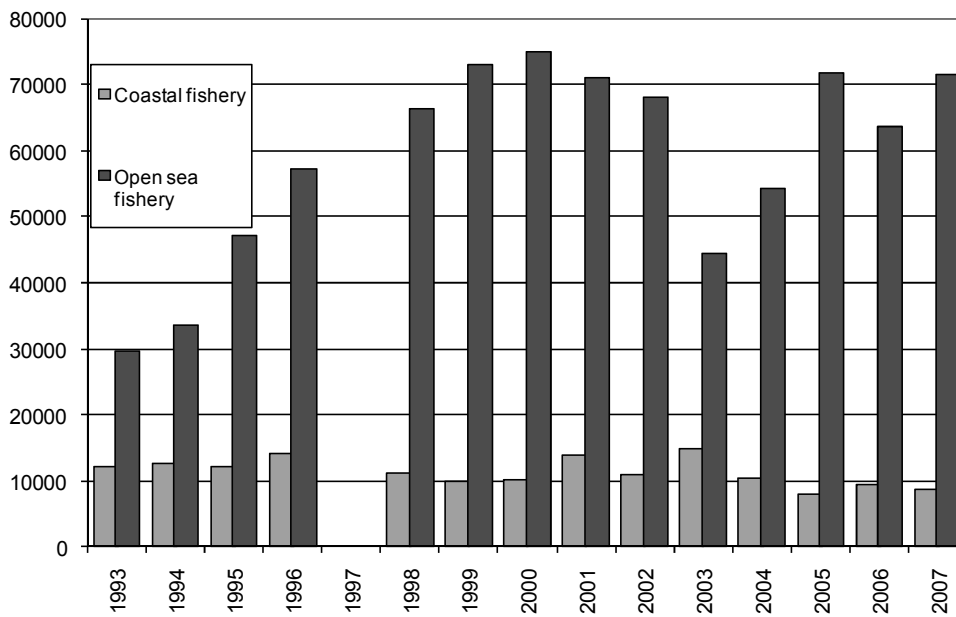
Species	Year	2001	2002	2003	2004	2005	2006	2007
Herring, total	Quota	41 070	39 000	26 036	28 536	31 900	33 442	34 074
	Catch	41 738	36 250	27 359	27 380	22 098	23 191	26 108
	Usage %	102	93	105	96	69	69	77
Herring, trawl fishery	Quota	31 000	29 900	19 062	20 800	21 536	22 041	22 559
	Catch	29 619	27 267	14 574	19 059	16 098	16 195	19 643
	Usage %	96	91	76	92	75	73	87
Herring, coastal fishery	Quota	10 070	9 100	9 974	7 736	10 364	11 401	11 515
	Catch	12 118	8 983	12 785	8 320	6 000	6 997	6 464
	Usage %	120	99	128	108	58	61	56
Sprat	Quota	41 200	41 200	31 930	38 260	57 050	51 061	53 023
	Catch	40 777	40 717	29 366	34 113	55 285	46 689	51 007
	Usage %	99	99	92	89	97	91	96

\* divided according to the Decree of the Estonian Government

Source: Ministry of the Environment

Sprat is taken by the trawl fishery. Most (over 95%) of salmon and a small fraction of cod (0.6-1.5 t annually in 2005-2007) are taken by the coastal fishery. In terms of volume, the trawl fishery exceeds the coastal fishery by several times (Figure 4.2).

**Figure 4.2. Total catch of the Estonian Baltic trawl fishery, 1993-2007 (tonnes)**



Source: Ministry of the Environment

***Baltic trawl fishery***

The main species in the Baltic trawl fishery are herring and sprat (Table 4.3).

**Table 4.3 Catches of the Baltic trawl fishery, 1993-2007 (tonnes)**

Year	Herring	Sprat	Flounder	Salmon	Smelt	Cod	Total
1993	23 175	5 763	27	26	0	525	29 516
1994	23 579	9 079	4	5	2	903	33 573
1995	33 041	13 051	27	5	15	1 049	47 189
1996	33 296	22 493	20	2	2	1 392	57 205
1997							
1998	33 102	32 165	102	0	0	1 167	66 536
1999	35 590	36 404	20	0	0	1 060	73 074
2000	32 988	41 393	62	0	0	513	74 956
2001	29 620	40 772	33	0	0	752	71 177
2002	27 268	40 717	45	0	14	37	68 080
2003	14 574	29 338	37	0	0	559	44 507
2004	19 060	34 089	0	0	0	1 277	54 426
2005	16 099	55 218	0	0	0	587	71 903
2006	16 195	46 660	25	0	62	702	63 644
2007	19 644	51 007	19	0.3	69	945	71 686
Average	25 516	32 725	30	3	12	819	59 105

Source: Statistics Estonia

***Baltic coastal fishery***

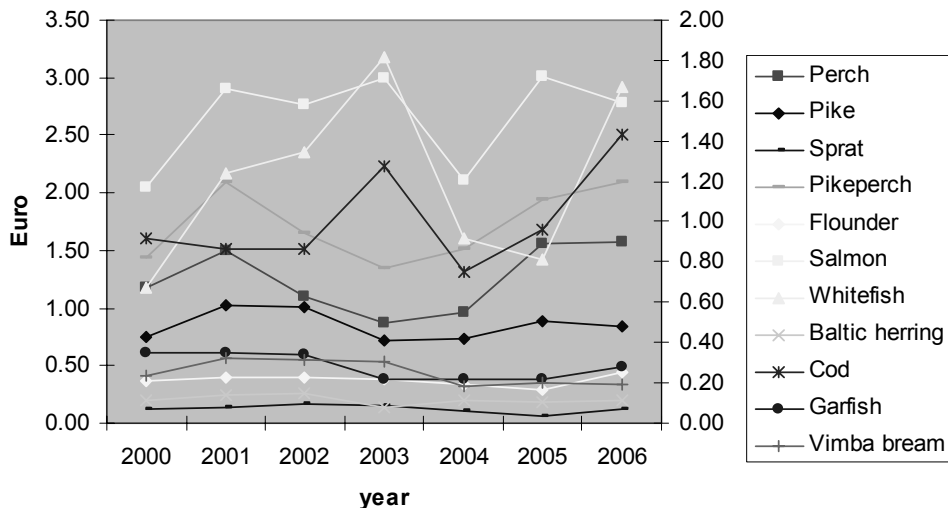
By volume, herring dominates the catches in the coastal zone, followed by perch, flounder and other species (Table 4.4). However, due to much higher market price, perch dominates in value (over 50% of the total), followed by herring, pikeperch and flounder (Table 4.5).

**Table 4.4 Catches of the coastal fishery, 1993-2007 (tonnes)**

Year	Herring	Perch	Pikeperch	Flounder	Roach	Ide	Smelt	Garpike	Vimba	Other
1993	9 808	940	458	138	212	187	3	40	118	196
1994	10 915	552	167	162	188	166	3	119	104	141
1995	10 440	384	264	74	240	98	6	193	188	94
1996	12 000	396	333	277	293	131	4	405	164	164
1997	..	..	..	..	..	..	..	..	..	..
1998	9 619	237	141	252	321	69	11	167	165	127
1999	8 448	296	116	396	157	50	61	122	123	156
2000	8 747	280	25	357	244	61	90	135	101	180
2001	12 118	386	33	449	272	36	128	111	83	167
2002	8 983	578	39	470	303	26	90	148	115	203
2003	12 785	824	96	406	160	25	200	96	73	208
2004	8 320	666	206	384	187	16	232	168	60	237
2005	6 000	689	69	403	85	7	203	156	40	206
2006	6 997	1 117	94	328	93	8	373	191	28	168
2007	6 465	777	99	316	102	9	481	110	35	165
Average	9 403	580	153	315	204	63	135	154	100	172

Note: .. indicates no data available

Source: Ministry of the Environment

**Figure 4.3 Annual average fish prices by species in the coastal fisheries, 2000-2006 (right scale refers to herring and sprat)**

Source: Ministry of the Environment

Fish prices have fluctuated, but have remained rather stable on average in 2000-2006 (Figure 4.3). This has serious implications for the fishery

sector, as costs for personnel, fuel etc. have increased significantly over this period (salaries by two times, see below). The same is true in other fisheries.

**Table 4.5 Revenue in the Estonian coastal fisheries, 2006 (EUR)**

Species	EUR
Perch	1 759 824
Herring	823 000
Pikeperch	197 120
Flounder	147 263
Smelt	71 449
Eel	53 299
Garfish	53 166
Whitefish	46 359
Sea trout, brown trout	23 075
Pike	16 490
Salmon	15 455
Roach	9 900
Gibel carp	5 484
Vimba bream	5 379
Sprat	3 620
Lamprey	2 331
Ide	2 247
Silver bream	2 216
Bream	2 216
Tench	1 996
Burbot	1 702
Cod	893
Other	1 363
<b>Total</b>	<b>3 245 847</b>

Source: Statistics Estonia

### **Inland fisheries**

In recent years, the biggest catches (and revenues) are created in the pikeperch and perch fisheries (Table 4.6).

**Table 4.6 Catches from Lake Peipsi, 1992-2007 (tonnes)**

Year	Pikeperch	Perch	Smelt	Bream	Roach	Pike	Whitefish	Vendace	Other
1992	419	403	1 551	224	152	68	34	0	355
1993	514	508	502	235	42	65	18	0	149
1994	450	666	224	111	69	31	14	0	109
1995	378	617	710	99	92	29	25	45	137
1996	370	632	478	96	207	68	63	127	66
1997	261	883	401	132	147	65	30	153	88
1998	707	809	1 421	168	124	98	60	159	67
1999	591	652	947	133	152	107	35	48	115
2000	622	538	1 104	135	220	111	9	1	48
2001	450	281	623	231	210	123	9	0	48
2002	911	230	2 214	324	261	145	11	0	55
2003	1 765	600	187	251	188	111	6	0	49
2004	895	388	31	242	199	73	2	0	53
2005	673	374	169	328	231	64	2	0	20
2006	1 081	492	83	324	218	100	1	0	27
2007	900	345	0	395	202	113	2	1	51
<b>Average</b>	<b>687</b>	<b>526</b>	<b>665</b>	<b>214</b>	<b>169</b>	<b>86</b>	<b>20</b>	<b>33</b>	<b>90</b>

Source: Ministry of the Environment

In Lake Võrtsjärv, the bulk of catches consists of low value species (mostly cyprinids). The most important fishery (also creating the highest revenues) is that for eel, which is due to stocking (Table 4.7). Commercial catches from other inland waters (smaller lakes and rivers) are small and the most important species in terms of volume and value is the river lamprey (Table 4.8).

**Table 4.7 Catches from Lake Võrtsjärv, 1992-2007 (tonnes)**

Year	Perch	Eel	Pike	Pikeperch	Bream	Other
1992	8	30	26	13	101	122
1993	8	49	32	40	81	116
1994	3	44	13	11	39	112
1995	5	31	12	15	54	110
1996	2	34	28	22	69	91
1997	3	37	17	18	86	98
1998	4	22	16	44	71	85
1999	10	32	21	32	43	105
2000	18	39	41	30	53	157
2001	13	38	51	33	46	197
2002	10	20	45	25	31	188
2003	14	26	50	19	42	164
2004	10	20	56	27	59	181
2005	17	17	55	35	57	194
2006	44	20	79	42	66	129
2007	17	21	57	28	105	178
Average	11	30	37	27	63	139

Source: Ministry of the Environment.

**Table 4.8 Catches from small lakes, 1992-2007 (tonnes)**

Year	Bream	Roach	Lamprey	Perch	Pike	Other
1992	0	2	0	1	1	0
1993	2	8	25	9	6	4
1994	1	2	5	4	4	1
1995	2	1	1	1	1	2
1996	2	2	0	1	1	3
1997	3	4	7	1	1	3
1998	1	5	16	2	1	2
1999	1	6	9	2	1	1
2000	6	14	26	6	5	9
2001	41	21	25	7	7	10
2002	32	25	22	6	10	16
2003	35	23	30	7	9	17
2004	34	21	48	7	10	14
2005	34	39	62	8	7	14
2006	35	39	43	11	9	15
2007	45	23	62	3	6	13
Average	17	15	24	5	5	8

Source: Ministry of the Environment.



## Chapter 5.

### Employment

Statistics Estonia and the Estonian Labour Market Board collect employment data. Still, it is not easy to measure the exact employment in the fishing sector. The most important reason is that many fishers are only part-time employed and their main field of activity (and income source) is not fishery. This concerns especially the small-scale fishery, which in the Estonian case represents most of the Baltic coastal fisheries and freshwater fisheries.

One way to get employment figures for the coastal fisheries is to count the number of persons who have received licenses to use different commercial fishing gears. The total number of coastal fishers in Estonia is about 2 600 (Table 5.1). However, interviews with fishers have revealed that on average, they receive only 10-20% of their income from fishing. Part of them are active mainly in other sectors of the economy (most typical sectors are agriculture and forestry), while another big group are retirees who fish only with rather small effort. The situation in the inland (freshwater) fishery is analogous.

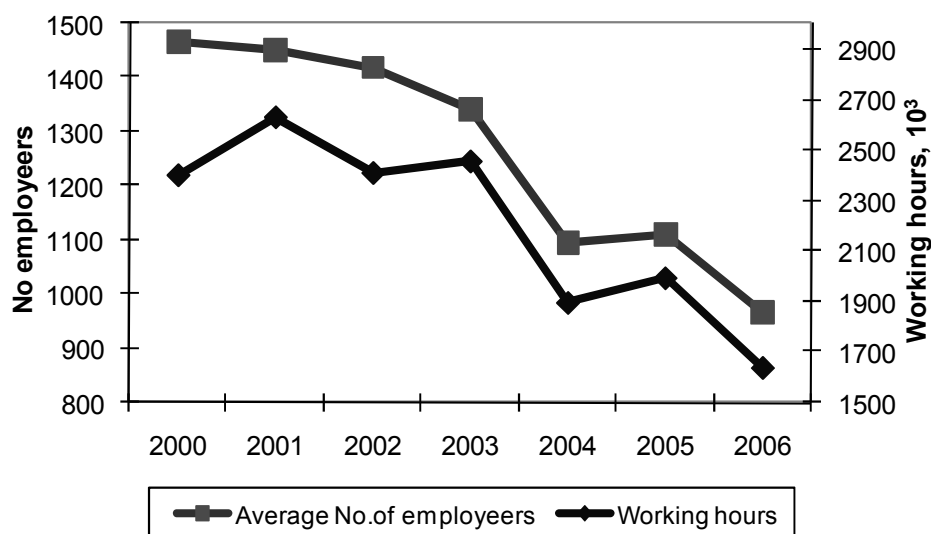
In trawling the situation is different. Most people working on trawlers are full-time employed. The number of employment in this segment can be obtained by interviewing fishing enterprises. Another possibility is to calculate it on the basis of the total number of vessels in the segment. Since the average number of crew of trawling vessels of different sizes is known, the figure thus obtained should be rather correct.<sup>2</sup>

**Table 5.1 Approximate employment in the Estonian fishing sector in 2006: FTE (full-time equivalent and the total of people engaged (in brackets))**

Segment	Employment
Baltic trawling – segment 4S1	600 (600)
Baltic coastal fishery – segment 4S2	300 (2600)
Atlantic distant fisheries – segment 4S3	170 (170)
Inland waters – segment 4S4	300 (900)
<b>Total</b>	<b>1 370 (4 270)</b>

Source: M.Vetemaa, unpublished data

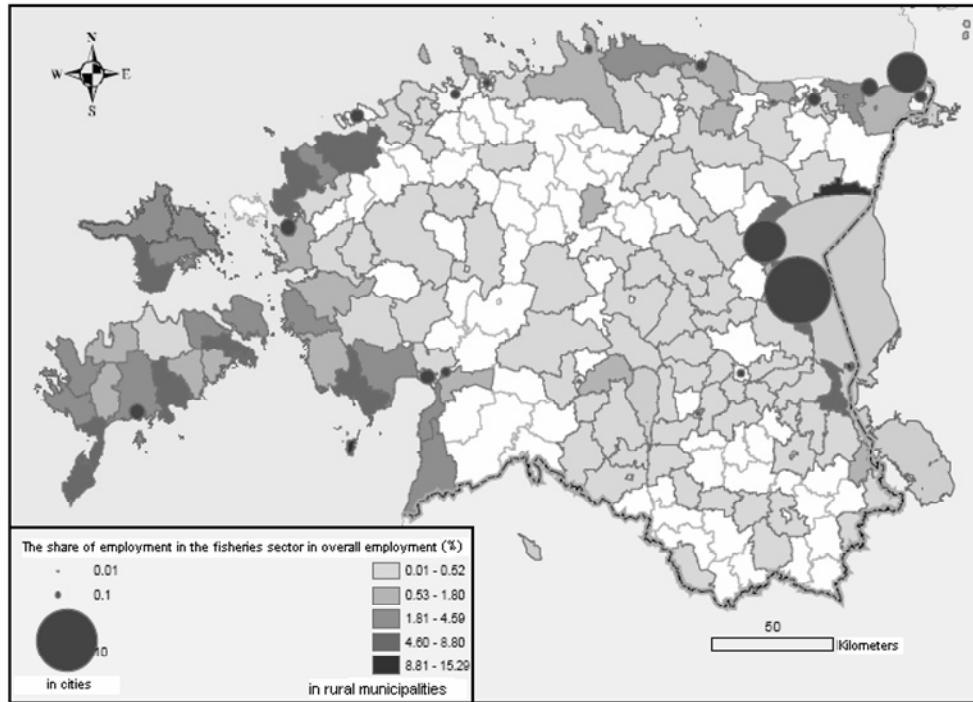
The data presented above reflects the employment based on the registers of the commercial fishing rights and fishing enterprises. Still, the data collected and compiled by the Statistics Estonia gives a somewhat different picture and there is a declining trend in the number of employees and the number of working hours (Figure 5.1).

**Figure 5.1 Number of employees and their working hours in Estonia, 2000-2006**

Source : Statistics Estonia

The share of employment in the fisheries sector is higher in coastal municipalities (Figure 5.2).

**Figure 5.2 Share of employment in the fisheries sector in overall employment**



Source : Operational Programme of the European Fisheries Fund 2007-2013



## Chapter 6.

### Regional characteristics

Estonia has, in proportion to its small size, a very long coastline on its western and northern border. The marine character of the country is even more accentuated by the existence of a large archipelago in West-Estonia. The eastern border crosses the big lake system, L. Peipsi-Pihkva, which is the fourth largest inland water body in Europe. Therefore, the fisheries sector, especially small-scale fisheries, has historically been very important both in Estonian coastal areas, as well as in the eastern region along the coasts of the L. Peipsi-Pihkva. Naturally, coastal fisheries and inland fisheries have somewhat different characteristics. However, keeping in mind that in the north-eastern Baltic Sea mostly freshwater fish species dominate, the inland and coastal fisheries have used rather similar gears.

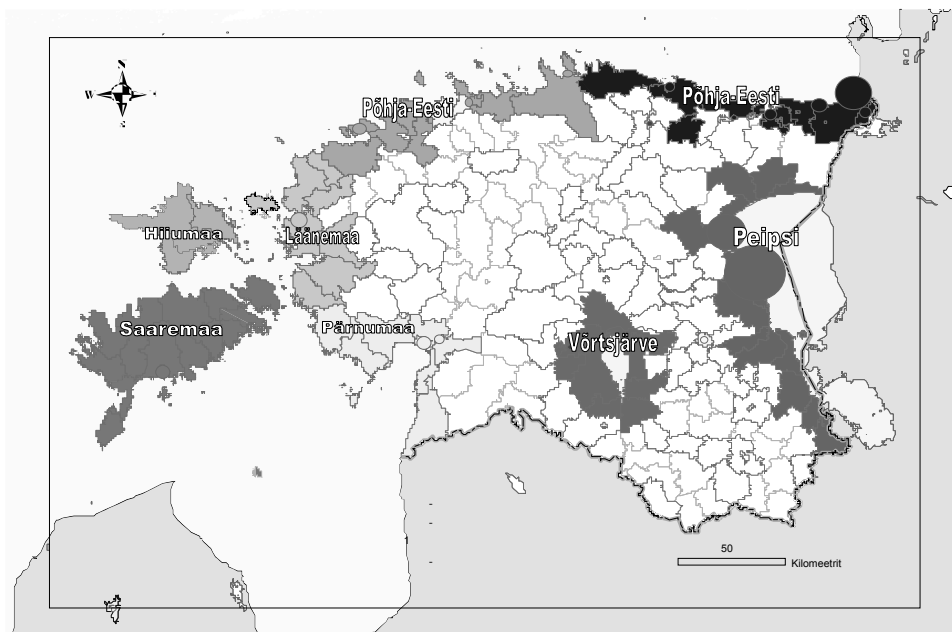
All of Estonia is eligible under the EU convergence objective and falls under NUTS II<sup>3</sup> (the Convergence objective comprises EU Member States and regions whose development is lagging behind). Fisheries dependent areas (municipalities) are presented in Figure 6.1.

Estonian trawling is concentrated in the western part of the country, where a few big landing sites are situated: Lehtma at Hiiumaa Island, Veere and Mõntu at Saaremaa Island, Miiduranna, Meeruse, and Padiski in northern Estonia and Dirhami at the north-western tip of the mainland.

To guarantee the preservation of a diverse socio-economic structure and an increase in the quality of life in fisheries dependent areas, the Estonian key document in fisheries policy, the Estonian Operational Programme of the European Fisheries Fund 2007–2013,<sup>4</sup> has identified priority axis 4 for funding the sustainable development of fisheries dependent areas. The objective for priority axis 4 is to guarantee the preservation of a diverse socioeconomic structure and an increase in the quality of life in fisheries areas. The planned measure to achieve this is the development of existing fisheries areas (Articles 43 and 44 of Regulation (EC) No 1198/2006). So far, eight action groups are formed (presented in Figure 7.1). Six of them are located in coastal areas and two of them in inland areas, covering Lake Peipsi and Lake Võrtsjärve. The action groups are non-profit associations.

An action group consists of members from the public, private and non-profit sector operating in the same area. The share of the fisheries sector representatives in the action group must exceed 60% at all decision-making levels. Usually this share is on average around 80%. An action group draws up an action plan and a development strategy, selects the projects in conformity with the strategy and executes the strategy.

**Figure 6.1 Fisheries dependent municipalities in Estonia**



Fisheries areas were selected on the basis of Article 43(3) and (4) and Article 45(3) of Regulation (EC) No 1198/2006.

Source : Operational Programme of the European Fisheries Fund 2007-2013

## Chapter 7.

### Profitability of the harvesting sector

The Estonian fisheries sector has undergone significant changes since independence. The process of transition from the Soviet economic system to the market economy affected deeply the ecological, economic, social and legal issues associated with fisheries. The development of the small-scale fishery (Baltic coastal fishery and inland fishery) and the open-sea fishery (Baltic trawling and Atlantic distant water fishery) has been rather different. The first uses rather cheap inputs like small vessels and passive gears, while the open-water fishery (both Atlantic and Baltic) is based on large vessels which use a lot of fuel. Two additional characteristics should be noted. There are no restrictions for foreign capital in Estonia and foreigners can freely invest in the fish harvesting and processing sectors. In this respect the distant water fleet is dominated by Spanish and Icelandic investments. Secondly, following independence, the majority of the approximately 500 Estonian marine and inland ports and landing sites were privatized.

After the fall of the Soviet system no special scheme for privatization of the fishing harbours existed. Most of the fishing harbours belonged to the fishing “kolkhozes” (Soviet-type collective farms). Harbours were regarded as a different type of asset and they were privatized using different schemes compared to the ones used for enterprises. Often harbours were divided into several real estate units (quays, buildings, parking areas etc.) and allocated to separate owners. This separation still exists – many harbours consist of several fixed units belonging to many independent owners. The ownership of some bigger and more important harbours was, however, transferred to municipalities or to state-owned enterprises.

Small-scale fishery targets many species. Some of them, like pikeperch, eel, perch and pike are rather expensive and could be sold to Western Europe practically in unlimited quantities. Baltic trawling, on the contrary, targets very cheap species - Baltic herring and sprat – which in Western Europe could be sold mainly only as raw material for feed. Due to the above-mentioned differences the development of profitability of fishing has been different across the fisheries segments.

### **Profitability in the small-scale fishery**

Trade liberalization, which started in the 1980s and was completed in 1991, enabled (and forced at the same time) the Estonian coastal fishery to expand to new markets. Before that, all marketing and trade was organized by governmental structures and orientated to the domestic or socialist countries' markets. Those markets were stable, but the price level was low. Direct contacts with western markets were not possible, even if those markets were geographically very close. Rapid increase in exports and a high demand for fish at the beginning of the 1990s caused a sudden and huge increase in the Estonian first-buyer prices for fish, which rose nearly to the Western European level.

Since most of the Soviet-time fishers were given the opportunity to privatize very cheaply and to take possession of the fishing gears and boats that belonged to former collective farms, there was no lack of fishing equipment. Fuel and transport were more or less the only costs associated with fishing. Since coastal fishery is mostly carried out close to fishing ports, fuel costs were not high. Finally, due to Estonia's small size and relatively good road network, the transport of raw fish was easy and quick. The second important factor that increased the pressure on stocks was the abolition of the border regime. As a result, due to the low input costs, high fish prices and rather healthy fish stocks, the profitability of fishery was very high at the beginning of the 1990s.

Since then, year by year, however, profitability has steadily declined. This has been caused by increasing fishing costs and by declining stocks. While the price of fuel has increased almost ten-fold during the last 15 years in Estonia, first-buyer prices in European markets have not grown much. So, while targeting expensive freshwater species was a source of profits and well-being for fishers during the first half of the nineties, during the last years it has had rather low economic importance. As a result, the number of coastal commercial fishers has declined. Furthermore, interviews with fishers reveal that while during the beginning of the nineties they received nearly all their income from fishing, today the majority can be treated as part-time fishers, receiving only a minor part of their income from fishing.

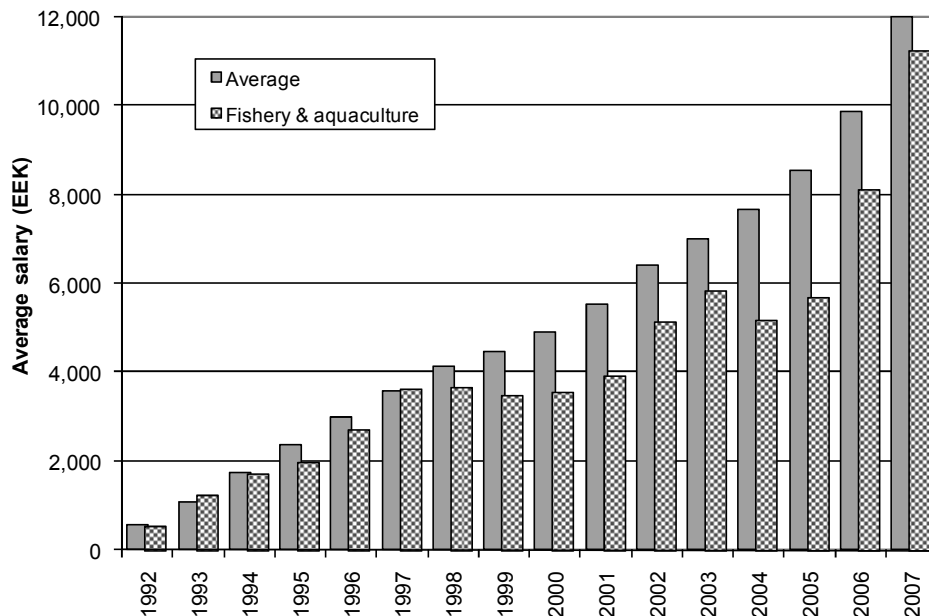
### **Profitability of the open-water fishery**

In the Baltic trawling segment targeting herring and sprat the development of profitability during the last 15 years after the re-establishment of independence has been very different from the small-scale fisheries. During the soviet period the trawling sector used cheap fuel and machines produced in the Soviet Union, which were uneconomic in terms of



fuel use. Pelagic species were needed in large quantities and the price was set by the rules of the soviet plan economy. The disintegration of the centrally planned economy resulted in the discontinuation of this favourable situation. Furthermore, while small-scale fisheries found new markets in the west, it was still only possible to export herring and sprat to the eastern markets (Russia, Ukraine). Price levels in those markets were low and Russia tried to enforce several trade barriers both to “punish” the Baltic States for their independence and to force them into a closer alliance with the Russian Federation. As a result, the profitability of Baltic trawling decreased sharply and the volume of catches fell.

**Figure 7.1 Dynamics of the average general salary and the average salary in the fisheries sector, 1992-2007**



Source : Statistics Estonia

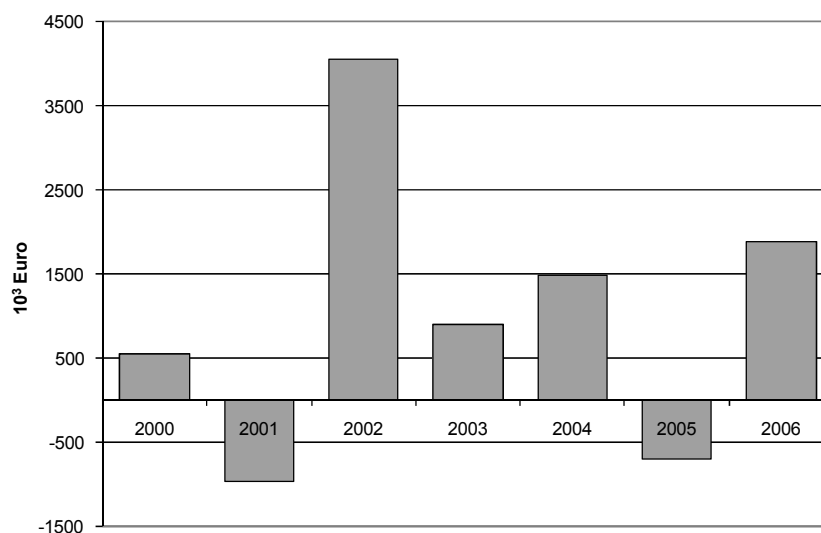
In the middle of the 1990s, however, the trawl fisheries started to grow again. The most important reason for this was the increasing purchasing power in the eastern markets. As those markets were known to Estonian fish processors from the soviet time, exports started to grow quickly. As a result, fish processors were interested in raw material and the prices for raw fish rose. Hence the fishing volume and the degree of utilisation of the national quotas started to grow. The national quota or the TAC (a constant part of the TAC for the Baltic Sea) allocated to Estonia by the Baltic Fishery

Commission (BAFICO) was not used fully in 1992-1996. Since a part of the Estonian herring and sprat quota was exchanged with the EU against cod quota, the Estonian national quotas were used up for the first time in 1997.

However, the trawling sector depended almost entirely on the eastern markets. The Russian financial crisis which broke out in August 1998 decreased drastically marketing possibilities in the eastern markets in 1998-99. Export volumes fell almost to zero and as a result many Estonian fishing and processing enterprises, oriented almost exclusively towards the eastern markets, went bankrupt.

During the last decade the trawling fishery has gained some stability. However, it is still orientated mainly to the domestic and eastern markets. Profitability of the segment has not been high and salaries in the fishing segment have been one of the lowest compared to the overall national economy, with an increase close to the average level in a few recent years. The development of the salaries in the Estonian fisheries sector (including fish harvesting, processing and aquaculture) is presented in Figure 7.1. The net profitability of the whole sector is low and it has been even negative in some years (Figure 7.2).

**Figure 7.2 Net profitability in the Estonian fisheries sector, 2000-2006 ('000 EUR)**



Source : Statistics Estonia

## Chapter 8.

### Recreational fishery

The recreational value of Estonian waters, especially inland waters and coastal shallow-water bays, is comparatively high. Therefore, recreational fishing has good prospects. Recreational fishing has several branches: angling and spinning rod fishery, gillnetting (special licenses), winter ice fishing in lakes (Lake Peipsi and other lakes) and bays (Pärnu Bay) and put-and-take fishery.

In general angling can be performed without a licence and there are no official statistics about catches. Gillnet fishing requires a fishing card which can be acquired by paying 200 EEK in a bank or via mobile phone. Studies performed by the Estonian Marine Institute (Lake Peipsi and Pärnu Bay winter angling; internet inquiry of recreational fishers) show that in winters with prolonged ice cover, catches of perch in Pärnu Bay may reach hundreds of tonnes (which is bigger than commercial catches of perch in this area). A remarkable part of the catch is made of juvenile fish which have not reached the minimum legal size and a substantial part of the catch is sold to fish processing companies. However, during the last few years the Estonian Environmental Inspectorate has intensified the monitoring of first sales documents and quantities processed in the processing industry with the aim to reduce this illegal activity. There is currently a discussion going on among stakeholders if recreational fisheries need stricter regulation in the future, including a long-term strategy to manage conflict between professional and recreational fishers.

The “true” recreational fishers even in counties bordering the sea prefer to fish in rivers and on lakes. Recreational fishers can also buy licenses for fishing with spinning rod (including a limited number of special licenses for salmon and trout rivers) or even with commercial gear (gill nets).

According to official statistics ([www.envir.ee](http://www.envir.ee)); incomplete as only catches taken by fishers who have bought fishing cards) which is collected since 2005, recreational catch from inland waters (mostly from Lake Peipsi) exceeds the catches of the Baltic Sea (Table 8.1).

**Table 8.1 Officially registered recreational catch, 2005-2007 (tonnes)**

Year	Baltic Sea	Inland waters	Total
2005	92.5	279.8	372.3
2006	86.6	93.4	180
2007	87.8	98.3	186.1

Source : Ministry of the Environment

The most important species targeted in the Baltic Sea are flounder and perch, in inland waters roach and perch.

## Chapter 9.

### Fishery and nature conservation issues

Due to high abundance of several fish-eating or fish-affecting mammals (seals in the sea, beavers, otters in inland waters) and birds (especially cormorants) in Estonia, they can cause serious problems for fishers and fish farmers.

In Estonia, the first colony of the great cormorant *Phalacrocorax carbo sinensis* (L.) was established in 1984 (Eschbaum *et al.* 2003). Until the 1990s, their abundance remained low, but then started to increase exponentially. In 2005, the number of colonies was already 20 with ca 10 000 nesting pairs. Nowadays, over 50 000 adult and juvenile cormorants spend their summer in Estonia. Calculations show that the cormorants consume ca 3 000 tonnes of fish (including juveniles of valuable fish) annually. (For comparison, the total catch of the coastal fishery was 8 558 tonnes and only 2 094 tonnes without herring in 2007.) Problems with cormorants are the biggest in the shallow western archipelago (Moonsund, the Väinameri Sea) area, with many colonies still increasing in protected islands and water depths mostly less than 10 meters (where cormorants can fish to the bottom). Another study (Vetemaa *et al.*, manuscript) shows that a colony around the protected Käina Bay has practically destroyed this formerly very important spawning and nursery area and stocks of perch and roach in the adjacent regular fish monitoring area have seriously declined. These data, combined with fishers protests, have finally led to the establishment of the cormorant management plan by the Ministry of the Environment in 2008. The implementation of this plan was expected to start in 2009 but will probably be postponed due to the financial situation.

Also, abundance of grey seals has increased and the damage caused to fish and gear is remarkable, as in other neighbouring Baltic countries. Beavers have dammed up most rivers, including several salmon and sea trout spawning rivers. The population of beavers is not managed properly.

In addition to these “environmental” conflicts, one should also mention conflicts between different groups of fishers using the same resource. For

example, coastal fishers and trawl owners are not happy with dividing herring quotas between coastal and trawl fishery and the timing of spring closure of the trawl fishery (to allow herring stocks to migrate to the spawning grounds) in the Gulf of Riga. The latter has also an international dimension, as Latvia (whose trawl fishery is much more concentrated in the Gulf of Riga) closes its trawl fishery later (when positive effects of such closure for spawning success are questionable). Also, the division of fishing pressure between fishers using different gear (Danish seines; gill nets) on Lake Peipsi has caused conflicts. In addition, coastal fishers have problems with recreational fishers due to their winter catches of perch and other species (often under legal landing size) may reach hundreds of tonnes on Pärnu Bay and Lake Peipsi, and also use of gill nets by recreational fishers. Another problem is the production of hydropower electricity which has led to the restoration of (or even building of new) dams (as a rule, without fish passes) and hence worsening of reproduction conditions of migratory fish.

The environmental situation in some Estonian rivers and coastal areas has improved after independence as the fertilizer use under the Russian system was far more intensive. The coastal sediment intoxication is reduced and the overall water quality along the entire Estonian coastline is better.

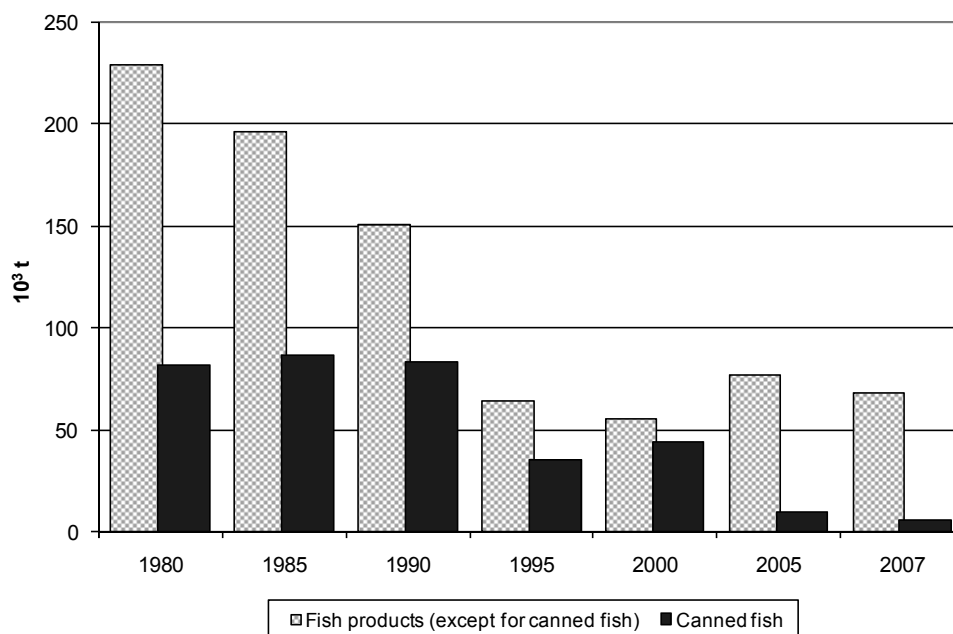
## Chapter 10.

### Fish processing and trade

During the soviet period, the Estonian fish processing sector was a large and well-developed branch of the national economy which produced a variety of fish products not just for the domestic (in sense of Estonian) market, but for the entire Soviet Union. Since the main markets were geographically far away, it was necessary to concentrate on products with long shelf life: different types of fish preserves and conserves.

During the post-soviet period, however, eastern markets have faced several serious problems, most importantly, the Russian financial crisis, which broke out in August 1998. It decreased drastically the marketing possibilities in the eastern markets during 1998-99. Export volumes fell almost to zero and as a result many fishing and processing enterprises in Estonia, oriented almost exclusively towards the eastern markets, went bankrupt. For example, canned fish production fell from 83 300 tonnes in 1990 to 34 200 tonnes in 2002.

This historic background has coined the Estonian fish processing industry into what it is today. Main products are frozen fish and preserves and the eastern markets (e.g. Russia, Ukraine) are still important. In 2006, 79% of the canned products were sold to eastern markets. All shrimp is processed (boiled, frozen) onboard. The production volumes of canned fish and other fish products are presented in Figure 10.1. More detailed data for the period 2000–2007 is presented in Table 10.1.

**Figure 10.1 Development of fish products in the Estonian fish processing sector**

Source : Statistics Estonia

**Table 10.1 Production of different fish products in the Estonian fish processing industry, 2000-2007 ('000 tonnes)**

Product group	2000	2001	2002	2003	2004	2005	2006	2007
Fresh fish (incl. chilled, fillets, minced)	6.4	7.0	5.0	6.5	4.2	4.1	5.4	3.3
Frozen	34.7	39.3	40.8	41.6	32.0	40.3	40.3	33.7
Smoked	1.0	1.1	2.5	3.2	3.0	3.3	3.1	3.8
Salted, spiced, dried, deep-frozen or breaded	18.0	32.5	43.3	35.5	24.3	27.4	27.0	24.1
Culinary (in oil, marinade, sauce)	0.6	0.8	0.7	0.8	1.7	1.3	1.3	2.9
Canned fish	44.4	44.2	34.2	20.5	14.6	9.7	7.4	5.4

Source: Statistics Estonia



According to the Estonian Agricultural Ministry, the total number of fish processing enterprises is 90. They are distributed by the counties as presented in Table 10.2.

**Table 10.2 Geographical distribution of fish processing enterprises in Estonia (2007)**

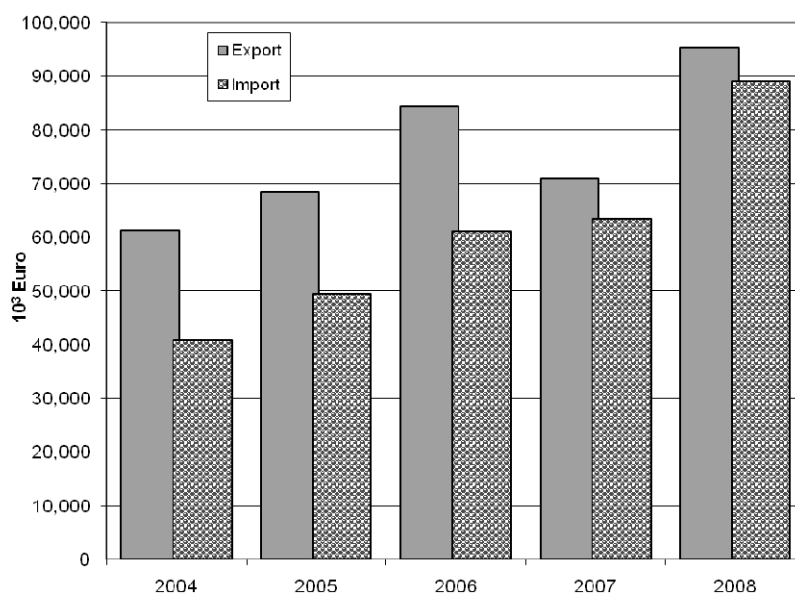
County	Number of enterprises
Harjumaa	27
Hiiumaa	2
Ida-Virumaa	8
Jõgevamaa	5
Järvamaa	1
Läänemaa	6
Lääne-Virumaa	1
Pärnumaa	17
Põlvamaa	1
Saaremaa	10
Tartumaa	12
Total	90

Source : Estonian Veterinary and Food Board

Estonian coastal fishing provides reasonably large volumes of expensive freshwater fish like perch, pikeperch and pike. These species could be exported to the western markets in practically unlimited quantities. So, in very general terms, the fish processing companies specializing in the production of freshwater fish fillets are doing reasonably well.

The Estonian domestic consumer is no longer interested in canned fish, but has become more demanding with respect to product specifications. Concurrently, labour-intense canned fish production is very expensive as labour costs in Estonia are relatively high compared to countries like Ukraine and Russia. In response to that, fish processing is increasingly turning to processed products with high value-added.

A typical feature of the Estonian fish processing industry is the steady increase of the importance of larger, horizontally and vertically integrated companies, with direct ownership of all production activities from fishing to fish processing and exporting, accompanied by the emergence of long-term contractual supplier-customer relationships between producing companies and processors or supermarket chains. Export and import of fish and crustacean is presented in Figure 10.2.

**Figure 10.2 Export and import of fish and crustaceans 2004-2008**

Source: Estonian Tax and Customs Board

Vertical integration is very common in the Baltic Sea trawl fisheries (sprat and Baltic herring) and in the Lake Peipsi fisheries (perch and pike-perch) in the sense that processing or fishing companies own the quotas, hire external fishers, process raw material and manage trade relations, including export. These vertically integrated companies export almost 100 % of their production.

In the Baltic Sea fisheries the vertically integrated companies are organized in producer organisations. Through the European Fisheries Fund collective actions support measure the activities of these companies are concentrated also horizontally to improve their market position in key markets in Ukraine and Russia which demand large volumes.

During 2004-2008, Estonia exported fish and shellfish into 61 countries. The average annual export value was EUR 69.2 million. During the same period, Estonia imported fish and aquatic vertebrates from 53 countries, and the average annual import value was EUR 53.8 million. Top-25 export and import countries are listed in Table 10.3.

The quality of fish products is regulated by The Food Act (Toiduseadus),<sup>5</sup> which is in accordance with EU Regulations 178/2002, 852/2004, 853/2004, 882/2004, 1935/2004. The Food Act establishes the

basis for food processing, processors' self control (HACCP) and the state supervision of food safety and is rather well implemented in the fisheries sector.

**Table 10.3 Average export/import values for main export and import countries for fish and aquatic invertebrates, 2004-2008 (EUR)**

<b>Export</b>		<b>Import</b>	
<b>Country</b>	<b>EUR per year</b>	<b>Country</b>	<b>EUR per year</b>
Russia	12 552 685	Russia	7 516 191
Ukraine	8 955 670	Denmark	6 250 395
Denmark	6 768 131	Norway	5 716 554
Switzerland	6 579 172	Finland	5 707 490
Holland	6 569 372	Sweden	4 627 521
Finland	6 293 919	Lithuania	4 383 348
Sweden	5 710 550	Latvia	3 565 789
Germany	3 205 489	Canada	2 517 403
France	2 584 640	Holland	2 117 332
Latvia	2 439 352	USA	1 767 791
Lithuania	1 455 620	Chili	1 379 601
Canada	1 228 042	Spain	1 244 713
USA	1 025 490	Great Britain	1 180 124
Japan	909 655	Germany	997 074
Belorussia	803 841	Argentina	829 973
Moldova	616 230	Island	633 472
China	307 189	Peru	609 334
Romania	295 314	China	533 076
Poland	221 163	Poland	351 758
Kazakhstan	136 208	France	307 187
Bulgaria	109 312	Belgium	275 925
Norway	86 373	Vietnam	220 009
Great Britain	75 439	Kazakhstan	217 471
Belgium	69 927	Mauritania	162 964
Iceland	52 105	Faroe Islands	135 943
<b>TOTAL</b>	<b>69 050 890</b>	<b>TOTAL</b>	<b>53 248 436</b>

Source : Statistics Estonia



## Chapter 11.

### Aquaculture

Fish farming in Estonia was established at the end of the nineteenth century by German landowners. They introduced common carp and rainbow trout. During the Soviet period (1944–1991) aquaculture production reached its peak in 1989 at a level of 1 743 tonnes of fish for consumption (Tohvert, Paaver 1999). In the Soviet period several alien species (sturgeons, salmonids, coregonids, cyprinids) were introduced and reared on fish farms or released into the natural waters, but none of them became important and only one species (giebel carp *Carassius gibelio*) has become abundant in nature (two other species, carp and rainbow trout, also seem to reproduce in the wild). There were over 40 fish farms in Estonia and many agricultural enterprises also cultivated fish in small ponds and water reservoirs. The large red-fleshed rainbow trout was the main product (700–800 t per year). Carp was traditionally cultivated in earthen ponds where yields could be over 1 t/ha.

Market sized trout and carp can be produced in three year cycles. Heated industrial waters of electric power plants are used to prolong the growing period of fish.

The collapse of the socialist economy in 1991 caused a decline in fish farming production because of the loss of the Russian market and because of the fast rise of production costs (fuel, fish feeds) and fluctuations of market price of foodstuffs (including fish) on the domestic market. Production also decreased because the large production units utilizing heated waters from electric power stations were gradually closed down.

Because of the northern latitude of Estonia and the short period of vegetation (3–4 months), water temperature is a limiting factor in fish farming. The period of vegetation is a little longer in southern Estonia (by approximately two weeks), as a result of which carp farms are situated there. The concentration of trout farms in certain areas in north-eastern Estonia has historical reasons. In this area there are long springs which have been traditionally used for hatching trout. In western Estonia the land is flat and

resources of cool fast flowing water rich in oxygen are poor. Thus, there are no fish farms in operation. The brackish-water coastal sea is shallow, open to storms and covered by ice for a long period and there are very few suitable sites for large net cage farms or other types of mariculture.

### **Fish farms**

There are around 20 commercial companies whose main or important activity is fish farming (21 companies with 24 fish farms in 2004; Paaver, 2005); most of them have a multiple profile of production, rearing simultaneously several species, producing at the same time fish for consumption, offering fishing tourism in put-and-take ponds and producing juveniles for the state restocking programme. In most of these farms the main species is rainbow trout (14 in 2004), in some others mainly carp (4), European crayfish *Astacus astacus* (4), eel (1) and two farms are specialized for growing fish for stocking purposes (Paaver, 2005). Recently, one farm has specialized in sturgeon production in warm cooling waters of a power plant.

In addition, many other companies are registered as fish farming companies. They include more than 50 companies which are engaged in fish tourism (angling for fish purchased from other fish farms), and more than 100 small 'hobby' fish farms (with annual production of less than 1 t).

Trout is reared in flow through ponds, tanks or raceways on river or spring water or in net cages in brackish water (salinity 3–5 ppt). Carp is cultivated in earthen stillwater ponds. Eel is cultivated in one recirculation system (potential: 70 tonnes per year).

Rainbow trout (*Oncorhynchus mykiss*), common carp (*Cyprinus carpio*) and European eel (*Anguilla anguilla*) are the three major cultured species. The proportion of reared freshwater crayfish (*Astacus astacus*) and Siberian sturgeon (*Acipenser baerii*) is increasing. For trout farmers an important additional by-product is trout roe which is salted and sold as red caviar.

Rainbow trout eggs or juveniles are imported from Finland, Denmark, Sweden and the Russian Federation. There are no local brood stocks or breeding programmes. When buying the fertilized eggs or fry, the fish farmers are interested in late maturing female fish, which either is not mature at weight 2–3 kg or has developed eggs at this size. Thus, mainly all female trout selected for late maturation is imported.

There are over 50 put-and-take fishing ponds. Ornamental fish (koi carps) are gaining popularity, but the amount of their trade is still negligible.

Approximately 100 people are employed in aquaculture.

## Production for consumption

Aquaculture in Estonia reached its peak in 1989 with a production level of 1 743 tonnes of fish for consumption. The collapse of the socialist economy in 1991 caused a decline in fish farming. The total value of farmed fish was officially approximately USD 1.4 million in 2003.

Practically all the trout is sold in the domestic market. All the market size eel is exported. The prospects for expanding aquaculture are good as domestic and neighbouring markets lack fresh, high quality aquaculture products and there is plenty of space to establish new and enlarge existing fish farms. However, trout farms might need artificial aeration during unusually hot periods in summer. Because of the relatively good state of the environment and low pollution levels of aquaculture, opposition from environmentalists is still small. Adding value through processing and increasing product quality can help to broaden the market and increase profitability. However, the small production and unstable supply of aquaculture products have not attracted investors and lack of investment has prevented the establishment of new fish farms.

Commercial aquaculture production in Estonia according to official statistics in recent years is represented in Table 11.1. The real production is somewhat higher (Paaver, 2005). Production indices vary a lot as not all reared fish is sold in the same calendar year.

**Table 11.1 Aquaculture production in Estonia, 1997-2007 (tonnes)**

Species	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Rainbow trout	227	285	147	313	412	287	304	394	451	520	618
Carp	28	23	30	47	52	53	51	47	44	80	28
Eel						12	15	7	40	40	45
Other	5	1	0	0	3	4	3	3	19	63	93
Total	260	309	177	360	467	356	373	451	554	703	784

Source : Statistics Estonia, [www.stat.ee/fishing](http://www.stat.ee/fishing)

## Market and trade

Most of the trout is sold on the domestic market. A significant part (at least 1/3) is sold to put- and-take pond angling enterprises. The supermarket chains are the main channel for both raw and processed fish. A small proportion is sold on-site. Because the potential market of salmonids is larger than Estonian own production (over 2000 t is consumed annually),

imports from Norway and Finland dominate the market. Carp is a niche product sold mainly as round fish on-site or on specialised fish markets. The export share of aquaculture products is very small. Only all the produced market size eel is exported. A small amount of large rainbow trout is exported to Latvia. No quality labelling system exists for the aquaculture sector.

### **Contribution to the economy**

Due to its small size, the aquaculture sector has little influence on the national economy, fish consumption or social situation in rural areas. The fish markets and processing companies do not depend on domestic aquaculture production, but are dominated by capture fisheries or imports of farmed fish. Aquaculture has a little more influence on the economy through tourism, because put-and-take ponds are an attractive part of leisure time activities. Both fish farmers and tourist companies benefit from trade in fish for angling ponds. Small-scale fish farming i.e. keeping fish, mainly carp, on the farmstead or in summerhouse ponds is widespread. However, it is a hobby and is not for food production.

### **The governing regulations**

There are no special regulations directly related to aquaculture. However, certain paragraphs in the Fisheries Act, Water Act, Nature Conservation Act etc., as well as directives from the ministries of agriculture, environment etc., regulate particular aspects of aquaculture, e.g. water use, pollution load or transfer of fish from fish farms to the natural environment. The development of the sector is envisioned by the fisheries framework document “Estonian Fisheries Strategy 2007 – 2013”.<sup>6</sup> The programme for aquaculture-based restoration of fish resources was approved by the Order of the Minister of the Environment.

### **The institutional framework**

Aquaculture is regulated under the fisheries administration which is divided between the Ministry of Agriculture (fish as food) and the Ministry of the Environment (fish as a natural resource). In both ministries there is a department responsible for fisheries regulation. In the Ministry of Environment, the Department of Fisheries Resources is in charge of restocking activities which are financed by the state, including the management of the state-owned Põlula Fish Rearing Centre. In the Ministry of Agriculture, the Department of Fishery Economics regulates fish processing and trade, including aquaculture. The Estonian Fish Farmers Association, established in 1989, supports aquaculture and does not operate



as a producer organisation. It brings together different people: aquaculture producers, small-scale hobby farmers, scientists and government officials.

### **Trends, issues and development**

After the collapse of the Soviet economy at the beginning of the 1990s no significant changes in the aquaculture sector took place. Total production fluctuated at below 500 tonnes but has now an increasing trend. A few new enterprises have been established. Only a few fish farms have been modernised and have been able to increase production. New species have not yet gained much economic importance.

There are several factors which have hindered the development of aquaculture:

- Wholesale and processing companies are not interested in the domestic production due to small production and unstable supply of aquaculture products;
- Lack of aquaculture specialists (there was a significant pause in the training of specialists for this sector during the period 1985–2002) to deal with new technologies and farming techniques;
- Lack of sufficient veterinary services (no legal system to regulate the prophylactic measures of fish diseases and import-export of live fish, too few competent specialists and laboratories); and
- Ageing facilities and equipment; however with the adoption of the Operation Programme of the European Fisheries Fund (2007-2013) some funds have become available for upgrading the aquaculture sector.

Well equipped fish farms with modern equipment and technology such as the state-owned Põlula Fish Rearing Centre, Härjanurme, AS Triton PR (recirculation eel farm) can serve as an example or training base for further development. Support from the European Union through the assistance programme SAPARD (the EU framework for supporting sustainable agricultural and rural development in the central and eastern European applicant countries) and the structural fund Financial Instrument of Fisheries Guidance (FIFG) has helped several fish farms to modernise their technology. There is potential for further development. Aquaculture has a positive image in society and has a long tradition. Since 1989 the Estonian Fish Farmers Association has worked on negotiations with the government to protect the interests of the fish farmers and guarantee access to education. It has published a newsletter, *Eesti Kalakasvataja* (Estonian Fish Farmer),

and arranged training courses. There is water and land available to establish new and expand existing fish farms (both professional, large-scale farms and small integrated, partly tourism oriented farms). However, limitations and regulations on the use of water and nutrient loads are increasing. Adding value through processing and increasing the quality of products (filleting, salting, marinating, smoking, vacuum and modified atmosphere packaging) can help to broaden the market and raise profitability. The introduction of new species may expand marketing possibilities.

One activity supported by the European Fisheries Fund is aquaculture sector investment. Investment support is given to enterprises with a minimum production capacity of 50-100 tonnes (depending on the fish species) or to carp rearing farms with a minimum pond size of 10 hectare. 21 fish farm projects got approval in 2009 (mainly rainbow trout and noble crayfish farms, but also carp, eel, tilapia and sturgeon farms). The current annual Estonian aquaculture production of 800 tonnes is expected to rise to 2 500 tonnes through the European Fisheries Funds investment support. The volume could rise considerably in case a private investor plan for a large-scale pike-perch farm in Pärnu county will be implemented (planned total production capacity of 80 000 tonnes).

### **Rearing for restocking**

Another branch of aquaculture is the rearing of juvenile fish for restocking of natural waters. This is financed mainly by the state (Centre for Environmental Investments). There are two farms dealing exclusively with restocking: The Põlula Fish Farming Centre and the Õngu Fish Farm; also some other fish farms are participating in juvenile production for restocking. In 2002-2007, juveniles of several fish species (salmon, sea trout, brown trout, whitefish, pike, eel, pikeperch, tench, carp) and native crayfish *Astacus astacus* have been more or less regularly reared for restocking purposes. Occasionally, juveniles of some other fish species have been reared for restocking. In 2007 the following fish were released into Estonian waters (numbers of individuals): 317 800 reared eel juveniles; 100 400 one year old, 89 000 one year and 51 300 two year old Atlantic salmon (*Salmo salar*); 17 400 one year old and 47 000 older sea trout (*Salmo trutta*); 10 000 juveniles of brown trout (*Salmo trutta fario*); 2 000 one year old pikeperch (*Sander lucioperca*), 1 100 000 larvae and 19 500 one year old pike (*Esox lucius*), 5 000 two year old tench (*Tinca tinca*), and 4 200 one year old and 14 900 older native freshwater crayfish (*Astacus astacus*). Over 85% of the money spent for restocking is used to produce salmon and eel juveniles.

There are four protected fish species in Estonia (Atlantic sturgeon, wels, grayling, asp) but these species are not covered by the restocking programme.

## **Chapter 12.**

### **Administration and governance of the sector**

#### **Organisation**

Concerning the institutional set-up, Estonia is fairly unique. In 2000, the Ministry of Agriculture started to deal with the fish processing sector and the aquaculture sector. In 2005 it became responsible for the administration of commercial fishing activities: collection of catch data, issuing licenses etc. Since 2000, however, administration and governance is shared by two ministries, the Ministry of the Environment and the Ministry of Agriculture. To guarantee coherent management of the fisheries sector there are several structures where both Ministries are represented: the Committee of the Fisheries Management, the Fisheries Council and the Monitoring Committee of the Fisheries Fund. The Committee of the Fisheries Management is an advisory body to the Minister of Agriculture in fisheries management questions. The Committee of the Fisheries Management consists of representatives of the following institutions: Ministry of Agriculture, Veterinary and Food Board, Estonian University of Life Sciences, Estonian Maritime Academy, Estonian Marine Institute of University of Tartu, Environmental Inspectorate, Ministry of Environment, Hiiumaa vocational school. Hence, there are only representatives from public administrations and from scientific institutions.

The Fisheries Council is an advisory body to the Minister of Agriculture. It is a body with broad stakeholder participation. The Fisheries Council consists of representatives of the following institutions: Ministry of Agriculture, Agricultural Registers and Information Board, Estonian Fish Farmers Association, Estonian Fishery Association, Peipsi Sub-Basin Fishers Association, Ministry of Finance, Ministry of Environment, Estonian Distant Water Fishing Association, Estonian Fishers Association, Environmental Inspectorate, Estonian University of Life Sciences, Estonian Maritime Academy, Estonian Green Movement, Non-Profit Union of

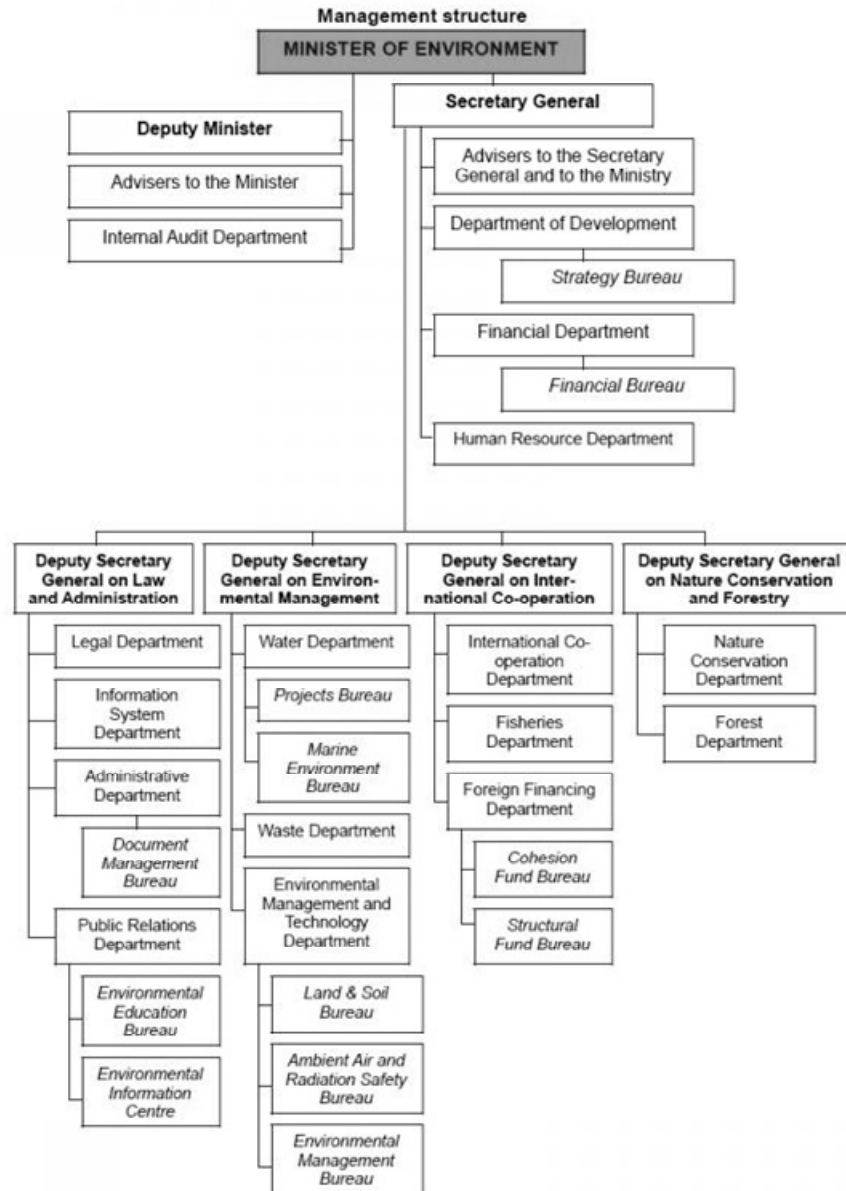
Estonian Fishers, Estonian Marine Institute of University of Tartu, Veterinary and Food Board, and Sports Fisheries Union.

The Monitoring Committee is set up by a decree of the Minister of Agriculture on the basis of the principle of partnership and the objective to ensure coordination among authorities and funds. The Monitoring Committee will consist of representatives of relevant ministries and other public institutions, representatives of NGOs, scientists, etc. Representatives of the European Commission participate in the work of the Monitoring Committee as observers. Monitoring Committee meetings generally take place twice a year, but not less than once a year. The Monitoring Committee is chaired by the Ministry of Agriculture. The management structure of the two responsible ministries is represented in Figures 12.1 and 12.2.

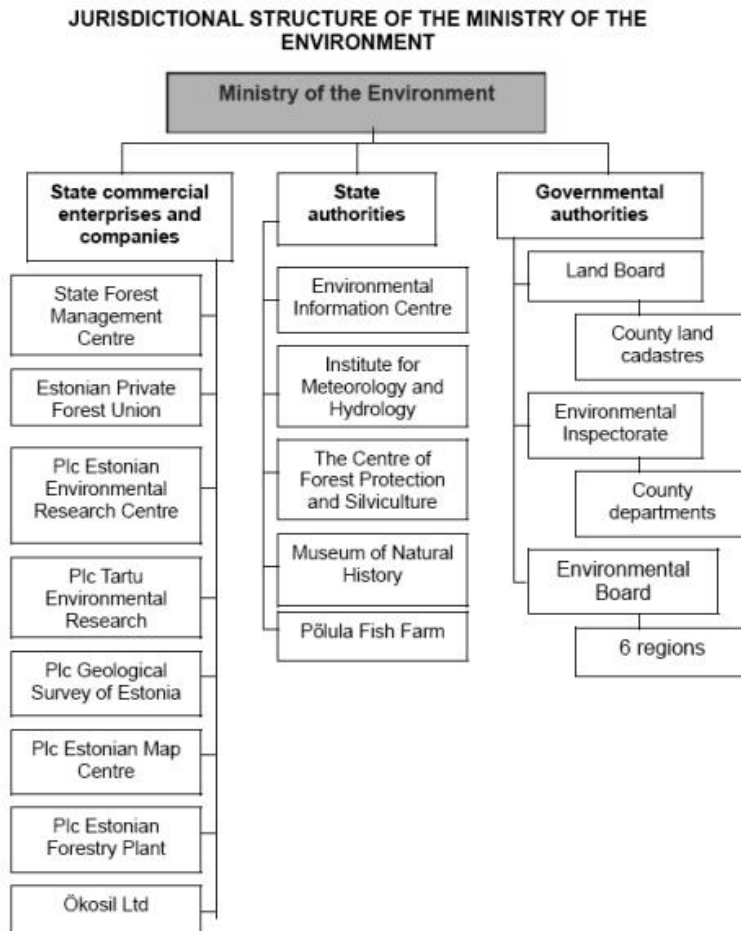
The Fisheries Resources Department of the Ministry of the Environment consists of 10 people that manage and co-ordinate research, assessment, exploitation, reproduction and protection of fish resources. In detail, the Ministry of Environment manages and adjusts:

- developing and amending the Fishing Act and its sub-acts necessary for the sustainable management of fish stock and fish stocks protection;
- international fisheries co-operation;
- within its competence, the fisheries co-operation in view of full accession to the EU (adoption of EU legislative acts, preparation of programmes, etc.);
- scientific research of fish resources and reproduction;
- fishing-related accounting, fish protection and surveillance;
- protection and restoration of fish stock habitats and spawning grounds;
- fishing effort and assessment of the use of resources, based on which the regular and special fishing permits are issued; limited fishing permits and permits for recreational fishing are issued by the County Environmental Departments; and
- development of the specialised environmental programme's subprogram for fisheries and ensures precise and sustainable use of the funds assigned to it.

Figure 12.1 Management and jurisdictional structure of the Ministry of the Environment

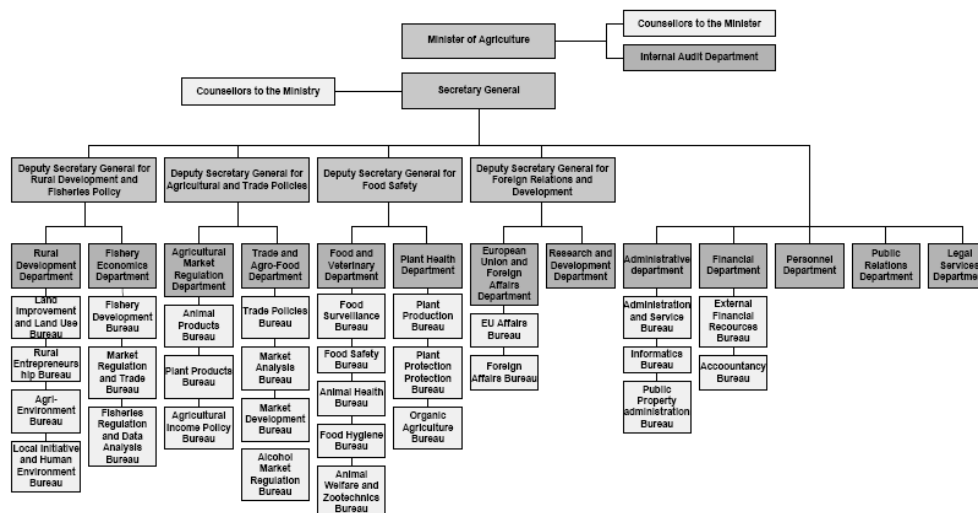


Source: [www.envir.ee](http://www.envir.ee)



Source: [www.envir.ee](http://www.envir.ee)

**Figure 12.2 Management structure of the Ministry of Agriculture**  
**Structure of the Ministry of Agriculture**



Source : [www.agri.ee/public/](http://www.agri.ee/public/)

The Fishery Economics Department of the Ministry of Agriculture employs 27 people and deals with the administration of the fishing activities: collection and storage of catch data, first-buyer prices etc. However, recreational fisheries statistics are collected by the Ministry of the Environment and are included in the fisheries information system managed by the Ministry of the Environment. Additionally it manages aquaculture, production, processing and marketing of fish and fish products as well as market regulation issues and the European Fisheries Fund and other state support. Finally, one of the main functions of the Fishery Economics Department of the Ministry of Agriculture is to develop and implement fisheries structural policies for the fishing and fish processing industries and to increase the competitiveness of those industries.

Roughly, based on the management system, Estonian fisheries can be distinguished in two types: i) licenses for the open-sea fishery i.e. trawling in waters deeper than 20 m are issued by the central fisheries administration in Tallinn, and ii) licenses for Baltic coastal fishery and inland fishery are issued by counties separately. However, the Minister of the Environment

annually decides the total number of licences and the distribution of licences by gear types (for coastal and inland fishery) between counties.

### **Laws and regulations**

The basis of the Estonian fisheries law is the “Fisheries Act” (“Kalapüügiseadus”) as amended, which was adapted in its first version on 27 September 1995. Another key fisheries legislation based on the law is the “Fisheries Regulation ” (“Kalapüügieeskiri”). The purpose of the Fishing Act is to ensure the sustainable use of fishery and aquatic plant resources, respecting the principle of responsible fisheries. This Act also regulates fishing by vessels flying the Estonian flag and fishing in waters beyond the jurisdiction of Estonia unless the legislation of the state where fishing is carried out or an international agreement regulating fishing in the fishing area do not provide otherwise.

In Estonia, the right to fish commercially is subject to a fee. This is rather untypical in the European Union. The fee for each calendar year is determined by the Government of the Republic, based on the special characteristics of the fishing grounds, the type of fishing gear and fishing capacity, or the fishing opportunities to be allocated on the basis of an international agreement. According to the law, the fee cannot be higher than 4% of the gross fishing revenue obtained during the previous year (e.g. for one tonne of fish, for special gear etc.). The right to fish for recreation and the right to catch crayfish are also subject to a fee.

From the beginning of 2009 all commercial fishing data in Estonia is stored in the Fisheries Information System in the Ministry of Agriculture. This is a web-based database containing fishing-related data. The system allows comprehensive processing of documents and ensures that data exchange requirements can be met both on national and international level. The Ministry of the Environment launched the development of the Fisheries Information System in 2003 and the system was finalised at the beginning of 2004. The database is also web-based. It allows comprehensive processing of documents and ensures that data exchange requirements can be met both on national and international level for all fisheries related data from the beginning of 2009 (when commercial fishery data was transferred to the new Fisheries Information System developed by the Ministry of Agriculture). The Ministry of the Environment however, is still responsible for recreational fishery statistics as well as for data related to fish stock research and restocking. This data is kept in the Fisheries Information System developed by the Ministry of the Environment. During 2009, both systems are modernized and simplified.



Also relevant to fisheries issues are the following acts which have been adopted by the Estonian Parliament: Fisheries Market Act (regulates different support measures like the European Fisheries Fund and state aid measures and provides market regulation), Act on Sustainable Development (1995), Water Act (1994), Pollution Charge Act (1999), Act on Protection of Marine and Freshwater Coasts, Shores and Banks and Act on Environmental Impact Assessment (2000).

The Act on Sustainable Development was approved in 1995. According to the amendment of this Act in 1997, long-term plans on sustainable development are to be elaborated in the energy, transport, agriculture, forestry, tourism, chemical industry, building materials industry and food industry sectors. In accordance with national necessity and global agreements Estonia drew up its National Strategy on Sustainable Development, which was approved by the Estonian Parliament in September 2005.<sup>7</sup>

At the regional level, Estonia was one of the 11 countries launching the regional sustainable development co-operation process 'Baltic Agenda 21' ([www.baltic21.org](http://www.baltic21.org)) in 1996. The development of an economically and socially sustainable, environmentally safe and responsible Baltic sea fisheries is thus to be achieved by: 1) maintaining biologically viable fish stocks, the marine and aquatic environment, and associated biodiversity; 2) within these limits establishing maximum fishing possibilities and appropriate selective fishing techniques for harvesting stocks; and 3) distributing the direct and indirect benefits of open sea and coastal fishery resources between local communities in an equitable manner. The main document of the Agenda 21 for the Baltic Sea Region was adopted in 1998. At the EU level, Estonia is implementing the EU Sustainable Development Strategy and the first implementation report is now available ([www.riigikantselei.ee/?id=72868](http://www.riigikantselei.ee/?id=72868)).

Estonia has ratified the following conventions:

- Rio de Janeiro Convention on Biodiversity Preservation (1994);
- Bern Convention on Conservation of European Wildlife and Natural Habitats (1992);
- Basel Convention on the control of Transboundary Movements of Hazardous Wastes and Their Disposal (1992);
- Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (1994 into force);

- UN/ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1995); and
- Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area (1995).

### **Fishers and processors organizations**

Historically, the most important fishers's organisation in Estonia used to be the Estonian Fishers' Association (Eesti Kalurite Liit) with their headquarter in Tallinn. Formally, it comprises six sections: distant-water fishery; Baltic cod fishery; open Baltic trawl fishery; coastal Baltic trawl fishery; Baltic coastal fishery and inland water fishery (Lakes Peipsi and Võrtsjärv). However, due to the many conflicts between fishers belonging into different sections (e.g. one typical problem has been the allocation of the Estonian herring quota between trawling and coastal fishery), the work of this Association has not been very efficient. Most of the members of this association are now members of the producer organization which operate more efficiently.

Another organisation in the Estonian fisheries is "The Estonian Association of Fishery" (Eesti Kalaliit), which is a non-profit organisation established on 31 October 1995 by 16 Estonian fish processing establishments. The main aim of the activities of the Estonian Association of Fishery is the development of domestic fish processing and the promotion of the competitiveness of fish production on the domestic market and foreign markets.

### **Research and stock assessment**

The main institution engaged in fisheries data collection and scientific advice formulation is the Estonian Marine Institute, University of Tartu. This institute is responsible for fisheries research in the Baltic Sea, salmon and sea trout rivers, Lake Peipsi and in the Atlantic Ocean (NAFO area). Fisheries research on Lake Võrtsjärv is conducted by the Estonian University of Life Sciences. This university also includes a small unit dealing with aquaculture and fish genetics.

Estonia is a member of the International Council for the Exploration of the Sea (ICES) which is responsible for stock assessment and advice formulation for internationally regulated stocks in the Baltic Sea and in NEAFC and which cooperates with NAFO Scientific Council in stock assessment for some NAFO stocks. Estonia (through researchers from the

Estonian Marine Institute) participates in corresponding ICES working groups and advisory bodies. Estonia (nowadays as part of the EU delegation) also participates in the NAFO Scientific Council which is responsible for stock assessment and advice formulation in the NAFO Regulatory area.

Data collection for stock assessment for regulated species in the Baltic Sea, NEAFC and NAFO is regulated by the EU Fisheries Data Collection Program. Estonia joined the program after joining the EU in 2005.

Stock assessment and advice formulation for Lake Peipsi-Pihkva stocks is regulated by the corresponding Estonian-Russian Intergovernmental Commission. The Estonian Marine Institute is responsible for data collection and cooperation with Russian scientists in advice formulation. The states of stocks, quotas, surveillance etc. are discussed during regular sessions of this commission (which meets twice a year, as a rule).

The state of non-regulated stocks in the Baltic Sea is followed by the Estonian Marine Institute within the framework of annual monitoring programs which are partly related to the abovementioned EU Data Collection Program (it includes several mandatory species to sample which are important for the Estonian coastal fishery but when the fishery is regulated nationally – sea trout, flounder, whitefish, perch, pikeperch, pike). Corresponding national programmes include both sampling of commercial catches and gill-net monitoring in permanent research areas. Advice is given to the Ministry of the Environment.

The state of commercial stocks in Lake Võrtsjärv and in some other inland water bodies with rather limited fishery is followed by the Estonian University of Life Sciences.

## **Control and surveillance**

According to the Estonian domestic Fisheries Act adopted 27.09.1995 the Estonian Environmental Inspectorate (EEI; belongs into the structure of the Ministry of Environment) has the comprehensive responsibility for the Estonian fisheries control and EEI is responsible for the administrative control and control in ports. EEI is also responsible for the control of fisheries at sea. 50 non-specialised inspectors and one control vessel for the trawl fishery are the key resources for monitoring and surveillance of the entire fishery. To achieve the best results EEI operates in full cooperation with the Estonian Coast Guard, the Estonian Agricultural Ministry and all other relevant authorities.

It is not possible for fishing vessels to report the information required in the logbook to the competent authority by electronic means (however, the system is expected to be launched in 2009). Therefore fishing vessels are obliged to hand over or send their filled logbook sheets twice per month or during 48 hours after finishing the fishing trip to the Ministry of Agriculture.

All fishing vessels longer than 15 m flying the Estonian flag and fishing vessels flying the flag of some other Member States (e.g. Latvian) in Estonian EEZ are monitored by the EEI. As it is responsible for receiving reports and recording of information relating to fishing activity, but it is not operational 24/7, the EEI has organized a 24-hour contact point for prior notifications. That contact point can be reached via telephone, fax and e-mail. According to the Environmental Minister 17 December 2002 Regulation No 76, fishing vessels are obliged to transmit a prior notification of entry into port and total catches retained on board at least two hours in advance of arrival. That prior notification must contain the following information:

- Vessel name involved and its registration number;
- Master name;
- Relevant port name;
- Estimated time of arrival;
- Quantities of fish retained on board by species.

In case it would take less than two hours to reach from fishing area to port, the Master is also allowed to transmit above-mentioned data after hauling, supposing that it is at least 30 minutes in advance of arrival into port. After receiving the notification, the above-mentioned contact point enters this information into the database that can be accessed via the internet by all inspectors and relevant authorities.

In the event that a fishing vessel intends to land in some other EU Member State port it is obliged to follow the rules of Council regulation 2847/93 Article 7.1 and Commission Regulation 728/1999/EC with regard to prior notification.

## Chapter 13.

### Government Financial Transfers to the fisheries sector

European Community pre-accession funds assured compliance of Estonian processing plants and aquaculture facilities with EU sanitary and hygiene regulations. Nowadays, the main source of the financing of the Estonian fisheries sector is the European Fisheries Fund. The financing of the Operational Program in Estonia foresees the total expenditure to be EUR 84.6 million during the period 2007 – 2013. With the Estonian co-financing the total public expenditure will amount to EUR 112.7 million. This amount is distributed between five priority axes:

- Adaptation of the fishing fleet (EUR 20.3 million)
- Aquaculture, inland fishing, processing and marketing of the fishing products (EUR 32.8 million)
- Measures of common interest (EUR 28.3 million)
- Sustainable development of fisheries areas (EUR 25.7 million)
- Technical assistance (EUR 5.6 million)

There are several classifications for financial transfers to the fisheries sector. With a view to highlight which categories exist in Estonia the following system will be used: direct payments, cost-reducing transfers and general services.

#### Direct payments

In this category the most important measures are support schemes to modernize the assets of fishing enterprises (vessels, gears, harbours etc.). Also, there are vessels decommissioning payments in use. Most of the direct payments come from the European Fisheries Fund. Considering the support

from the first, the second and the fourth priority axes as direct payments, direct payments for 2007-2013 amount to EUR 79 million. The annual average is EUR 11.3 million but payments were lower in 2007 and 2008 and will be higher in 2009 and 2010.

Historically there were no mechanisms to increase revenues or for market intervention in Estonia. Since 2006 there are three approved producer organizations who have the right to apply for market intervention measures in Estonia in accordance with the EU Common Market Organisation for Fish and Fish Products (EU Council Regulation no 104/2000, Art. 23). In 2008 the intervention measures covered 4.4% of the Baltic herring TAC and 3.6 % of the sprat TAC in Estonia. This carry over mechanism provides for the processing and storing of fish for human consumption until market disturbances are over. The carry over support on 2008 was EUR 635 754 .

### **Cost-reducing transfers**

There is only one measure in use in Estonian fisheries that reduces costs for producers: fuel tax exemption. In Estonia there are different taxes associated with the price of fuel for the end users. One of them is so-called excise duty (“aktsiisimaks”). Fishing vessels, as well as tractors and other vehicles used in agriculture, had the right for repayment (reimbursement) of this tax in 2006. The system was then changed and now the fishermen have the possibility to apply for exemption from the fuel tax. In 2008 the value of this exemption for the fisheries sector compared to agriculture was EUR 250 000. Compared to normal business conditions, the exemption for the fisheries sector was EUR 1 320 000 in 2008.

### **General services**

There is multitude of general service support in the Estonian fisheries. Such measures include: research, management and enforcement expenditure, regional development grants, support to build port facilities, payments to producer organisations, expenditure for restocking of fish resources and for fisheries information collection and analysis. Very rough estimates show that general services (paid from state budget and from the Environmental Investment Center) amounted to a value of EUR 5.2 million in 2008. The third and the fifth axes of the European Fisheries Fund could be classified as general services which provide an additional amount of EUR 33.9 million for the period 2007-2013 (average additional annual amount: EUR 4.8 million). In 2008, the total amount of general services was EUR 10 million.

## Chapter 14.

### Management measures and instruments

#### TACs, quotas, allocations and technical measures

##### *Historic developments*

The history of the Estonian fish resource allocation system is interesting. During the Soviet period, all water-bodies belonged to the State and all commercial fishing activities were carried out by collectives. The Estonian fishery was simply a sector of the soviet economy that functioned under the typical framework of those days, governed by the so-called “soviet plan management” and characterised by cheap fuel, government salaries, subsidies, etc. As there was no private ownership, fishers were ordinary employees receiving a salary for their job from the State (fishing collectives were in fact just a part of the economic framework of the State), and they did not have any rights to the fish resources themselves.

Following the re-establishment of independence in Estonia in 1991 there was a rapid transition to a market economy. In the first years the Estonian fisheries sector was somewhat “chaotic” and based on many and sometimes contradictory regulations. However, the new Fishing Act (1995) set in place a new and firm structural framework. The fishing effort in the coastal fisheries was already high and the new Act was designed to manage it.

In the trawling fisheries segment the situation was different. In 1995-1996 fishing possibilities were greater than the catch and the new Fishing Act didn't provide any efficient mechanism to solve possible conflicts. Until 1997 all fishing vessels received licenses for all they could fish, i.e. fishing was in principle not regulated. In theory, the system was designed so that the administration registered all catches and closed the trawling for the remainder of the year when the national quota was exhausted. As it has been shown in the theoretical literature such “olympic fishing” leads to an increase of fishing capacity, over exploitation and overcapitalisation.

Until 2001 the Estonian fishing was based on the Fishing Act adopted by the Parliament in 1995. As at that time the fishing possibilities were higher than catches, this legislation did not formulate the mechanism to solve possible conflicts in an efficient manner. In order to solve conflicts, an

amendment of the Fishing Act was adopted in January 2000 stating that if the fish stocks do not permit the use of all available catch capacity, fishing gear or fishing days in professional fishing, then the fishing rights (fishing possibilities) shall be decreased for all applicants depending on the applicant's actual catch during the previous calendar year, the amount of fishing gear used or the number of fishing days in operation. Hence, with that amendment, fishing rights based on the historical track record were established in Estonia.

This so-called historical fishing right was used in all Estonian fisheries (Atlantic, Baltic open-water and coastal, and inland) in 2000. The main objective was to “freeze” the *status quo* in fishing. However, such a system that prevented changes to allocation of fishing rights between different enterprises was heavily criticised by many stakeholders including fishers. At first, the opponents pointed out that since fish stocks are public property, there should be a mechanism by which all interested enterprises could enter the fishing industry (like any other sector of national economy). Likewise, the freezing of a rather accidental proportion of catches taken, or gears used in 1999 for an indefinite time would not be fair. Additionally, it was also argued that such a system would exclude all elements of economic competition and would act against the need to increase efficiency. Then the idea of auctioning fishing possibilities arose.

The new legislation from 2000 sets the basis of the very unique fishing rights auctioning system. In order to deal with excessive fishing capacity, a part (10%) of the fishing rights, both volume quotas and gear use rights, in all Estonian fisheries was, in 2001 – 2004, allocated each year through auctions. The remainder (90%) was allocated on the basis of recent fishing rights use history. Consequently, all fishing rights depreciated from year to year in a geometric fashion, by 10% yearly.

The auction system was unpopular among fishers, because it increased their costs. Also, a drastic increase of gear fees during the auctions indicated that fishing must be profitable. So, fishers were very afraid that the high price increase in the auctions would finally provide the argument to increase the official fishing fees. Secondly, the auctions brought more people into the fishery. Fishers argued that this would erode their profitability even further. In 2002, when the debate on abolishing the auction system was raging, Estonia was scheduled to join the European Union. In EU Member States, the fishing sector is usually “subsidised” through structural funds. In Estonia this was not the case; before accession to EU in 2004 there was no financial support to fishing. Fishers complained that while most EU countries support their fishing sector, Estonia on the contrary auctioned the rights, taking all profits out of the sector, seriously hindering new investments,



modernisation, etc. All these arguments were put forward before the creation of the auction system as well, but without success.

What finally brought the auction system down was political expediency. The auction system was put in place after the 1999 Parliament elections. However, before the next elections (2003), the two main fisher organisations made a strong campaign to change the fisheries law and abolish the auction system. As a result, the Parliament abolished the auction system unanimously shortly before the 2003 elections.

### *Present system*

Today, all fishing rights in Estonia are based on the historic usage principle and are fully transferable. Main management measures in Estonia are volume quotas (ITQs) in the open water fisheries (both Baltic and Atlantic trawling) and gear usage quotas in the Baltic coastal and inland fisheries. Since the NAFO distributes some fishing rights in the form of fishing days, fishing day quotas are also used in this segment. All Estonian fishing rights are fully transferable inside the country (i.e. between licence owners). Family-run or small companies dominate the Baltic coastal fishery (i.e. mainly artisanal fisheries). What is characteristic is that most quota are owned by fishing enterprises that then hire fishers (as 'day labourers') to undertake the catching in either enterprise owned vessels (mainly larger scale industrial segment) or the fisher's vessels (small scale artisanal fisheries segment).

Since the coastal and inland segments employ mainly passive gears and use a multitude of small ports, the reinforcement of the volume quotas system in these segments have been difficult to control. However, according to the agreements with the Russian Federation, national quotas for the most important commercial species in the L. Peipsi-Pihkva have been also set (block quotas). These quotas, however, are not divided into individual fishing enterprise quotas. This means that the national fisheries administration just monitors the total landings and closes the fishery when the quotas are fully taken. In the Lake Peipsi-Pihkva, the fishery is highly concentrated as ten companies own 90% of the fishing gear operated under the Estonian quota.

There are numerous technical measures employed in Estonian fisheries: minimum net mesh sizes (for gill nets, fyke nets and trawl bags); closed areas and seasons; minimum landing sizes for fish and limits on by-catches.

### Vessel adjustment programs

Numerous studies have shown that in the European fisheries, in general, fishing capacity exceeds fishing opportunities. Hence, one of the main objectives of the EU Common Fisheries Policy is to bring the fleet to a size that matches available resources. This secures fishers stable work and income and, at the same time, decrease the pressure for illegal fishing.

After joining the European Union in 2004, a careful analysis of the Estonian fishing sector was made. A baseline study by the Estonian Marine Institute (2005) estimated the overcapacity of the trawling fleet to be around 30%. Based on that study the first decommissioning scheme took place in 2005 – 2006 based on pre-accession funds of the EU which were used for the initial reduction and modernization of the Estonian fleet. According to the Operational Programme of the European Fisheries Fund 2007–2013, the Estonian national fleet is still dominated by fishing vessels built in the 1970–1980s, characterised by extremely low-quality steel and weakly functioning engines, hence, there is a need to pay special attention to modernising the fishing fleet. The Operational Programme found that in order to minimize the burden on the environment, decrease fishing costs, and to improve fishing quality, the Estonian fishing fleet must be upgraded by introducing newer and more efficient engines and more modern and selective fishing gear.

Based on that policy and after analysing recent fishing data in 2007, another adjustment scheme was implemented and is still ongoing. The detailed target is set as follows: in 2006 the effort of the maritime fishing fleet was 20 826 GT and 53 340 kW. The control level in 2010 should be -5% and the target level is -10%. The same programme sets also another target: the percentage of modernised fishing vessels in the total fleet should be 15% by 2010 and 40% by 2015. Fishing enterprises submit their proposals to the Department of Fishery Economics, Ministry of Agriculture, indicating the details (age, kW, BRT etc.) of the vessel and the value (price). The decision is made using underbidding. For each size class of the vessels (there are four classes in the segment 4S1 and one in the segment 4S3), regulation foresees maximum sums of money for each GT and kW. Applications cannot ask more and the winning applications are those which ask the lowest value for each GT and kW. Fishing enterprises are allowed to reinvest the money with the objective to modernise their remaining vessels (however, it is not allowed to increase engine power or storage capacity). It is assumed that the modernisation of fishing vessels improves the working environment; replacement of engines results in more efficient fuel usage, smaller exhaust emission and smaller likelihood of oil spills. Also, it is expected that modernisation of the fishing fleet allows for more efficient use

of vessels for fishing, resulting in a decrease in fishing time (number of trawl fishing hours).

The vessel adjustment plan is in accordance with the OECD C(2008)78 “Recommendation of the Council on the Design and Implementation of Decommissioning Schemes in the Fishing Sector” and EU legislation. Monetary resources for the next four years include EUR 20.4 million, 25% of which will be national contribution (applied by Estonia in March 2007 and agreed by the European Commission on December 18, 2007).



## Chapter 15.

### International engagements

The Estonian Fisheries Law entered into force on 1 January 1996. Estonian Fisheries Law and the related secondary legislation are harmonized with the provisions of relevant international conventions and agreements for which the European Community is a Contracting Party. The most important among these conventions is the United Nations Convention on the Law of the Sea (1982) that provides for a comprehensive regime of law and order in the world's oceans and seas establishing rules governing all uses of the oceans and their resources. It is followed by the United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks that sets out principles for the conservation and management of those fish stocks and establishes that such management must be based on the precautionary approach and the best available scientific information.

Estonian fisheries legislation, fisheries management, control and enforcement, fishing and aquaculture practices are strongly influenced by the UN FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas. This Agreement, adopted by the Twenty-seventh Session of the FAO Conference and entered into force in April 2003, forms an integral part of the Code of Conduct for Responsible Fisheries. The Code of Conduct for Responsible Fisheries was translated into Estonian in 1995. Estonia Fisheries Law is harmonized with the provisions of that arrangement preventing e.g. "re-flagging" vessels under the flags of States that are unable or unwilling to enforce necessary fisheries management measures.

Estonia is a contracting party to the Convention for the International Council for the Exploration of the Sea (12 September 1964) and to the 1995 UN Fish Stock Agreement

Established by the Convention on Fishing and Conservation of the Living Resources in the Baltic Sea and Belt, the International Baltic Sea

Fishery Commission (IBSFC), to which Estonia was also a contracting party, ceased to function from 1 January 2006. IBSFC activities under the framework Agenda 21 for the Baltic Sea Region' have been crucial for the further development and implementation of management objectives and strategies for Baltic salmon, cod, sprat and herring, and other measures aimed at sustainable use of shared fishery resources. The activities of the IBSFC have provided valuable experience in managing the shared Baltic fishery resources over several decades. The Conference of FAO and non-FAO Regional Fishery Bodies, which took place in Rome in February 2001, considered the IBSFC as one of the three pioneer organizations in applying the ecosystem approach to fisheries (along with ICES and CCAMLR).

The Baltic Sea Regional Advisory Council (BS RAC) was set up in March 2006 to advise the European Commission and Member States on matters relating to management of the fisheries in the Baltic Sea. The BS RAC consists of representatives from the fishing sector and other interest groups affected by the EU Common Fisheries Policy. These include fisheries' associations, producer organizations, processors, market organizations, environmental NGOs, aquaculture producers, consumers, women's networks and recreational and sports fishers. There are 44 member organizations in the BS RAC. The BS RAC conference on Control and Compliance in the Baltic cod fishery was held 28 - 29 March 2007 in Copenhagen with participation of Fisheries Ministers from around the Baltic, the European Commission, the Community Fisheries Control Agency, representatives from all sectors of the fishing industry, environmental organisations and other RAC members and observers. The Conference agreed that unreported catches of Baltic Sea cod are the main problem associated with non-compliance and that unreported landings create a significant threat to the sustainability of the cod stocks and the Baltic Sea Ecosystem. The Estonian Fishers Association is actively participating in the BS RAC activities.

The Estonian (marine) fishery in the Baltic Sea and in the Atlantic Ocean is a part of the EU Common Fisheries Policy (CFP) since May 2004. The CFP is regulating almost everything in fisheries, including data collection, advice formulation, surveillance, industry issues and aquaculture.

Fisheries issues (including fisheries research, surveillance) on the cross-border Lake Peipsi-Pihkva are regulated by the Estonian-Russian Intergovernmental Commission, which was created according to the Agreement on cooperation between governments of the Republic of Estonia and the Russian Federation on the conservation and use of fish resources on Lakes Peipsi, Lämmi and Pihkva.<sup>8</sup> Some additional fish-related issues (mostly monitoring for nature conservation purposes) between Estonia and the Russian Federation are treated within the framework of the Estonian-

Russian Agreement on the protection and sustainable use of transboundary water bodies. Before joining the EU, Estonia had also bilateral fisheries agreements with Latvia, Russia (in the Baltic and in other seas), and USA (these areas are now, according to the Common Fisheries Policy, covered by the EU).

Adherence and national implementation of international agreements such as UN Fish Stock Agreement, Compliance Agreement (UNCLOS), FAO Code of Conduct for Responsible Fisheries, Best practices in the fisheries and aquaculture field, IUU issues are included in the EU Common Fisheries Policy and are mandatory for Estonia as a EU member state.





## Chapter 16.

### Main issues and challenges

The Estonian fisheries sector has undergone dramatic changes since the early 1990s, including major overhauls of the national management system. The system is functioning, but there are some shortcomings. The main challenges to be resolved are:

- Administrative structure of the fisheries and aquaculture sector. Responsibilities related to the fisheries management and governance are currently shared among the Ministry of Agriculture and the Ministry of the Environment. This is recognized as being problematic by staff of both Ministries and is unlikely to produce efficient outcomes. The effectiveness of the current rather unique institutional setup in fisheries management (division of responsibilities between two ministries) should be evaluated.
- Political role of fisheries. Politicians have on more than one occasion decided to change the law to increase the number of fishing licences (the number of subjects who have a right to fish using commercial gear). This policy has led to overfishing and worsened the economic situation of traditional coastal fisher communities. An example is the recent decision to allow recreational fishers to use commercial gear (gill nets). At the same time, too little attention has been devoted to the development of the “true” recreational fishery and for special regulations for remote fishing communities (e.g. small islands where inhabitants traditionally depend on coastal fishery).
- Overall, there is a lack of representation of fishers’ organizations, in particular from the Baltic coastal fishery and the inland water fishery, in the decision making processes. Meanwhile, there is a need to educate fishers in environmental issues. Likewise, the current fisheries regulations are too complicated and can be simplified. In this respect too little financial support is available for publishing necessary information material (e.g. booklets related to fisheries for the general public and for fishers). The European Fisheries Fund 2007-2013 provides an additional incentive to form stakeholder groups

at the regional level to develop, propose and implement project for rural/coastal development. Concurrently, this could contribute to solving conflicts between fishers and nature conservation (seals, cormorants, MPA-s); coastal – trawl fishery; commercial – recreational fishery.

- Management challenges in the coastal (artisanal) fishery segment. Surveillance and control is a major challenge; in addition to at sea surveillance, about 500 ports and landing sites are monitored by only 50 inspectors. In the open-sea trawl fishery targeting comparatively cheap species and using a few large ports, landings are under rather good control. However, in small-scale fishing (Baltic coastal fishing and inland fishing) there are major challenges due to the very big number of landing sites, high price of some fish species and rather low landing volumes, which may be sold from hand to hand. Use of prohibited gear (especially gillnets with too small mesh size) is rather widespread in coastal and inland fisheries, as well as misreporting of catches. Altogether, 3 941 and 3 976 violations of fishing regulations were registered by the Environmental Inspectorate in 2003 and 2004 respectively ([www.kki.ee/doc.php?8705](http://www.kki.ee/doc.php?8705)). A more coherent and efficient fisheries enforcement system should be developed.
- During the past ten years most ports were privatised and running these under open market conditions is not profitable. In some cases fishing vessels have been refused landing possibilities in private ports and there are only a few state or municipal ports in Estonia.
- Recreational fisheries. Recreational fisheries produce a considerable amount of fish. The lack and appropriate control and surveillance capacity makes the monitoring of this segment difficult and fuels a black market for fish and impacts the status of fish stocks. Recreational fisheries can also contribute to undercutting prices for commercial fishers.
- Government financial transfers. Estonia provides fuel exemptions and general services to its fishery sector. However, significant GFTs are advanced to the sector through the European Fisheries Fund 2007-2013 which is matched by national financial transfers; the impact of the current financial and economic crisis may change the situation. Investment in applied research related to stock assessment and advice formulation is limited.
- Aquaculture. The aquaculture sector lacks fish farming expertise and aquaculture specialists. The sector will be helped towards a modernisation within the framework of the Operational Programme of the European Fisheries Fund 2007-2013 which identifies the sector as a priority axis.

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**NOTES**

1. [www.etis.ee/portaal/isikuPublikatsioonid](http://www.etis.ee/portaal/isikuPublikatsioonid).
2. New data from 2009 shows that 250 people are employed full-time in trawling.
3. The EU has introduced a legal framework for the geographical division of the territory of the European Union in order to harmonise the collection, transmission and publication of national and Community statistics. The compilation of regional statistics according to the common classification of territorial units for statistics (NUTS) stabilises them over time and provides a procedure for future alterations. The NUTS level to which an administrative unit belongs is determined on the basis of population thresholds as follows: NUTS II – min. population 800 000, max. population 3 million, [www.europa.eu/legislation\\_summaries/regional\\_policy](http://www.europa.eu/legislation_summaries/regional_policy)
4. <http://www.agri.ee/public/juurkataloog/>
5. 25.02.1999 (RT I 1999, 30, 415), current version available at [www.riigiteataja.ee/ert/act.jsp?id=12951198](http://www.riigiteataja.ee/ert/act.jsp?id=12951198)
6. Eesti Kalanduse Strateegia 2007-13; [www.agri.ee/public/juurkataloog/EKS\\_2007-2013\\_VV\\_heakskiit.pdf](http://www.agri.ee/public/juurkataloog/EKS_2007-2013_VV_heakskiit.pdf)
7. <http://www.envir.ee/orb.aw/>
8. Signed on 4 May 1994; [www.riigiteataja.ee/ert/ert.jsp?link=print&id=13061006](http://www.riigiteataja.ee/ert/ert.jsp?link=print&id=13061006)