

**Commercial inland fishing in member countries of the
European Inland Fisheries Advisory Commission
(EIFAC):**

*Operational environments, property rights regimes and socio-economic
indicators*

Country Profiles

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**EIFAC Ad Hoc Working Party on Socio-Economic Aspects of Inland
Fisheries**



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SUMMARY

The aim of this report is to shortly describe some important aspects of commercial inland fishing in each of the 33 member countries of the European Inland Fisheries Advisory Commission (EIFAC), a Regional Fishery Body of FAO. Emphasis is on lake and river fisheries, but estuary and lagoon fisheries have also been included when relevant data were available to the authors. Information presented in this report is to some extent an update of EIFAC Technical Paper No. 52 (1990) and Suppl. (1993), *Inland fisheries of Europe*, by Dill, as well as FAO Fisheries Report No. 509, Suppl. 1 (1995), *Review of inland fisheries and aquaculture in the EIFAC area by subregion and subsector*. However, the focus here is on professional capture fisheries, with the purpose of having a clear distinction from both recreational fisheries and aquaculture.

For the preparation of this report, information on the socio-economics of commercial inland fishing in EIFAC member countries was collected and assessed mainly using available internet information sources: institutional and governmental statistical reports, scientific articles and reviews. In addition, two short questionnaires were sent to EIFAC correspondents with the aim to get a more detailed picture from member countries. Data collection (mainly from statistics on licenses and landings) targeted only professional capture fisheries and therefore excluded recreational fisheries and aquaculture where possible. However, for some countries there was difficulty in obtaining socio-economic data specifically on commercial inland fishing, in which case the available information was presented as described in the source.

Each country profile is structured in a similar way. Countries with reportedly no or little available commercial inland fishery statistics, or those not providing such data within the time frame of completion of this report, have been shortly commented on utilizing the information available. The profiles range from two to five pages in length and include the following sections (with respect to commercial inland fishing):

- 1. Inland waters and commercial fishing areas**
- 2. Administration and legislation**
- 3. Ownership and access**
- 4. Employment**
- 5. Catches and important species**
- 6. Current status and future trends**

Information presented in this report shows that the operational environment of commercial inland fisheries varies between EIFAC member countries, especially regarding the availability and accessibility of fishing waters. The main socio-economic indicators of commercial inland fishing (employment and catch) are most important at the local or regional level. Data collected in this report indicate that the current 33 EIFAC member countries have a total of approximately 30 000 commercial inland fishers with an annual catch of around 90 000 tonnes. However, different sources of information weaken interannual comparability of produced figures. They also typically reflect only declared catches; the extent of unreported or illegal catches is usually not accounted for.

Socio-economic issues that have influenced the present state of commercial inland fisheries in EIFAC member countries include political and institutional reforms (e.g. membership in the EU) and competing interests for inland water management. Following the changes from 1989 and onwards in the economy and market structures in countries of Eastern Europe, decentralisation and market shifts have had some major impacts on the conditions and prospects for creating or developing sustainability in the inland commercial fisheries. In some of the Mediterranean countries there has been a strong emphasis on inland water management for other uses than fisheries (e.g. irrigation, hydropower and domestic water supply). Trends affecting the future socio-economic viability of commercial inland fisheries in EIFAC member countries include the increasing importance of other growing sectors (e.g. recreational fisheries and aquaculture), declining fish catches, poorly developed markets and continued environmental degradation in many areas.

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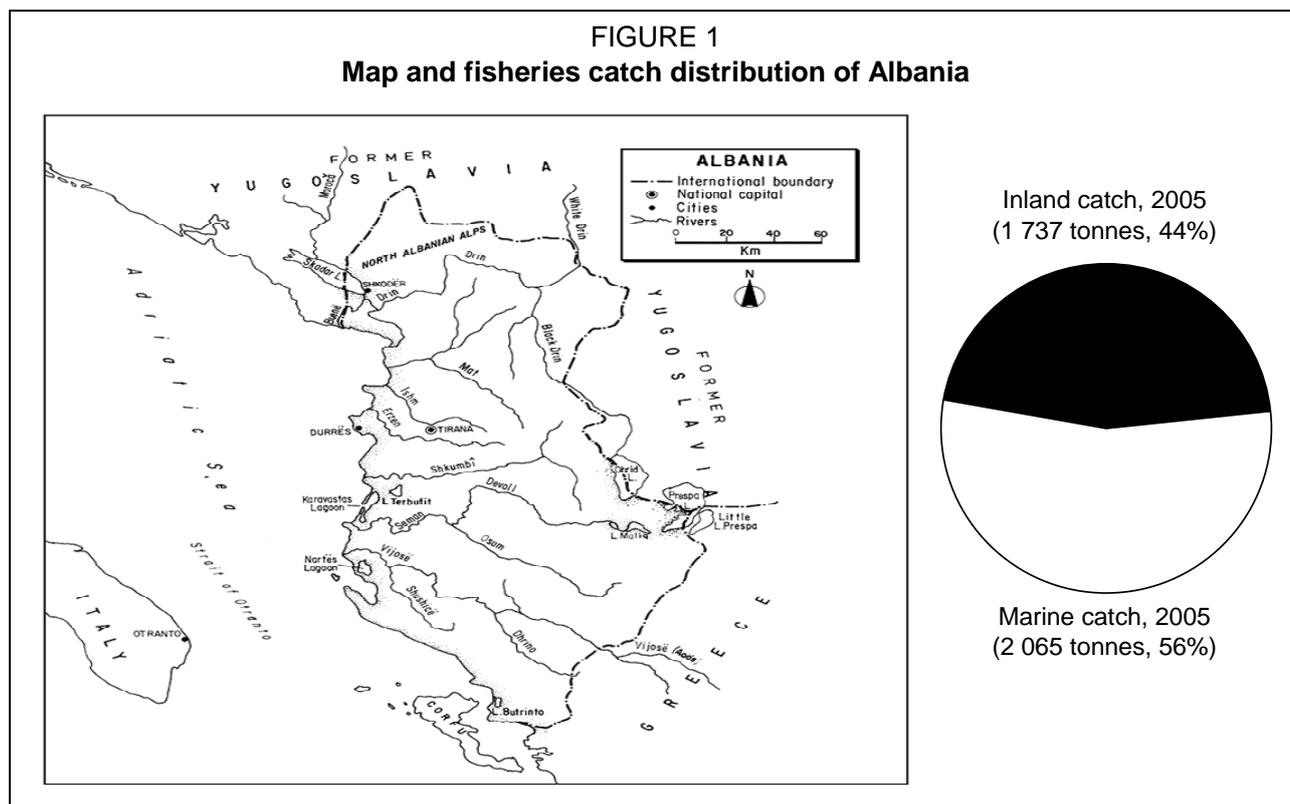
We would also like to acknowledge the following participants of the workshop organized by the EIFAC Ad Hoc Working Party on Socio-Economic Aspects of Inland Fisheries from 12-15 January 2009 in Helsinki, Finland: Øystein Aas, Robert Arlinghaus, David Barton, Philippe Boisneau, Jon Bolland, Brad Gentner, Wolfgang Haider, Phil Hickley, Cecilia Håkansson, Jan Kappel, Janek Lees, Heimo Mikkola, Katja Parkkila, Eva Roth, Anna-Liisa Toivonen, Konrad Turkowski, Raymon van Anrooy and Mari Nykänen.

ALBANIA

Inland waters and commercial fishing areas

Albania (Figure 1) has a total area of 28 750 km², with inland water bodies occupying 1 350 km² (FAO, 2006). Albania also has a coastline of 427 km along the Adriatic and Ionian Seas (MEFWA-DFP, 2008a). There are about 247 natural lakes (400 km²), a significant number of artificial (hydropower) lakes (70 km²), 626 irrigation (agricultural) reservoirs (40 km²), and eight coastal lagoons (100 km²) (Filloko, 2004). The main natural lakes are Ohrid (363 km²; 114 km² in Albania), Shkodra (368 km²; 149 km² in Albania), Prespa e Madhe (285 km²; 44 km² in Albania) and Prespa e Vogel (44 km²; 5 km² in Albania), and the main rivers are the Buna (44 km), Drini (285 km), Erzeni (108 km), Mati (144 km) Semani (281 km), Shkumbini (181 km), and Vjosa (272 km) (FAO, 2004a). The more important artificial lakes and reservoirs are the hydropower lakes on the Drini River and about 570 agricultural reservoirs dispersed throughout the country, while the more important lagoons are Karavasta (3 900 ha), Narta (2 800 ha) and Butrinti (1 600 ha) (MEFWA-DFP, 2008a).

Fishing in lakes, agricultural reservoirs and lagoons in Albania is important to small family-based groups of fishermen (MEFWA-DFP, 2008a). Fishing activity in rivers is performed only in the Buna and Vjosa (Filloko, 2004). The recreational fisheries sector is insignificant (FAO, 2004a).



Sources: map: Dill (1993); catch data: Eurostat (2008).

Administration and legislation

The Directorate of Fisheries Policies under the Ministry of Environment, Forestry and Water Administration is the administrative body of the fisheries sector in Albania, and the Fishery Inspectorate is responsible for controlling the implementation of fishery laws in the main 14 districts (MEFWA-DFP, 2008a). The Law on Fishery and Aquaculture is the basic law of the Albanian inland fishery (Filloko, 2004). According to Law No.7908 on Fishery and Aquaculture (1995), “fishing means every activity conducted for catching or collecting aquatic species, except those resulting from aquacultural activities,” and “professional fishing means the fishing for economical purposes.” According to Regulation No. 1 (2005) for application of the legislation on

fishery and aquaculture, “inland water includes coastal lagoons, natural lakes, hydropower lakes, agricultural reservoirs, rivers and other waters of Albania Republic different from marine waters.”

Fishery Management Organizations (FMOs) were established according to Law No. 8870 on some amendments of the Law on Fishery and Aquaculture (2002) and legally are private subjects in exercising their activity in the fishery sector. The Albanian Professional Fishermen Organization membership and some other regional fishermen organizations served as basis for the establishment of the FMOs. At the end of 2006, FMOs totalled three for natural lakes, three for agricultural dams and reservoirs, one for hydropower plant dams and one for a coastal lagoon. Two important concepts of FMOs are that fishing ports and landing sites are managed by one FMO with concession free of charge, and the fishery resource in inland water habitats is co-managed with the Albanian Government. (MEFWA-DFP, 2008c)

Ownership and access

The Law on Fishery and Aquaculture is related to Law No. 8093 on water resources (1996) in that all open waters in Albania belong to the State, except ponds or fish farms located within private land. Running waters, lakes, lagoons etc. can not be at private possession. Fish and other aquatic organisms are living assets which can be exploited only after having obtained a legal license. (Flloko, 2004)

Licenses dealing with commercial fishing are issued under the Fishery Directorate (Flloko, 2004). The opinion of local government is taken into consideration when issuing licences for capture fisheries in inland waters (FAO, 2004b).

Employment

The population of Albania in 2004 was 3 188 000 (FAO, 2006). Over 2 000 persons are employed in the fishing activity in rivers, lakes, lagoons and agricultural reservoirs in Albania (Table 1) (FAO, 2004a; MEFWA-DFP, 2008a). In 2002 the estimated number of fisherman was about 350 for lakes, 250 for reservoirs and dams and 250 for coastal lagoons, with a total of about 900 people employed in inland fishery in Albania (Flloko, 2004).

Catches and important species

In 2006 the commercial catch from Albanian coastal lagoons was 282 tonnes, while the commercial catch from other Albanian inland waters was 2 078 tonnes (Table 1) (INSTAT, 2007).

TABLE 1

Employment and catches for commercial inland fishing in Albania

Year	Number of professional fishers			Catch (tonnes)
	Full-time	Part-time	Total	
1995	470 ^a	-	-	-
1996	472 ^a	-	-	-
1997	449 ^a	-	-	273 ^b
1998	-	-	-	817 ^b
1999	-	-	-	1 267 ^b
2000	-	-	-	1 462 ^b
2001	-	-	-	1 828 ^c
2002	-	-	900 ^b	1 608 ^c
2003	-	-	-	1 687 ^d
2004	-	-	-	2 309 ^d
2005	-	-	-	2 450 ^d
2006	-	-	> 2 000 ^e	2 360 ^d

Note: Catch data is for fish caught/landings from inland/fresh waters and coastal lagoons.

Sources: ^a FAO (1999); ^b Flloko (2004); ^c FAO (2004a); ^d INSTAT (2007); ^e MEFWA-DFP (2008a).

The commercial catch in Lake Shkodra at the end of the 1980s varied from 650 to 815 tons/year but in recent years has not exceeded 300 tons/year, with cyprinids as the most important species. In Lake Ohrid the catch varies from 90 to 150 tons/year and is comprised of koran (*Salmo letnica*), belushka (*Salmothymus ohridanus*), bleak (*Alburnus alburnus*) and common carp (*Cyprinus carpio*). In Lake Prespa the catch varies from 300 to 500 tons/year and is mainly comprised of cyprinids, especially bleak and common carp. The most important species in hydropower lakes are cyprinids, such as bleak and Chinese carp. Recent catches in lagoons were 130-150 tons/year in Karavasta and 50-70 tons/year in both Narta and Butrinti, with the main species being mullets (*M. cephalus*, *Liza* spp. and *Chelon labrosus*), sea bass (*Dicentrarchus labrax*), eel (*Anguilla anguilla*), sea bream (*Sprattus aurata*) and sand smelt (*Atherina hepsetus*). Species caught in the Buna River are the same with those of Lake Shkodra, while the catch in the Vjosa River is based mostly on *Chondrostoma nasus* at about 10 tons/year. (Filoko, 2004)

Current status and future trends

The lakes fisheries are characterised as a family-type operation with a very low return, close to the poverty line for the fishers with an annual profit per vessel in the range of US\$1 250 - 1 570 (US\$600-800 per crew member) (Larsen, 2004). High unemployment of workers from former State enterprises has resulted in illegal fishing, and improved regulations are needed (Filoko, 2004).

The Pilot Fishery Development Project (PFDP) aims to increase the economic and environmental sustainability of exploiting lake fishery resources by improving the management of the sector with support from the World Bank. This will be achieved by introducing a system of community-based resource co-management, strengthening public institutions, improving the management of fishing ports, and making small improvements to facilities at Albania's major fishing ports. The project will be implemented in the ports on Lake Ohrid and Lake Shkodra, and the primary beneficiary group will be fishermen and their families. The project will support fishermen to organize themselves into community-based fishery management organizations, which will participate in the management of natural resources in partnership with the Government. (MEFWA-DFP, 2008c)

The Fisheries in Inland Water Action Plan gives priority to common property resources management of fisheries in natural and artificial inland water bodies. Albania has a great number of natural lakes and hydropower and irrigation reservoirs which are currently underexploited. These fisheries have lost their traditional markets, lack expert management and need working capital. The Fisheries Directorate is willing to favour the development of domestic markets for the fresh product and give economic opportunities to less advantaged rural areas. The Fisheries Directorate considers micro-credit schemes to be a potentially valuable tool, which would allow local fishermen and local population to gain access to the minimal financial resources needed for fishing. (FAO, 2004b)

Productivity of lagoon fisheries in Albania has fallen steeply in recent years. Some of the main issues are management legislation (property rights, access to the water and duration of rights), site maintenance, realization of hydraulic works and water pollution control. (FAO, 2004b)

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AUSTRIA

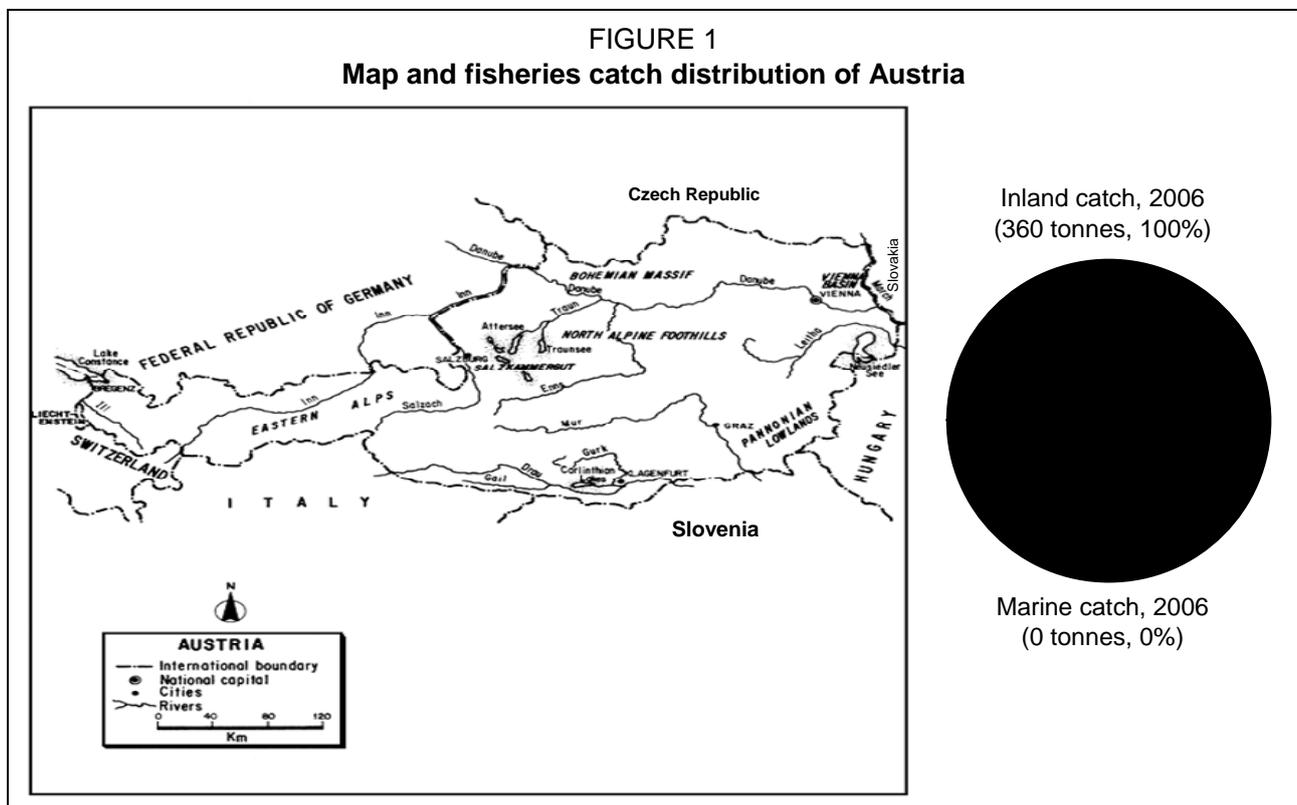
Inland waters and commercial fishing areas

Austria (Figure 1) has a total area of 83 860 km², with inland water bodies occupying 1 130 km² (FAO, 2006).

There are 2 143 standing water bodies > 1 ha in Austria covering an area of 257 km²: 814 (38%) are natural lakes and 1 329 (62%) are artificial (impoundments, ponds, dredging pools, etc.). In addition, two large international lakes, Constance (539 km²) and Neusiedler (321 km²), are partly within Austrian borders, thus giving a total lake area of 522 km². (Chovanec *et al.*, 2002)

In 1998 there were 71 Alpine reservoirs in Austria totalling about 45 km² (ICOLD, 1998). Rivers in Austria total about 100 000 km (31 500 km in catchments > 10 km²), including 350 km of the Danube River (nearly an eighth of its total length) (Jagsch, 2009).

Professional or commercial fisheries are situated on Neusiedler See, lakes in the Salzkammergut, some Carinthian lakes and Bodensee (Lake Constance). River fisheries have ceased altogether with the exception of the Danube in Upper Austria, where fishing provides added income at a few locations. (BMUJF, 1998; Jagsch, 2009)



Sources: map: modified from Dill (1990); catch data: Eurostat (2008).

Administration and legislation

According to Austria's Federal Constitution, fishing (both professional and sport fishing) is a provincial matter in terms of legislation and enforcement. Fishing laws are therefore adopted by the Landtag (state parliament) and enforced (in most federal provinces) by the district authorities as the authority of first instance or by the provincial government as the authority in case of appeal. As part of the enforcement of the fishing laws, all the provincial governments are required to issue appropriate ordinances for the implementation of the laws in general or for the implementation of specific regulations. Some of the fishing laws contain the provision that when issuing ordinances related to bodies of water on provincial boundaries, the approval of the competent authorities of the neighbouring federal province must be obtained. (Lebensministerium, 2008)

In Austria's national regulatory framework, commercial inland fisheries are defined as "fishing with professional means (gill nets, seine nets, fyke nets, etc.) on lakes." Commercial fisheries are called "Berufsfischerei" in order to be distinguished from recreational fisheries, which are strictly bound to angling. (Bucharest workshop, 2007)

Ownership and access

The individual provincial laws govern the following issues, among others: fishing rights, fishing waters, fishing areas, leasing and management regulations (Lebensministerium, 2008). Fishing rights in Austria are mostly private (Bucharest workshop, 2007). Owners of fishing rights must be members of fishing districts, and fishing licenses are required by the provincial governments (Dill, 1990).

Employment

The population of Austria in 2004 was 8 115 000 (FAO, 2006). In 2004 about 150 persons were employed in inland fishing in Austria (Table 1) (Salz *et al.*, 2006; Lebensministerium, 2004). However, very few of them are employed full-time (Lebensministerium, 2004).

Employment for commercial inland fisheries including aquaculture totals about 600, but less than 20 professional fishermen make a living from fishing (Table 1). There are about 100 professional vessels, which are mostly small (up to 12 m long) wooden or aluminium boats. (Bucharest workshop, 2007)

Catches and important species

In 1996, according to statistics compiled by the "Institut für Gewässerökologie, Fischereibiologie und Seenkunde" (based on data provided by Provincial fishing associations) the total take (landings) of fish from Austrian waters by commercial operations (Table 1) was 450 t (BMUJF, 1998). According to Lebensministerium (2004), approximately 450 tonnes of fish are caught per year. The main species concerned are coregonids, char, pike, pikeperch, perch and cyprinids (Bucharest, workshop 2007).

TABLE 1

Employment and catches for commercial inland fishing in Austria

Year	Number of professional fishers			Catch (tonnes)
	Full-time	Part-time	Total	
1996	-	-	-	450 ^{a,b}
2004	< 20 ^c	-	150 ^{d,e}	400 ^{b,c}

Sources: ^a BMUJF (1998); ^b Eurostat (2008); ^c Bucharest workshop (2007); ^d Lebensministerium (2004); ^e Salz *et al.* (2006).

Current status and future trends

Inland commercial fisheries products in Austria are mostly marketed directly in the lake areas, and there has been decreasing productivity and less annual yields (Bucharest workshop, 2007).

Annual takes are balanced by stocking measures with commercially produced fish. Fisheries in rivers are almost completely managed for recreational purposes. In some rivers, fisheries may exert an impact on the fish populations. This is compounded by so-called put-and-take fishing in certain waters, a practice in which stocking takes place immediately prior to fishing. This involves legal-sized fish, i.e. very large specimens that can disrupt natural populations. Increasingly, the management of many fishing waters has begun to turn to more natural approaches; the goal is to exploit only the natural yield of a water body in order to conserve the resource and promote natural spawning. In some cases, running waters have been damaged to such an extent by river control, damming, hydropeaking and other power plant-related engineering measures that natural fish populations can no longer exist. Without stocking measures by fisheries, many river stretches would support virtually no fish today. (BMUJF, 1998; Jagsch, 2009)

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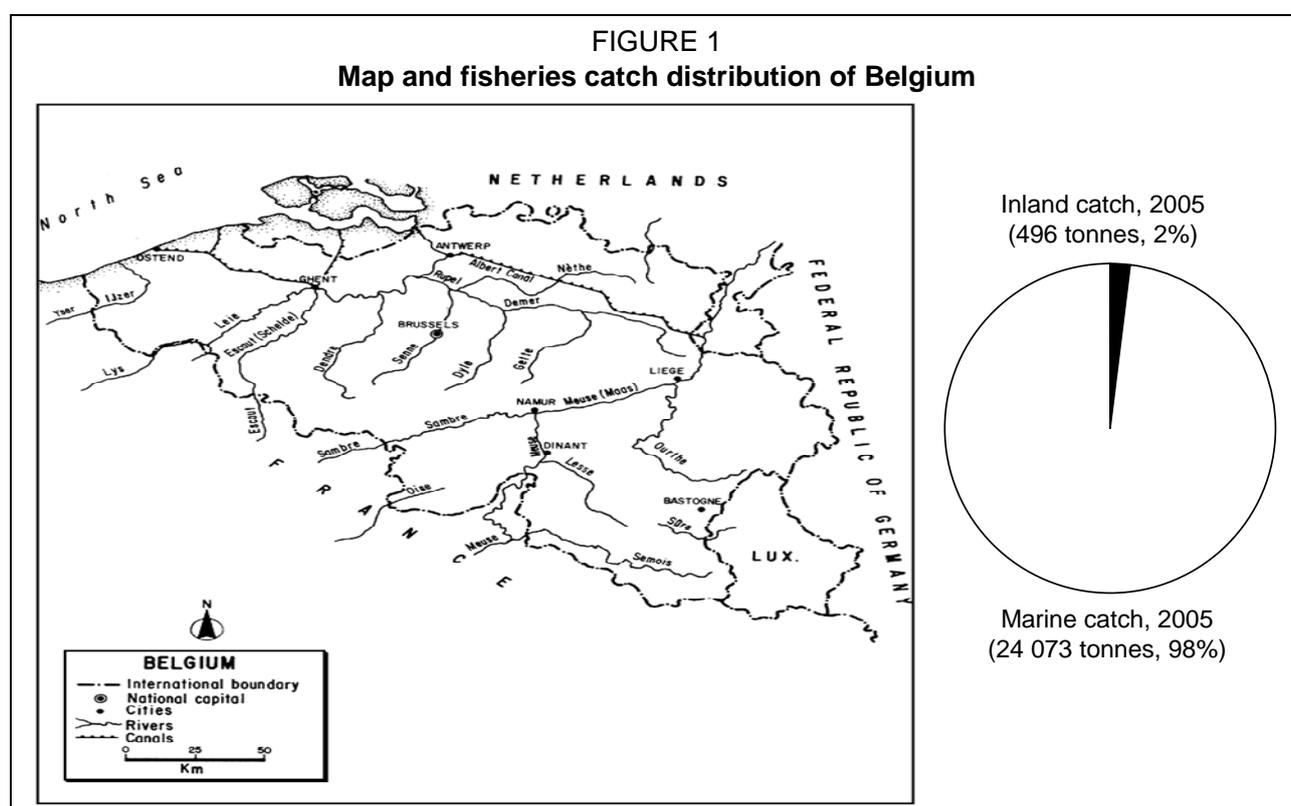
BELGIUM

Inland waters and commercial fishing areas

Belgium (Figure 1) has an area of 30 530 km², with inland water bodies occupying 250 km² (FAO, 2006). Belgium also has a coastline of 66 km along the North Sea (FAO, 2005).

There are no natural lakes in Belgium. There are about 10 reservoirs totalling approximately 19 km², and rivers and canals comprise an area of about 230 km². The total length of Belgium's rivers is about 26 600 km, with major rivers including the canalized Mass (950 km) and the Schelde (430 km). In 1988 more than half of Belgium's navigable waterways (totalling 1 537 km) were canals. (Dill, 1990)

Inland fishery in Belgium is practised mostly for recreation and occasionally for subsistence in artificial fishing areas (private ponds, fishing grounds) and in the public hydrographic network of rivers and canals (DG Environment, 2006).



Administration and legislation

Belgium is a federal state in which the regional governments are responsible for inland fisheries, including legislation, restocking, licensing and control (FAO, 2005).

There is no existing definition of inland fisheries in Belgium's national regulatory framework, but commercial inland fisheries "could be defined as fishing of fish stocks using professional vessels carried out for commercial purposes in inland waters after obtaining a fishing permit." Inland fishery could be distinguished from sea fishery by the definition of inland fish stock, which is the "available and accessible living inland water aquatic species, including anadromic and catadromic species during their inland water life span." (Bucharest workshop, 2007)

Ownership and access

Only the public hydrographical network of rivers and canals in Belgium are currently under legislation for inland fisheries management (DG Environment, 2006). According to Dill (1990) fishing rights in navigable and floatable running waters belong to the State, while fishing rights in

non-navigable or non-floatable running waters belong to the riparian owner or a fishing society. Inland fishing in Belgium requires a license (Pawson *et al.*, 2007).

Employment

The population of Belgium in 2004 was 10 405 000 (FAO, 2006). There are no significant commercial inland fisheries in Belgium (FAO, 2005).

Catches and important species

According to information from the Bucharest workshop (2007), the catch from inland fisheries in Belgium (Table 1) was 511 tonnes.

Current status and future trends

Current legislation in Belgium does not cover inland fisheries management for standing waters, which could be improved by fishers to increase the quality of the local fish populations (DG Environment, 2006).

References specific to Belgium

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BOSNIA AND HERZEGOVINA

Inland waters and commercial fishing areas

Bosnia and Herzegovina (Figure 1) has a total area of 51 200 km², with inland water bodies occupying 470 km² (FAO, 2006). Bosnia and Herzegovina also has a coastline of 21 km along the Adriatic Sea (MoFTER, 2007). There are only a few lakes in Bosnia and Herzegovina, but there are 11 main river basins (including the Sava, Neretva, Una, Verbas, Bosna, Drina and Cetina), all belonging to the Black Sea and Adriatic Sea basins (Aps *et al.*, 2004). Professional inland fisheries are carried out in the river Sava, but there are no professional fisheries in lakes, reservoirs or estuaries (Hamzić, 2009a).



Source: FAO Global Forest Resources Assessment 2000, base map: ESRI.

Administration and legislation

Currently in Bosnia and Herzegovina there is no responsible ministry at the state level, unique law and legislation for the whole country regarding inland fishing (Hamzić, 2009b).

Ownership and access

Inland waters in Bosnia and Herzegovina are under state/public ownership (Hamzić, 2009b). Professional fishing is allowed in the inland waters of Bosnia and Herzegovina, but currently there are no reliable data on the ownership structure for inland fishing grounds (Hamzić, 2009a).

Employment

The population of Bosnia and Herzegovina in 2006 was 3 845 000 (MoFTER, 2007). Currently there is a lack of reliable data on employment for commercial inland fishing in Bosnia and Herzegovina (Hamzić, 2009b).

Catches and important species

Currently there is a lack of reliable data on catches from commercial inland fishing in Bosnia and Herzegovina (Hamzić, 2009b).

Current status and future trends

Currently there are no possibilities for proper management with ichthyo and hydro resources in Bosnia and Herzegovina, which is the main reason for the lack of reliable data (Hamzić, 2009b).

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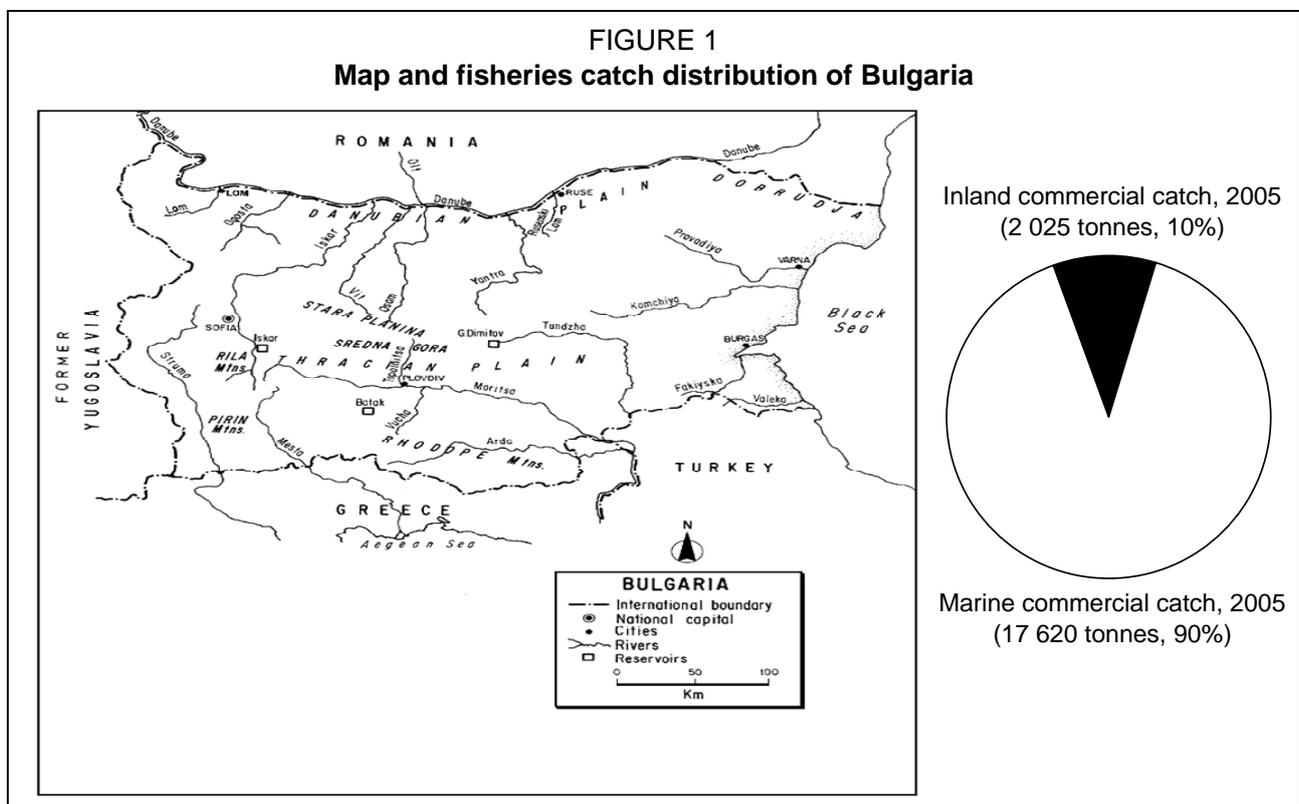
BULGARIA

Inland waters and commercial fishing areas

Bulgaria (Figure 1) has a total area of 110 990 km² (FAO, 2006). Bulgaria has a coastline of 378 km along the Black Sea, and freshwaters occupy 650 km², including natural lakes, fish farms (earthen ponds, raceways and dams), running waters and the Danube River (NAFA, 2007).

Natural water bodies in Bulgaria are limited, consisting of 260 glacial lakes (totalling 370 ha) and a few tectonic and landslip lakes (totalling 200 ha) (Zlatanova, 2004). Bulgaria has 5 107 dams with a total water surface area of 637 km², and the total length of rivers for inland fishing is 20 231 km (150 km²), including 471 km of the Danube River (NAFA, 2007).

Commercial inland fishing in Bulgaria occurs in the Danube River, artificial reservoirs and some natural lakes. The largest state-owned dams (about 250, with a total water surface area of 295 km²) have complex multiple uses, including defined zones for irrigation, production of electricity, aquaculture, commercial fishing and angling. Small and mid size dams are used only for angling, aquaculture or commercial fishing. (NAFA, 2007)



Sources: map: Dill (1990); catch data: NAFA (2007).

Administration and legislation

The National Agency for Fisheries and Aquaculture (NAFA) under the Ministry of Agriculture and Forestry (MAF) is responsible for the management of the whole fisheries sector in Bulgaria. Licensing, permitting and registration regimes are under the jurisdiction of MAF. The 27 Regional Fisheries Inspectorates of NAFA are responsible for field monitoring and control activities. MAF jointly with the Ministry of Environment and Waters (MEW) determine rules for fishing activities related to species. MEW issues relevant licenses for water use and for use of water basins for inland water bodies. (NAFA, 2007)

Bulgaria's Fisheries and Aquaculture Act (2001) contains the principles for management, exploitation, conservation and commercialization of fish resources (NAFA, 2007). Under the Fisheries and Aquaculture Act, the licensing of commercial fishing covers all kinds of activities in

the Danube River section and the inland water basins with the exception of aquaculture (Zlatanova, 2004).

Ownership and access

From 1989 to 2003 most small and mid size natural and artificial water bodies in Bulgaria were transferred from state ownership to different types of private ownership, and they are now managed either by new private owners or institutions (Zlatanova 2004). Of the 5 107 dams in Bulgaria, 4 105 are under municipal ownership, 947 are under state ownership and 55 are under private ownership (NAFA, 2007). According to Bulgaria's Law for the Waters (1999, as amended), rivers are under public state ownership.

The Fisheries and Aquaculture Act includes a licensing system for the registration of all individuals involved in commercial fishing, which covers all activities in the Danube River and the inland water basins (Zlatanova, 2004).

Employment

The population of Bulgaria in 2004 was 7 780 000 (FAO, 2006). In 2003 employment for inland fishing in Bulgaria was 1 620 (full-time in principal but seasonal in character), and the estimated total income was €500 000, or €309 per worker (NAFA, 2007).

Commercial fishing in the dams and some natural lakes is carried out by mostly small-scale fishing boats. The commercial fishing in the Danube River is carried out by 1 126 small-scale fishing boats (< 12 m), and in 2005 the total number of fishing licenses issued was 1 447. (NAFA, 2007)

Catches and important species

Commercial inland catches in Bulgaria during the last few years have varied between 1 500 and 2 000 tons/year from inland water basins and between 300 and 500 tons/year from the Danube River. The total commercial inland catch in 2005 was comprised of 1 664 tons from inland water basins and 361 tons from the Danube River. (NAFA, 2007)

Important species for fishing in inland water basins include: common carp (*Cyprinus carpio*), crucian carp (*Carassius sp.*), silver carp (*Aristichthys nobilis*), bighead carp (*Hypophthalmichthys molitrix*), grass carp (*Ctenopharingodon idella*), black carp (*Mylopharingodon piceus*), bream (*Abramis brama*), European catfish (*Sillurus glanis*) and pikeperch (*Sander lucioperca*). Important species for fishing in the Danube River include: European catfish, Danube bream, barbel (*Barbus barbus*), common carp, crucian carp, common rudd (*Scardinius erythrophthalmus*), herbivorous species, as well as migratory species - Danube herring (*Alosa pontica pontica*) and sturgeon species including beluga (*Huso huso*), Russian sturgeon (*Acipenser gueldenstaedti*), starry sturgeon (*Acipenser stellatus*), as well as the non-migratory Danube sterlet (*Acipenser ruthenus*). (NAFA, 2007)

Current status and future trends

Inland fishing is significant to regional economies in Bulgaria, and fishing in the Danube River is often the only source of income (NAFA, 2007). However, fishers are often involved in poaching, and therefore the Fisheries and Aquaculture Act includes a precautionary measure requesting each transport or marketing of a fish should be accompanied by an origin certificate (Zlatanova, 2004).

In the Danube River declining catches have been caused by hydro-constructions, water pollution and over-fishing, with the dominant species shifting from common carp to barbel (Zlatanova, 2004). There is instability in the populations of the most important and valuable Danube species, including sturgeon populations (especially beluga) that are in steady decrease and in need of special protection measures (NAFA, 2007).

For large dams where zones for commercial fishing still exist, there is a tendency to gradually shift towards angling, aquaculture or other activities such as fishing tourism and eco-tourism. Some

small and mid size dams that are treated by legislation as sites for commercial fishing are in actuality being used as fish breeding farms. (NAFA, 2007)

Other issues for freshwater fishing in Bulgaria include: insufficient fishing sector and a high percentage of inefficient (old and small) fishing vessels; low demand of some species resulting in fishing at subsistence levels; and, insufficient port infrastructure (NAFA, 2007).

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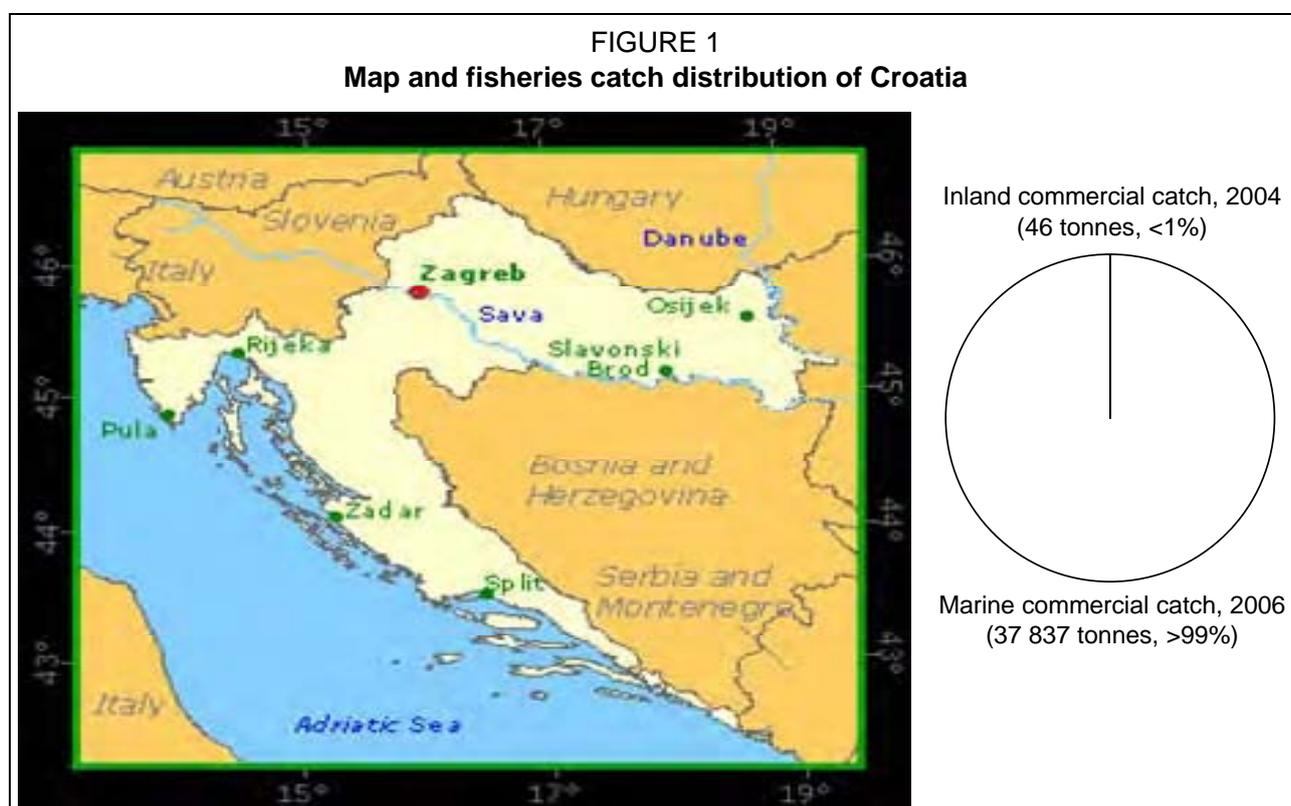
CROATIA

Inland waters and commercial fishing areas

The Republic of Croatia (Figure 1) has a total area of 56 540 km², with inland water bodies occupying 620 km² (FAO, 2006). Croatia also has a continental coastline of 1 777 km along the Adriatic Sea, and there are 1 185 islands and islets (Mrakovčić, 2003).

In Croatia there are 7 natural lakes (>2 km²) totalling 63 km² (largest is Vrana, 31 km²), 16 reservoirs (>5 km²) totalling 147 km² (largest is Dubrava, 17 km²) and fish ponds totalling 125 km². The total length of rivers and creeks in Croatia is 21 000 km, and principle river sections include the Danube (138 km), Sava (562 km), Drava (305 km), Mura (67 km), Kupa (296 km), Neretva (20 km), Una (120 km) and Bosut (143 km). The longest coastal rivers in Croatia are the Mirna, Rasa, Zrmanja, Krka and Cetina. (Mrakovčić, 2003)

Commercial inland fishing in Croatia is confined to the Danube River and lower parts of the Sava River. Professional fishing is not allowed in lakes, reservoirs or estuaries. (Treer, 2007)



Sources: map: FAO Global Forest Resources Assessment 2000, base map: ESRI; catch data: FAO (2007).

Administration and legislation

The administration of the Croatian fisheries is run by the Directorate of Fisheries under the Ministry of Agriculture, Fisheries and Rural Development. Fishing on freshwaters “includes all means and ways of fishing other than those in which controlled production is undertaken.” According to the Freshwater Fisheries Act (2001), the two categories of fishing on fresh (inland) waters are commercial and sport-recreational. The management of inland waters is the responsibility of fishing rights holders, mostly associations, covering management elements such as fishing rights, permits, control and stocking surveillance. (Mrakovčić, 2003)

Ownership and access

In Croatia most of the natural lakes and rivers are state-owned. Out of the 21 000 km of rivers and creeks, 4 000 km are state waters and 17 000 km are local waters. Fishing rights are connected to

water ownership, and state-owned fishing rights are rented (leased) using long term contracts to private persons or companies. (Mrakovčić, 2003)

100% of the state-owned rivers are available for recreational fishing, while commercial fishing is allowed only in the Danube River and lower parts of the Sava River (Treer, 2007; Treer, 2009).

Employment

The population of Croatia in 2004 was 4 508 000 (FAO, 2006). The total number of commercial inland fishers with licences is about 30 (Table 1), and this number has not fluctuated much in recent years (Treer, 2007). Most fishermen are located on the Danube River, with 19 out of 25 licences in 2004 (FAO, 2007).

Catches and import species

In 2001 the total catch for commercial inland fisheries in Croatia (Table 1) was 500 t (Mrakovčić, 2003). In 2004 commercial inland catches in Croatia totalled 46 t (FAO, 2007).

TABLE 1

Employment and catches for commercial inland fishing in Croatia

Year	Number of professional fishers			Catch (tonnes)
	Full-time	Part-time	Total	
2001	-	-	17 ^a	30 ^a
2004	-	-	25 ^b	46 ^b
2007	-	-	29 ^a	39 ^a

Sources: ^aTreer (2009); ^bFAO (2007).

Common carp, cyprinid species, catfish, pike and pike-perch are the most important catch species of commercial inland fisheries. Among the 136 native fish species occurring in Croatian inland waters, 78 are found in the Danube River and 59 are found in the Sava River. (Mrakovčić, 2003; Treer, 2009)

Current status and future trends

Commercial inland fisheries in Croatia have low economic value and small impact on the economy, and freshwater fishery is limited by the availability of freshwater bodies and other resources (Mrakovčić, 2003). Currently, commercial freshwater fisheries represent more of a traditional or cultural activity (FAO, 2007).

Most of the catch is sold on the local market without processing it in any way, and consumption of freshwater fish per capita is rather low (2 kg/yr). Total fish consumption per capita is around 7 kg/yr. Competition from space and related conflicts with other sectors, such as recreational fisheries, seem to further diminish the potential for maintaining and developing a viable commercial fishery in the future. In strategic documents commercial fisheries in natural waters will gradually be replaced by recreational fisheries, as it has been difficult to find waters for commercial fishery. Management procedures need to be enhanced by legislation, and the future of commercial fisheries in natural waters will depend mainly on the Fisheries Act passed in 2002. (Mrakovčić, 2003; Treer, 2009)

References specific to Croatia

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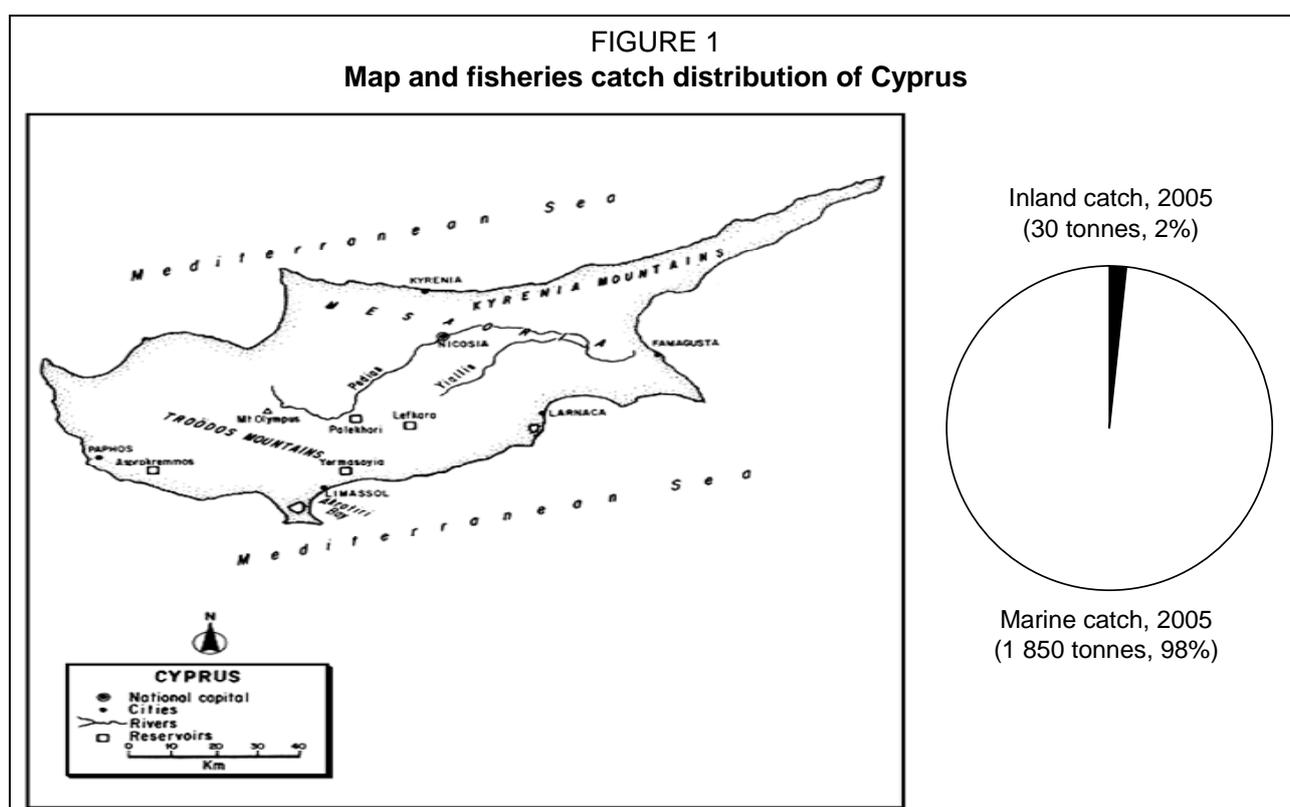
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CYPRUS

Inland waters and commercial fishing areas

Cyprus (Figure 1) has a total area of 9 250 km², with inland water bodies occupying 10 km² (FAO, 2006). There are only two major natural lakes (both brackish and susceptible to drying up), 35 streams (mostly small and impermanent) and a few shallow lagoons or estuaries (Dill, 1990).

According to Dill (1990) there was no commercial inland fishery in Cyprus, but there was sport fishing and some angling for subsistence in 21 irrigation reservoirs (totalling 13 km²).



Sources: map: Dill (1990); catch data: Eurostat (2008).

Administration and legislation

The Department of Fisheries and Marine Research under the Ministry of Agriculture, Natural Resources and Environment is responsible for fisheries in Cyprus, and fisheries management is regulated by the Fisheries Law: Chapter 135 (1931, as amended). Fishing in inland waters is addressed in the Fisheries Regulations (1991). (FAO, 2005)

Ownership and access

According to Dill (1990) all surface water and aquatic resources in Cyprus are government property, and fishing in reservoirs requires a license from the Department of Fisheries, which does not permit angling in the mountain streams (riparian rights do not exist).

Employment

The population of Cyprus in 2004 was 776 000 (FAO, 2006). According to data from FAO (1999) there were 54 people employed in commercial and subsistence inland fishing in Cyprus in 1996.

Catches and important species

In 2005 catches from inland waters in Cyprus totalled 30 tonnes (Eurostat, 2008). Except for European eel (*Anguilla anguilla*), all of the inland fish species in Cyprus have been introduced generally to provide food and sport through aquaculture (Dill, 1990).

Current status and future trends

According to Dill (1990) large fish production in Cyprus is limited by the artificial nature and heavy use of the scarce inland water resources, and the serious shortage of water is the main factor restricting development of inland fisheries.

References specific to Cyprus

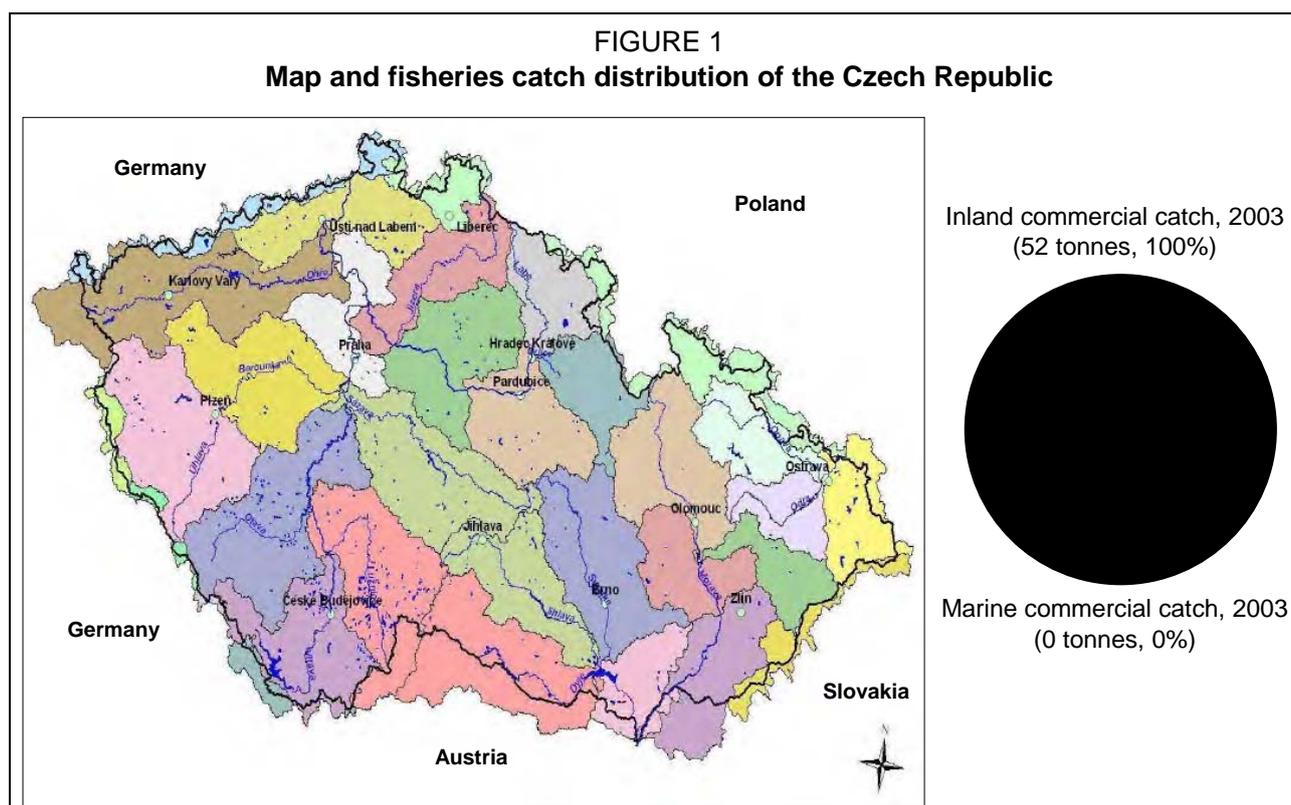
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CZECH REPUBLIC

Inland waters and commercial fishing areas

The Czech Republic is a land-locked country (Figure 1) that has a total area of 78 870 km², with inland water bodies occupying 1 590 km² (FAO, 2006). There are five glacier lakes, 98 reservoirs, 8 000 ponds and three major river systems: the Elbe (Lave), Morava (tributary of the Danube) and Oder (Odra) (Aps. *et al.*, 2004). Reservoirs total 27 000 ha, and running waters total 36 000 ha (76 000 km) (FAO, 2005).

There is no significant commercial inland catch fishery in the Czech Republic. The Vestonice reservoir (1 000 ha) is the only area available for commercial inland catch fishing. (FAO, 2005)



Administration and legislation

In the Czech Republic fisheries are part of the Ministry of Agriculture, and fishing activity is in accordance with Act No. 99/2004 of the Code, on fishpond farming, execution of fishing right, fishing inspection, protection of marine fisheries resources and amending certain acts (Act on Fisheries), divided in two activities: fishpond farming (production fisheries) and management in fishing grounds (MZE, 2007). According to Act No. 99/2004 of the Code, fishery is defined as the “breeding, grading up, protection and fishing of fish, appropriately of aquatic organisms in fish farming or during the performance of fishing right.” However, there is no specific legal definition of commercial inland fisheries in the Czech Republic (Ženíšková, 2009).

Ownership and access

All running waters in the Czech Republic are public property (FAO, 2005). According to information from the Bucharest workshop (2007), “rivers, dams and reservoirs are administered by angling unions and other users of fishing grounds.” Commercial inland fisheries can be allowed to users of the fishing ground by the relevant authority of state administration in fisheries (Ženíšková, 2009).

Employment

The population of the Czech Republic in 2004 was 10 183 000 (FAO, 2006). In 2003 there was only one small fishing group licensed for commercial inland catch fishery in the Czech Republic, based at the Vestonice reservoir, but its contribution to total fishery production was negligible (FAO, 2005).

Catches and important species

In 2003 the total commercial catch in the Vestonice reservoir was 52 tonnes. Electro-shock fishing gear is used at the Vestonice reservoir. The Vestonice reservoir's fish stock consists mainly of naturally spawning fish like bream, roach, perch and other coarse fish species. In addition, the waters are regularly stocked, including with common carp, European catfish, pike, asp, silver carp and pikeperch. At the Vestonice reservoir there is neither a closed season nor any total allowable catch limit. This is because the majority of fish caught include coarse fish (bream in particular) that serves for re-stocking purposes. The greater part of the reservoir is a closed nature reserve. (FAO, 2005)

Current status and future trends

Fishery management of the reservoirs in the Czech Republic focuses on recreational fishing and its role for commercial fisheries is negligible. Angling is the only legal form of recreational fishing, but, commercially, it is very important, with some 330 000 anglers. (FAO, 2005)

The main goals of the fisheries in the Czech Republic are the preservation of the current level of employment in the industry and maintenance of fish production in fish-breeding facilities and in fishing grounds in compliance with sustainable development rules. Environmental, economic and social points of view are required to be taken into account. (MZE, 2007)

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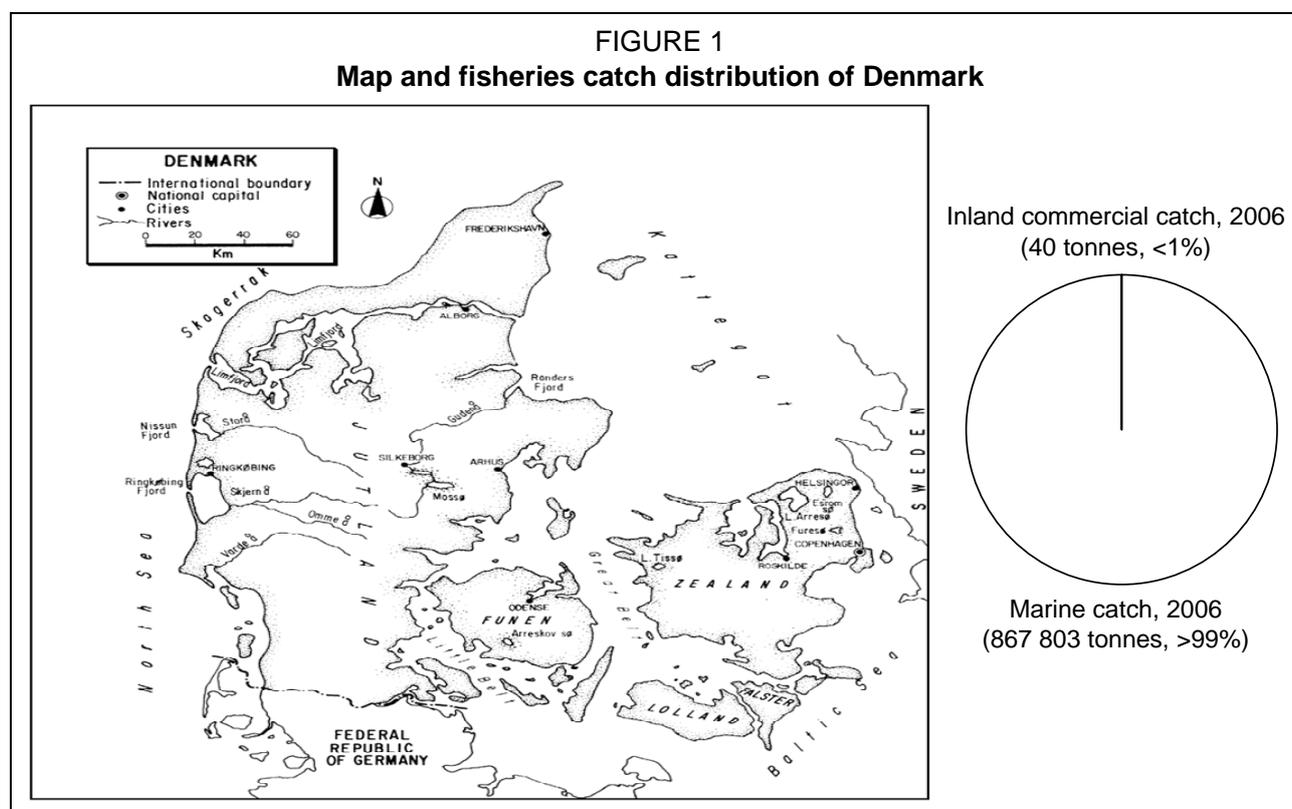
DENMARK

Inland waters and commercial fishing areas

Denmark (Figure 1) has a total area of 43 090 km², with inland water bodies occupying 660 km² (FAO, 2006). Lakes (including the few small reservoirs) cover 434 km² and rivers (including the smallest brooks) cover 150 km² (30 000 km in length) (Berg & Rasmussen, 2007).

There are about 500 lakes and ponds (mostly small and shallow), and the largest lake, Arresø (41 km²), is located on the island of Zealand. Only two rivers are longer than 100 km and five longer than 60 km, with the principal river being the Gudenå at 158 km long. (Dill, 1990)

The main commercial inland fishing areas in Denmark (Figure 2) include Lake Arresø and the estuaries of Ringkøbing Fjord, Nissum Fjord, Limfjorden, Randers Fjord and Isefjorden/Roskilde Fjord. There is also limited commercial fishing in 20-30 other lakes and a few rivers. (Berg & Rasmussen, 2007)



Administration and legislation

Fisheries in Denmark are the responsibility of the Directorate of Fisheries under the Ministry of Food, Agriculture and Fisheries, and commercial fisheries are regulated under the Fisheries Act (1999) (FAO, 2004).

In Denmark's national regulatory framework, commercial inland fisheries are defined (similar to EFF definition) as "fishing carried out for commercial purposes in inland waters." Inland fishery is distinguished from seas fishery by being "carried out in freshwater," and professional fishing is distinguished from sport fishing by being "allowed to trade catch." (Bucharest workshop, 2007)

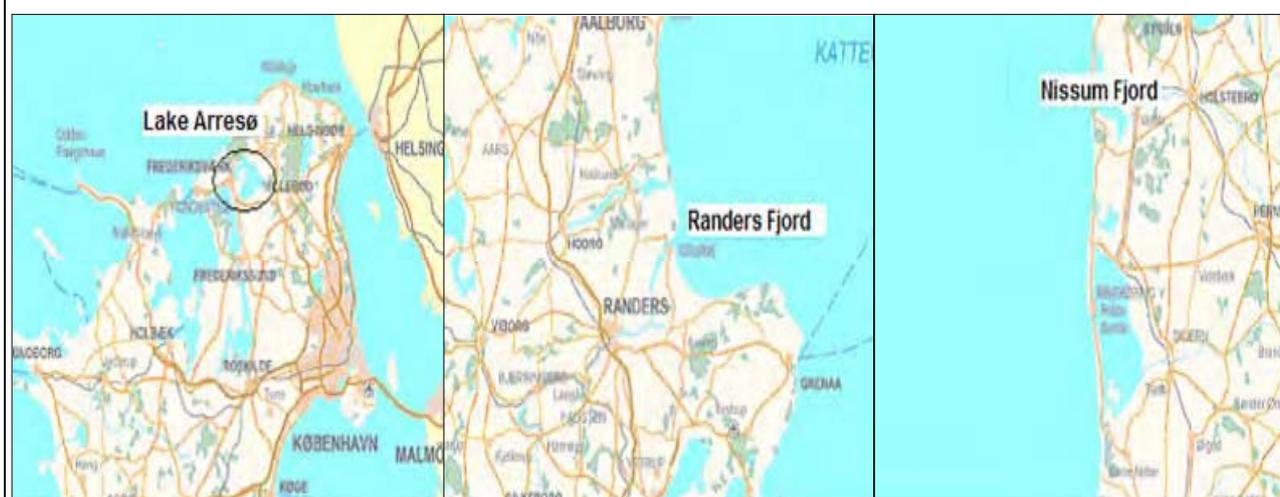
Ownership and access

In Denmark 75% of total lake area (including reservoirs) is under private ownership, while 25% is under state ownership. Rivers in Denmark are almost 100% privately owned, but only 20% of them are large enough for fishing with commercial gear. Generally fishing rights belong to the nearest landowner of the adjacent water, and it is not allowed to separate fishing rights from land

ownership. However, the State can own fishing rights without owning land. Both private and state-owned waters are allowed to be fished commercially depending on the decision of the owner, who can also lease commercial fishing rights. Fishing in estuaries is generally free for both commercial fishers and anglers (Berg & Rasmussen, 2007).

The state-owned lakes in Denmark are administered by the Ministry of Environment and Energy, with some lakes and river stretches administered by the Ministry of Defence. About 50% are available for recreational fishing, 40% are leased out to commercial fishers or angling associations and 10% are not used for fishing. Less than 50% of the privately owned lakes are available for recreational fishing, while the rest are commercially fished or not used for fishing. (Rasmussen & Geertz-Hansen, 2001)

FIGURE 2
Main commercial inland fishing areas in Denmark



Source: Berg & Rasmussen (2007).

Employment

The population of Denmark in 2004 was 5 397 000 (FAO, 2006). According to Rasmussen & Geertz-Hansen (2001), it has been estimated that the number of commercial inland fishers in Denmark consisted of 100-200 employed part-time and less than 10 employed full-time (Table 1), with possibly several thousand landowners fishing for subsistence. Information from the Bucharest workshop (2007) indicated that in 2006 there were four persons employed in commercial inland fisheries, working with four vessels (dinghies) and four fishing permits. In 2007 there was only one commercial inland fisher working full-time (on Lake Arresø), but there are fishers working part-time, mainly at a semi-hobby level, in 20-30 other lakes (one of these a reservoir) and a very few rivers (Berg & Rasmussen, 2007).

Catches and important species

In 2007 the commercial inland catch in Denmark (Table 1) totalled 42.4 tonnes, valued at €210 936 (Rasmussen, 2009). The main species concerned are eel, perch, bream, pike, pike-perch and smelt (Bucharest workshop, 2007). Commercial lake fisheries target eel, pike, pike-perch and perch (Jacobsen *et al.*, 2004). There are also some small scale fisheries for crayfish, mostly in small lakes and pond (Rasmussen & Geertz-Hansen, 2001).

TABLE 1
Employment and catches for commercial inland fishing in Denmark

Year	Number of professional fishers			Catch	
	Full-time	Part-time	Total	(tonnes)	(value)
1997	5 ^a	-	-	236 ^{b,c}	DKK 4 000 000 ^b
1999	10-15 ^b	200-300 ^b	-	-	-
2001	< 10 ^c	100-200 ^c	-	-	-
2006	4 ^d	-	-	40 ^{c,d}	€ 168 308 ^d
2007	1 ^e	-	-	42 ^f	€ 210 936 ^f

Sources: ^a MacAlister Elliot & Partners Ltd (1999); ^b Jensen (1999); ^c Eurostat (2008); ^d Rasmussen & Geertz-Hansen (2001); ^e Bucharest workshop (2007); ^f Berg & Rasmussen (2007); ^g Rasmussen (2009).

Current status and future trends

Commercial inland fisheries in Denmark have little importance (Berg & Rasmussen, 2007). Catches have declined during the past 20-30 years, and in particular, diminished eel catches have reduced fishery income and profitability (Jacobsen *et al.*, 2004). The number of commercial fishers has been expected to keep falling, and lakes where commercial fisheries have ceased can provide areas for increasing demand in recreational fishing (Rasmussen & Geertz-Hansen, 2001).

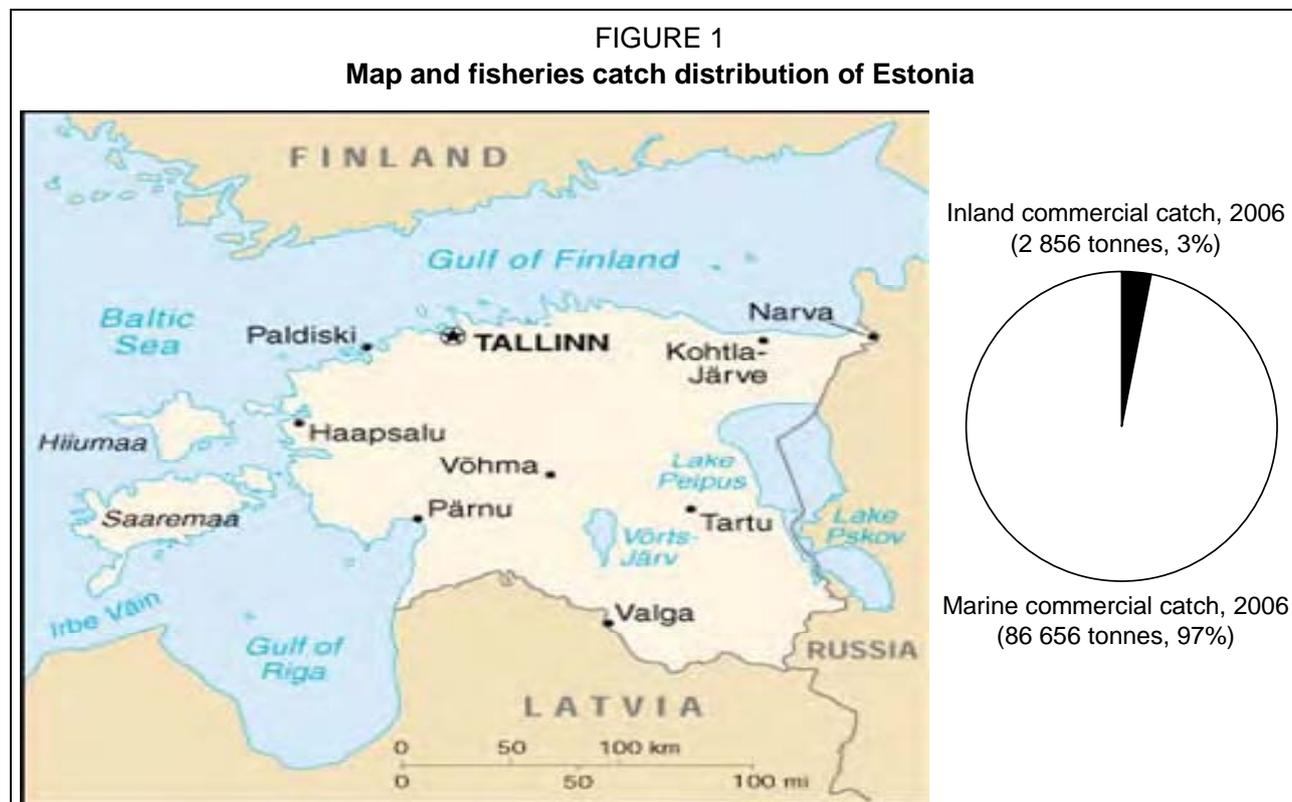
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ESTONIA

Inland waters and commercial fishing areas

Estonia (Figure 1) has a total area of 45 230 km², with inland water bodies occupying 2 840 km² (FAO, 2006). There are about 2 000 km² of lakes, 40 km² of reservoirs, 31 000 km of rivers and no typical estuaries (Tuus, 2007). Lakes are mostly small (50% < 3 ha, 4% > 100 ha), and the 420 rivers are mostly short (10 > 100 km, 38 > 50 km) (Vetemaa *et al.*, 1999).



Sources: map: FAO (2005a); catch data: Põllumajandusministeerium (2007).

The main commercial inland fishing areas in Estonia are shown in Figure 2. Important lakes are Peipsi (includes Pihkva and Lämmijärv), Võrtsjärv, Saadjärv, Kuremaa and Kaiavere. Important rivers are the Narva, Emajõgi, Pärnu, Nasva and Jägala. Important reservoirs are Narva veehoidla, Vagula järv. Fishing in river mouths is usually prohibited, but the inland river mouth of the Emajõgi is an important area for commercial fishing. (Tuus, 2007; Tuus, 2009)

The most important lake for commercial fisheries is the trans-boundary Lake Peipsi; Lakes Peipsi, Pihkva and Lämmijärv have a combined surface area of 3558 km², of which 1570 km² belongs to Estonia. In 1998 Lake Peipsi accounted for 85% of total commercial inland catches, Lake Võrtsjärv (270 km²) accounted for 10% and other smaller lakes (Saadjärv, Kuremaa and Kaiavere) accounted for 1-2%. (Vetemaa *et al.*, 1999)

Administration and legislation

Since March 2001, fisheries matters in Estonia are divided between two ministries: the Ministry of Environment and the Ministry of Agriculture. The Fisheries Resources Department of the Ministry of the Environment is entrusted with shaping the national fisheries policy and has the overall responsibility of the exploitation, research coordination and management of fish resources. These tasks include developing and amending of the Fishing Act (1995, 2000), international fisheries cooperation, adoption of EU legislative acts and protection, surveillance and assessment of resource use, partly in cooperation with the regional County Environmental Departments. The Fishing Industry Department of the Ministry of Agriculture deals with issues of aquaculture, production,

processing and marketing of fish and fish products, structural fishing policy, structural funds including EFF, the fishing fleet register and also issues of permits to the commercial fishery. (Tuus, 2009)

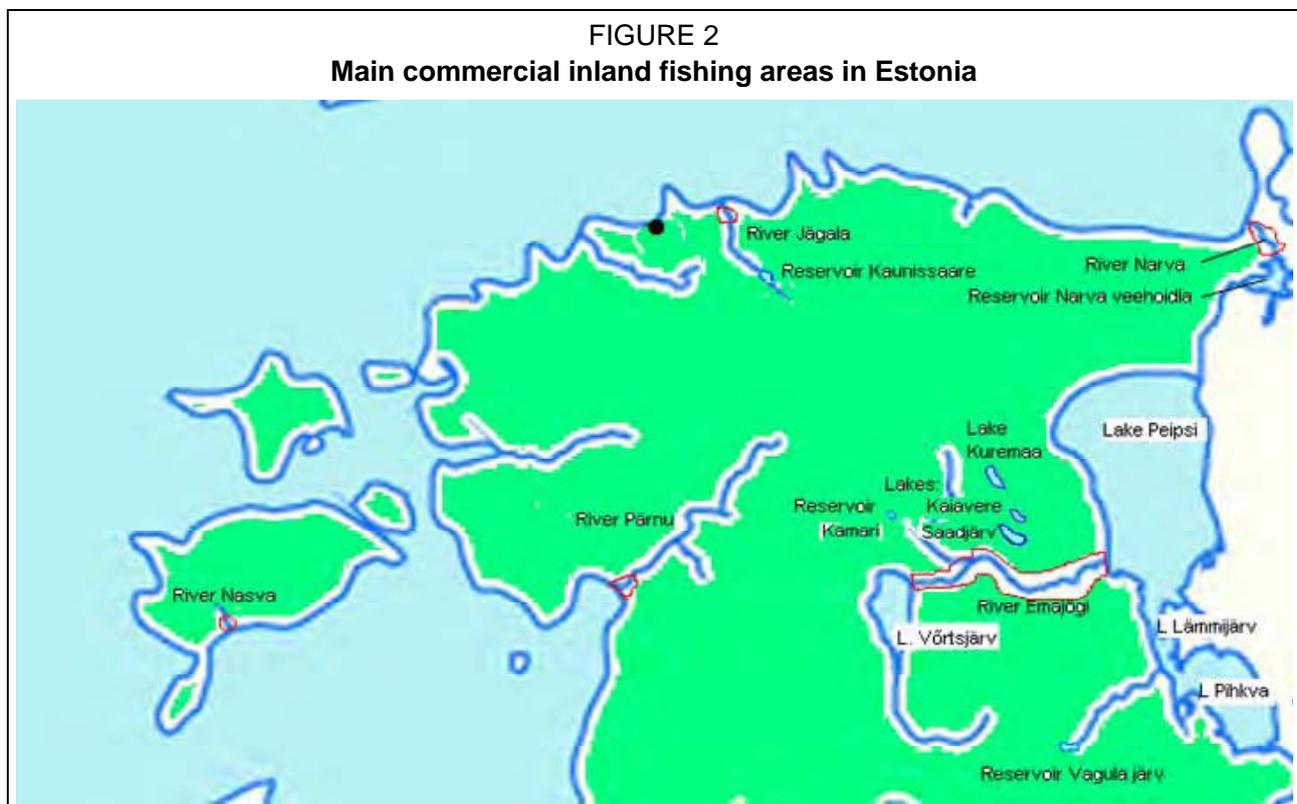
The Intergovernmental Estonian-Russian Fishery Commission is responsible for all general decisions on management strategies and technical measures used in fishery management in Lake Peipsi-Pihkva. The commission consists of representatives of fishery administration, surveillance and fisheries research organisations and fishermen. (Vetemaa *et al.*, 2001)

Most Estonian fishers are members of the several Fishermen's Associations (Tuus, 2009). In Estonia's national regulatory framework, commercial inland fisheries are defined as "fishing on inland water bodies (rivers, lakes and water basin) by professional fishermen who have permission of fishing, as delivered by the Ministry of Agriculture, and who fish with professional means" (Bucharest workshop, 2007).

Ownership and access

The current ownership of inland waters and fishing rights belongs to the State, and the availability of inland waters to commercial fisheries is approximately 90% of the total surface area of lakes and reservoirs and 10% of the total length of rivers (Tuus, 2007). Professional fishing rights are distributed in relation to historical fishing rights, and transfer of rights can only be done with a notarial agreement (Bucharest workshop, 2007). Lake Peipsi fisheries are regulated by an annual agreement with Russia, and their availability to commercial fishermen is determined on the basis of historical fishing rights by fishing gear (Põllumajandusministeerium, 2007).

All Lake Peipsi-Pihkva fishing enterprises are private. Newcomers can enter into the Lake Peipsi fisheries only when an existing fishing enterprise gives up its rights. According to legislation, the price of a fishing licence can not exceed 4% of annual revenues. (Vetemaa *et al.*, 2005)



Source: Tuus (2007).

Employment

The population of Estonia in 2004 was 1 345 000 (FAO, 2006). The number of commercial inland fishers in Estonia in the 1990s was 400-500 and has recently been increasing (Vetemaa *et al.*,

2005). In 2002 employment in inland fishing (Table 1) totalled 700 (Salz *et al.*, 2006). In 2006 employment in commercial inland fisheries was 963, with 350 active vessels and 291 fishing permits (Põllumajandusministeerium, 2007; Bucharest workshop, 2007). In 2008 the number of professional fishers remained at 963 (Ministry of Environment). To use their fishing licences in full capacity, almost all licence-holders in Estonia use several boats and crews in rotation (Vetemaa *et al.*, 2001).

Catches and important species

In 2008 the total catch from Estonian commercial inland fisheries (Table 1) was 2 747 tonnes, valued at EEK 55 900 000 (Ministry of Agriculture; Ministry of Environment). Most reported catches are taken from the larger lakes (i.e. Lakes Peipsi, Lämmijärv and Pihkva) (Vetemaa *et al.*, 1999). The catch from Lake Peipsi accounted for approximately 76% of the total catch in 2008 and approximately 78% of the total catch in 2007 (Ministry of Environment).

TABLE 1
Employment and catches for commercial inland fishing in Estonia

Year	Number of professional fishers			Catch	
	Full-time	Occasional	Total	(tonnes)	(value)
1996	500 ^a	1 800 ^a	2 300 ^a	2 361 ^{b,c}	-
1997	550 ^a	1 800 ^a	2 350 ^a	2 439 ^{b,c}	-
1998	-	-	-	3 878 ^{b,c}	-
1999	-	-	-	3 041 ^b	-
2000	-	-	-	3 189 ^{b,c}	-
2001	-	-	-	2 461 ^{b,c}	-
2002	-	-	700 ^d	4 580 ^{b,c}	-
2003	-	-	-	3 592 ^{b,c,e}	-
2004	-	-	-	2 368 ^b	-
2005	-	-	-	2 400 ^b	EEK 42 329 000 ^b
2006	-	-	963 ^{b,f}	2 856 ^f	-
2007	-	-	-	2 568 ^g	-
2008	-	-	963 ^h	2 747 ^h	EEK 55 900 000 ^h

Sources: ^a FAO (1999); ^b Põllumajandusministeerium (2007); ^c Eurostat (2008); ^d Salz *et al.* (2006); ^e FAO (2005b); ^f Bucharest workshop (2007); ^g Ministry of Agriculture; ^h Ministry of Environment.

The main species caught in Estonian commercial inland fisheries are perch, pike-perch, bream, smelt, whitefish, river lamprey (from the Narva River) and eel (Põllumajandusministeerium, 2007). Species targeted in Lakes Peipsi and Võrtsjärv are primarily pike-perch, silver bream, European bream, European perch and European eel; European smelt was targeted in the past but the smelt catch in 2008 was only about 1 tonne (FAO, 2005b; Tuus, 2009). A small scale fishery in Lake Võrtsjärv for European eel (catch around 20 tonnes in 2008) is purely dependent on stocking of ongrown elvers (Ministry of Environment, “The status of the fish stocks of Lake Võrtsjärv in 2008”).

Current status and future trends

The significance of fisheries in the Estonian economy has been decreasing since the end of 90s comprising 0.5 % of the GNP in 2004. The higher market price of inland fish species as compared to marine ones partly compensates increased operational costs, and therefore inland fishing is still an important source of income on a regional scale. Of the 963 commercial inland fishermen in 2006, one third received a major part of their livelihood from fisheries, while the majority received income from other occupations such as pensions, agriculture, forestry and construction. Furthermore, 30% of fishers are planning a change of profession and one fifth will be retired, as the

mean age of inland fishers is 50 years. Additionally, inland fishing gear (including traps, nets, pond nets and demersal seines) is old and partly non-selective. (Põllumajandusministeerium, 2007)

In the beginning of the 1990s the price of exported fish was very high in comparison with average Estonian salaries. After that the difference has been evened, and fishermen's relative income has decreased. (Vetemaa *et al.*, 2001)

Fisheries management approaches should thus concentrate on developing flexible institutional structures and strengthening stake holder involvement, focusing on commercial profitability while securing a sustainable exploitation of inland fish resources. Previous and current environmental problems are key issues to be dealt with, such as eutrophication and sewage and excessive nutrient run-off from other industry sectors. The development and support for information and communication platforms, such as local authorities and regional non profit organisations (NGOs), may be important for local public awareness of the status and future directions of the commercial inland fisheries, especially in the Lake Peipsi region. (Roll *et al.*, 2006)

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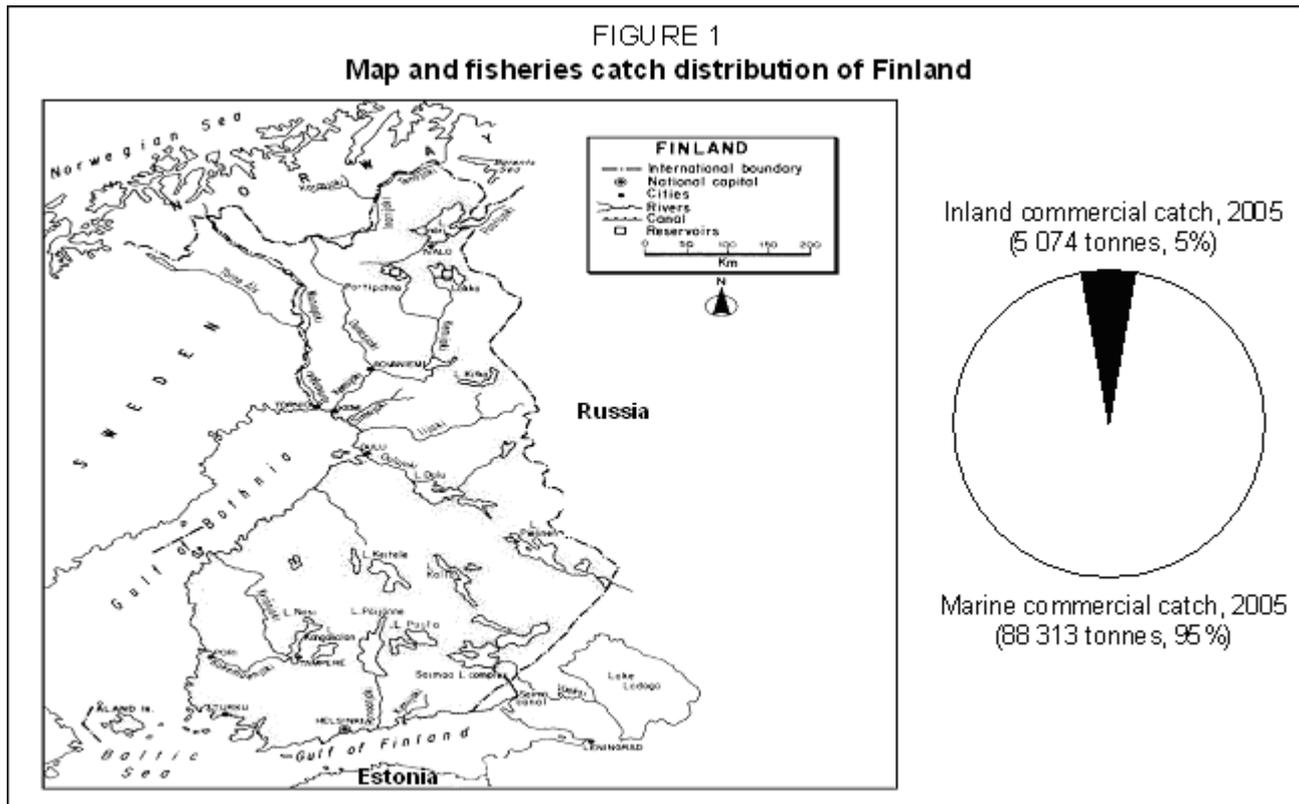
Ministry of Environment, "The status of the fish stocks of Lake Võrtsjärv in 2008."

FINLAND

Inland waters and commercial fishing areas

Finland (Figure 1) has a total area of 338 140 km², with inland water bodies occupying 33 670 km² (FAO, 2006). There are 187 888 lakes in Finland, of which 47 have an area larger than 100 km², and the mean depth of Finnish lakes is about 7 m. Finnish rivers have a total length of more than 20 000 km, and in 1974 there were about 900 km² of reservoirs (Dill, 1990).

Commercial inland fisheries in Finland concentrate in 67 single lakes covering 14 633 km² (44% of all inland waters), which fishers regard as their main grounds (Sipponen *et al.*, 2006). The main lakes for commercial fishing are shown in Figure 2.



Sources: map: modified from Dill (1990); catch data: RKTL (2007).

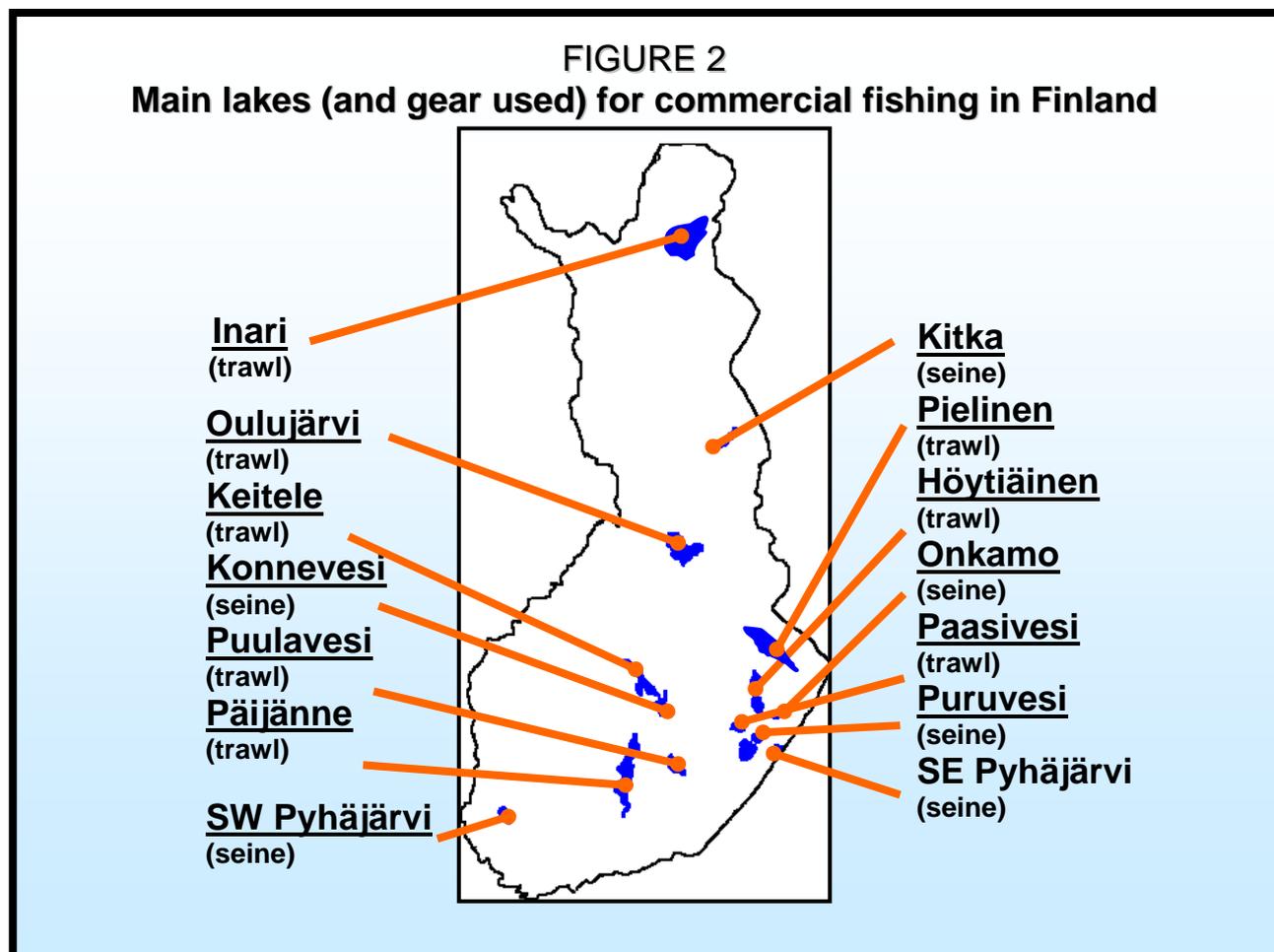
Administration and legislation

The Ministry of Agriculture and Forestry has the responsibility of fisheries in Finland, both commercial and recreational. Eleven provincial fisheries units of Employment and Economic Development Centres are subordinated to this ministry in fishery matters.

Mandatory fisheries regional management units were established during the 1980s in order to enhance the management system. They represent intermediate public administration with several statutory official tasks and authority-like competence, but they are not an official branch of government. Of the 225 regional fisheries management units, 179 administer inland waters only, covering on average a lake surface area of 185 km². The Fisheries Regions are organisations that provide a forum for stakeholder participation at local level. Private owners as well as organisations of commercial and recreational fisheries are represented in the meetings. Fisheries regions and statutory fishery associations have the power to stipulate their own local regulations. At the national level of decision making, professional fishermen are represented by their national association. (Sipponen *et al.*, 1999)

In Finland's national regulatory framework, professional inland fisheries are defined as "fisheries carried out by professional fishermen at inland area." Professional fishing and fishing

gears are defined in the Fishing Act (1982, as amended) and in the Fishing Decree (1982, as amended). A person is considered as a professional fisherman if at least 30%, or in some occasions at least 15%, of his annual income is received from fishing (catch and processing of it). There is not an actual licence system for professional fishermen, but professional fishermen as well as boats used in commercial fishing are registered. (Bucharest workshop, 2007)



Ownership and access

Inland waters in Finland are mainly privately owned. Only the ten largest lakes have public waters. (Bucharest workshop, 2007)

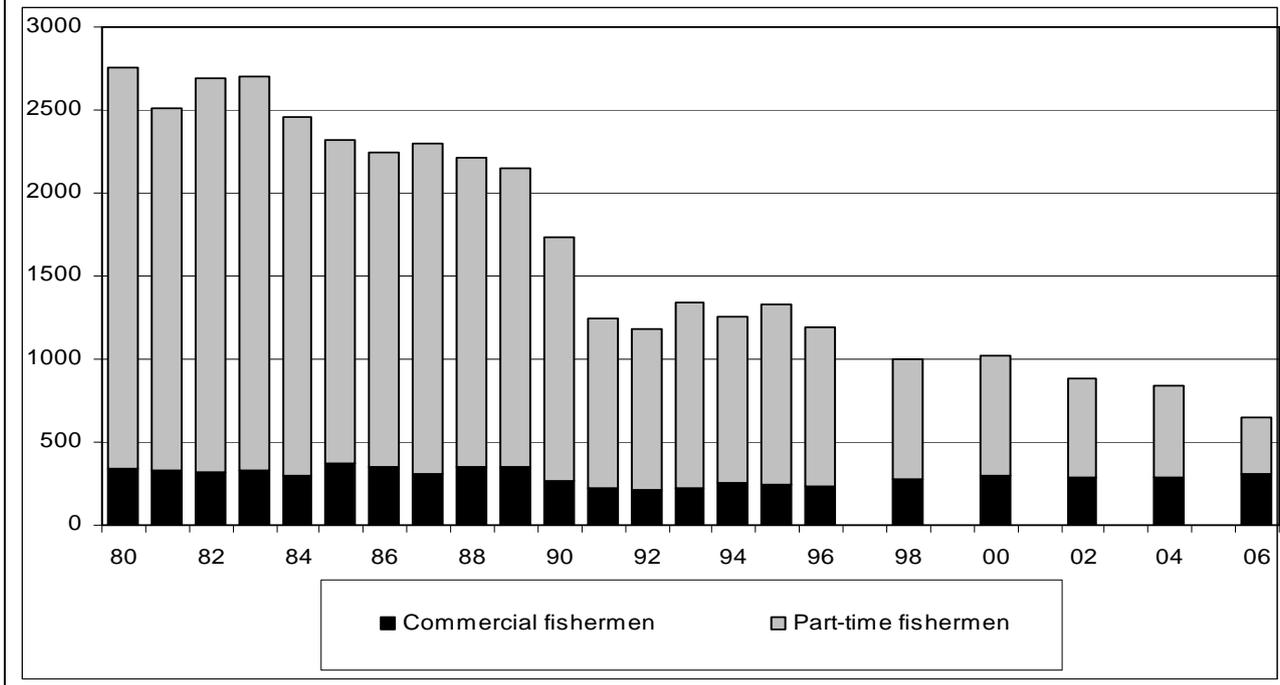
Fishing rights in Finland are bound to land ownership and they are privately owned. Waters are generally jointly owned by the households of a village, but the state, municipalities, parishes and individual owners can also own water areas. The shareholders of jointly owned waters form statutory fishery associations, which organise the management of fishing.

Inadequate access has been regarded as one of the most severe obstacles inhibiting recruitment to the commercial fishing sector in Finnish inland waters. State-owned water areas in large lakes have played an essential role as fishing grounds have served as a recruitment channel into the fisherman's occupation. (Sipponen *et al.*, 1999)

Employment

The population of Finland in 2004 was 5 215 000 (FAO, 2006). In 2005 the total number of commercial inland fishers in Finland (Table 1) was 840 (Nylander, 2006). The fishing industry passed through structural changes during the 1990s, which combined to balance the number of full-time commercial inland fishers to 250-300. There has been a major decline in the number of part-time fishers (Figure 2).

FIGURE 2
Commercial inland fishermen in Finland, 1980-2006

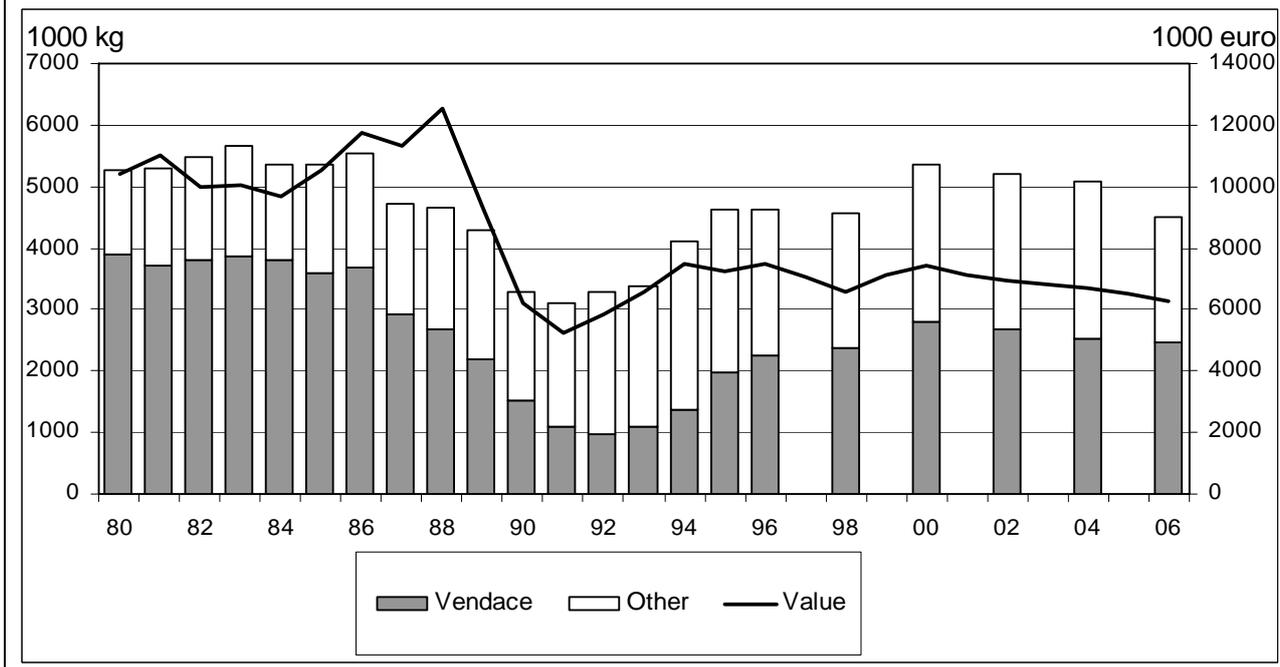


Note: A commercial fisherman derived at least 30 % (until 1996, 50 %) and a part-time commercial fisherman < 30 % (until 1996, < 50 %) of his income from fishing. The registration procedure changed in 1990.
Source: RKTL (2007).

Catches and important species

In 2005 the commercial inland catch in Finland (Table 1) was 5 074 tonnes (5% of total commercial catch), valued at € 6 533 000 (28% of total commercial catch value) (Nylander, 2006). Economically the most important target species were vendace, whitefish, perch, pike-perch and pike (Figure 3).

FIGURE 3
Catches and value of catch (2006 prices) in commercial inland fishery in Finland, 1980-2006



Source: RKTL (2007).

TABLE 1
Employment and catches for commercial inland fishing in Finland

Year	Number of professional fishers			Catch	
	Full-time	Part-time	Total	(tonnes)	(value)
1996	230 ^a	962 ^a	1 192 ^a	4 628 ^{a,b,c}	FIM 38 000 000 ^{a,b}
2000	-	-	-	5 359 ^c	-
2002	-	-	-	5 217 ^c	-
2005	286 ^c	554 ^c	840 ^c	5 074 ^c	€ 6 533 000 ^c
2008			321 ^d	3912 ^d	€ 6 015 000 ^d

Sources: ^a Virtanen (1999); ^b Auvinen *et al.* (1999); ^c Nylander (2006), ^d RKTL 2010.

Current status and future trends

As most lakes are now exploited, few opportunities for finding new lakes exist. Fish stocks are in good shape and mostly underexploited (Bucharest workshop, 2007). To safeguard the viability of the sector, a more effective resource utilisation is needed, which would benefit from more versatile fishing grounds and less dependence on one single fish species – vendace. One alternative for improvement is interlocked fishing districts, where water ownership boundaries need to be crossed to form coherent harvesting areas (Sipponen *et al.*, 2006). The market of fresh and processed fish also needs to be developed to avoid periodic lack of supply.

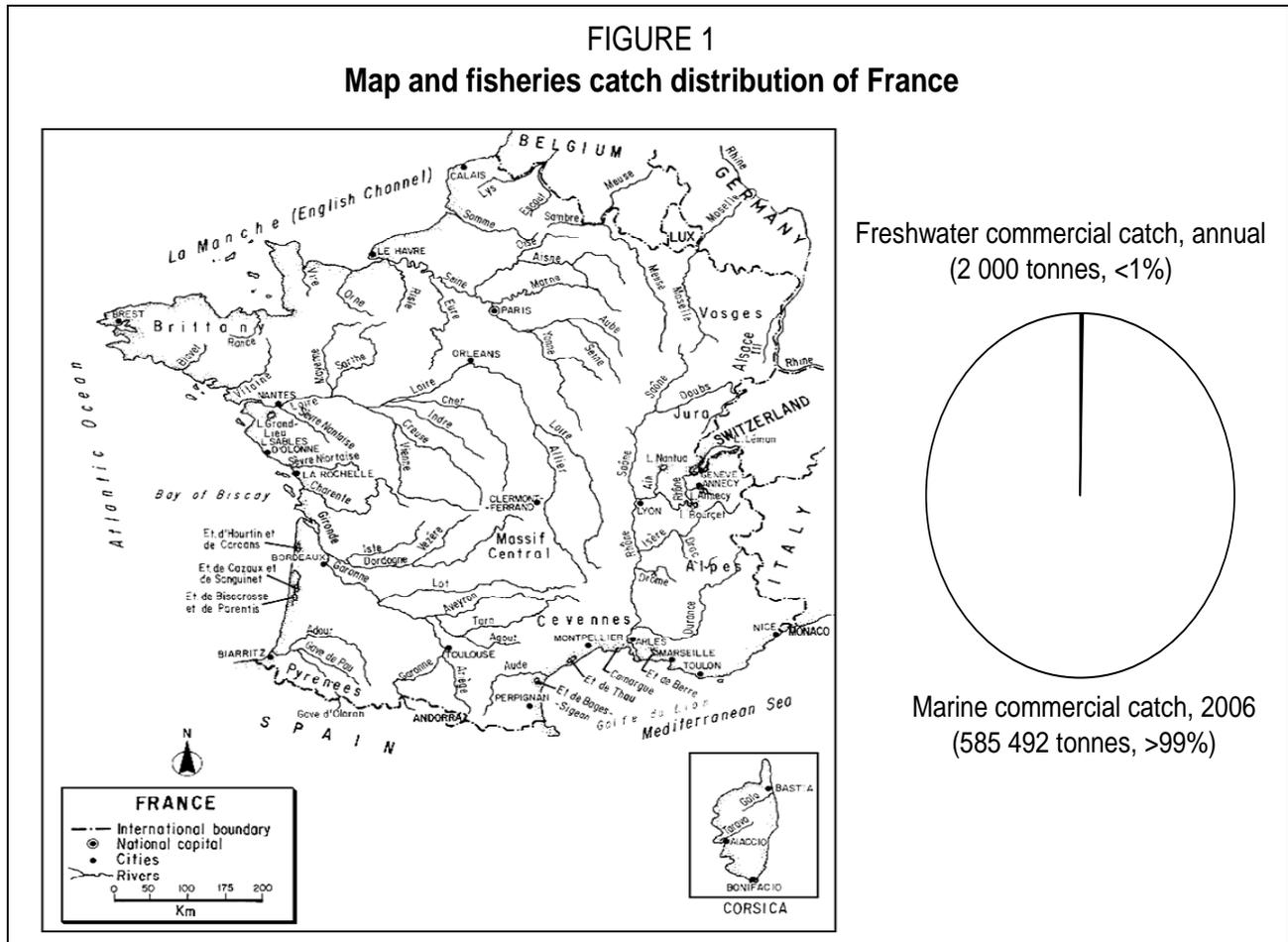
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FRANCE

Inland waters and commercial fishing areas

France (Figure 1) has a total area of 551 500 km², with inland water bodies occupying 1 400 km² (FAO, 2006). There are five major river systems (Seine, Loire, Garonne, Rhône and Rhin), 60 000 ha of lakes and approximately 100 000 ha of small lakes, ponds and marshes (FAO, 2000-2009). The total length of French rivers and streams is around 270 650 km (Dill, 1993).



Sources: map: Dill (1993); catch data: Ministère de l'Agriculture et de la Pêche (2006).

Professional fishing in freshwater in France is a traditional activity concentrated in certain zones (Figure 2): the estuaries of the rivers Loire (11), Gironde (15) and Adour (18) (where nearly 60% of the professional fishermen in freshwater operate) and the alpine lakes Le Bourget (19), Annecy (20) and especially Léman (21) (Ministère de l'Agriculture et de la Pêche, 2006). Rivers fisheries, and in particular fisheries for migratory species, also contribute significantly to inland fisheries output.

Administration and legislation

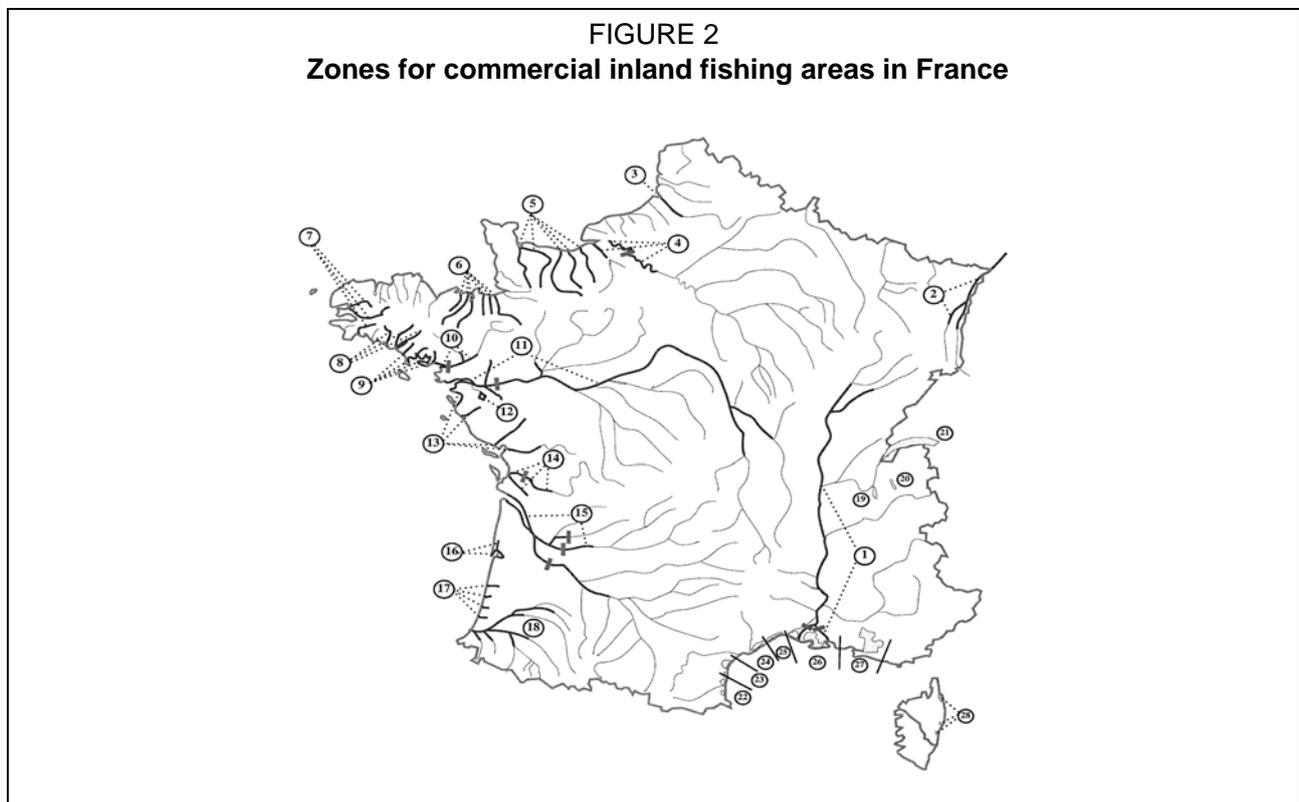
The Ministry of Agriculture and Fisheries (Ministère de l'Agriculture et de la Pêche) is responsible for commercial inland fisheries, and the Ministry of Ecology and Sustainable Development is responsible for recreational fishing and the quality of water bodies. Inland fisheries are defined in French national regulatory framework as fishing in rivers and connecting water areas (excluding water bodies classified as closed waters or aquaculture premises), as well as upstream of estuaries from a limit based on water salt content (Bucharest workshop, 2007). In order to be classified as a commercial fisher, one has to fish 600 hours annually (AND International – MEEDM 2009).

The National Committee for Professional Fishing in Freshwater (Comité National de la Pêche Professionnelle en Eau Douce, CNPPED) was established recently (31.12.2006) by enactment. As

prescribed in the law, this committee unites the 11 professional fishermen's associations which had been approved by the Ministry of Ecology and Sustainable Development (MEEDD). Formation of this national committee was part of the renewal of fisheries administration.

Since the beginning of 2005, new commissions for commercial fisheries were established for each catchment area where this kind of fisheries was carried out: Adour-Garonne, Artois-Picardie, Loire-Bretagne, Rhine-Meuse, Rhône-Méditerranée-Corse and Seine-Normandie. The governor (préfet) has to consult the commissions in matters concerning sites where commercial fisheries can be practised, issuing licences for commercial fisheries, the policy of forming shares and particular regulations applied in each fishing site, opening dates of fishing seasons and preservation areas. Commercial fishers have their representatives as members in these commissions. Commercial fishers also have to belong to statutory associations, grouped at catchment level. (Gerdeaux, 2008)

The overall mission of ONEMA (Office National de l'Eau et des Milieux Aquatiques) is to promote the preservation, improvement and development of the national inland fisheries resources. It regulates fishing, offers administrative, legal and technical assistance to the Federated District Fisheries Associations and participates in the management and development of fisheries resources.



Source: Castelnaud *et al.* (2000).

Ownership and access

In France public waters include lakes and streams used for navigation, as well as water courses used for agriculture, industry, flood control and domestic purposes. Private waters are associated with the riparian owners. Past statistics from the Conseil Supérieur de la Pêche have stated that 31 700 ha of lakes were included in the public domain of France (not including the Grand-Lieu Lake of 3 700 ha). Of the estimated 270 650 km of rivers and streams in France, 11 800 km are public (4%) and 258 850 km are private (96%). A past survey listed the proportion of total fishing area in France under public domain as 12% for rivers and 42% for lakes and ponds. (Dill, 1993)

In France, fishing rights in state-owned fresh waters are leased either to individual commercial fishermen or statutory recreational fishing associations. Rights may be issued to both types of users for the same part of a river or lake. In the turn of the century, 5% of state-owned rivers, lakes,

TABLE 1
Change in the number of commercial inland fishers between 1997 and 2009 (see AND International – MEEDM 2009).

Association	River fishers			Marine fishers			Total		
	1997	2009	Development 1997-2009	1997	2009	Development 1997-2009	1997	2009	Development 1997-2009
Adour	107	98	-8%	59	28	-53%	166	127	-23%
Gironde	90	67	-26%	21	10	-52%	111	77	-31%
Loire Atlantique	49	51	+4%	104	62	-40%	153	113	-26%
Loire Bretagne	41	35	-15%	0	-	-	41	35	-15%
Rhône Aval Méditerranée	18	14	-22%	2	1	-50%	20	15	-25%
Rhône-Saône	43	20	-53%	0	-	-	43	20	-53%
Franche Comté	15	6	-60%	0	-	-	15	6	-60%
Garonne Dordogne	104	56	-46%	0	-	-	104	56	-46%
Rhin	15	4	-73%	0	-	-	15	4	-73%
Seine-Normandie	7	8	+14%	0	-	-	7	8	+14%
Lacs Alpains	62	71	+15%	0	-	-	62	71	+15%
France	551	431	-22%	186	101	-46%	737	532	-28%

Catches and important species

Currently, the 532 professional fishermen operating in freshwater in France have an annual production of around 1 200 tonnes (Table 2). Table 3 shows inland catches in France in 1998 and 2009, specified by species. The most important catch species are eel, lamprey, shad, whitefish and perch.

TABLE 2
Employment and catches for commercial inland (freshwater) fishing in France

Year	Number of professional fishers			Catch (tonnes)
	Full-time	Part-time	Total	
1995	-	-	815 ^a	-
2000	-	-	776 ^a	2 131 ^{a,b}
2001	-	-	750 ^a	-
2002	-	-	710 ^a	-
2003	-	-	708 ^a	-
2005	-	-	666 ^{b,c}	-
2006	-	-	~ 800 ^d	2 000 ^d
2009	202	189	532 ^e	1 186 ^e

Sources: ^a Eurostat (2008); ^b Bucharest workshop (2007); ^c Boisneau (2007); ^d Ministère de l'Agriculture et de la Pêche (2006), ^e AND International – MEEDM 2009.

TABLE 3

Catches (kg) and catch values (€) by species or species group in France, 1998 and 2008 (AND International – MEEDM 2009).

	1998	Value €	2009	Value €
Glass eel	46 419	5 750 000	7 783	2 503 255
Eel	274 682	2 100 000	157 056	1 314 557
Lambrey	109 394	1 820 000	208 411	1 254 232
Shad	231 738	700 000	68 325	374 170
Mullet	127 248	140 000	31 663	98 823
Salmon	-	-	662	27 538
Trout	-	-	3 703	47 357
Whitefish	-	-	289 799	1 637 421
Arctic char	31 801	-	4 785	81 039
Pike	20 923	140 000	21 333	156 774
Pike-perch	47 710	420 000	26 893	329 839
Perch	52 874	280 000	148 883	1 231 772
Fried fish	40 192	280 000	30 047	362 210
White fishes*	93 117	280 000	98 254	444 653
Catfish	-	-	30 426	182 904
White shrimps	13 812	140 000	4 615	58 826
Crayfish	-	-	49 982	331 049
Other	238 136	1 680 000	3 759	32 582
Total	1 300 000	13 730 000	1 186 379	10 469 001

*white fishes= roach, rudd, bleak, carp, bream

Eel fisheries, particularly glass eel fisheries, are practised in all the French coastal departments, except Nord and Pas-de-Calais. The most important eel fisheries takes place along the Bay of Biscay and are mainly commercial. On the contrary fisheries targeting salmonids are concentrated along the coasts of Brittany and the English Channel, and are mainly recreational. In the Loire basin, the salmon fishing is banned, whereas in the Garonne basin, fishing of salmon and trout is banned. Due to these bans, the Adour basin is the leader in providing fishing for six migratory species, though the twaite shad fishing is limited. Five different migratory species are captured in the Garonne basin, three in the Loire basin, two in the Charente basin and also in the Rhône basin, where a different species of shad occur. In the basins of Rhine, the Seine and the Vilaine, only eel is captured. (Castelnaud, 2000)

The turn-over of the migratory species fisheries is dominated by eel, especially the glass eel stage, which contributes 89%. In 1997, the glass eel was the top fisheries resource of the Bay of Biscay. The particular position of glass eel among the migratory species is discussed in connection with the viability of professional fisheries in French inland waters. (Castelnaud, 2000)

For the 2006-2007 season, national professional fishing production was estimated at 75-80 tonnes of glass eel, approximately 10% of which came from freshwater fishers. Average production per company, across all areas and industries, was 85 kg of glass eel during that season. (Summary document on the socio-economic study of the French glass eel fishing industry 2009)

Current status and future trends

Inland fishermen have been faced with four major constraints: fish availability, access of fishing grounds, institutions and financial outcome. (Boisneau & Mennesson-Boisneau, 2001)

The number of commercial river fishermen has declined because of low profitability of fishing operations and because of retirement. River fishermen are searching for new fishing sites, aiming to maintain their profession even though they are periodically dependent on other occupations. They have improved the quality and value of their products and have diversified the modes of marketing. If a need arises to restrict fisheries (e.g. eel) in order to protect stocks, restrictions should in the first stage focus on non-commercial fishermen. (Castelnaud *et al.*, 2000) However, the value of whitefish and perch catches in Alpine lakes have increased considerably due to favorable development in Lake Léman and the increase in the number of commercial fishers (AND International – MEEDM 2009).

Degradation of environment and habitats are likely to hamper commercial river and lake fisheries, which will also face competition with recreational fisheries. Although commercial fishermen contribute actively to efforts to improve the water quality of inland waters (Castelnaud *et al.*, 2000), they have regarded their powers in departmental commissions insignificant (Boisneau & Mennesson-Boisneau, 2001). Various types of contamination has also affected eel fisheries.

References specific to France

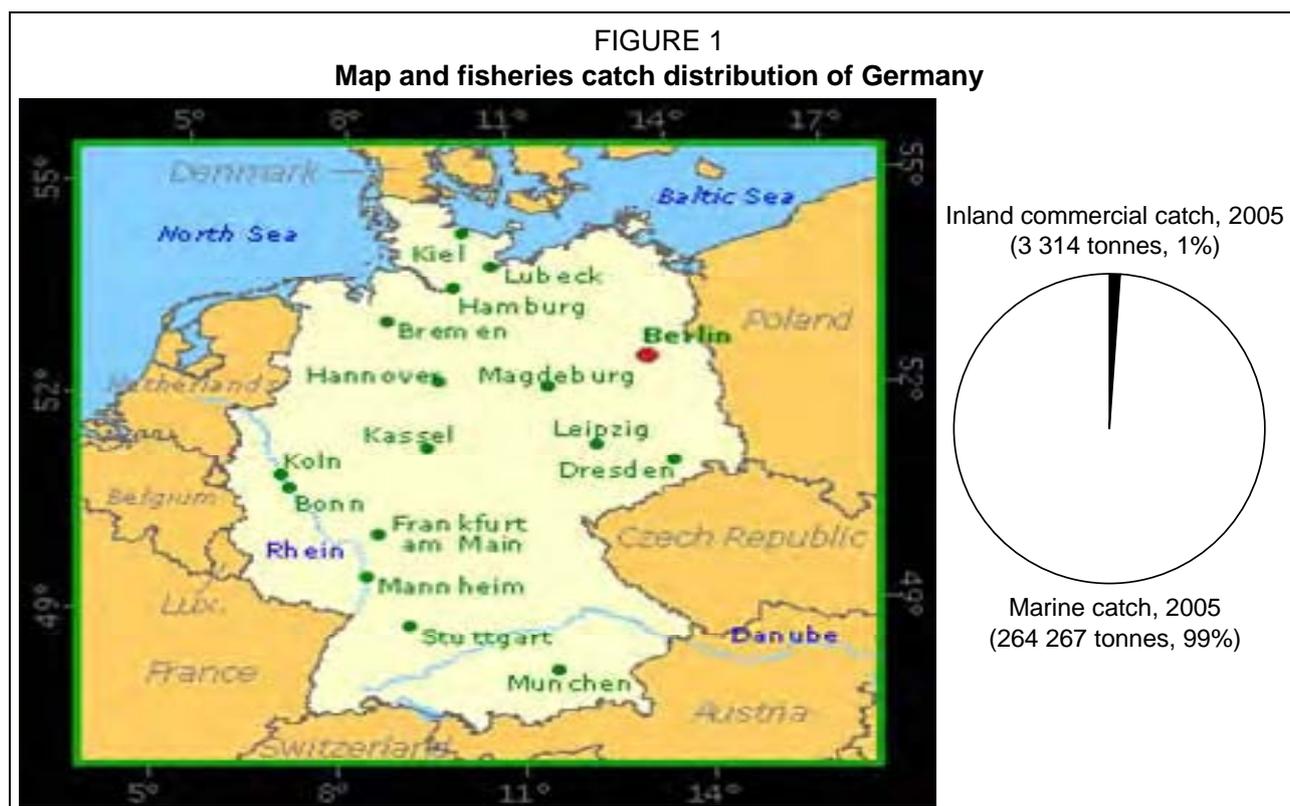
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- Summary document on the socio-economic study of the French glass eel fishing industry (CNPMMEM, CONAPPED, Ifremer document. February 2009.)

GERMANY

Inland waters and commercial fishing areas

The Federal Republic of Germany has a total area of 357 030 km² (FAO, 2006). The total surface area of inland waters in Germany is about 8 453 km² (Wysujack, 2007). The many lakes are confined mainly to the northern, eastern and southern parts of the country, but there are numerous small, natural and artificial water bodies scattered throughout the nation (Wedekind *et al.*, 2001). The largest lake is Bodensee at 540 km², of which 350 km² is in Germany (Dill, 1990). Total length of rivers is 7 500 km, and the most well-known are the Danube, Rhine, Main, Elbe, Weser, and Oder (Conrad, 1999).

The inland water area in Germany used for inland fisheries (including angling and aquaculture) is about 536 777 ha, of which approximately 250 000 ha is used for commercial fishery on lakes and reservoirs (219 003 ha) and rivers (26 349 ha). Important areas for commercial lake fisheries are the pre-alpine lakes in Bavaria, Lake Constance (Bodensee), the lake region of Plön-Eutin in Schleswig-Holstein, the north-eastern German lake region (Mecklenburg-Pomerania), and lakes and rivers in Brandenburg and Berlin. Commercial river fisheries often only have local significance. For reservoirs commercial fishery is not very important, although it is practiced on reservoirs of the River Ruhr and those of the River Moselle. There is a commercial fishery in just about all estuaries of rivers of appropriate size, including the Elbe (North Sea), Weser (North Sea), Ems (North Sea), Eider (North Sea), Warnow, Peene (Baltic Sea) and Schlei, Trave (Baltic Sea). (Wysujack, 2007)

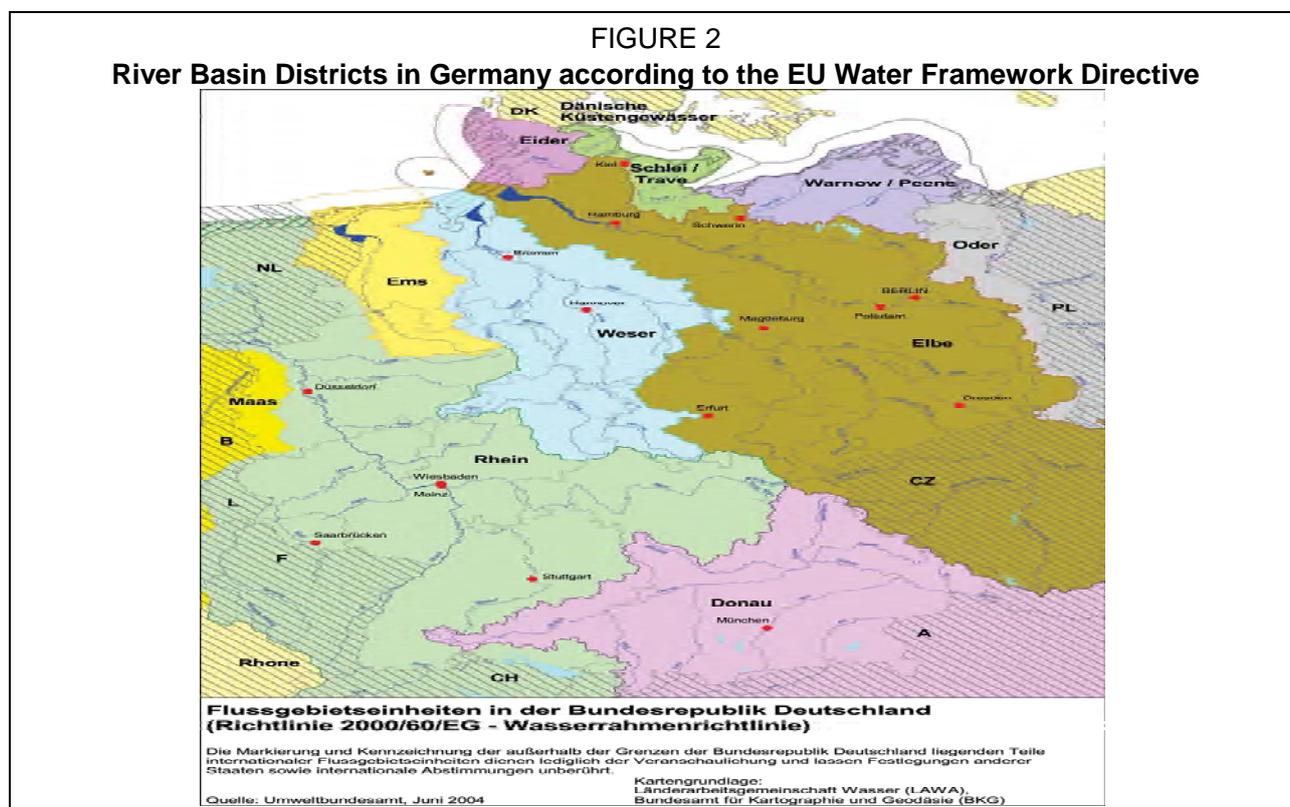


Sources: map: FAO Global Forest Resources Assessment 2000, base map: ESRI; catch data: BMELV (2007) and Eurostat (2008).

Administration and legislation

Each of the 16 federal states (*Bundesländer*) has legislative authority for inland fisheries and its administration, which allows specific features of each *länder* to be taken into account. Although each state has its own fishery law, they have many similarities. The Federal Government has at least indirect legislative authority in fields related to inland fisheries such as nature protection, environmental laws, land use and animal welfare. (Conrad, 1999)

In Germany's national regulatory framework, inland fisheries are defined as "any activity linked to fisheries in natural or artificial inland waters, including technical installation for fish aquaculture" (Bucharest workshop, 2007).



Source: Umweltbundesamt (2004).

Ownership and access

Ownership of inland waters is related to the administrative structure of each *Bundesland*. Water bodies may be privately owned or classified into three types of public ownership: (1) state (Germany), (2) *Bundesland* or (3) town/local district authority. Fishing rights are not necessarily connected to ownership, and usually fishing rights are held by fishing enterprises rather than by individual fishermen. (Wysujack, 2007)

Approximately 30% of the total surface area of inland waters in Germany is used for commercial inland fishery, which accounts for about 47% of the surface area of inland waters used for inland fisheries (including angling and aquaculture). These percentages differ in each federal state (Table 1). The *Bundeslands* with the most area of lakes, reservoirs and rivers used for commercial fishing are Brandenburg (56 350 ha) and Mecklenburg-Vorpommern (54 380 ha). In *Bundesland* Brandenburg, one of the most important regions for commercial inland fisheries in Germany, the total water area is 100 140 ha, of which 56 350 ha (56%) is used for commercial fishery (Table 2). In *Bundesland* Mecklenburg-Vorpommern the total water area is 128 476 ha, of which 54 380 ha (42%) is used for commercial fishery (Table 3). (Wysujack, 2007)

In *Bundesland* Baden-Württemberg, Lake Constance is internationally used for fisheries between Germany, Switzerland and Austria. Less than 5% of the lake is used by private fishing rights, and the rest is in public ownership. Also in *Bundesland* Baden-Württemberg, one part of the Upper Rhine (approximately 1 500 ha of river and 900 ha of side waters) is 100% used for commercial fishery, but angling also takes place because the fishing rights are rented out twice. About 99% of the fishing rights for the river are owned by the *Bundesland*. (Wysujack, 2007)

There is a special case for East Germany. In the former GDR, most companies were owned by the state and therefore were considered as "Volkseigentum" (everybody had ownership). After the German reunification most companies were transferred to private ownership, and many companies

(particularly from the agriculture and forestry sector) owned large areas which sometimes included waters. Some of these areas are presently managed by a state-owned company, and this ownership type is documented separately in the east-German *Bundesländer*. The ownership of these waters does not belong to “*Bundesland*” or local authority but could be referred to as “indirect” state ownership. (Wysujack, 2007)

TABLE 1
Availability of inland waters for commercial fishery in 12 German federal states

Federal state (<i>Bundesland</i>)	Inland water area		Commercial inland fishery		
	Total area (ha)	Used for fisheries (ha)	Total area (lakes + rivers) (ha)	% of total water area	% of water area used for fishery
Bayern (Bavaria)	135 919	125 000	34 240* (29 000** + 5 240)	25	27
North Rhine - Westfalia	60 450	54 300	2 700	4	5
Thuringia	19 400	No data	0	0	0
Saarland	2 381	No data	0	0	0
Schleswig-Holstein	73 753	25 000	20 035 (16 290 + 3745)	27	80
Berlin	*5 919	5 545	4 451	75	80
Sachsen (Saxony)	45 051	33 612	0	0	0
Baden-Württemberg	75 000	71 000	28 000 (27 000** + 1 000)	37	39
Mecklenburg-Vorpommern	128 476	60 660	54 380 (53 330 + 1 050*)	42	90
Hamburg	6 000	No data	No data (River Elbe and Harbour)*	No data	No data
Niedersachsen	99 552	34 300	12 000* (6 000 + 6 000)	12	35
Brandenburg	100 140	73 000	56 350 (46 630 + 9 720)	56	77
Total	752 041	482 417	212 156	28	44

* All in public ownership.

** Including reservoirs.

Source: data: Wysujack (2007).

TABLE 2
Ownership and availability for commercial fisheries in Brandenburg, Germany

Type of commercial fishery	Public ownership		Private ownership (ha)	% of water area used for fisheries
	<i>Bundesland</i> (ha)	Local authority district, other (ha)		
Lakes	18 500	23 800	4 330	85
Rivers	4 450	4 270	1 000	56
Total	22 950	28 070	5 330	77

Source: Wysujack (2007).

TABLE 3

Ownership and availability for commercial fisheries in Mecklenburg-Vorpommern, Germany

Type of commercial fishery	Public ownership			Private ownership (ha)	% of water area used for fisheries
	State (Germany) (ha)	Bundesland (ha)	Local authority district (ha)		
Lakes	30 074	16 675	6 353	228	91
Rivers	0	1 050	0	0	46
Total	30 074	17 725	6 353	228	90

Source: Wysujack (2007).

Employment

The population of Germany in 2004 was 82 631 000 (FAO, 2006). In 2007, 884 commercial inland fisheries companies (fully commercial companies and part-time fishermen combined) were operating in Germany (Table 4) (Brämick, 2008).

According to a census in 1994, a total of 229 937 ha of inland waters in Germany were used for commercial fishing by 587 enterprises. There were 113 fishermen operating on 28 909 ha of rivers and 268 fishermen operating on 106 567 ha of lakes, with 206 enterprises operating on both rivers and lakes. (Wedekind *et al.*, 2001)

Catches and important species

In 2007 total inland commercial catch in Germany was 3 031 tonnes, valued at €9.4 million (Table 4) (Brämick, 2008). The Lake Constance fishery has accounted for the greatest single amount of fish landed, which in 1997 was 732 t (550 t of pollan), or 26% of the total catch (Wedekind *et al.*, 2001; Conrad, 1999). Eel, pike-perch and perch are the main target species in the north, while whitefish and perch are the main species in the pre-alpine region (Wedekind *et al.*, 2001). Most of the catches are marketed and sold directly by the fishermen (Conrad, 1999; Wedekind *et al.*, 2001).

TABLE 4

Employment and catches for commercial inland fishing in Germany

Year	Number of professional fishers/enterprises			Catch	
	Full-time	Part-time	Total	(tonnes)	(value)
1995	-	-	-	4 238 ^a	-
1996	(man-years) 236 ^b	-	836 ^b	2 882 ^a	-
1997	(man-years) 329 ^b	-	857 ^b	2 804 ^{a,c}	-
1998	-	-	> 750 ^a	3 469 ^c	-
2000	-	-	803 ^d	3 625 ^d	€ 10 000 000 ^d
2001	-	-	747 ^d	3 542 ^d	€ 10 000 000 ^d
2002	647 ^e	175 ^e	822 ^d	3 471 ^d	€ 13 900 000 ^d
2003	663 ^e	172 ^e	835 ^d	3 466 ^d	€ 11 700 000 ^d
2004	478 ^e	409 ^e	887 ^d	3 625 ^d	€ 9 100 000 ^d
2005	477 ^e	403 ^e	880 ^e	3 314 ^d	€ 7 000 000 ^d
2006	475 ^e	409 ^e	884 ^e	3 086 ^e	€ 9 400 000 ^e
2007	426 ^e	417 ^e	843 ^e	3 031 ^e	€ 9 400 000 ^e

Sources: ^a Conrad (1999); ^b Buisman *et al.* (1999); ^c Wedekind *et al.* (2001); ^d BMELV (2007); ^e Brämick (2008).

Current status and future trends

Commercial inland fishing in Germany has been decreasing in socio-economic importance for several reasons. There is strong competition from the increasing importance of aquaculture, recreational fisheries and sports boat businesses (Wedekind *et al.*, 2001; Conrad, 1999). During past

decades, the commercial inland fishery has suffered from deteriorated environmental conditions in water areas, invasions of fish-seeking cormorants and declined profitability (Conrad, 1999; Buisman *et al.*, 1999). Today access of commercial fishers to some inland waters is limited for nature conservation or for other social reasons (Wedekind *et al.*, 2001).

Although there have been concerted efforts in dealing with the poor status of many rivers, degradation of fish habitat in rivers (drainage, industrial transports and dam constructions) partly explains the marginal catches from river fisheries (Wedekind *et al.*, 2001; Conrad, 1999). The eel fishery depends heavily on the existence of well-managed and healthy eel stocks, which are declining, and the fishery is increasingly dependent on stocking (Conrad, 1999). Fishing tourism, processing and local markets are seen as areas with potential for development (BMELV 2007).

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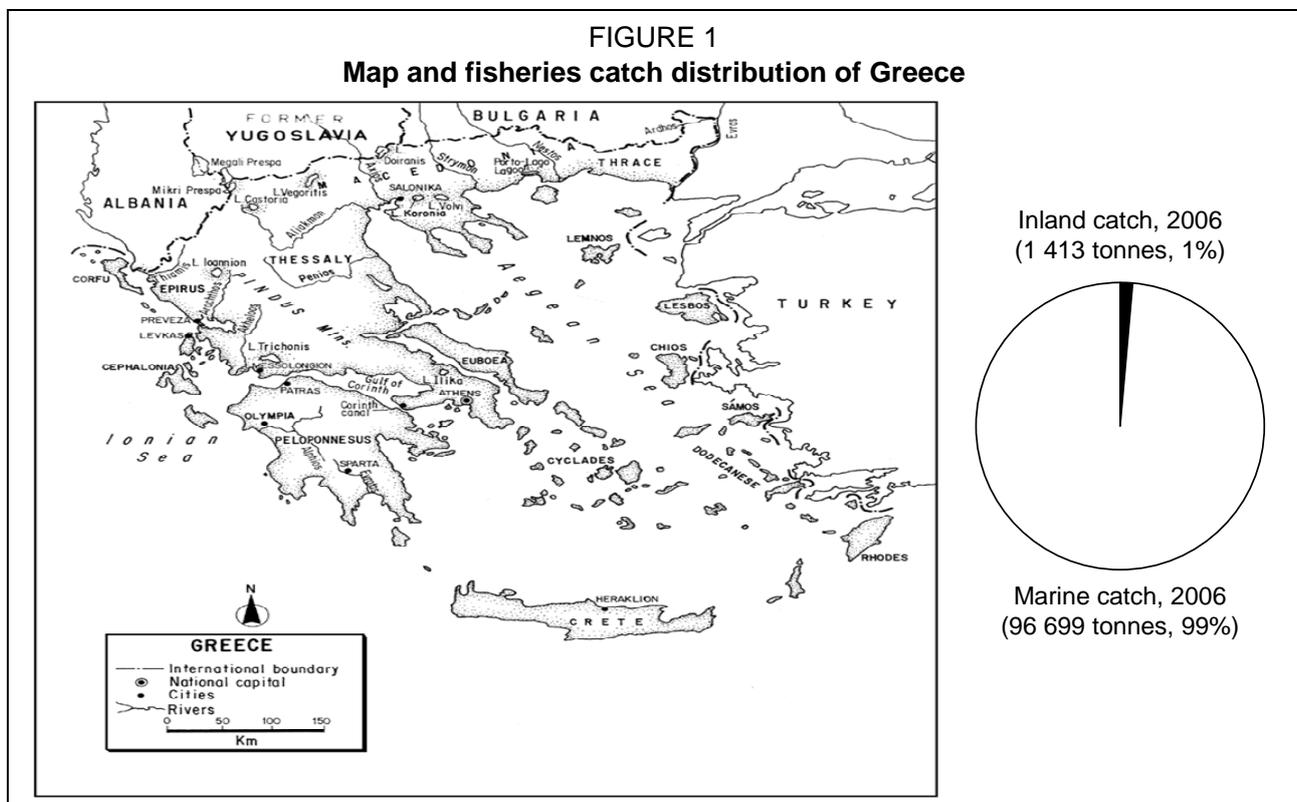
* This report is published annually and it represents the most comprehensive collection of data on inland fisheries in Germany. It includes data on physical resources, catches, economic yields, markets and prices, threats and damages, developments and trends and legal framework. As it is published annually, only the latest report is given here.

GREECE

Inland waters and commercial fishing areas

The total land area of Greece (Figure 1) is 130 800 km², with the mainland accounting for 80% and nearly 3 000 islands accounting for 20%. Greece's coastline (around 13 700 km) is equally distributed between the mainland and the islands. Some 41 natural lakes (19 > 5 km²) occupy about 0.5% (> 60 000 ha) of the countries total area, and the largest are lakes Trichonida, Volvi and Vegoritida. 14 artificial lakes (10 > 5 km²) occupy 26 000 ha, and there are about 400 wetlands. Nine rivers flow over 100 km within Greece: the Aliakmonas, Acheloos, Pinios, Evros, Nestos, Srimonas, Kalamas, Alfios and Arachtos. (YPEHODE, 2004)

Inland water bodies occupy a total of 3 060 km² (FAO, 2006). According to Dill (1993) commercial inland fishing in Greece is primarily confined to the lakes and lagoons. The main lakes are located in the centre and north of Greece, and most of the estimated 70 lagoon capture fisheries are in the Messalonghi region of Central Greece (MacAlister Elliot & Partners Ltd, 1999).



Sources: map: Dill (1993); catch data: Eurostat (2008).

Administration and legislation

Within Greece, the Ministry of Agriculture's General Directorate for Fisheries is responsible for making fisheries policy, and the Fisheries Divisions of Local Authorities and the Prefectures are responsible for implementing fisheries policy. The legal framework for regulating all fisheries issues is provided by the Fishing Code (Law Decree 420/1970). (Pawson *et al.*, 2007)

Ownership and access

According to Dill (1993) inland waters in Greece (consisting primarily of lakes and lagoons) are State property, but the majority of inland fishing areas are leased to private individuals or to fishermen's cooperatives. Most lagoons are managed by cooperatives, but some are controlled by private individuals, private companies or local authorities (MacAlister Elliot & Partners Ltd, 1999).

Employment

The population of Greece is approximately 11 million (YPEHODE, 2004). In 2003 employment in inland fishing in Greece (Table 1) was reported to be 919 (Salz *et al.*, 2006). In 1996 there were a total of 82 businesses for inland capture fisheries: 58 for lagoons, 21 for lakes and 3 for rivers (MacAlister Elliot & Partners Ltd, 1999).

Catches and important species

In 1996 the total inland capture fisheries production in Greece was 2 938 tonnes, valued at GRD 2 283 million. Approximately 57% of the production volume came from lagoons (1 681.5 tonnes, valued at GRD 1 911 million), 42% from lakes (1221 tonnes, valued at GRD 358.6 million) and 1% from rivers (35.5 tonnes, valued at GRD 13.8 million). (MacAlister Elliot & Partners Ltd, 1999)

The main species caught in the lagoon fisheries were sea-bream, sea-bass, eel, mullet, white bream and sole (MacAlister Elliot & Partners Ltd, 1999). According to Dill (1993) the most important species for commercial fishing in Greek lakes were cyprinids, such as common carp, roach, barbel, bleak, and tench, as well as perch, pike, and eel.

TABLE 1

Employment and catches for commercial inland fishing in Greece

Year	Number of professional fishers			Catch	
	Full-time	Part-time	Total	(tonnes)	(value)
1994	1 800 ^a	-	-	-	-
1996	-	-	-	2 938 ^b	GRD 2 283 400 000 ^b
1997	-	-	2 701 ^b	-	-
2003	-	-	919 ^c	-	-

Sources: ^aFAO (1999); ^bMacAlister Elliot & Partners Ltd (1999); ^cSalz *et al.* (2006).

Current status and future trends

During the past decade in Greece there has been increased fishery management of lagoons as well as an introduction of fish farming techniques to increase production, despite earlier reductions in lagoon surface areas due to reclamation for farming and industrial purposes (MacAlister Elliot & Partners Ltd, 1999). The Greek Operational Programme of the Fisheries' Sector 2000-2006 includes a measure for the protection and development of inland fishing (YPAAT, 2000).

References

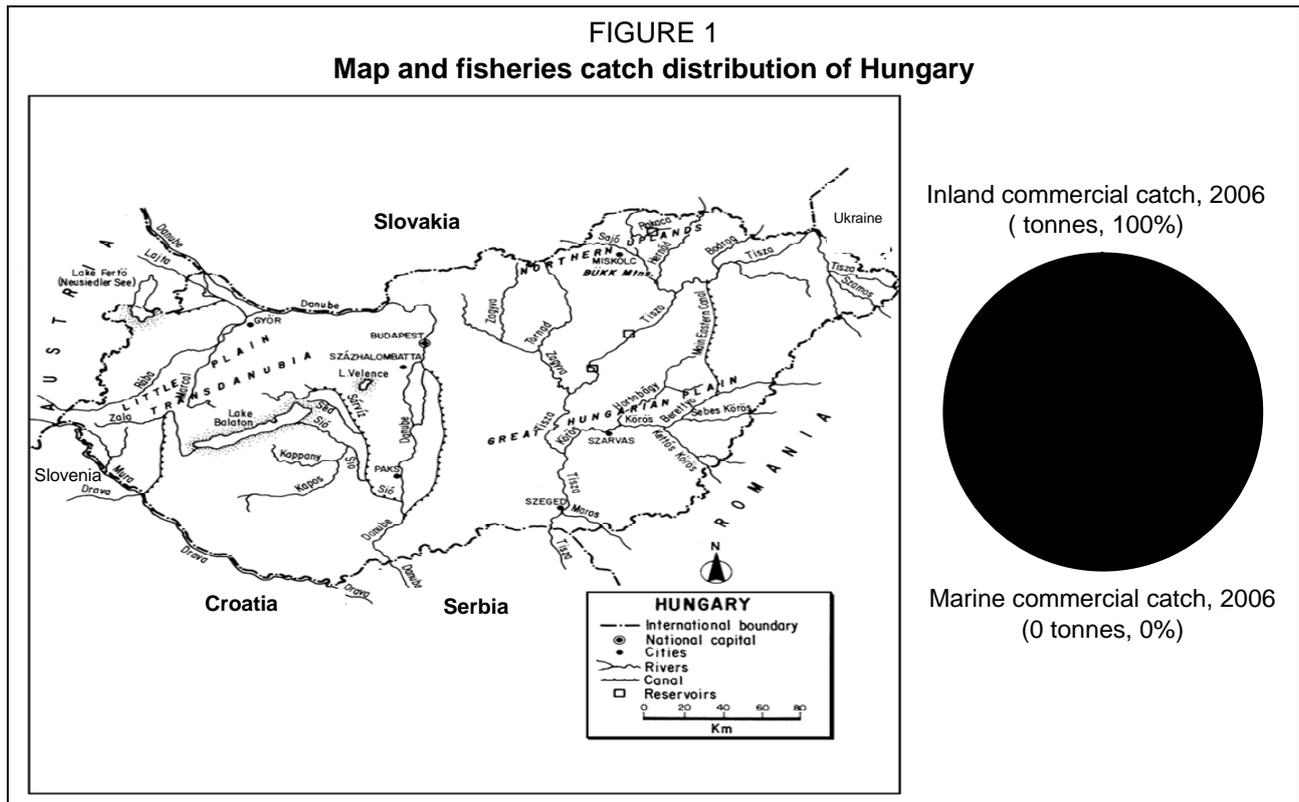
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HUNGARY

Inland waters and commercial fishing areas

Hungary (Figure 1) has a total area of 93 030 km² (FAO, 2006). Natural waters and water reservoirs account for 1 410 km² (FVM, 2007). The three main lakes are Balaton (600 km²), Fertő (70 km²) and Velencei-tó (25 km²), and the two main river basins are the Danube (417 km in Hungary) and the Tisza (600 km in Hungary) (Aps *et al.*, 2004).

On most of the natural waters in Hungary there is commercial fishing using traditional fishing techniques. On some reservoirs and oxbow lakes, commercial fishing is practised mainly using certain techniques of pond fish farming. (FVM, 2007)



Sources: map: modified from Dill (1990); catch data: FVM (2007).

Administration and legislation

The Ministry of Agriculture and Rural Development, and in particular the Division for Fisheries and Water Management, is responsible for fisheries and fish farming. The main legislation for freshwater fishery management in Hungary is the Act (1997) and Decree No. 78 (1997) on Fisheries and Angling (Aps *et al.*, 2004).

Ownership and access

In Hungary there is mostly state/public ownership of inland waters (Pintér, 2009). Fishing rights in Hungary, with some exceptions, are state-owned in the natural waters and water reservoirs, which are divided into 1 500 administrative units called “fisheries water areas,” and the state-owned fishing rights can be obtained through tenders, which are given out for 15 years and can also be used for recreational fishing (FVM, 2007). Priority is given to recreational use of natural waters (Bucharest workshop, 2007).

Employment

The population of Hungary in 2004 was 10 072 000 (FAO, 2006). The estimated employment in commercial inland fisheries in Hungary (Table 1) is 400-500 professionals and 3 000 semi-

professionals; the number of fishing permits is 3 500, including licences for research purposes (Bucharest workshop, 2007). Some of the companies involved in natural water fishing are also involved in pond fish farming, and some who have obtained fishing rights are not doing this activity as their primary job (FVM, 2007).

TABLE 1
Employment and catches for commercial inland fishing in Hungary

Year	Number of professional fishers			Catch	
	Full-time	Occasional	Total	(tonnes)	(value)
1997	400 ^a	2 900 ^a	3 300 ^a	-	-
2003	-	-	-	2 296 ^b	-
2004	-	-	3 390 ^c	2 871 ^b	-
2005	-	-	-	3 075 ^b	-
2006	(professional) 400-500 ^d	(semi-professional) 3 000 ^d	3 500 ^d	2 796 ^b	€ 4 420 000 ^d

Sources: ^a FAO (1999); ^b FVM (2007); ^c Salz *et al.* (2006); ^d Bucharest workshop (2007).

Catches and important species

In 2006 the commercial inland catch in Hungary (Table 1) was 2 806 tons (37% of the total inland catch), of which 41% was common carp, 29% herbivorous fish, 9 % predators and 21% other species (FVM, 2007). The high value for common carp and herbivorous species is due to pond-like management of some backwaters and reservoirs (Pintér, 2009). The value of the commercial inland catch is € 4 420 000, but it is only for the local market (Bucharest workshop, 2007).

Current status and future trends

Sustaining inland capture fisheries in Hungary provides economical and social benefit. One of the strengths of the sector is the activity of the fishermen who have formed producers' groups or other marketing organizations. However, active fishermen are ageing and the number of trained professional fishermen continues to decline, which substantially affects production. Additionally, the commercial fishing gear being used is in poor condition and needs replacement in order to maintain jobs. The most significant problems for the inland fisheries are habitat degradation (loss of spawning areas and silting), resulting in reduced catches with less valuable species, and the high extent of poaching without effective sanctions. The most important challenges for the inland fisheries are the introduction of selective fishing methods and the establishment and maintenance of proper fish population structures through aquaculture. (FVM, 2007)

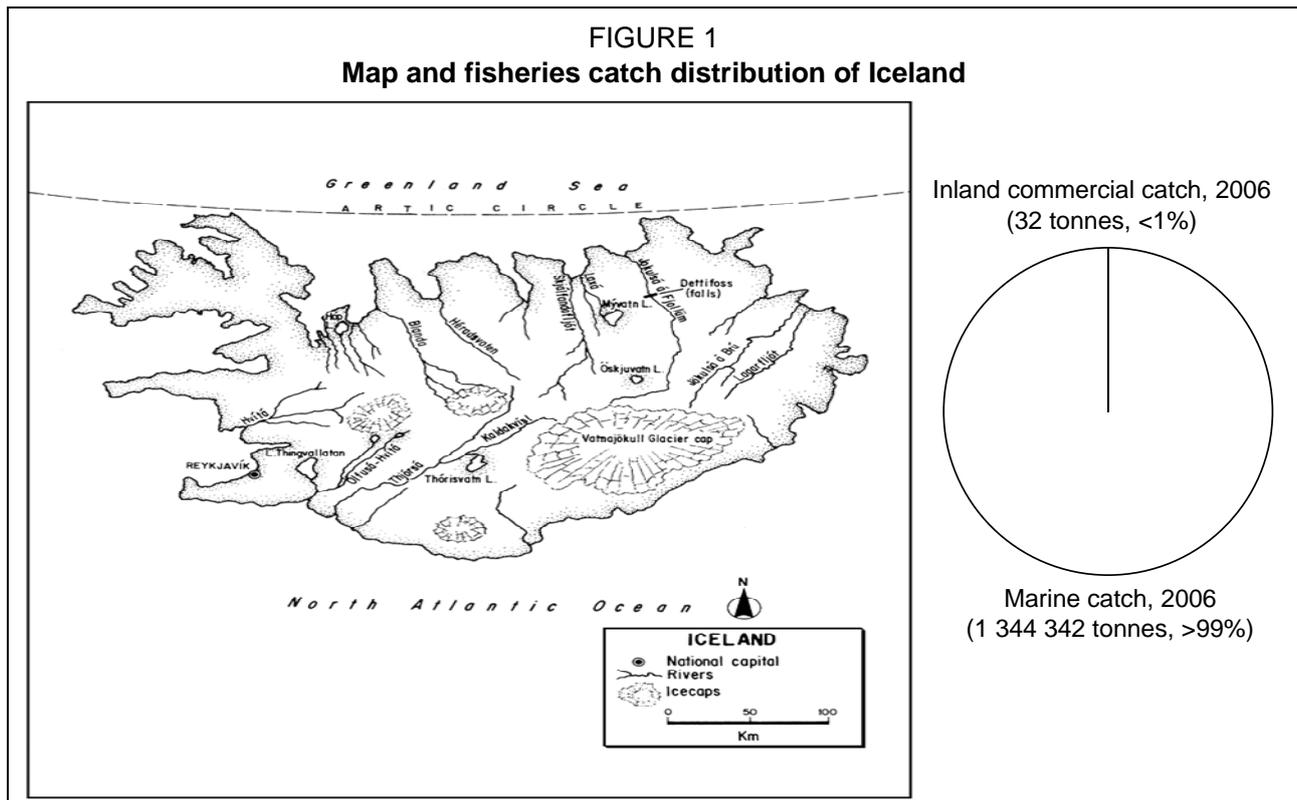
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ICELAND

Inland waters and commercial fishing areas

Iceland (Figure 1) has an overall area of 103 000 km², with inland water bodies occupying 2 750 km² (FAO, 2006). There are approximately 250 large and small rivers, about 1 800 natural lakes (1 200 km²; 1% of the country) and several large hydroelectric reservoirs in the interior of the country (Ísaksson, 2002). Commercial inland fishing in Iceland occurs in Lake Mývatn, Lake Þingvallavatn, Lake Apavatn and a few other smaller lakes, as well as in the Ölfusá River system and Þjórsá River system (Figure 2) (Ísaksson, 2007).



Sources: map: Dill (1990); catch data: Guðbergsson (2007) and Eurostat (2008).

Administration and legislation

Overall management of the fisheries in Iceland is the responsibility of the Ministry of Fisheries and Agriculture, which oversees the Directorate of Fisheries and its Department of Salmonid Management. Owners of rivers in Iceland must form associations that are responsible for management of the local fishery in accordance with the Salmonid Fisheries Act (2006, as amended). There is a general ban on fishing of salmon in the ocean, and since 1998 all fishing of salmon has been carried out in freshwater (Guðbergsson, 2008). Professional inland net fishing of freshwater fish in Iceland is limited, and the main emphasis is on angling; some net fishing exists mostly for home or local use (Ísaksson, 2009).

Ownership and access

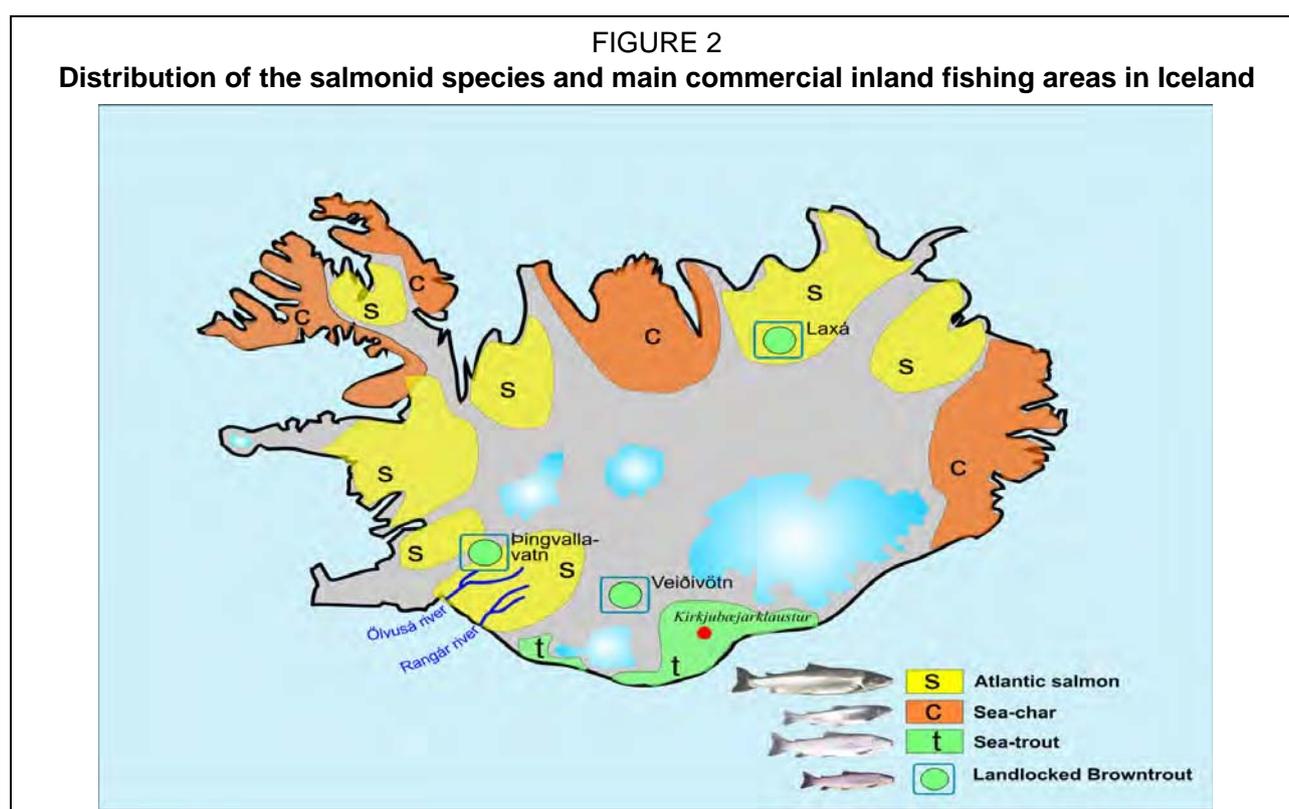
In Iceland fishing rights in rivers and lakes are privately owned and associated with the adjoining land, which is typically owned by farmers in agricultural areas where there are fishable sections of rivers (Ísaksson, 2002). 100% of the lakes and 50% of the rivers (50 out of 100 km) in Iceland are available for angling (Ísaksson, 2009). There are no government licences (quotas) for salmonids.

Employment

The population of Iceland in 2004 was 290 000 (FAO, 2006). The river associations in Iceland share expenses and income from the rivers, and the share of each river owner is based upon length of river bank owned, catches and salmonid nursery areas (Ísaksson, 2002).

Catches and important species

The only commercially important inland fishery in Iceland, for market sale and consumption, is the net fisheries for salmonids (Figure 2) (Atlantic salmon, brown trout and Arctic char) (Ísaksson, 2002). This is, however, on a very limited scale, and most of the salmonids marketed in Iceland are of reared origin (Ísaksson, 2009). In 2007 the total catch for net fishing of salmonids was 28 tonnes (Table 1), with Atlantic salmon having the highest value (Guðbergsson, 2008).



Source: Ísaksson (2002).

TABLE 1

Employment and catches for commercial inland fishing in Iceland

Year	Number of professional fishers			Catch (tonnes)
	Full-time	Part-time	Total	
2000	-	-	-	33 ^a
2001	-	-	-	36 ^b
2003	-	-	-	50 ^c
2004	-	-	-	37 ^d
2006	-	-	-	32 ^e
2007	-	-	-	28 ^f

Sources: ^a Guðbergsson (2001); ^b Guðbergsson (2002); ^c Guðbergsson (2004); ^d Guðbergsson (2005); ^e Guðbergsson (2007); ^f Guðbergsson (2008).

Current status and future trends

There has been a great reduction in freshwater net fishing of salmon in Iceland, mainly through buy-outs and leasing arrangements, caused by both the increased value of sport fishing and the decreased value of commercially caught salmon (due to the large supply of salmon from

aquaculture). Due to the world's current economic turmoil it is difficult to estimate future economic developments. In the past the sport fishing of salmon has been of greater economic value, as the annual revenue from salmon angling has been estimated at US\$ 30 million (US\$ 1000 per angled salmon). However, it has been estimated that the total value of salmon and trout angling in Iceland to the national economy might be in excess of US\$ 80 million. Consequently, the proportion of salmon caught from sport fishing has gradually risen to over 90% of the total salmon catch in Iceland. Furthermore, net fishing of salmon is limited to only half the week, with the largest remaining net fishery occurring on the Ölfusa River where angling opportunities are somewhat limited. Overall, Icelandic salmonid stocks are in a reasonable state, but there have been recent instances of reduced salmon catches in some rivers, possibly resulting from their close proximity to urban areas. (Ísaksson, 2002; Ísaksson, 2009)

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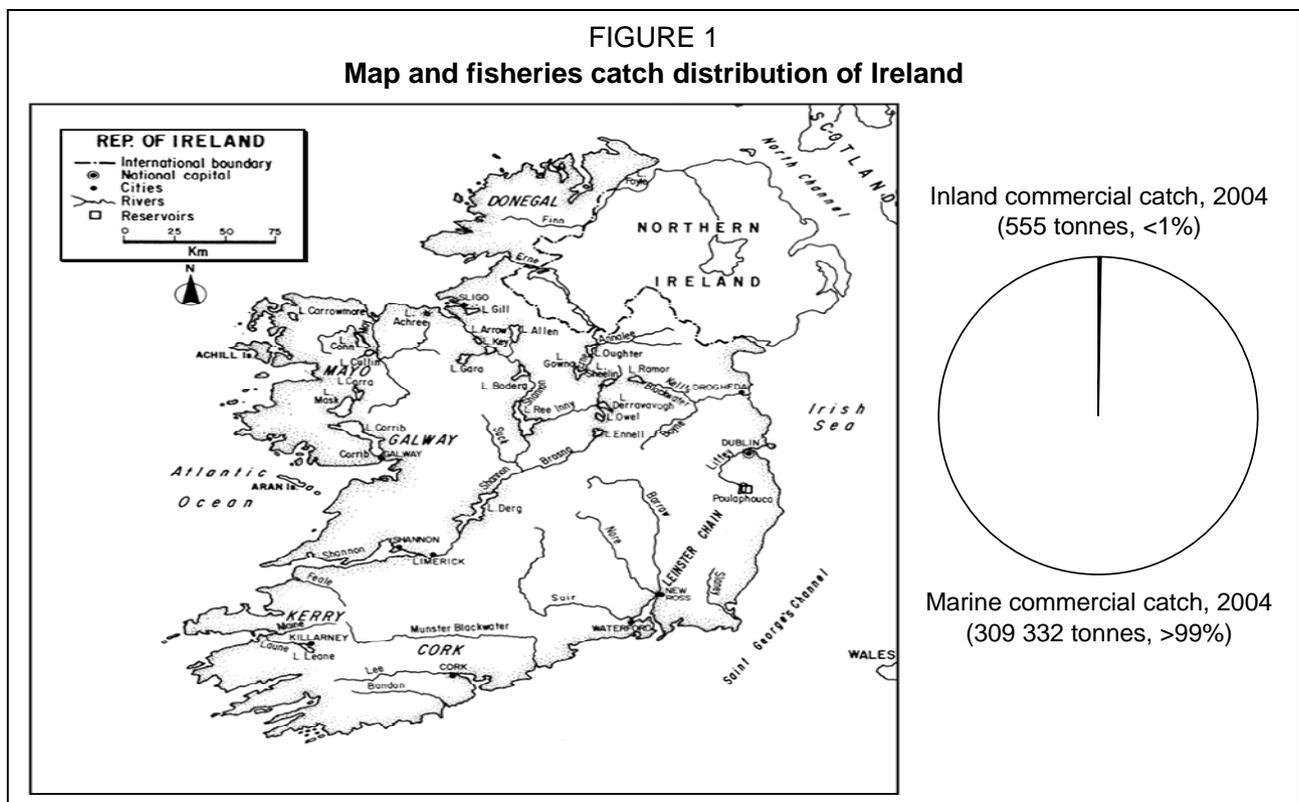
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IRELAND

Inland waters and commercial fishing areas

Ireland (Figure 1) has a total area of 70 285 km², with inland waters occupying about 3 350 km² (Dill, 1990). Freshwater lakes cover approximately 1 445 km², and main channel rivers have a total length of around 13 840 km (FGS Consulting, 2005).

Commercial inland fishing activity in Ireland is of particular relevance to commercial net fishing of salmon and sea trout and the exploitation of eels (FGS Consulting, 2005). Draft net fishing is typically carried out within estuaries (Figure 2) (Collins *et al.*, 2006). There were 22 salmon rivers with a commercially fishery in 2007, which saw a prohibition on drift net fishing or any other method of harvesting outside rivers and estuaries (CFB, 2008a). Commercial fishing of eels includes the exploitation of brown and silver eel in fresh waters and in estuarine or tidal waters (DCENR, 2008a). Brown eel (or yellow eel) are primarily caught in lakes using either fyke nets or long-lines (FAO, 2006).



Sources: map: Dill (1990); catch data: CSO (2007).

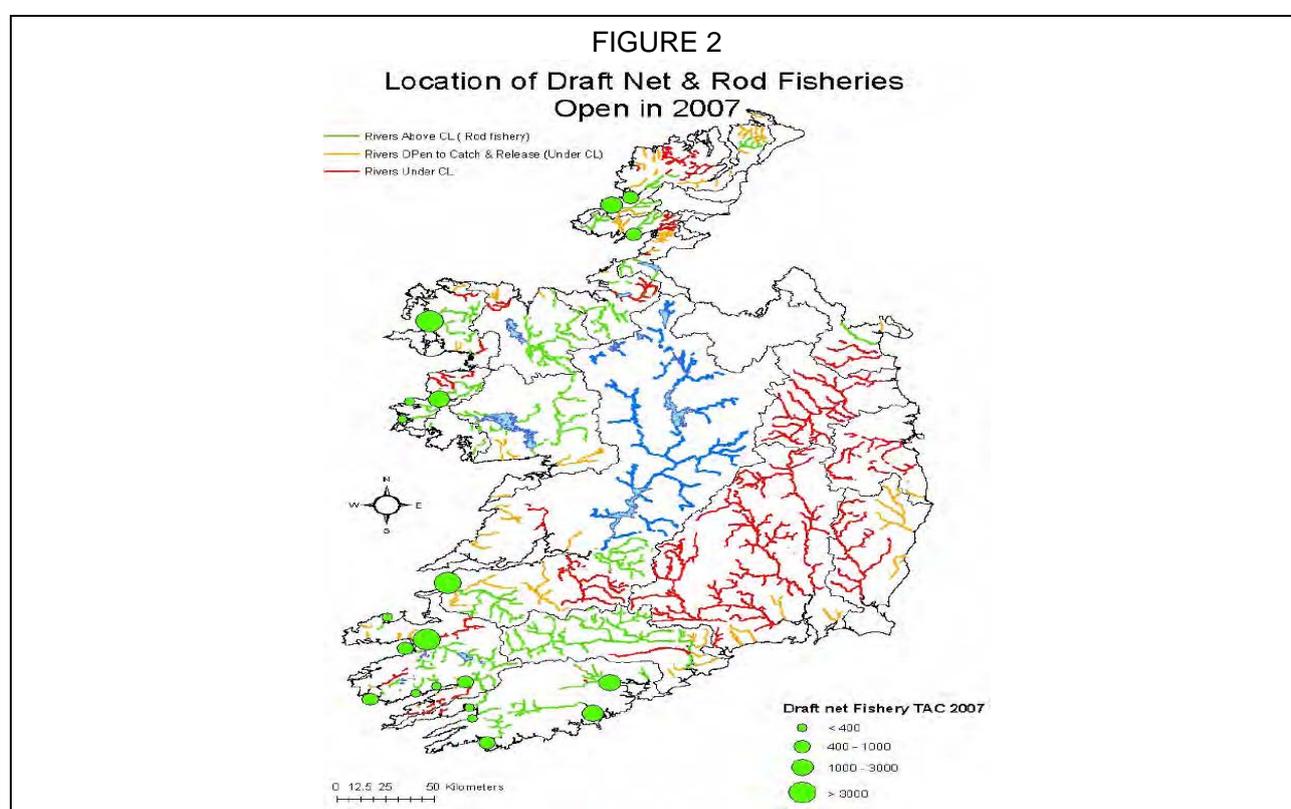
Administration and legislation

In Ireland the Inland Fisheries Division of the Department, of Communications, Energy and Natural Resources (DCENR) is responsible for matters relating to the protection, development, conservation, and management of inland fisheries, as well as the corporate governance of the Central and Regional Fisheries Boards and the Loughs Agency (DCENR, 2008b). The Central and Regional Fisheries Boards are responsible for commercial inland eel fisheries and for administering all commercial salmon fishing in Ireland (CFB, 2009). The Fisheries Act (1980) established the Central Fisheries Board (CFB) as a statutory body under DCENR that supports the seven Regional Fisheries Boards (RFBs), which operate on a catchment basis and are responsible for their Fishery Districts (17 in total) (CFB, 2008b).

The Fisheries (Amendment) Act (1999) provided for the Wild Salmon and Sea Trout Tagging Scheme and Total Allowable Catches (TAC) for commercial salmon fishing licence holders (CFB, 2008b; FGS Consulting, 2005). The TAC for wild salmon and sea trout (Figure 2) is set annually

for each of 148 salmon rivers by statutory instrument (S.I.), based on the advice of the National Salmon Commission on target catch levels from the report of the Standing Scientific Committee (FAO, 2006; CFB, 2008b).

A commercial fishing licence in the Wild Salmon and Sea Trout Tagging Scheme Regulations 2008 (S.I. No. 586 of 2008) is defined as “a licence authorising the use of a commercial fishing engine for the taking of salmon or sea trout,” and a commercial fishing engine is defined as “a draft net, snap net or any other lawful fishing engine (other than rod and line).” However, according to the Salmon and Trout Conservation (Drift Nets, Snap Nets and Other Engines) Byelaw No. 836 (2008), “it is prohibited to take or to fish for, or to attempt to take or to fish for, salmon or trout with a drift net, snap net or other engine,” and other engine is defined as “any fishing engine not being a drift net, a draft net, a snap net, box, or a rod and line.” Commercial fishing licences specific to eel fishing engines are listed in the schedule of the Fisheries (Miscellaneous Commercial Licences) (Alteration of Duties) Order 2004 (S.I. No. 818 of 2004) as “eye, gap or basket for taking eels in or on a fishing weir or a fishing mill dam,” “eel trap,” “long line for eels,” “coghill net for eels” and “fyke nets for eels.” The Fisheries Act (1959) prohibits fishing of glass eel and elver in Ireland (DCENR, 2008a).



Source: CFB (2008b).

Ownership and access

In Ireland, rivers have usually belonged to the owner of the adjoining land. Fishing rights have been open or “free” for upper courses of large rivers, some small rivers and some lakes. Fishing rights in tidal waters have generally been considered as public. (Dill, 1990)

The State’s ownership of fisheries has significantly increased since establishment of the Land Commission and the enactment of the Land Acts to transfer lands from the aristocracy to smaller farmers. During these land transfers, the ownership of the fishery either transferred to the new land owner, remained with the previous land owner, was vested in the State or was not specifically provided for (in which case the Land Commission Dissolution Act vested ownership of such fisheries in the State). As a result, many fisheries are in State ownership, some are in private ownership and a large number are in uncertain ownership. (FGS Consulting, 2005)

Approximately 166 state fisheries are under the control of the CFB (CFB, 2008a). The RFBs have responsibility for licencing all commercial fishing of salmon, sea trout and eel in Ireland (FGS Consulting, 2005). Commercial salmon fishing licences are issued to fish a particular fishery district (CFB, 2008b). Fishery District Committees, which include relevant RFB representatives and local commercial salmon fishers, determine the allocation of the annual salmon and sea trout quotas (numbers of tags) to individual license holders (FGS Consulting, 2005).

Employment

The population of Ireland in 2003 was 3 924 140 (FAO, 2006). In 2005 commercial salmon fishing licences sold in Ireland (Table 1) comprised of 877 drift net licences, 518 draft net licences and 158 other licences (loop, snap, bag and head weir) (CFB, 2006). However, in 2007 all commercial salmon fishermen (drift and draft net) who held a licence in 2006 were offered a voluntary buyout, and 72.5% (966) accepted this “Salmon Hardship Scheme” out of the 1 332 applicants who were issued letters of offer (CFB, 2008a; CFB, 2008b).

Around 150 to 200 part-time fishermen were involved in commercial inland eel fishing in Ireland from 2001 to 2007, and a maximum of 182 commercial eel fishing licences were actively fished in 2005 (Table 1) (DCENR, 2008a). However, there is difficulty in determining the number of fishermen from the number of eel licences, as not all eel licences issued are actively fished and there is no register of individuals fishing for eels (FAO, 2006).

TABLE 1

Employment and catches for commercial inland fishing in Ireland

Year	Number of professional fishers			Catch	
	Full-time	Part-time	Total	(tonnes)	(€)
1999	-	-	2 015 ^a licences*	801 ^b	-
2000	-	-	1 942 ^a licences*	881 ^{a,b}	-
2001	-	-	1 960 ^a licences*	900 ^a	-
2002	-	-	1 987 ^c licences*	789 ^c	5 461 000 ^c
2003	-	-	1 585 ^c licences*	605 ^c	4 547 000 ^c
2004	-	-	1 715 ^{c,d} licences**	555 ^c	4 968 000 ^c
2005	-	-	1 735 ^{e,f} licences***	506 ^b	-

* Only includes commercial salmon licences (drift, draft and other).

** Includes commercial salmon licences (drift, draft and other) and commercial eel licences issued.

*** Includes commercial salmon licences (drift, draft and other) and commercial eel licences actively fished.

Sources: ^a CSO (2003); ^b Eurostat (2008); ^c CSO (2007); ^d FAO (2006); ^e CFB (2006); ^f DCENR (2008a).

Catches and important species

Commercial inland fisheries in Ireland are for salmon, sea trout and eel (FAO, 2006). In 2004 inland fish catches in Ireland (Table 1) comprised of 431 tonnes of salmon (valued at €4 308 000) and 124 tonnes of other species (valued at €660) (CSO, 2007). However, since 2007 there has been a complete ban in Ireland on drift net fishing, which accounted for 64.5% of the commercial salmon catch in 2006 (CFB, 2008b).

Between 2001 and 2007 the declared commercial inland eel catch in Ireland ranged from 86 to 120 tonnes (valued at €500 000 to €750 000) (DCENR, 2008a). However, the actual eel catch is estimated to be around 250 tonnes per year (FAO, 2006).

Current status and future trends

In Ireland the inland fisheries sector features a regionalised management structure with strong local involvement, but there are issues of uncertain ownership and conflict between different stakeholders. Sustainability of inland fish stocks has been at risk from over-exploitation, and fish habitats are threatened by pressures on water quality and the environment. (FGS Consulting, 2005)

In 2007 a new salmon management regime (single stock management) was introduced in Ireland based on scientific advice and the need for conservation. This regime entailed management

of salmon catches on a river by river basis, with commercial fishing only being allowed in rivers that have met their salmon conservation limit. Consequently, salmon and sea trout fishing was prohibited in 103 rivers, as well as outside rivers and estuaries (e.g. ban on drift nets). (CFB, 2008a)

Draft net salmon fishing in estuaries is important to local commercial fishermen in Ireland, but the average income from salmon fishing for many draft net fishermen/teams (400-500) was probably no more than €1 000 in 2005 (Collins *et al.*, 2006). When the Irish government introduced the Salmon Hardship Scheme for drift and draft net fishermen wishing to leave the fishery in 2007, only 25.5% did not accept the scheme (CFB, 2008b).

The commercial inland eel fishery in Ireland faces issues of insufficient reporting and illegal fishing. Furthermore, the “National Report for Ireland on Eel Stock Recovery Plan,” aimed at reducing eel mortality and increasing silver eel escapement in Irish waters, recommended a management action to end commercial eel fishing and close the market. (Collins *et al.*, 2006). In response to EU Council Regulation (EC) 1100/2007 establishing measures for the recovery of the stock of European eel, Ireland's eel management plan (submitted in January 2009) set out measures to close the commercial eel fishery, carry mitigation on hydropower rivers, ensure upstream migration of eels at barriers and improve water quality. Later in 2009 Ireland has passed two bylaws closing commercial eel fisheries for three years and making recreational eel fishing catch & release- based.

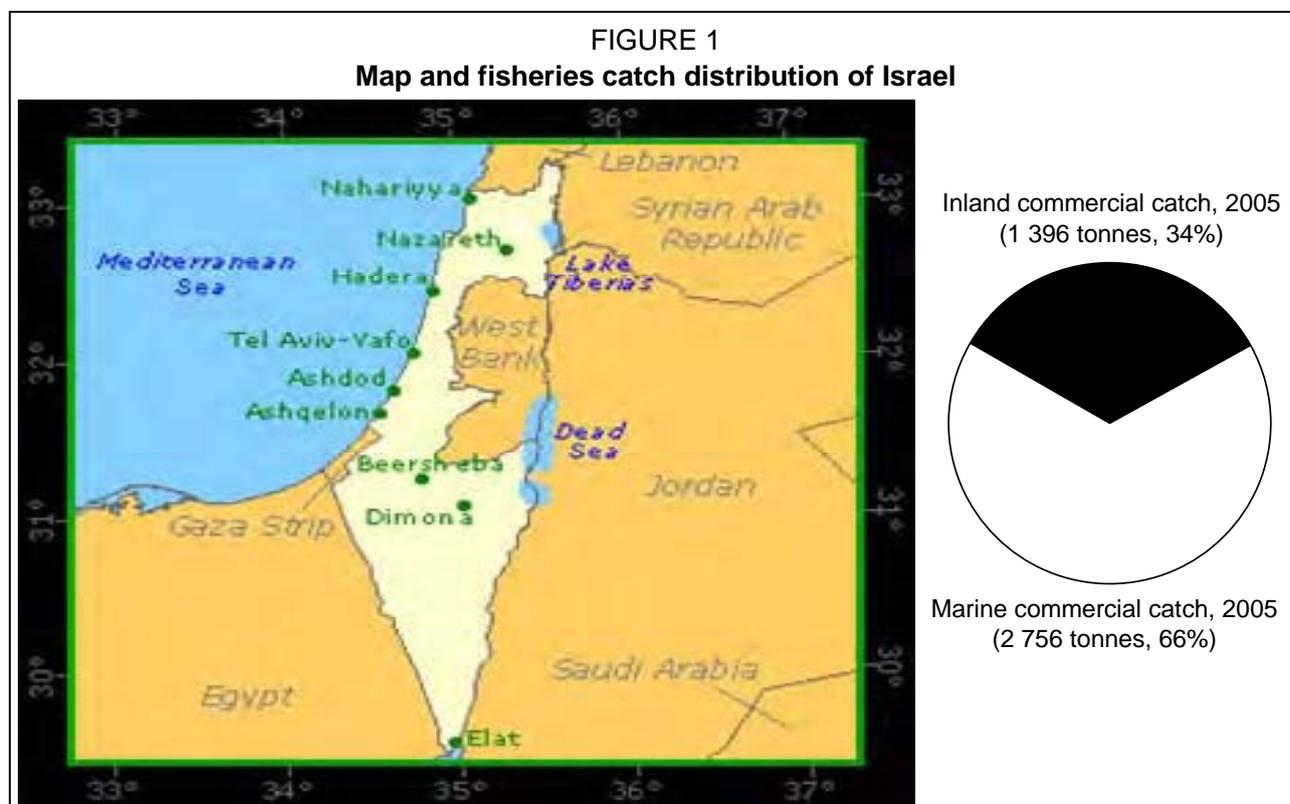
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ISRAEL

Inland waters and commercial fishing areas

Israel (Figure 1) has a total area of 21 060 km², with inland water bodies occupying 440 km² (FAO, 2006). Commercial freshwater fishing occurs in Lake Kinneret (also known as the Sea of Galilee or Lake Tiberias; Figure 1), the only freshwater body in Israel (FAO, 2007).



Sources: map: Global Forest Resources Assessment 2000, base map: ESRI; catch data: FAO (2007).

Administration and legislation

The Department of Fisheries, under the Ministry of Agriculture, is directly responsible for fishery research and development. Fishermen's organizations in Lake Kinneret work together with the Department of Fisheries to support and maintain the fisheries. Management regulations were initially inherited from the British mandate rules of 1937 (Fisheries Ordinance). Over the years, these have changed, becoming stricter, as effort and technologies changed and fish populations decreased. (FAO, 2007)

Ownership and access

According to Israel's Water Law of 1959, all water resources are public property, which includes streams, rivers, lakes and other currents and accumulations of water, whether natural, regulated or made. Under Israel's Fisheries Rules (1937, as amended), a licence is required to fish in the Sea of Galilee (Lake Kinneret). However, no new fishing boats are allowed in Lake Kinneret (FAO, 2007).

Employment

The population of Israel in 2005 was 6 832 062. In 2005 three purse seiners and about 68 small boats (<11 m) with gill and/or trammel nets operated in Lake Kinneret (Table 1). (FAO, 2007)

Catches and important species

In 2005 the commercial catch in Lake Kinneret was 1 396 tonnes (Table 1), which was equivalent to 5.3% of the domestic fish production in Israel. The purse seiners caught 858 tonnes and the gill

and trammel net fisheries caught 538 tonnes. Except for the bleak (*Acanthobrama terraesanctae*) both the purse seines and entangling nets compete for the two most valuable of the fish of Lake Kinneret, *Sarotherodon galilaeus* and Mugilidae. (FAO, 2007)

TABLE 1
Employment and catches for commercial inland fishing in Israel

Year	Number of professional fishers			Catch (tonnes)
	Full-time	Part-time	Total	
1994	100 ^a	200 ^a	300 ^a	-
2005	-	-	(vessels) 71 ^b	1 396 ^{b,c}

Note: Eurostat catch data may include recreational fishing.

Sources: ^a FAO (1999); ^b FAO (2007); ^c Eurostat (2008).

Current status and future trends

In addition to fishing, Lake Kinneret is used for tourism and serves as the main freshwater reservoir for Israel. There is concern regarding over-fishing in Lake Kinneret, and fishing effort is probably at a maximum for the stocks, adversely affecting fish stocks in the present and future. Stock depletions have been observed (decrease in average fish size and catch per unit effort) in important species such as St. Peter's fish (*Sarotherodon galilaeus*). In order to balance and preserve the various valuable fish species in the lake, the Department of Fisheries has taken several actions: stocking of three species (*Sarotherodon galilaeus* – since 1952; *Mugil* spp. – since 1958; and *Hypophthalmichthys molitrix* – since 1969); no new boat licences issued; and a 3-month fishing ban during the tilapia spawning season. Additional regulations include: professional fishermen can only fish from their boats; trammel nets have a minimum eye size of 80 mm stretched, while the purse seines must be no less than 28 mm stretched in the bunt end; and minimum sizes for all commercial fish in the lake. (FAO, 2007)

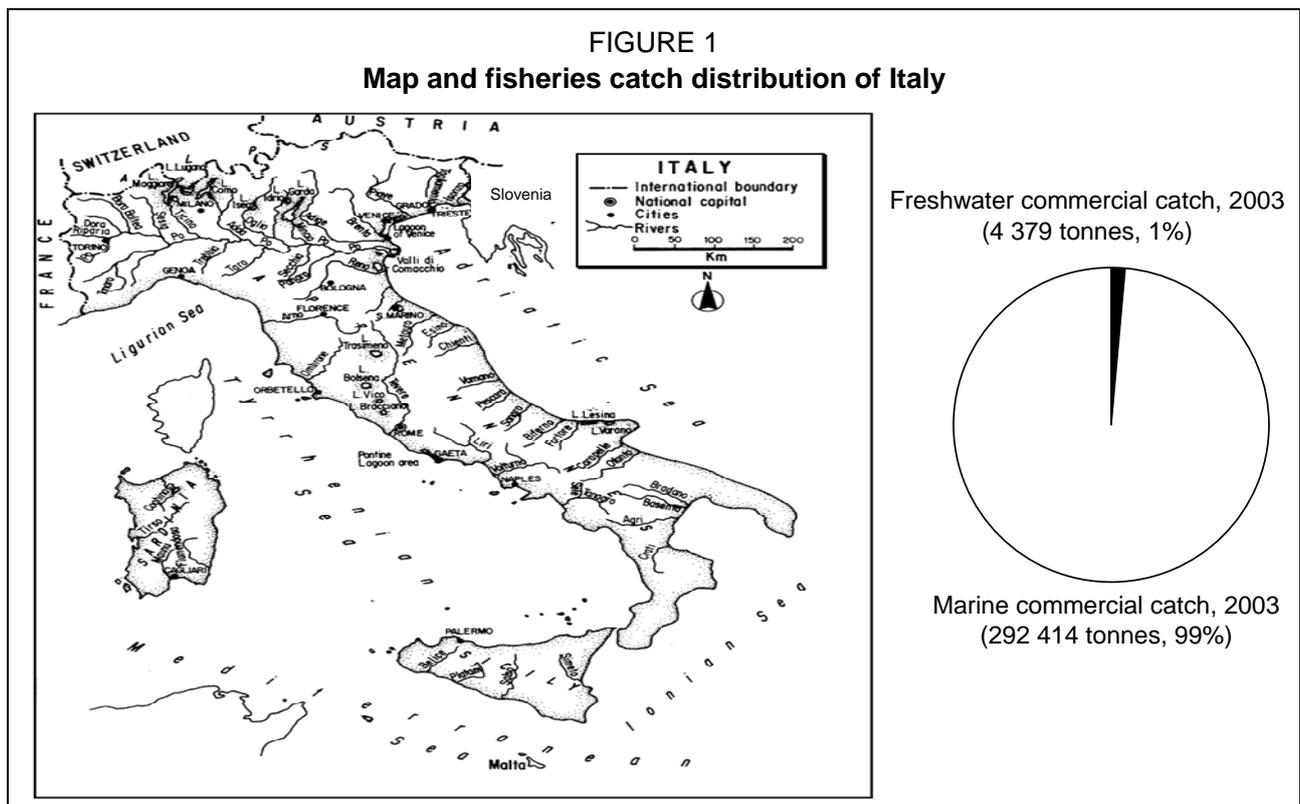
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ITALY

Inland waters and commercial fishing areas

Italy (Figure 1) has a total area of 301 134 km², with inland water bodies occupying 7 230 km² (FAO, 2006). Estimates for different types of inland water bodies include: lakes (2 045 km²), reservoirs (500 km²), lagoons (1 500 km²) and principal rivers (7 782 km) (Dill, 1990). According to Dill (1990), commercial inland fishing in Italy is “confined to some lakes and reservoirs and to a few reaches of the larger rivers.” Furthermore, the Italian Statistical Abstract 2005 refers to fishing production as “fishing in lakes and watersheds” and “fishing in seas and lagoons,” without distinguishing production in lagoons from production in seas (Istat, 2007). Professional inland (freshwater) fisheries in Italy (Figure 2) are mainly located in the northern regions (Peimonte, Lombardia and Veneto) and central regions (Toscana, Umbria and Lazio) (Colombari, 2007).



Administration and legislation

The fishery industry in Italy is the overall responsibility of the Directorate General for Fisheries and Aquaculture under the Ministry of Agriculture, Food and Forest Policies. Management of freshwater fisheries exists at both the national and local levels. National legislation covers the general fisheries policy framework and the quality of inland waters, while regional legislation covers general fishing rules (minimum fish size, gear permitted, fishing periods, etc.) and allows for more restrictive modifications from the local administrations (Provincia). (FAO, 2005)

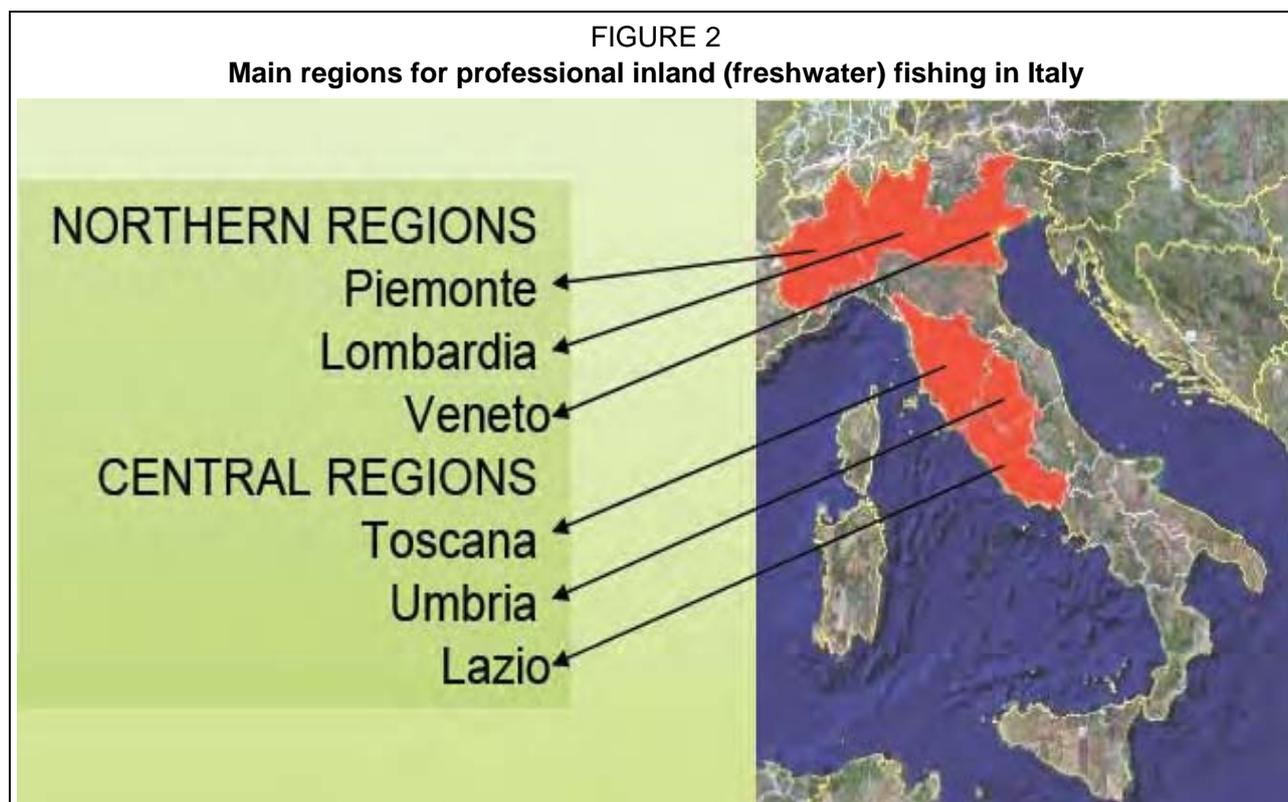
Ownership and access

Under Italy's Water Law (1994) and Presidential Decree No. 238 (1999), state-owned public property was extended to all surface water resources (Water Law and Standards, 2008). According to Dill (1990) fishing rights in Italy include: “exclusive fisheries rights” for ancient properties recognized by the State under special laws (mainly for several zones of lakes and brackish water ponds); and “public domain fisheries reservations” for ancient estate properties confiscated by the

State and opened every six years to public bidding for fishing rights (mostly for trout streams in northern Italy).

Employment

In 2003 the population of Italy was 57.4 million, and the number of authorized professional inland (freshwater) fishermen was about 400 (Table 1), mostly located in northern Italy operating through 37 cooperatives (FAO, 2005). Inland fishing activities use small vessels and mostly fixed nets (Colombari, 2007).



Source: Colombari (2007).

Catches and important species

In 2005 inland (freshwater) fisheries production in Italy totalled 3 823 tonnes (Table 1): 2 136 tonnes from the northern regions, 1 610 tonnes from the central regions and 77 tonnes from the southern regions. The catch comprised of whitefish and trout (820 tonnes), eel (75 tonnes), perch and pike (407 tonnes), bleak, carp and tench (374 tonnes) and big-scale sand smelt and others (2 147 tonnes). (Colombari, 2007)

TABLE 1

Employment and catches for commercial inland (freshwater) fishing in Italy

Year	Number of professional fishers			Catch (tonnes)
	Full-time	Part-time	Total	
2000	-	-	-	4 565 ^{a,b}
2001	-	-	-	5 527 ^{a,c}
2002	-	-	-	4 242 ^{a,d}
2003	-	-	(authorized) 400 ^e	4 379 ^{a,e,f}
2004	-	-	-	5 147 ^{g,h}
2005	-	-	-	3 823 ^{a,i,j}

Note: Catch data refers to fishing production in lakes and artificial basins.

Sources: ^a Eurostat (2008); ^b Istat (2002); ^c Istat (2003); ^d Istat (2004); ^e FAO (2005); ^f Istat (2005); ^g Istat (2006); ^h Bucharest workshop (2007); ⁱ Istat (2008); ^j Colombari (2007).

Current status and future trends

Commercial inland fishery in Italy has only a minor role in the total fishery sector's output (FAO, 2005). Inland fishing is concentrated in relatively small water bodies, lacks appropriate resource management models, increasingly depends on direct restocking for fish recruitment, suffers from pollution and habitat modification, conflicts with sport fisheries and other water uses, has little public support and lacks services and infrastructures (Colombari, 2007). The inland fisheries sector in Italy is unattractive for young workers (working population is fairly old-aged), and fishing in rivers has been almost abandoned due to environmental degradation (Bucharest workshop, 2007).

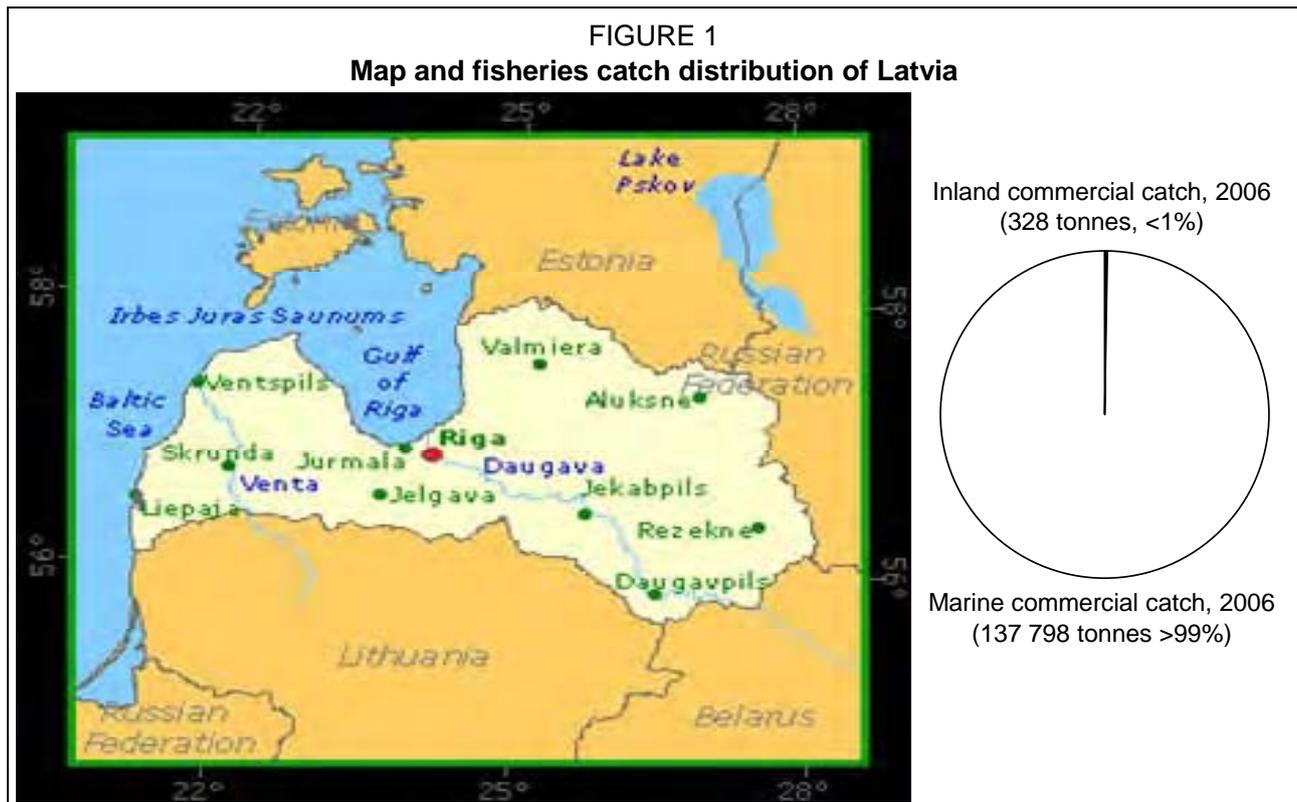
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LATVIA

Inland waters and commercial fishing areas

Latvia (Figure 1) has an area of 64 589 km², with a coastline of 531 km (FAO, 2005). There are about 12 500 rivers, most under 10 km and 17 over 100 km (including Daugava, Lielupe, Venta, Aiviekste, Gauja), and the largest of the 2 256 lakes with an area of at least 1 ha (covering about 100 000 ha in total) are Lubana (8 200 ha), Razna (5 800 ha) and Engure (3 800 ha) (Riekstins, 1999). 3 052 reservoirs are larger than 1 ha, and the total water surface area of rivers, streams, lakes, ponds, reservoirs and canals is 1 550 km², or 2.4% of Latvia's territory (VZP, 2008).



Sources: map: Global Forest Resources Assessment 2000, base map: ESRI; catch data: MoA (2007).

The main fish resources of inland waters in Latvia are concentrated in about 800 major water bodies (>10 ha each) that in total cover 91 500 ha, together with major rivers and reservoirs (FAO, 2005). The biggest lakes, where commercial fishing takes place, can be found in Latgale (in the Eastern part of the country) and Kurzeme (in the Western part of the country) (MoA, 2007).

Administration and legislation

Fisheries administration in Latvia is through the National Board of Fisheries, Ministry of Agriculture, which is responsible for overall management of the fisheries sector (FAO, 2005). The legal basis of freshwater fishery in Latvia includes the Fishery Law (1995) and the Regulations on Commercial Fishing in Inland Waters of the Republic of Latvia (1998) (Aps *et al.*, 2004).

In Latvia's national regulatory framework, inland waters are defined as "waters located in the land side from the coastal line of the Baltic Sea and the Gulf of Riga, including river entries into the sea, which are located in the land side beyond the line that connects the farthestmost points of hydro-technical or other port structures projected in the sea." Commercial fishing uses gear such as nets or trap nets and requires a special entrepreneur license. Self-subsistence fishing uses one gear at a time, and the catch can not be sold. Fishing permits total about 250. (Bucharest workshop, 2007)

Ownership and access

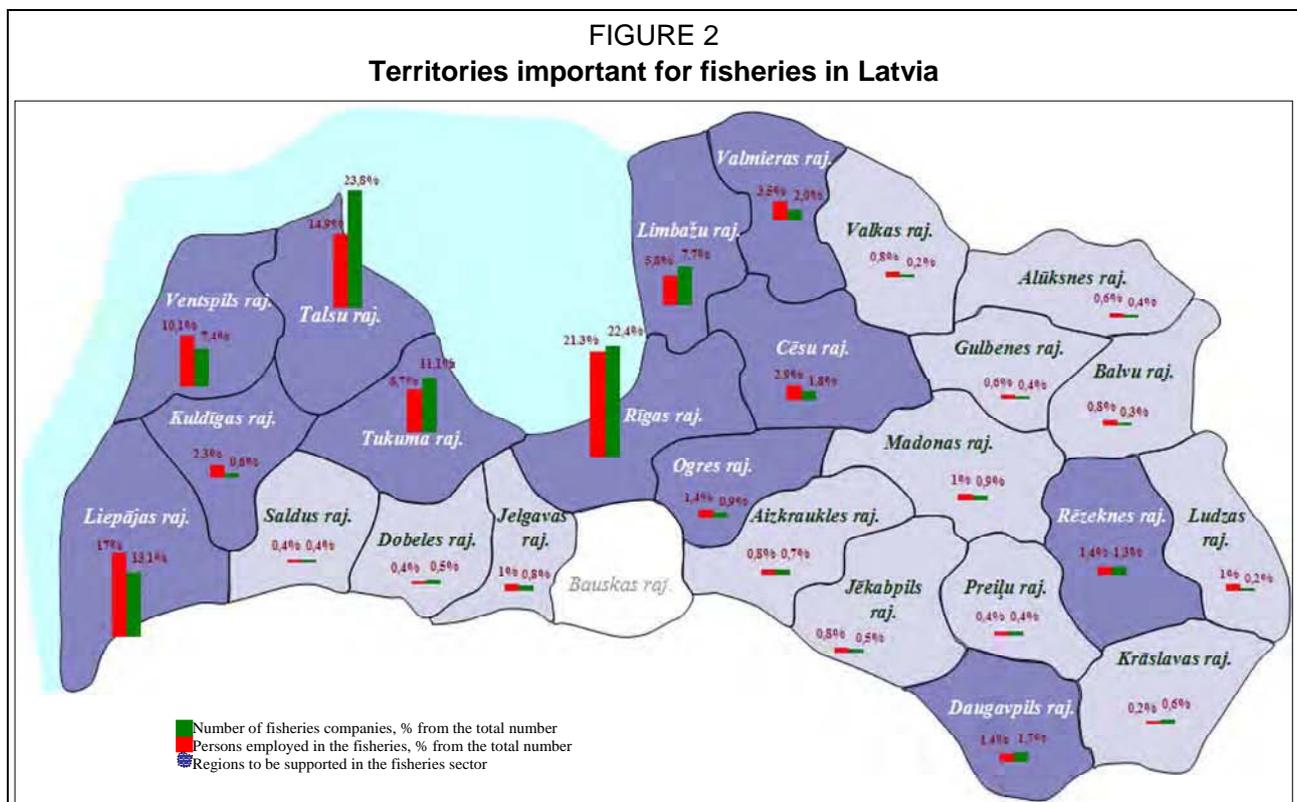
Latvia's Civil Law (1937, as amended) lists 39 rivers (or river sections) and 189 lakes (93 522 ha) as state-owned, with additional fishing rights belonging to the State for 210 private lakes (15 287 ha) (TTC, 2007). Fishing rights in public rivers belong to the adjacent land owner, except for 17 rivers (or river sections) in which the State has exclusive fishing rights (Riekstins, 1999). Reservoirs in Latvia are partly privatised, and the total area of public and state-owned reservoirs amounts to 8 600 ha (VZP, 2008). Therefore, lakes and reservoirs under state ownership (102 122 ha) account for 66% of total inland water surface area (155 000 ha), while lakes and reservoirs under state-owned fishing rights (117 409 ha) account for 76%.

Under the Fishing Law fish resources are state property, except if specially grown for restocking or marketing purposes in private aquaculture. Fishing permits are required with specification on gear type and number, and legislation includes the Regulations on Lease of Water Bodies and Commercial Fishing Rights and Order on Use of Fishing Rights (1996). (Riekstins, 1999)

Local municipalities are responsible for the management of fish resources and the leasing of fishing rights in inland waters (FAO, 2005). Commercial fishing in Latvia is allowed in the majority of inland watersheds (in approximately 300 lakes, 15 reservoirs and more than 20 rivers and their sections), but fishing of lampreys is only allowed in 16 rivers (MoA, 2007).

Employment

Commercial inland fishing in Latvia involves more than one third of those employed in the fisheries sector. 139 fishing boats are used in the inland fishing, 45% of which are equipped with engines, and fishermen use approximately 100 boat wharfs that are established in the largest water reservoirs available for commercial fishing. 6.6% of the 61 registered inland fishing companies are located in Latgale region (Rēzekne), and 4.1 % are located in Daugavpils (Figure 2). (MoA, 2007)



Source: MoA (2007).

The population of Latvia in 2003 was 2.3 million (FAO, 2005). In 2005 there were 61 companies and 1 262 employed persons fishing in inland waters in Latvia (Table 1) (MoA, 2006). Data from Eurostat (2008) and the Bucharest workshop (2007) also indicated that employment for

commercial inland fisheries in Latvia in 2005 totalled 1 262. However, Salz *et al.* (2006) reported that employment for inland fishing in Latvia in 2005 was only 705. According to Riekstins (1999) and Aps *et al.* (2004), approximately 2 500 people were involved in commercial inland fishery in Latvia, but Riekstins (1999) stated that most natural persons mainly fished for subsistence.

Catches and important species

In 2006 the commercial catch in Latvian inland waters (Table 1) was 328 tons, 8% less than the 2005 catch of 356 tons valued at LVL 408 600 (MoA, 2007; MoA, 2006). The main species concerned are lamprey, eel, pike and bream (Bucharest workshop, 2007).

TABLE 1

Employment and catches for commercial inland fishing in Latvia

Year	Number of professional fishers				Catch	
	Full-time	Part-time	Occasional	Total	(tonnes)	(value)
2000	62 ^a	92 ^a	3 293 ^a	3 447 ^a	-	-
2001	61 ^a	93 ^a	3 216 ^a	3 370 ^a	-	-
2002	65 ^a	101 ^a	3 167 ^a	3 333 ^a	-	-
2003	63 ^a	106 ^a	3 318 ^a	3 487 ^a	565 ^{a,b,c}	-
2004	54 ^a	91 ^a	1 456 ^a	1 601 ^a	360 ^{a,b,c}	-
2005	54 ^a	90 ^a	1 118 ^a	1 262 ^{a,b,d}	356 ^{a,b,c,d}	€ 581 400 ^d
2006	32 ^a	46 ^a	437 ^a	515 ^a	328 ^{a,c}	-

Sources: ^a Eurostat (2008); ^b MoA (2006); ^c MoA (2007); ^d Bucharest workshop (2007).

The commercial fish harvest from inland waters in Latvia was 500–600 t/year, with bream and lamprey the dominant commercial species. Commercial fishery is orientated to increasing the yield of pike, tench, pike perch, eel, crucian carp, trout and carp. However, more fish is obtained in inland waters by angling than by commercial fishery. Of the species caught in inland waters, mainly lamprey and eel are used in fish processing. (FAO, 2005)

Current status and future trends

Employment in commercial inland fisheries in Latvia has recently decreased, and profitability is weak due to low catch rate and low income (Bucharest workshop, 2007). According to Riekstins (1999), most of the fishing companies were unable to afford the high costs for leasing water bodies.

The age of fishing boats used for fishing in the inland waters is comparatively high, on average 17 years. Infrastructure (boat wharfs, fish landing facilities, etc.) for this type of fishing has not been developed sufficiently. The fishing process itself lacks modern technical equipment because the small amounts of catch and the small revenues, on average €455 yearly per person employed in the inland water fishing, hamper investments into development of the sector. The “Operational Programme for the Implementation of the European Fisheries Fund Support in Latvia for 2007-2013” includes a measure to develop fishing in inland waters and promote competitiveness by modernising the fishing infrastructure and devices, improving the product quality and reducing negative environmental impact. Support beneficiaries are national or municipal institutions and owners or tenants of the internal reservoirs. (MoA, 2007)

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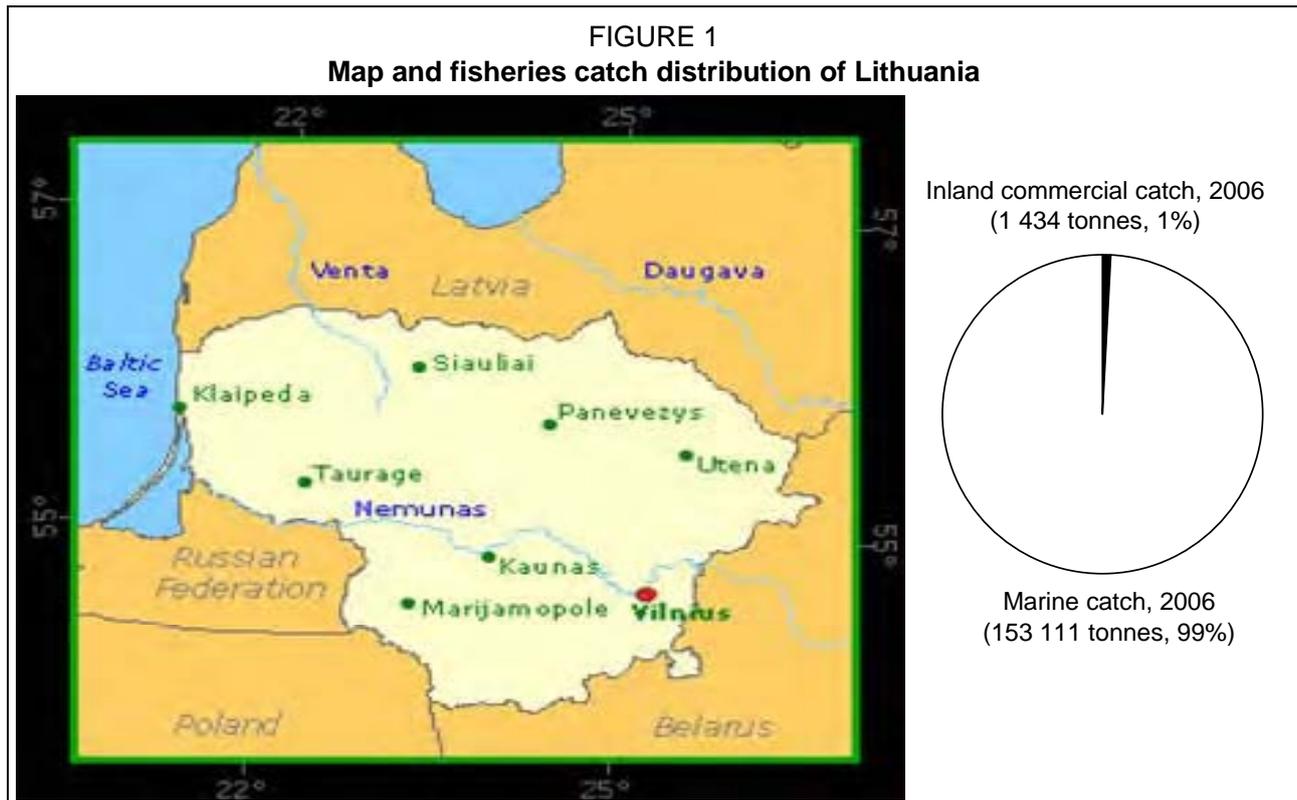
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LITHUANIA

Inland waters and commercial fishing areas

Lithuania (Figure 1) has an area of 65 303 km², with a coastline of 90 km and internal waters occupying 262 500 ha, or 4% of the national territory (FAO, 2005). Lithuania is rich in water bodies, with about 30 000 rivers, streamlets, brooks and canals (largest river is the Nemunas), 3 000 lakes, 650 reservoirs, and the Curonian Lagoon (largest fresh water body) (Aps *et al.*, 2004).

Water bodies with significant economic fisheries consist of the Lithuanian part of the Curonian Lagoon (41 300 ha out of the total area of 161 000 ha), 2 827 lakes over 0.5 ha (87 359 ha total), 1 589 ponds over 0.5 ha (24 434 ha total), and 733 rivers over 10 km (32 601 ha total) (FAO, 2005).



Sources: map: Global Forest Resources Assessment 2000, base map: ESRI; catch data: Bucharest workshop (2007) & Eurostat (2008).

Administration and legislation

The Ministry of Environment regulates the management and conservation of fish resources in Lithuania's inland waters. Lithuania's Law on Fisheries (2000) contains the main principles of fishing management in inland waters. (FAO, 2005)

Lithuania's Law on Water (1999) defines internal waters as "all of the surface and ground bodies of water located on the land territory of the Republic of Lithuania." There is no legal definition of commercial fisheries for inland waters, only a general conception of commercial fisheries (Commercial fishery is fishing activity with determined fishing gears (The Law on Fisheries, 2000)) (Dambrauskis, 2009).

Ownership and access

In Lithuania there is mostly state/public ownership of inland waters (Dambrauskis, 2009). Lithuania's Law on Water (1999) specifies surface water resources forming part of the public domain of the State as: the Curonian Lagoon; rivers of permanent flow which have a basin of at least 25 km²; lakes linked by public rivers; potentially dangerous reservoirs larger than 5 ha; non-private water bodies; and internal water bodies of national importance. The Law also states that lakes and reservoirs may be privatised or returned to several owners depending on ownership rights.

The Law on Fisheries (2000) states that “Lithuania’s fisheries shall be state-owned and private.” It also states that “the right to engage in commercial fishing shall be granted by issuing fishing permits or by contracts of leasing of internal water bodies for commercial fishing.”

Employment

The population of Lithuania in 2003 was 3.46 million, and internal water fisheries provides employment for about 1 500 people, with around 75 companies fishing the Curonian Lagoon (FAO, 2005). According to information from the Bucharest workshop (2007), employment in commercial inland fisheries in Lithuania (Table 1) was 300, operating with 200 professional vessels consisting of small boats (5-12 m) (Dambrauskis, 2009), vessels without engines (>12 m), and vessels with engines (>12 m).

Catches and important species

In 2006 the commercial inland catch in Lithuania was 1 434 tons (Table 1). The value of this catch was €5 191 300 (Table 1). (Bucharest workshop, 2007)

In 2003 the total inland water catch in Lithuania was 1 959 t. The Curonian Lagoon accounts for about 80 % of all fish caught in Lithuanian internal waters, and its commercial fish production approaches 1 300 t/yr (a productivity of over 30 kg/ha), with an annual harvest of about 450–500 t of roach, 350–400 t of bream, 70–90 t of pikeperch, 8–10 t of eel, and some smelts and perch. Of the 2 827 lakes covering 1.5 % of the country, 2 675 (87 400 ha total) support commercial fishery of roach, bream, perch and cisco. The 1 589 ponds yield 100–150 t/yr of fish, mainly roach, bream and white (silver) bream. Yields from rivers are estimated at 150–170 t/yr. (FAO, 2005)

TABLE 1

Employment and catches for commercial inland fishing in Lithuania

Year	Number of professional fishers			Catch	
	Full-time	Part-time	Total	(tonnes)	(value)
2001	-	-	210 ^a	-	-
2006	-	-	300 ^b	1 434 ^b	€5 191 300 ^b

Sources: ^a Eurostat (2008); ^b Bucharest workshop (2007).

Current status and future trends

Although catches from internal waters comprise less than 1% of all fish caught by Lithuanian fishermen, commercial inland fisheries are important to the local economy and significant to social and recreational interests. Inland fishery provides some employment and income and is important for the development of the increasing rural tourism. Most of the hydrologic basins have sufficient ecological conditions for the development of fisheries. However, the commercial river fisheries have little direct impact on the economy because of trade seasonality and lack of fishing effort, but the river network is very important for maintaining fish stocks and is a source of recreational fishery. For the Curonian Lagoon fisheries, some ports were in need of considerable renovation or rebuilding. (FAO, 2005)

Income for commercial inland fishers in Lithuania is usually very low (< 8 700 euros/year). Fish are sold mostly within the internal market. (Bucharest workshop, 2007)

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Employment

The population of Luxembourg in 2008 was estimated to be 483 800 (STATEC, 2008). Luxembourg has no professional inland fisheries (LEI, 1999).

Catches and important species

Luxembourg has no professional inland fisheries (LEI, 1999).

Current status and future trends

According to Dill (1990), in Luxembourg “the relative absence of static water (no large lakes and no major possibilities for more large reservoirs) precludes the establishment of either commercial fisheries or great increase in recreational fisheries.”

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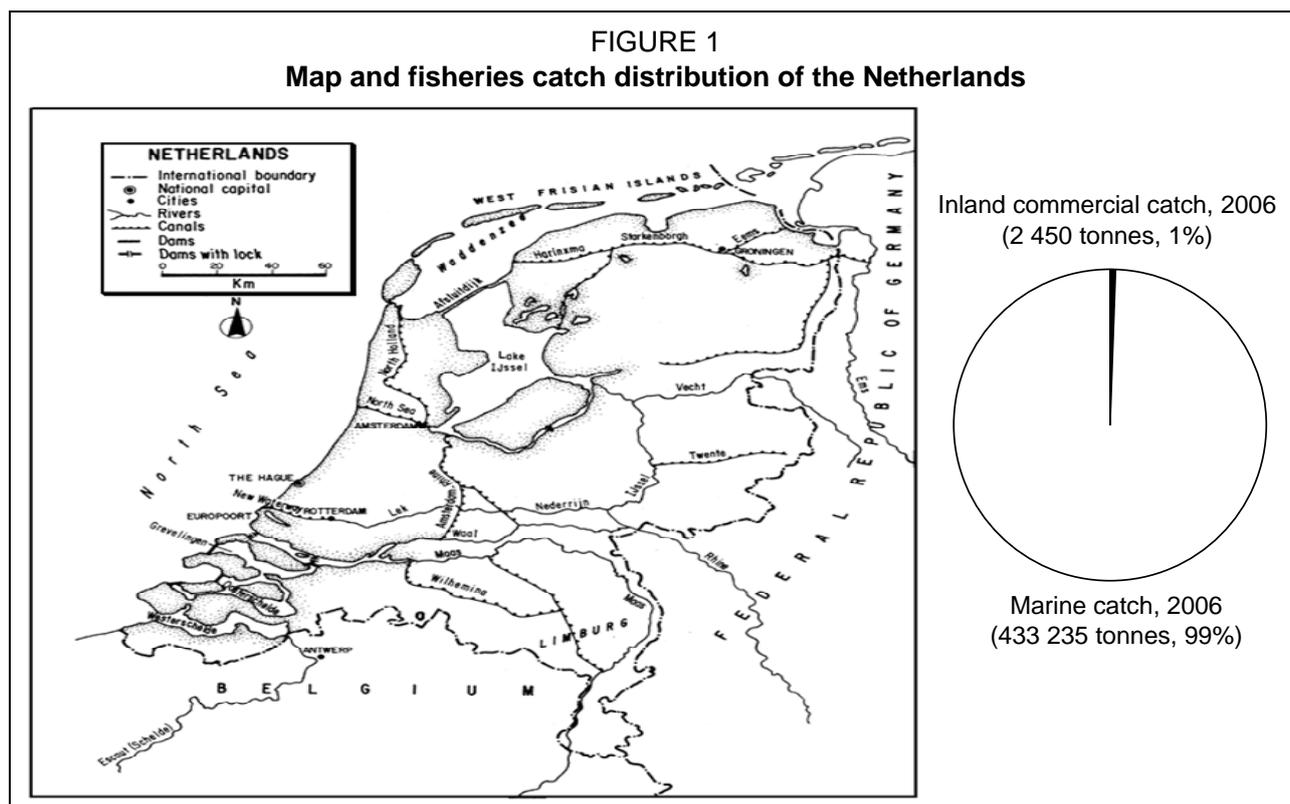
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NETHERLANDS

Inland waters and commercial fishing areas

The Netherlands (Figure 1) has an area of 41 543 km², with sea accounting for 4 185 km² (10%) and inland waters occupying 3 574 km² (9%) (Statistics Netherlands, 2006). The area of inland waters includes Lake IJssel (2 000 km²) and its marginal lakes (145 km²), delta lakes (230 km²), polder reservoirs (790 km²) and rivers (212 km²) (Dill, 1990).

The most important water body for commercial inland fishing is Lake IJssel. Other important areas include lakes Veerse, Grevelingen, Lauwer and parts of rivers in the south. (FAO, 2005)



Sources: map: Dill (1990); catch data: Bucharest workshop (2007) and Eurostat (2008).

Administration and legislation

The Ministry of Agriculture, Nature and Food Quality has overall responsibility for the development and management of the fisheries sector in the Netherlands, and the Fisheries Directorate is responsible for policy issues (FAO, 2005). The Fisheries Act (1963, as amended) is the basic legislation for regulating inland fisheries in the Netherlands, including fishing methods and fish sizes. There is no specific definition for inland fisheries in the Netherlands' national regulatory framework (Bucharest workshop, 2007).

Ownership and access

Ownership of inland waters in the Netherlands may be state, provincial, local, or private (Dill, 1990). Public waterways are defined as waters regularly used for commercial traffic (Pawson *et al.*, 2006).

Fishing rights in the Netherlands are typically associated with land ownership, and a fishing permit is generally required from the owner or leaseholder of the fishing rights. The use of certain 'professional' fishing gear requires a Comprehensive Fishing Licence (Grote Visakte), as well as written permission from the owner of the fishing right. Furthermore, since May 2007 fishermen are only allowed to use professional fishing gear if the fisherman has fishing rights on at least 250 acres of fishing water and generates a minimum of €8 500 from the fishing-activities on these waters.

Commercial fishers are subject to management measures under the Fisheries Act that include closed seasons, protected fish species and size restrictions. (Pawson *et al.*, 2006; van den Berg, 2009)

Inland fishery in the Netherlands is subject to licensing and regulations for the use of fishing gear and for some waters the amount of gear that can be used (Lake IJssel). In Lake IJssel there is an obligatory system of co-management, which means that all fishermen on Lake IJssel have to make one common fish plan on how to conduct the fishing in that water. This plan has to be approved by the Ministry of Agriculture, Nature and Food Quality. In the other water bodies and river systems a voluntary system of co-management exists. Fishing rights and licenses have been divided as a result of the competition between professional and sport fishers, except in the case of Lake IJssel where professional fishers have priority. (FAO, 2005; van den Berg, 2009)

Employment

The population of the Netherlands in 2003 was about 16 million (FAO, 2005). According to information from the Bucharest workshop (2007), employment for commercial inland fisheries in the Netherlands (Table 1) was approximately 450, operating with 220 fishing permits that included about 60 professional vessels consisting of small boats having no active fishing gears.

There are about 80 cutters (10-20 m in length) operating in Lake IJssel. The vessels are equipped with hoop nets to fish for eel and are used in early spring to fish for smelt. Boxes and long lines are also used to fish for eel, and drift nets are used to fish for perch and pike-perch. (Productschap Vis, 2008)

On the other inland waters professional fishing is conducted with small boats. Fishing gear consists mainly of fyke-nets and for some waters seine-nets. (van den Berg, 2009)

Catches and important species

Information from the Bucharest workshop (2007) indicated that the commercial inland catch in the Netherlands is about 2 450 tons (Table 1), with a total production value of around €15 million, mainly coming from eel fishery. According to FAO (2005), in 2002 the Lake IJssel fishery yielded about 2 100 tons valued at US\$8 million, with eel and pikeperch as the most valuable species. In the other inland waters professional fishing is mainly concentrated on eel, generating a value of approximately €7 million (van den Berg, 2009).

TABLE 1

Employment and catches for commercial inland fishing in the Netherlands

Year	Number of professional fishers			Catch	
	Full-time	Part-time	Total	(tonnes)	value
1997	385 ^a	145 ^a	530 ^a	3 500 ^a	NLG 20 000 000 ^a
2003	-	-	475 ^b	-	-
2006	-	-	450 ^c	2 450 ^c	€ 15 000 000 ^c

Sources: ^a Davidse *et al.* (1999); ^b Salz *et al.* (2006); ^c Bucharest workshop (2007).

Current status and future trends

Currently in the Netherlands there are decreasing populations of eel, which is the most important product in the professional inland fishery. Therefore a decline of catches and yields over the coming years is expected. However, in the longer term fishing methods and treatment of the catch can be improved, and fish stocks should also benefit from environmental policies to improve water quality. (FAO, 2005; van den Berg, 2009)

The establishment of Management Committees for co-management promotes the participation of professional and sports fishers in managing resources, nature and water quality, while encouraging co-operation to improve resource management and reduce poaching (FAO, 2005). However, the overall volume of commercial inland fishery in the Netherlands is gradually decreasing, consisting of a small number of full-time enterprises, whilst for an increasing number of

companies fishing becomes more of a part-time activity (Bucharest workshop, 2007; van den Berg, 2009).

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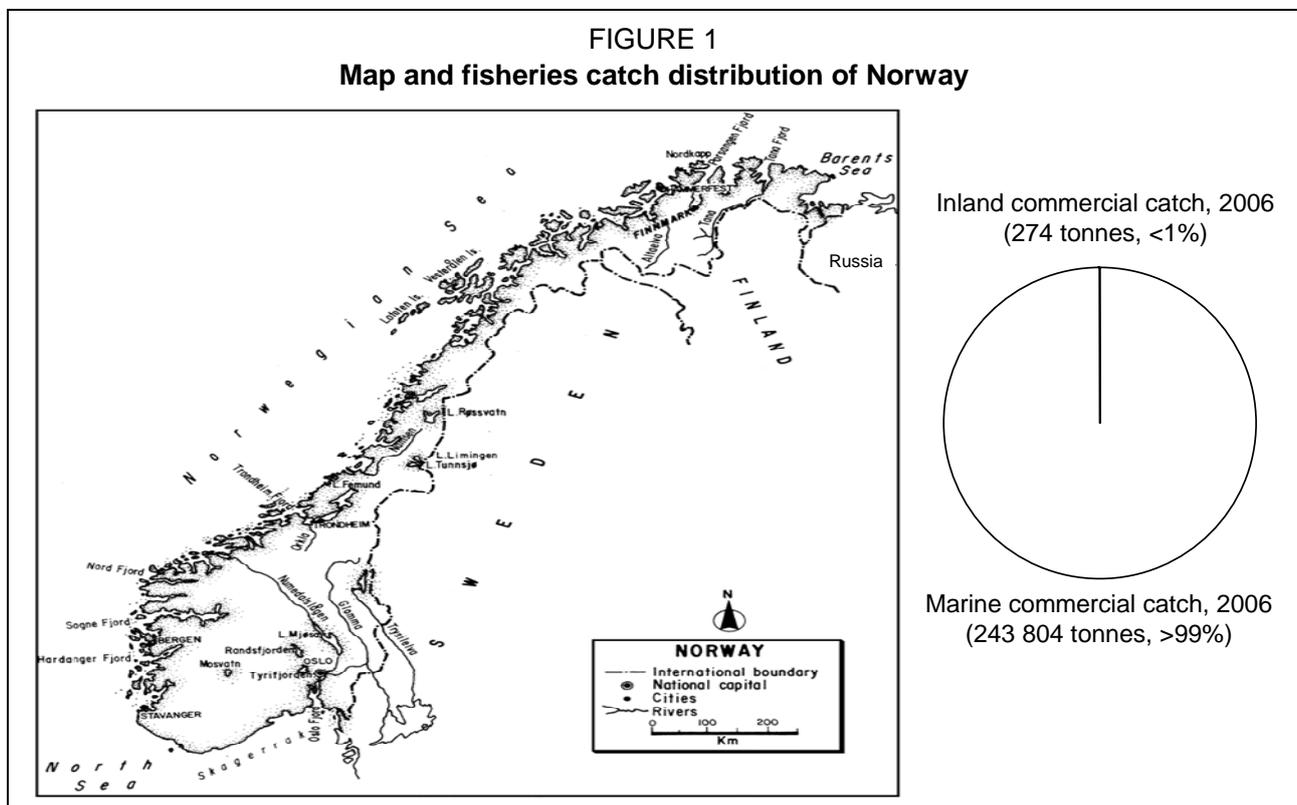
NORWAY

Inland waters and commercial fishing areas

Norway (Figure 1) has a total area of 323 760 km², with inland water bodies occupying 17 510 km² (FAO, 2006).

There are about 300 000 natural lakes and tarns (16 390 km²) and about 1 000 main rivers, typically with small catchments. The larger rivers are found in the south east; Glomma with a length of 598 km drains south into the Oslo Fjord and the Skagerrak. Numedalslågen also drains in Skagerrak and has a total length of 337 km. Trysilelva (652 km) runs for 132 km in Norway before entering Sweden (where it is known as Klarälven). The Tana River (360 km) drains to the Tana Fjord and Barents Sea, and shares borders with Finland (where it is known as Tenojoki). Norwegian lakes are small, elongated, deep and rather species poor coldwater lakes. The three largest lakes are Lakes Mjøsa (368 km²), Femund (210 km²) and Rossvatn (201 km²). (Dill, 1990)

Commercial inland fishery in Norway is negligible, with most inland fishing being recreational (FAO, 2005). Commercial inland fisheries are typically operated on a small scale basis (MAF, 2006).



Sources: map: modified from Dill (1990); catch data: Ranheim-Rolfstad (2007b) and Statistics Norway.

Administration and legislation

The Directorate for Nature Management (DN), under the Ministry of the Environment, is the responsible national authority for management and regulation of inland fish resources. Legislation distinguishes management of anadromous fish and that of inland fishes. Within the DN, the subgroup for fish and freshwater is responsible for the management (through provision of the Act relating to Salmonid and Inland Fish, 1992), fishing regulations and monitoring of fish resources. In each of the 20 different counties (*fylken*), regional management divisions with an appointed regional manager (*fylkesman*) deal with issues concerning the regional fisheries activities. (DN, 2007)

Ownership and access

Fishing rights are based either on private, state, regional and/or municipal ownership. Most of the inland waters are private and fishing rights belong to the landowner (commonly landowner associations). In the three northernmost counties (Nordland, Troms and Finnmark), the land and consequently inland waters are state-owned. (Dill, 1990; Ranheim-Rolfstad, 2007a)

Employment

The population of Norway in 2004 was 4 582 000 (FAO, 2006). There are about 10 private inland fisheries enterprises comprising of 30-50 active commercial fishers (Table 1) with significant commercial importance (MAF, 2006).

Catches and important species

In 2006 the total commercial inland catch in Norway was 274 tonnes, valued at €1 138 000 (Table 1). Arctic char, brown trout and whitefish were the most important species in terms of catch volume. However, the highest values of catches were attributed to whitefish, brown trout and European eel. Such species as species perch, pike and vendace, were less important economically. (Ranheim-Rolfstad, 2007b)

TABLE 1

Employment and catches for commercial inland fishing in Norway

Year	Number of professional fishers			Catch	
	Full-time	Part-time	Total	(tonnes)	(value)
2001	-	-	-	176	€ 878 000
2004	-	-	-	210	€ 996 000
2005	-	-	30-50	175	€ 742 000
2006	-	-	-	274	€ 1 138 000

Note: Catch value converted from Norwegian Kroner according to interbank currency rate in the year of reported catch (FXConverter).

Sources: data: MAF (2006) and Ranheim-Rolfstad (2007b).

Current status and future trends

Commercial inland catch statistics have since the mid 1990s been annually reported by Norsk Innlandsfiskelag based on information from organisation members (Ranheim-Rolfstad, 2007a). Although the statistical reliability of the data can be questioned (MAF, 2006), it provides an indicative picture of the size, profitability and resources of majority of commercial inland fishers. Presently national efforts are taken to develop the sector as a whole. The government has initiated an action plan for the inland fisheries to boost the apparent values of fresh water fish resources, while public demands are increasing for locally produced high quality fish products (Jensen & Grondahl, 2003).

Increasing efforts to promote a sustainable inland commercial fishery is considered to improve possibilities to further develop fishing tourism and recreational fisheries. Although Norway is not an EU country, the recent (2006) incorporation of the Water Framework Directive in its water policies is intended to improve environmental health of the inland waters and to provide a more coordinated approach to monitoring procedures. The commercial inland fisheries have the potential to increase catches from an average 200 to 500 tonnes annually, and promotion of employment and financial stability. However, flexible management and organisational structures must be strengthened and better knowledge of the distribution and status of inland fish resources is required to secure the long term sustainable exploitation of the fish resources, in accordance with current and future market demands. (MAF, 2006)

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POLAND

Inland waters and commercial fishing areas

Poland (Figure 1) has a total surface area of 312 700 km², with a coastline of 528 km. Inland waters (natural and artificial, excluding ponds) occupy around 6 000 km², including about 3 000 km² of lakes, 1 390 km² of rivers and streams, 550 km² of reservoirs (> 20 ha) and 400 km² of overflow land and old river beds. There are 7 085 natural lakes larger than 1 ha (totalling 2 810 km²) and 140 larger reservoirs, with most of the dam reservoirs located in southern Poland. Most rivers belong to the Baltic Sea catchments, with 89.9% belonging to the Vistula and Odra river basins and 9.8% flowing through the Pomorskie and Mazurskie lake districts. (MARD, 2008)

Estuaries in Poland cover 785 km² (Wołos, 2007). Approximately 6 000 km² of rivers, lakes and freshwater reservoirs in Poland are used for capture and recreational inland fishery (FAO, 2007).

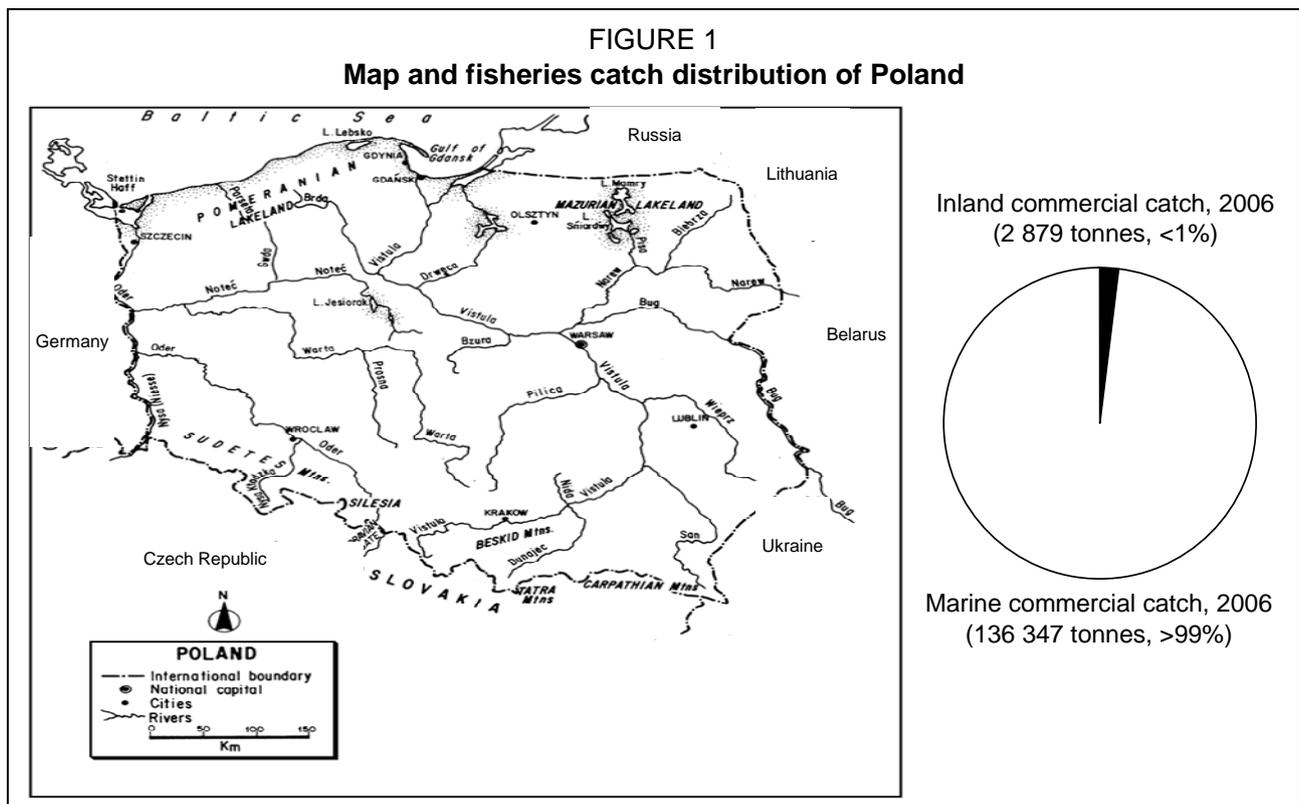


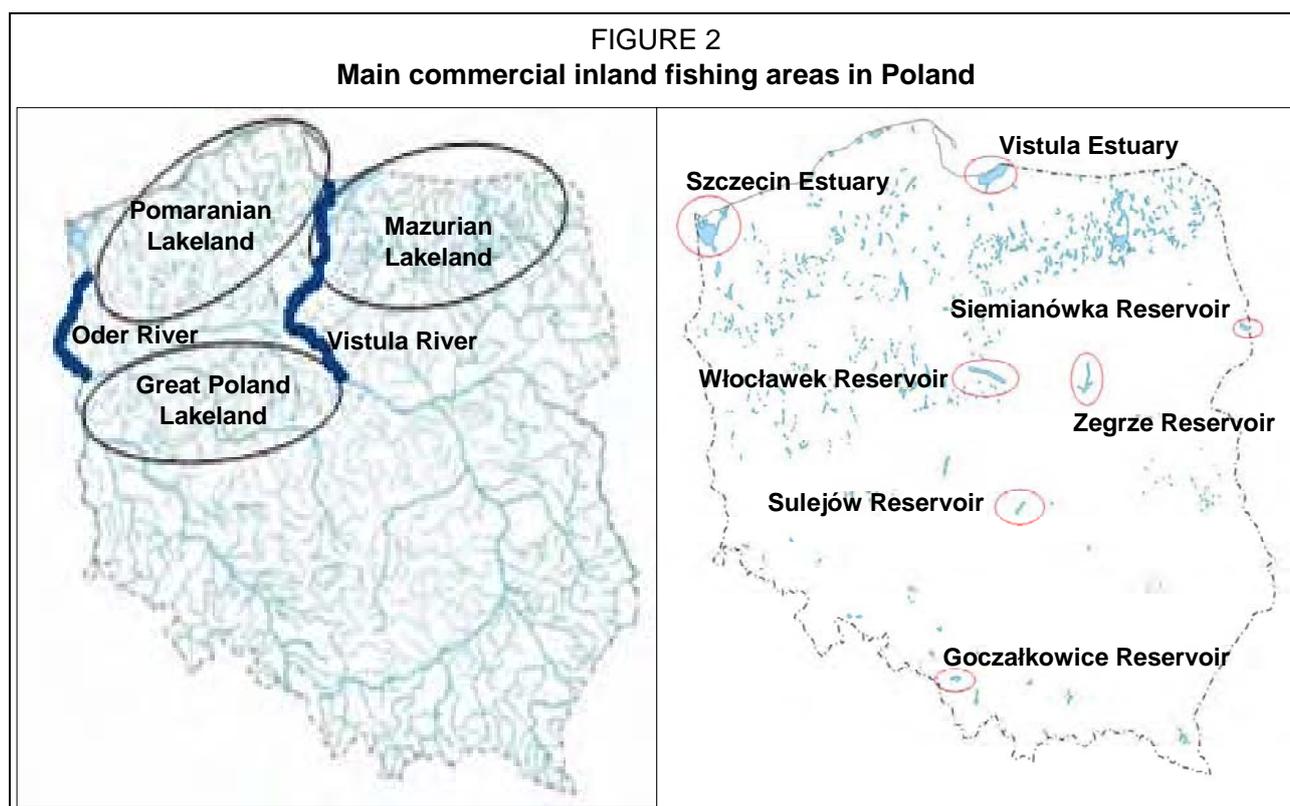
Figure 2 shows the main locations of commercial inland fisheries in Polish lakes, rivers, estuaries and reservoirs. The most important commercial lake fisheries are in the Mazurian Lakeland (largest lakes: Sniardwy, Mamry, Jeziorak, Niegovin and Wigry), Pomaranian Lakeland (largest lakes: Drawsko, Miedwie, Wdzydze, Lubie and Charzykowy) and Great Poland Lakeland (lakes: Gopło, Sławskie, Głuszyńskie, Pkoskie, Zbąszyńskie and Niesłysz). The most important commercial river fisheries are in the lower reaches of the Oder River and Vistula River, as well as in the Vistula Estuary and Szczecin Estuary. There are also active commercial fisheries in the Włocławek Dam Reservoir, Zegrze Dam Reservoir, Goczałkowice Dam Reservoir, Sulejów Dam Reservoir and Siemianówka Dam Reservoir. (Wołos, 2007)

Administration and legislation

Fisheries in Poland are the responsibility of the Ministry of Agriculture and Rural Development (MARD). The Department of Fisheries is responsible for the development of marine fisheries, inland fisheries, aquaculture, and marketing. The Department of Fisheries is also responsible e.g. for co-operation with central administration and regional and local government, social and

vocational associations for marine fishermen, fish processors, inland fishermen and fish farmers. The Inland Fisheries Act (1985) determines conditions for fish farming, breeding and exploitation. There is no legal definition for inland fisheries in Poland's national regulatory framework (Bucharest workshop, 2007). Traditionally, inland fishery in Poland consists of both aquaculture and freshwater capture fisheries (commercial and recreational fishing) (FAO, 2007).

In 2001 a new Polish Water Law replaced the old Water Law from 1974. According to the new Polish Water Law (2001), former state-owned waters are now called public waters. Fishing in public waters is controlled by the Regional Fishery Inspectors and Fishery Guards, supervised by the regional authorities. Since 2006, management of inland waters in a given region is controlled by the Regional Authority of Water Management, which is also responsible for leasing water bodies to fishery users. (Turkowski, 2009)



Source: Wołos (2007).

Ownership and access

The Water Law (2001 and subsequent up-dating) states that all open waters are public waters and belong to the state, except waters locked within private land. Most inland water surfaces (excluding ponds) are publicly owned (MARD, 2008). All rivers, reservoirs and estuaries are under public ownership, and only about 10 km² of lakes are under private ownership (Wołos, 2007).

Changes of the Polish political system in the early 1990s resulted in reorganisation of legislative and administrative systems of inland fisheries. Prior to these, anglers associations held fishing rights to most rivers and reservoirs, while commercial fishery enterprises and fish farms managed lakes and ponds (Turkowski, 2009).

The majority of inland waters are now in fisheries use by private enterprises or individual fishers, and about 80% of the lake area is now exploited commercially (Turkowski, 2009; Bninska & Wołos, 2001; Szczerbowski, 1999). The permit for the fisheries use of waters is issued to one user only for one fishery district (Turkowski *et al.*, 2008). According to information from the Bucharest workshop (2007), there are 2 370 delimited inland fisheries areas allocated to 250 owner/lesser entities, who are allowed to exploit and use the fisheries areas as they want (i.e. for breeding fish, catching fish, selling fishing permits to anglers, etc.). The availability of inland water

areas to commercial fishing (Figure 3) is as follows: 2 700 km² of lakes (87%), 220 km² of reservoirs (40%) and 785 km² of estuaries (100%) (Wołos, 2007).

Employment

The population of Poland in 2005 was 38 174 000, and employment from the inland fishing sector is around 1 650 (MARD, 2008). According to information from the Bucharest workshop (2007), the employment in inland commercial fisheries in Poland is comprised of 250 entities with 3 000 employees, including 1 350 fishers (Table 1) operating with hundreds of rowing boats and about 20 motor boats. In 2003 the employment in inland fishing was reported to be 2 000 (Salz *et al.*, 2006).

Catches and important species

The commercial inland catch in Poland decreased from around 3 500 tons in 2005 to 2 870 tons in 2006 (MARD, 2008; Bucharest workshop, 2007). In 2005 professional catches from lakes accounted for about 5% (3 000 t) of the total production of freshwater species from inland fisheries in Poland (55 000 t), including aquaculture (36 000 t) and recreational fishing (16 000 t) (FAO, 2007). In 1995-1996 the commercial inland catch was 7 000 tonnes from lakes and 1 000 tonnes from rivers and reservoirs (Szczerbowski, 1999). Valuable species produced in inland waters include vimba, salmon, sea trout, vendace, whitefish and eel (MARD, 2008).

TABLE 1

Employment and catches for commercial inland fishing in Poland

Year	Number of professional fishers			Catch (tonnes)
	Full-time	Part-time	Total	
1995	-	-	-	8 000 ^a
2003	-	-	2 000 ^b	-
2005	-	-	-	3 500 ^c
2006	-	-	1 350 ^d	2 870 ^{c,d}

Sources: ^a Szczerbowski (1999); ^b Salz *et al.* (2006); ^c MARD (2008); ^d Bucharest workshop (2007).

Aquaculture is part of the inland fisheries sector and consists exclusively of the rearing and culture of freshwater fish, primarily carp (300 farms) and trout (160 farms). Until the mid 1980s, commercial lake and river fisheries made the largest contribution to the production of freshwater fish, whereas from the early 1990s freshwater production came to be dominated by fish originating from aquaculture. In the period 2000–2003 more than 67% of inland fisheries production came from aquaculture (mainly carp and trout), whereas only 6% came from commercial lake and river fisheries. Total inland fisheries production in 2003 was estimated to be approximately 54 400 tonnes. More than 90% of the fish produced by aquaculture and caught by commercial lake fishermen is sold. Important target species are whitefish, vendace, perch, pike-perch pike and eel. Many cyprinids, considered as coarse or low value fish in many other countries, are utilised and relatively appreciated food fish. (MARD, 2005)

Current status and future trends

Commercial inland fishing activity in Poland is very important for rural development and provides both direct and indirect employment (Bucharest workshop, 2007). A major source of employment in the inland fisheries sector comes from anglers associations, which have a large technical potential (MARD, 2008). In spite of the good cooperation between commercial and recreational fishers in Poland (Szczerbowski, 1999), existing cooperative structures need to be strengthened to improve fisheries management (Bninska & Wołos, 2001).

Present private and co-operative lake fishery enterprises are operating in an altered operational environment compared to that of former state enterprises: they must now be economically effective to survive, and they are legally obliged to manage the lakes and the fish stocks to ensure that these stocks and the quality of aquatic environment are maintained or improved. Eel fisheries, which used

to be the basic source of income for inland fishers, are declining. The costs of fishery management are increasing, while the value and profitability of commercial catch is declining due to the increasing proportion of less valuable species. Also poor water quality and lack of fish passages hampers efforts to develop sustainable inland commercial fisheries. Although commercial inland fishery has potential for growth and development, it has a declining trend as further decreases in commercial inland catches were expected in 2007 and 2008. (Szczerbowski, 1999; Bninska & Wołos, 2001; MARD, 2008)

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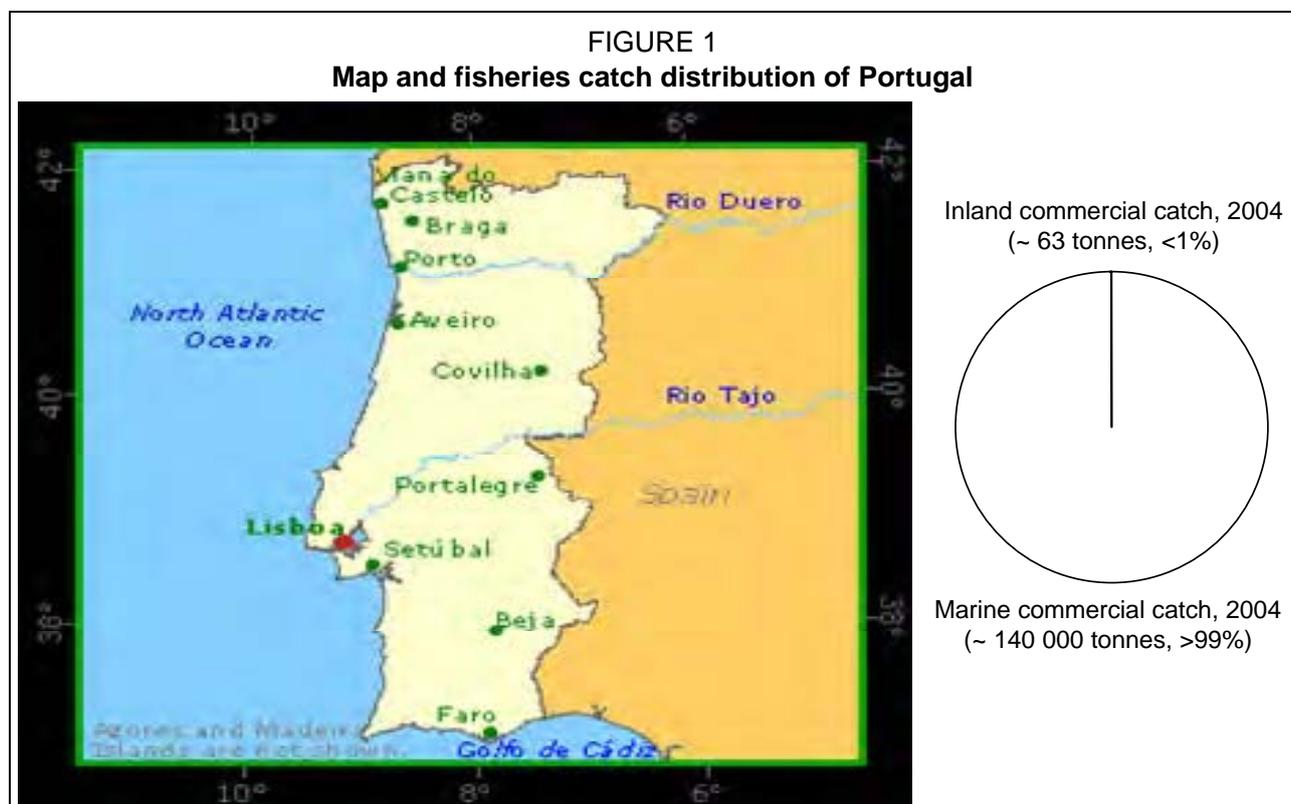
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PORTUGAL

Inland waters and commercial fishing areas

Portugal (Figure 1) has a total area of 91 152 km², with a coastline of 942 km (FAO, 2005). Inland water bodies occupy about 48 000 ha (FAO, 2006). Portugal has no lakes, but professional river and estuary fishing areas (Figure 2) are located in the Rivers Lima (1), Cávado (2), Vouga (3), Mondego (4) and Tejo (5) (Bochechas, 2007).



Sources: map: FAO Global Forest Resources Assessment 2000, base map: ESRI; catch data: FAO (2005).

Administration and legislation

The National Forestry Authority (AFN), under the Ministry of Agriculture, Rural Development and Fisheries, is responsible for inland fisheries in Portugal. In Portugal's national regulatory framework, inland fisheries are defined as "recreational or professional fishing exercised in water not submitted to the maritime jurisdiction" and are regulated by the Law n° 2097 from 6th June 1959, Decree-Law n° 44623, 10th October 1962 and a number of regulations concerning specific matters and regions. (Bucharest workshop, 2007; Bochechas, 2009)

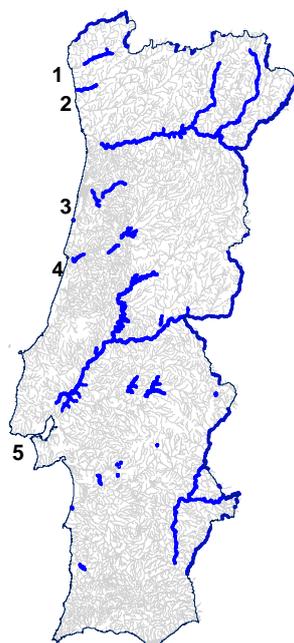
Ownership and access

Under the Portuguese Constitution, "lakes, lagoons and navigable or floatable watercourses with their respective beds are part of the public domain of the State" (Water Law and Standards, 2008). The proportion of total inland water area in Portugal (99.9% state-owned) available for professional fishing is as follows: 5% of rivers, 5% of reservoirs and 100% of estuaries (Bochechas, 2007).

Employment

The population of Portugal in 2004 was 10.4 million (FAO, 2005). In 2006 the number of professional inland fishers in Portugal was 1 028 (Table 1), based on the issued permits by AFN (Bochechas, 2009). According to information from the Bucharest workshop (2007), the number of fishing permits for commercial inland fisheries in Portugal was 832, but vessels are not registered.

FIGURE 2
Professional inland fisheries in Portugal: places where it is allowed



Source: Bochechas (2007).

Catches and important species

In Portugal there are no official data on catches from inland waters under the jurisdiction of AFN because there is no obligation for declaration by the fishermen. Therefore, any available commercial inland catch data are very rough “estimates.” (Bochechas, 2009)

In 2004 the estimated catch landed by inland fisheries in Portugal was 63 tonnes, valued at US\$ 642 000 (Table 1). The main species comprising the catch consisted of 49% shad (*Alosa* sp.), 29% lamprey (*Lampetra fluviatilis*) and 16% eels. (FAO, 2005)

TABLE 1

Employment and catches for commercial inland fishing in Portugal

Year	Number of professional fishers/permits			Catch	
	Full-time	Part-time	Total	(tonnes)	(value)
1995	-	-	1 974 ^a		
1996	-	-	1 939 ^b	~ 1 022 ^b	€ 2 400 000 ^b
2000	-	-	1 210 ^a		
2004	-	-	973 ^a	~ 63 ^c	US\$ 642 000 ^c
2006	-	-	1 028 ^a	-	-

Sources: ^a Bochechas (2009); ^b Megapesca Lda (1999); ^c FAO (2005).

Current status and future

Inland fisheries management in Portugal prohibits the use of purse-seine nets, bottom trawl, gill nets (except when targeting lamprey) and gear that uses tidal movements. Fishing areas and gear characteristics (e.g. mesh/gear size) are also restricted. (FAO, 2005)

References specific to Portugal

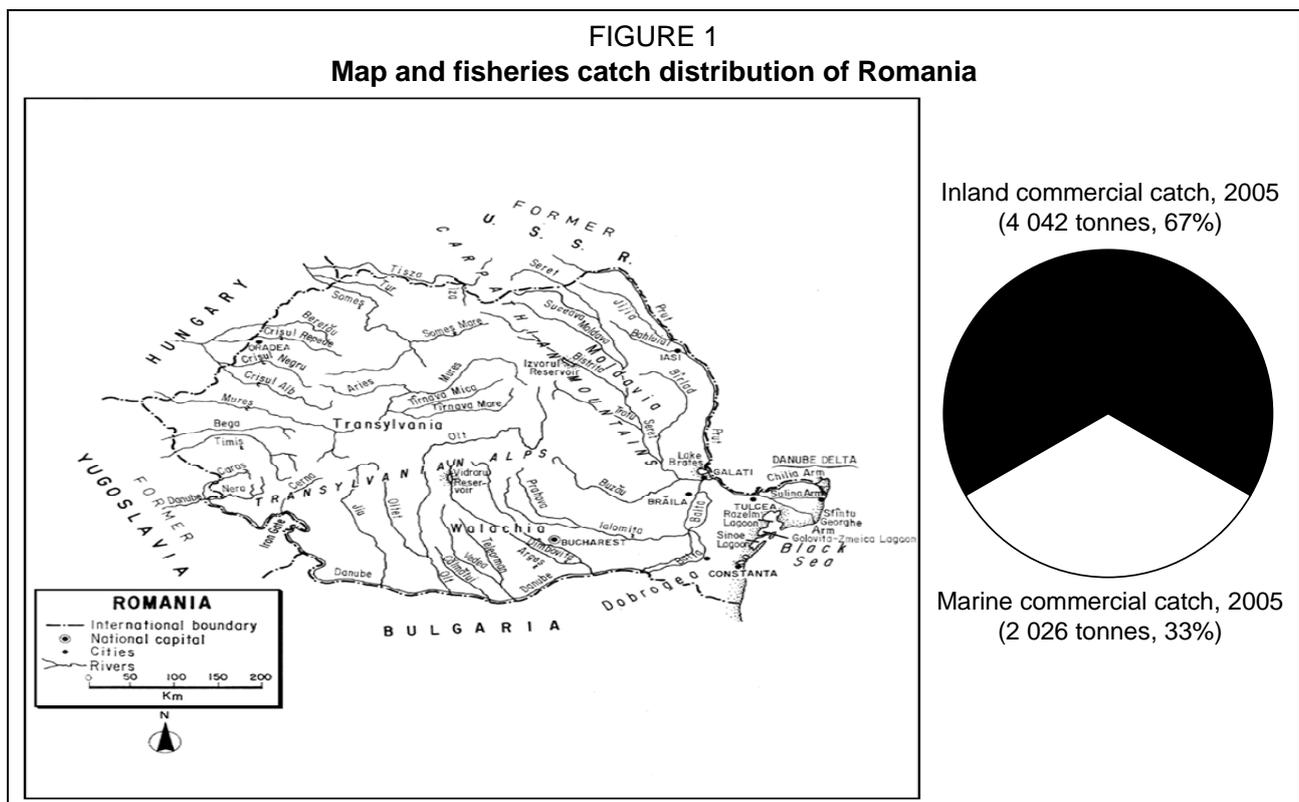
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ROMANIA

Inland waters and commercial fishing areas

Romania (Figure 1) has an area of 238 391 km², with a coastline along the Black Sea of around 250 km. Inland waters cover about 843 710 ha, or approximately 3% of the total surface area. There are 400 000 ha of natural lakes, ponds and man-made reservoirs, including the Danube Delta. The total length of Romania's important rivers is 22 569 km, including 1 075 km in the lower Danube. Although in Romania there are around 3 500 lakes, the majority of them are small, i.e. less than 1% larger than 1 km². The most important are lakes generated by the former lagoons of the Black Sea (Razim, 425 km²; Sinoe, 171 km²) and the lakes formed along the Danube River (Oltina, 22 km²; Brates, 21 km²), to which must be added the reservoirs created by the Iran Gates Dams. (MAFRD, 2007a)



Sources: map: Dill (1993); catch data: MAFRD (2007b).

Romania's main fishery production component is aquaculture, followed by inland fisheries, which are more important than fishery activities along the coastline of the Black Sea. Capture fisheries are carried out in lakes (100 000 ha), the delta arms (11 500 ha) and rivers (channels and canals, 3 400 km), as well as in flooded reed beds (162 000 ha) and in 121 000 ha of the coast of the Black Sea (Figure 2). Commercial inland fisheries are mainly based in the Danube delta area, where the fisheries exploit a variety of habitats distributed over 580 000 ha of wetland. Three types of commercial fisheries have developed in the Danube Delta: freshwater, migratory and coastal-marine fisheries (including aquaculture), as well as recreational fishing activities. Other commercial inland fishing areas are the Danube River and the Razim-Sinoie lake complex. (MAFRD, 2007a; Aps *et al.*, 2004; Navodaru *et al.*, 2001)

Administration and legislation

Fisheries policy in Romania is the overall responsibility of the National Agency for Fishing and Aquaculture (NAFA) under the Ministry of Agriculture, Forests and Rural Development (MAFRD). NAFA delegates parts of its fisheries management duties to the Administration of Danube Delta

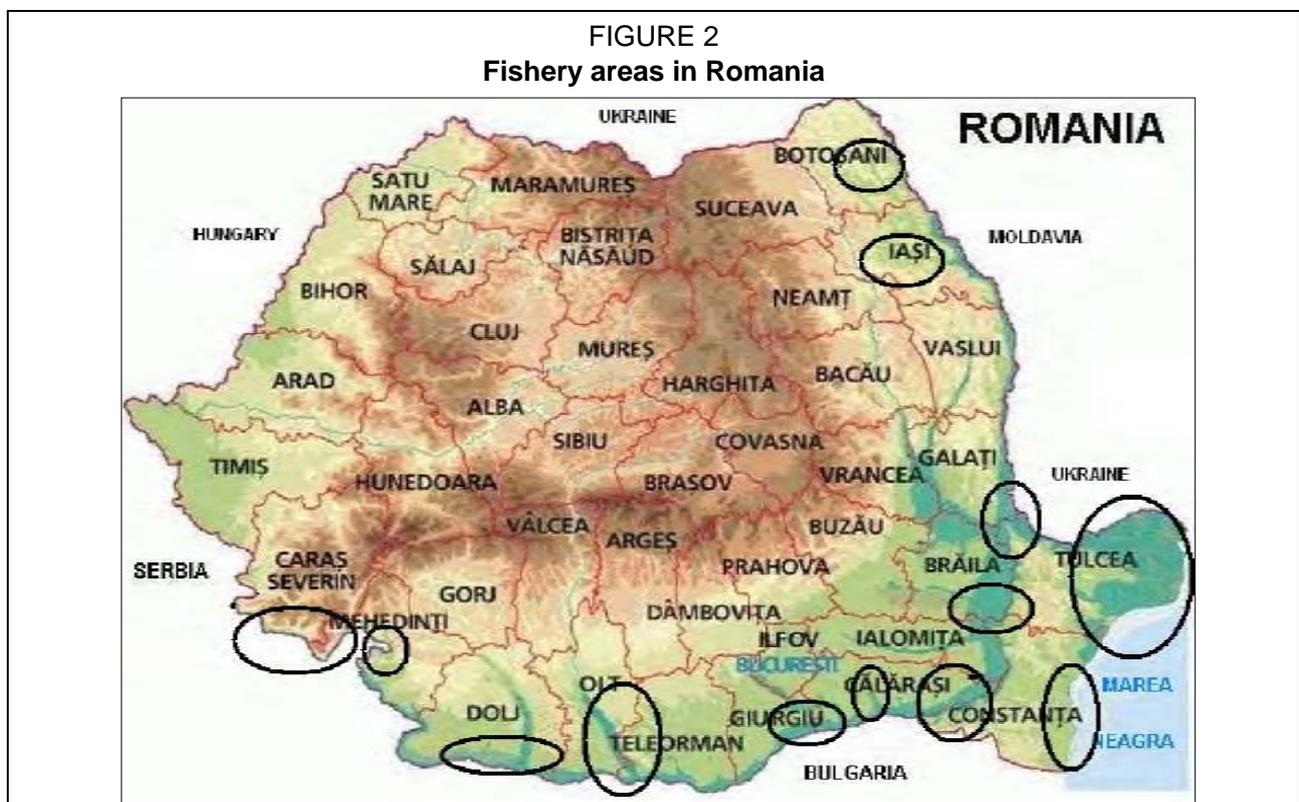
Biosphere Reserve, the National Authority for Forests (for mountain waters) and the National Company for Fisheries Resources Administration (for other areas). The main fisheries legislation in Romania is Law no. 192/2001 on live aquatic resources, fishing and aquaculture. (MAFRD, 2007b)

Inland fishing is differentiated from marine fishing because of the type of gear used (i.e. specific gears for inland fish species) and from aquaculture because it is practiced in natural waters. Inland water fishermen are differentiated from anglers because they use different gears and their main purpose is to market the production obtained from fishing. (Stefan, 2007)

Ownership and access

Commercial inland fishing in Romania is carried out in natural public water bodies (MAFRD, 2007b). The fisheries are regulated by a number of laws. The new fisheries law (no. 192/2001) contains biologically sound regulations on closed seasons, legal minimum sizes and gears use. Specific legislation for the Danube Delta Biosphere Reserve (law no. 82/1993) gives the Danube Delta Biosphere Reserve Authorities the power to co-ordinate and regulate fisheries in the Delta region. The Environment Protection Law no. 137/1995 sets out conservation objectives related to the fishery. Legislation related to fisheries is sometimes confusing and there is potential for conflict between older and more recent laws. Fishery law remains to be revised and in this transition period, conflicts arise between and among users and administrators (Navodaru *et al.*, 2001).

Inland fisheries are conducted in the state-owned waters of the Danube delta, which is also a protected area of national interest. Since 1993, the Romanian part of the Danube delta (in the trans-boundary Danube Delta Biosphere Reserve) is managed through a system of input control (such as effort and gear restrictions). Fish tagging and fish stock enhancement (fish stocking) of sturgeon and pike-perch (although still on an experimental scale) is implemented to secure the fisheries resources and preventing IUU activities. The fisheries in the Danube delta are currently being developed to achieve resource sustainability. (Aps *et al.*, 2004; Navodaru *et al.*, 2001)



Source: MAFRD (2007a).

Inland fishing in Romania operates under a licensing system. More than 2 500 workers (of which 98% are men) of Romania's fisheries sector operate in inland waters using 2 256 registered

boats, which are recorded in the Fishing Vessel Register managed by the National Agency for Fishing and Aquaculture. Inland fishing uses fixed or towed gears from small wooden boats, and there is no mechanised fishing. (MAFRD, 2007a)

Employment

The population of Romania in 2005 was 21 623 849. In 2005 the total number of employees in the fisheries sector was about 6 811, of which 633 (9%) were involved in marine fishing, 2 531 (37%) in inland fishing (Table 1), 2 781 (41%) in aquaculture and 866 (13%) in the processing industry. The distribution of inland fishing employees by age groups in 2005 was as follows: 523 persons (21%) between 40 and 60 years old, 1 937 persons (77%) between 20 and 40 years old and 71 persons (3%) under 20. Inland fishing is mainly a full-time occupation, but in some cases it is a subsistence activity for people who have insufficient income from other sources. (MAFRD, 2007a)

Catches and important species

Inland commercial catches show a declining trend from 4 896 tonnes in 2000 to an amount of 3 799 tonnes in 2006. However, considerable variation in the catches between these years is prevalent in the given data of annual total inland commercial catches (Table 1). Important species are crucian carp (50 %), common bream (15 %) and Danube shad (12 %). (Stefan, 2007)

In 2005 commercial inland fishing produced about 4 000 tons in (only 45 % of that recorded in 1995). The main species captured in inland waters were crucian carp (47 %), bream (14 %), Danube herring (12 %), common carp (5 %), rudd (4 %), European catfish (3 %), sander (3 %) and pike (3 %). However, there is probably a substantial amount of unreported fishing in Romanian inland waters. Sport fishing catches are not registered in the official statistics. (MAFRD, 2007a)

TABLE 1

Employment and catches for commercial inland fishing in Romania

Year	Number of professional fishers				Catch (tonnes)
	Full-time	Part-time	Occasional	Total	
1995	-	-	-	-	9 048 ^a
1996	-	-	-	-	6 145 ^a
1997	-	-	-	-	4 574 ^a
1998	-	-	-	-	4 630 ^a
1999	-	-	-	-	5 336 ^a
2000	-	-	-	-	4 896 ^{a,b}
2001	-	-	-	-	5 207 ^{a,b}
2002	-	-	-	-	4 868 ^{a,b}
2003	-	-	-	-	8 438 ^{a,b}
2004	-	-	-	-	3 255 ^{a,b}
2005	2 290 ^a	229 ^a	12 ^a	2 531 ^a	4 042 ^{a,b}
2006	-	-	-	-	3 799 ^b

Sources: ^a MAFRD (2007b); ^b Stefan (2007).

Current status and future trends

Inland fishing is an important activity in Romania and has been the main economic activity for inhabitants of the Danube Delta (MAFRD, 2007b). Despite the relatively low contribution to the economy (both GDP and GVA), fisheries in Romania are still important among national interests and play a significant social role for the coastline population in addition to providing a source of food (MAFRD, 2007a).

Fisheries also contribute to the protection of wetlands and biodiversity in Romanian waters (MAFRD, 2007a). The 2004 survey on the state of the environment in Romania showed that water quality was satisfactory, with a low percentage of degraded river corridors and a significant

improvement of the water quality from the 1989 baseline (MAFRD, 2007b). Inland fishing is practiced in state-owned natural waters where there are established scientifically-based correlations between aquatic resources potential and fishing effort (Stefan, 2007).

Commercial inland fisheries are faced with potential competition from other sectors such as the expanding agriculture industry (MAFRD, 2007b). Also, large numbers of recreational fishers are sharing the same resources that are potentially in conflict with professional fishers (Aps *et al.*, 2004), and this may be expected to challenge the future viability of capture based commercial inland fishery in the Danube delta area. Furthermore, total fishery production has declined (both for fresh and sea water fisheries) from 18 675 tons in 1998 to 13 352 tons in 2005 as a consequence of Romania's transition to a market economy and the unclear institutional and legal framework, particularly regarding land ownership (MAFRD, 2007a).

Infrastructure issues for Romania's inland fisheries include the age of the equipment and the lack of preparation, conditioning and processing facilities, which make it difficult for inland fishery catches to reach non-local markets. Boats need to be modernised in order to improve navigation safety and to improve the facilities for preserving fish products on board. There is also a need for landing site facilities for safety and for capture unloading to be established or modernised. Further requirements include facilities for improving the quality of the products before their sale, as well as better distribution channels and the promotion of inland fishery products. (MAFRD, 2007a)

In order to maintain and develop a sustainable inland fishery, measures are aimed to improve and enhance employment, production and market opportunities; there is also need to increase the efficiency of local marketing and processing (Stefan, 2007). Through application of appropriate management instruments, technical regulation and strengthening of the ecological measures, the DDBR (Danube Delta Biosphere Reserve) succeeds to mitigate illegal, unreported and unregulated fishing – a hot issue in the countries of Central and Eastern Europe (Aps *et al.*, 2004).

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SLOVAKIA

Inland waters and commercial fishing areas

Slovakia (Figure 1) has a total area of 49 034 km², with inland water bodies occupying 933.8 km² (Statistical Yearbook of the Slovak Republic 2007). There are 118 lakes, (107 of them are glacier mountain lakes), 60 large reservoirs and 300 small reservoirs and ponds; rivers include the Danube (Dunaj), Morava, Váh, Nitra, Hron, Ipel, Slaná, Bodva, Hornád, Bodrog, Tisa, Dunajec and Poprad (Hensel, 1999; Aps *et al.*, 2004).

There is no professional fishing in the inland waters of Slovakia. “The fisheries in natural water bodies are exclusively recreational” (Hensel, 1999, 2007).

FIGURE 1
Map and fisheries catch distribution of Slovakia



Sources: map: Global Forest Resources Assessment 2000, base map: ESRI; catch data: Hensel (2007) and Eurostat (2008).

Administration and legislation

The responsible authority for freshwater fishery management in Slovakia is the Ministry of Agriculture, and legislation includes the Law on Fisheries (2002) (Aps *et al.*, 2004).

Ownership and access

“Under the Fisheries Act No.139/2002 (Section II, § 4, item 2 and 3) the fishing rights belong to the State, and the Ministry of Agriculture of Slovak Republic has leased the fishing rights primarily to the Slovak Fisheries’ Union, although some rights have been assigned to national associations of the State Forest Enterprise and, in the regions managed by the military, to organizations under the jurisdiction of the Ministry of Defence.” (Hensel, 2007)

Employment

The population of Slovakia in 2006 was 5 394 000 (Statistical Yearbook of the Slovak Republic 2007). Up until 1992, there were some commercial fishers operating in Slovakia in reservoirs and in the Danube River (Hensel, 1999; FAO, 1996).

Catches and important species

In 2009 there were 1851 registered fishing areas in Slovakia, consisting of 749 trout waters, 37 grayling waters and 1065 carp waters.

Current status and future trends

Because much of Slovakia is covered by mountains and limited in arable land, mainly recreational fisheries can produce better fish yields (FAO, 1996).

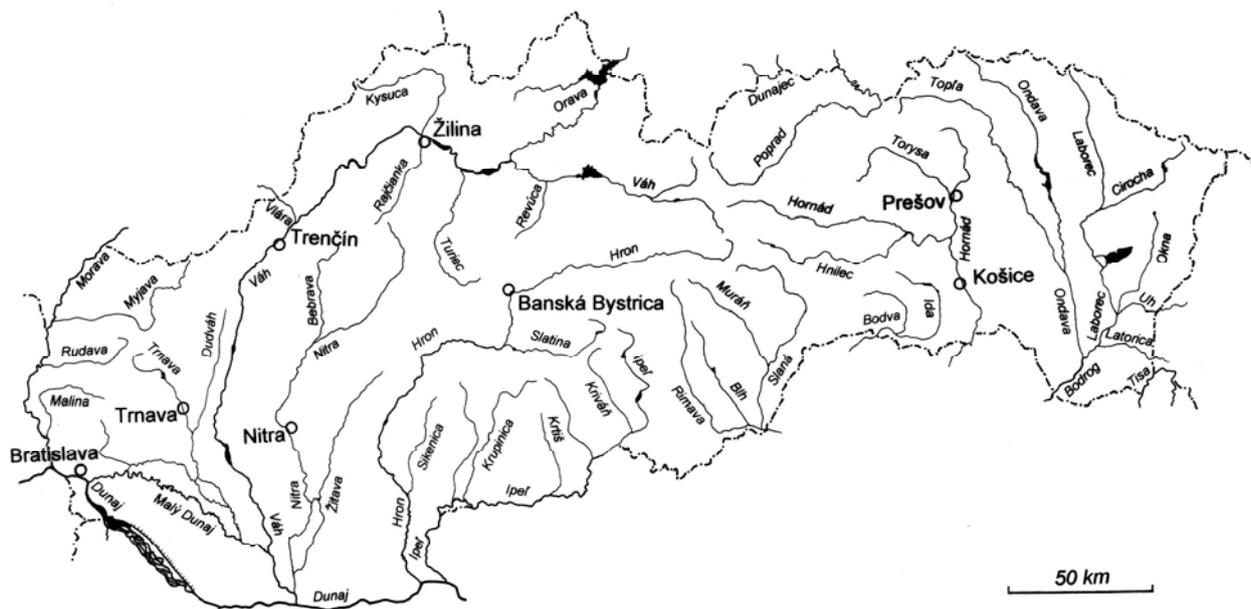
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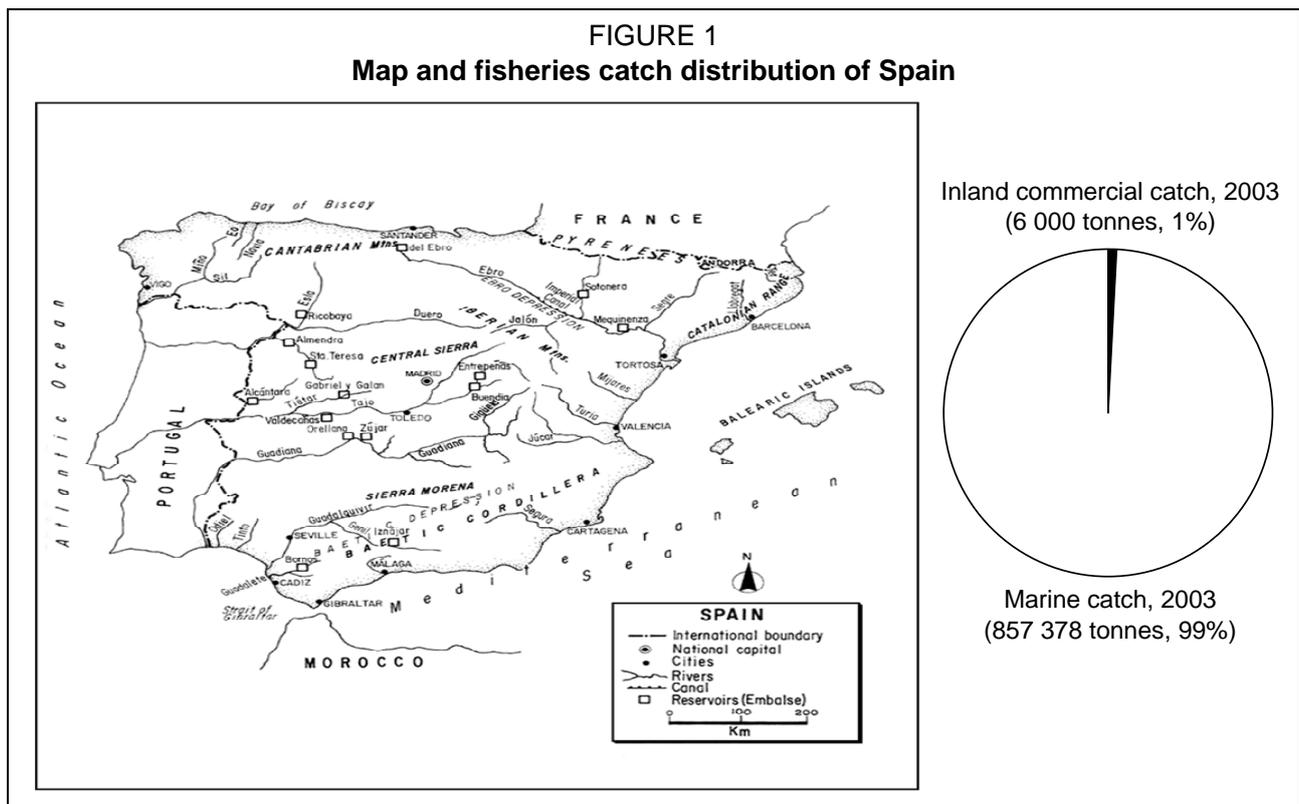
Principal rivers of Slovakia (Hensel 2009).

SPAIN

Inland waters and commercial fishing areas

Spain (Figure 1) has an area of 506 030 km², with a coastline of 7 879 km (FAO, 2007). Inland water bodies account for 655 000 ha (FAO, 2006). Spain is limited in large natural lakes but has a significant number of reservoirs and lagoons; there are about 72 000 km of permanent rivers including the Ebro (910 km), Tajo (1 007 km), Guadalquivir (657 km), Duero (895 km), Miño (310 km) and Guadiana (778 km) (Dill, 1993).

Spain's inland fisheries sub-sector (subsector de la pesca continental) is concentrated primarily in the rivers (FAO, 2007). Professional capture fishing in Spain's inland waters is only practiced in certain parts of the country (MAPA, 2007).



Sources: map: Dill (1993); catch data: FAO (2007) and Eurostat (2008).

Administration and legislation

The Autonomous Communities of Spain are responsible for regulating inland fisheries (MAPA, 2006). Inland fishing legislation is typically through regional laws on river fishing. In principle, inland waters are all springs, ponds, lagoons, lakes, ditches, reservoirs, marshes, canals, lagoons, streams and rivers, whether fresh, brackish or salt; extending the boundary of inland waters to its mouth at the sea, meaning mouth of the river, irrigation ditch or canal, the straight line joining the intersection points of each of the shores of the course or water body with the natural line of land with the calm sea (MAPA, 2007).

Ownership and access

According to Dill (1993), all flowing waters and aquatic fauna in Spain are under the Public Domain, and the percentage of private waters (e.g. lakes and lagoons naturally formed on private lands) is insignificant. The regional governments of Spain manage the rivers and issue the relevant fishing licenses (FAO, 2007).

Employment

The population of Spain in 2005 was 44 108 530 (FAO, 2007). According to Salz *et al.* (2006), the employment for inland fishing in Spain in 2004 was zero.

Catches and important species

Professional capture fishing in Spain's inland waters is very scarce (MAPA, 2007).

Current status and future trends

The inland fishing activity in Spain is closely linked to leisure, often using a system of catch and release (FAO, 2007). In some cases there can exist a conflict of competencies in the mouths of rivers, deltas, lagoons, estuaries or wetlands, where it is difficult to calculate the imaginary line that separates the powers of one another (MAPA, 2007).

References specific to Spain

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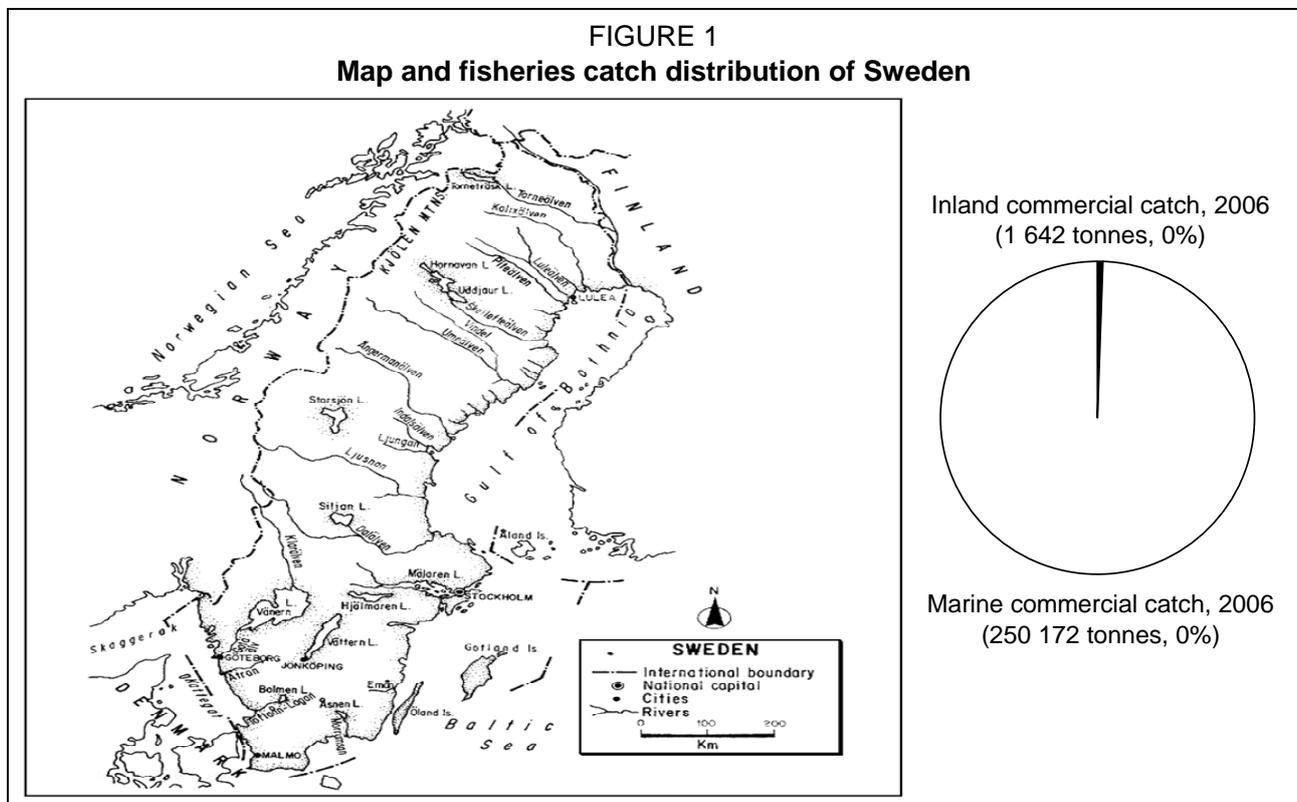
SWEDEN

Inland waters and commercial fishing areas

Sweden (Figure 1) has a total area of 449 960 km², with inland water bodies occupying 38 340 km² (FAO, 2006).

There are an estimated 83 000 lakes, mostly in the north, with the majority (about 60 000) having a surface area of 1-10 ha (Nyberg, 2007). The four largest lakes, Vänern (5 640 km²), Vättern (1 900 km²), Mälaren (1 140 km²) and Hjälmaren (480 km²), are located in the south, while the fifth largest lake, Storsjön, is located in central Sweden. The total length of rivers and streams in Sweden has been estimated to be 300 000 km, with around 70% less than 15 m wide. (Nyberg, 1999)

Licensed professional fishermen can be found in the five largest lakes, Vänern, Vättern, Mälaren, Hjälmaren and Storsjön. Additionally, professional fishing occurs in 21 lakes in southern and central Sweden and in 13 lakes/reservoirs in Norrland, mainly in the Lule River system. (Nyberg, 2007)



Sources: map: Dill (1993); catch data: Sjögren & Lundgren (2007).

Administration and legislation

The Swedish commercial fisheries are governed by the Swedish Board of Fisheries (Fiskeriverket), a legislative authority subordinate of the Ministry of Agriculture, which has the overall constitutional responsibility for supervision, control, exploitation and management of freshwater and marine fish resources. There is no legal definition of inland fisheries in Sweden's national regulatory framework, but "professional fishery is defined as a person having a professional fishing licence issued by the Swedish Board of Fisheries" (Bucharest workshop, 2007).

The County Administrative Boards play a regional role in issuing permits and grants for certain fishing activities. In addition to promoting and acting on long term sustainability of fisheries, the Boards also hand out EU funds / decide on the allocation of EU funds for commercial fishing.

In all large lakes, compliance of fishing regulations is surveilled by the Country Administrative Boards (Nordwall, 2009). In the five largest lakes, although lacking a quota system, gear and other

effort restrictions for the commercial inland fisheries are regulated by the Ministry of Agriculture through the National Board of Fisheries. Since 2005 (through regulation changes in the Fishing Act), the Swedish Coast Guard is also responsible for control and surveillance of the inland fisheries of Lake Vänern and Mälaren.

Ownership and access

All inland waters in Sweden, except for the five largest lakes, are privately owned. Owners may be private persons as well as forest and other companies, and are often organised into fishery management associations. Fishing regulation issues in privately owned waters are the owners' responsibility. (Nyberg, 1999)

Almost all inland waters in Sweden are accessible to the public through the purchase of fishing permits from the organizations (Nyberg, 1999). For commercial fishing, a professional licence is required in the public waters of the five largest lakes, while a licence is not required in other lakes (Nyberg, 2007). Holders of such licences serve also as major sources for statistical information, provided in monthly reports of catches, for national inland commercial fisheries. The Fishing Act (1993) emphasizes the role of professional fisheries by favouring it over other fisheries sectors.

Employment

The population of Sweden in 2004 was 8 985 000 (FAO, 2006). Statistics from 2006 on freshwater fishing in Sweden are based on data collection from over 200 fishermen with professional licences (Table 1) (Sjögren & Lundgren, 2007). According to information from the Bucharest workshop (2007), the employment in inland commercial fisheries in Sweden was 191, with 186 fishing permits. The number of fishermen decreased from 980 in 1970 to 288 in 1995 (Fiskeriverket, 2006), but has been stable during the 21st century. In 2006, 181 men and 7 women practiced commercial inland fishing as holders of a required licence; even more women were engaged in the occupation in processing and marketing sectors together with their fisherman husbands (Fiskeriverket, 2007).

Catches and important species

Catches in Swedish inland waters by commercial fishermen in 2006 totalled 1 642 metric tons, yielding SEK 72 million (Table 1) (Sjögren & Lundgren, 2007). According to information from the Bucharest workshop (2007), the commercial inland catch in Sweden was about 1 303 tons, valued at €7 641 300. From 2000 to 2004 the value of catches from the large lakes increased substantially, by 36%, whereas the trend was opposite in other lakes (Fiskeriverket, 2007).

TABLE 1

Employment and catches for commercial inland fishing in Sweden

Year	Number of professional fishers/licences			Catch	
	Full-time	Occasional	Total	(tonnes)	(value)
1995	255 ^{a,b}	33 ^{a,b}	288 ^{a,b}	1 927 ^a	SEK 41 630 000 ^a
1996	-	-	~ 250 ^c	1 786 ^{a,c}	SEK 40 406 000 ^{a,c}
1997	~ 250 ^d	-	-	2 011 ^{a,d}	SEK 43 249 000 ^a
1998	-	-	-	1 575 ^a	SEK 33 321 000 ^a
1999	-	-	218 ^a	1 487 ^a	SEK 35 208 000 ^a
2000	-	-	212 ^a	1 459 ^{a,e}	SEK 35 819 000 ^a
2001	-	-	213 ^a	1 246 ^a	SEK 36 836 000 ^a
2002	-	-	208 ^a	1 435 ^{a,e}	SEK 40 273 000 ^a
2003	-	-	203 ^a	1 490 ^{a,e}	SEK 43 737 000 ^a
2004	-	-	186 ^a	1 395 ^{a,e}	SEK 48 932 000 ^a
2005	-	-	175 ^a	1 418 ^{a,e}	SEK 51 926 000 ^a
2006	-	-	> 200 ^f	1 642 ^{e,f}	SEK 71 818 000 ^f

Sources: ^a Fiskeriverket (2006b); ^b FAO (1999); ^c Gustavsson (1999); ^d Nyberg (1999); ^e Eurostat (2008); ^f Sjögren & Lundgren (2007).

The most important catch species in the northern lakes and Lake Vättern are arctic char and whitefish, whereas pike-perch, eel, pike and perch in other lakes. Pike-perch is presently economically the most important species in inland fisheries. In lakes Vättern and Hjälmaren, the introduced signal crayfish plays economically an important role. (Fiskeriverket, 2007)

Current status and future trends

Swedish inland commercial fisheries are small-scale, and vessels are usually shorter than 12 meters. The importance of fish stocks for commercial fishers and opportunities to utilise them varies between lakes. (Fiskeriverket, 2007)

Economically, commercial inland fisheries in Sweden have developed positively during recent years, due to enlarged markets within the EU as well as strengthening stocks of highly valued species such as pike-perch and signal crayfish. Also, the increased commitment of fishers to apply selective fishing methods has enhanced development. Ecolabelling (miljöcertifiering/environmental certification) for pike-perch fisheries in Lake Hjälmaren using criteria of the Marine Stewardship Council is under operation. However, the decline of the European eel stock may substantially affect the economic situation of the commercial fishermen in the future (Fiskeriverket, 2007; Nordwall, 2009)

The Swedish Operational Programme for Fisheries aims to improve management strategies by strengthening co-management and ecosystem-based approach to the management of fish stocks (Fiskeriverket, 2007). The Swedish Environmental Objectives, Flourishing Lakes and Streams, is a national strategy which in an integrative manner contributes to secure, conserve and potentially enhance sustainability of future commercial exploitation of aquatic resources in Swedish lakes and rivers.

References specific to Sweden

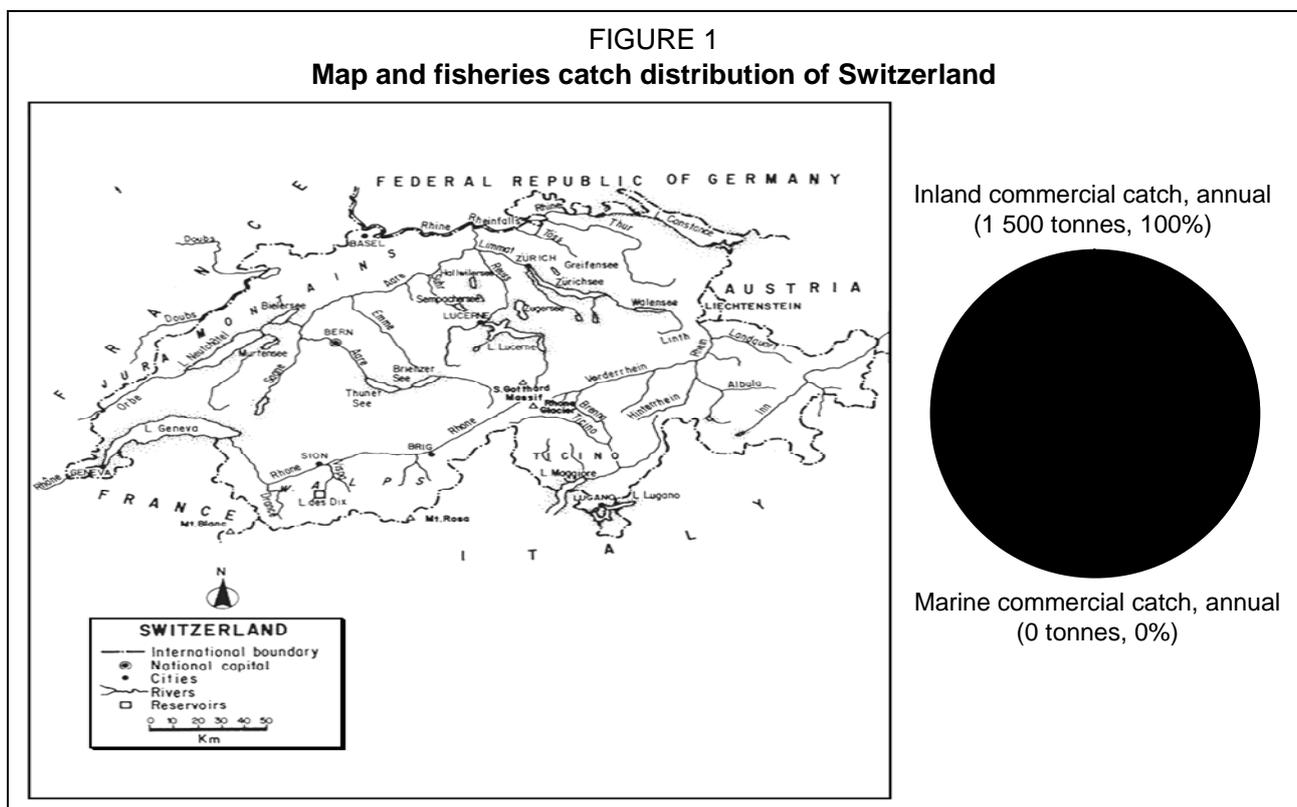
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SWITZERLAND

Inland waters and commercial fishing areas

Switzerland (Figure 1) has a total surface area of 41 285 km², with lakes and watercourses occupying 1 740 km² (4.2%) (FSO, 2008b). Lakes account for 1 422 km² (3.5% of the country), and there are 70 natural lakes over 0.1 km², with the six largest being Geneva (581 km²), Constance (536 km²), Neuchâtel (218 km²), Maggiore (212 km²), Lucerne (114 km²) and Zurich (90 km²) (Spreafico & Weingartner, 2005). The total length of rivers in Switzerland is about 30 000 km (11 128 ha), with principal rivers including the Rhône, Ticino, Inn and Rhine with its tributaries (Dill, 1990).

Commercial fishing in Switzerland is in the form of professional lake fishing (FSO, 2008a). In 2004 there were about 20 lakes with professional fishers operating (Spreafico & Weingartner, 2005).



Sources: map: Dill (1990); catch data: FSO (2008a) and Eurostat (2008).

Administration and legislation

The Fisheries and Aquatic Fauna Section of the Federal Office for the Environment (FOEN) is responsible for enforcing Switzerland's Federal Act on Fisheries (1991), as well as being involved in managing fisheries in the international waters of Lake Constance, Lake Maggiore, Lake Lugano, Lake Geneva, the Upper Rhine and the Doubs (FOEN, 2008a). There are 26 cantons in Switzerland (FSO, 2008b), and the "cantonal edicts" contain the main rules and regulations for fishing (FOEN, 2008b).

Ownership and access

In Switzerland the cantons have exclusive rights to control fishing, which is regulated by a system of permits or leases specified by the relevant canton (Dill, 1990).

Employment

The population of Switzerland in 2006 was 7 508 700 (FSO, 2008b). In 2004 there were 349 professional fishers operating on lakes in Switzerland (Table 1) (Spreafico & Weingartner, 2005).

Catches and important species

The annual commercial catch in Switzerland's lakes since 2000 has averaged about 1 500 tonnes (Table 1). This amount follows sustainable use practices in the lakes according to the Federal Office of the Environment. The main species comprising the total catch are houting and perch. (FSO, 2008a)

TABLE 1

Employment and catches for commercial inland fishing in Switzerland

Year	Number of professional fishers			Total	Catch (tonnes)
	Full-time	Part-time	Occasional		
1995	277 ^a	54 ^a	101 ^a	432 ^a	-
1996	277 ^a	54 ^a	101 ^a	432 ^a	-
1997	253 ^a	54 ^a	97 ^a	404 ^a	-
2000	-	-	-	-	~ 1 500 ^b
2001	-	-	-	-	~ 1 500 ^b
2002	-	-	-	-	~ 1 500 ^b
2003	-	-	-	-	~ 1 500 ^b
2004	-	-	-	349 ^c	~ 1 500 ^b
2005	-	-	-	-	~ 1 500 ^b
2006	-	-	-	-	~ 1 500 ^b
2007	-	-	-	-	~ 1 500 ^b

Sources: ^a FAO (1999); ^b FSO (2008a); ^c Spreafico & Weingartner (2005).

Current status and future trends

Professional lake fishing in Switzerland accounts for 44% of the fishing and fish farming sector's output. However, since 1990 professional lake fishing has lost a third of its holdings, resulting in less jobs with improved equipment. Despite a reduction in catch size between 1960 and 1990, fishing value was increased from the expansion of fish processing facilities. (FSO, 2008a)

References specific to Switzerland

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and foreigners who will catch fish for non-commercial or sportive purposes with small scale gears in the areas where fishing is not prohibited are not obliged to get a fishing licence.”

Ownership and access

According to Dill (1990) all fishing waters (streams, lakes and lagoons) are the property of the Government, except for a few privately owned fishing traps in some lakes. The main mechanism for the regulation of the fisheries is through the Notifications, which set the rules and general principles for the technical measures to be taken and include: gear restrictions and prohibitions; control measures for fishing areas; establishment and extent of protected areas; seasonal limitations; species size limits; and capture prohibitions for species (FAO, 2008).

The Turkish Fisheries Law No. 1380 (1971, as amended) states, “Fishing right of the dams, weirs, vallis, lakes, ponds, rivers and the fishing areas at the mouth of rivers, sea and inland waters under the rule and possession of the Treasury or State Hydraulic Works or the state are leased within the frame of the State Tender Law No. 2886 and within the principles of the Ministry of Agriculture and Rural Affairs, to the cooperative associations, cooperatives, or to the village unions established at the place in question and that are exclusively involved in fishery production and marketing, and whose members reside in the production area for not less than five years, by the provincial administrations after getting approval from the Ministry of Environment and Forestry and the Ministry of Culture and Tourism and other related ministries.” The Fisheries Law also states that cooperative associations and village unions cannot transfer their rights to others, and fishing licences are issued by the Governorship upon the advice of the related official departments.

Employment

The population of Turkey in 2006 was 73 000 000. The extractive sector represents the greatest source of employment for Turkish fisheries, with 7 670 licensed fishers working on inland waters in 2006. There are about 3 000 vessels in Turkish inland waters licensed by the Ministry of Agriculture and Rural Affairs. (FAO, 2008)

Catches and important species

In 2006 the commercial catch from inland waters in Turkey was 44 000 tonnes, or 6.6 % of total annual fishery production. Inland production has been between 5 and 8.5 % of total production according to the last five years of fishery catch data. Three species (Tarek, common carp and sand smelt) dominate the catches (69 % of total inland production in 2006). Tarek (*Alburnus tarichii*) are primarily caught from Lake Van, where there are soda lakes; common carp (*Cyprinus carpio*) and sand smelt (*Atherina boyeri*) are found in most inland waters. (FAO, 2008)

Current status and future trends

The catch from the inland waters is important in Turkey, especially for rural areas, in terms of fish supply and employment. According to the data of the last ten years, it comprises 7–10% of total production. This fishery currently is static in terms of output. The major catch is obtained from Lake Van, namely *Chalcalburnus tarichii*, which is the endemic species of the basic (sodic) waters of the lake. Production from inland waters is considerably below the rich inland water potentials. The development strategies for fisheries are included in agriculture within the development plan and yearly programme prepared by the State Planning Organization. (FAO, 2008)

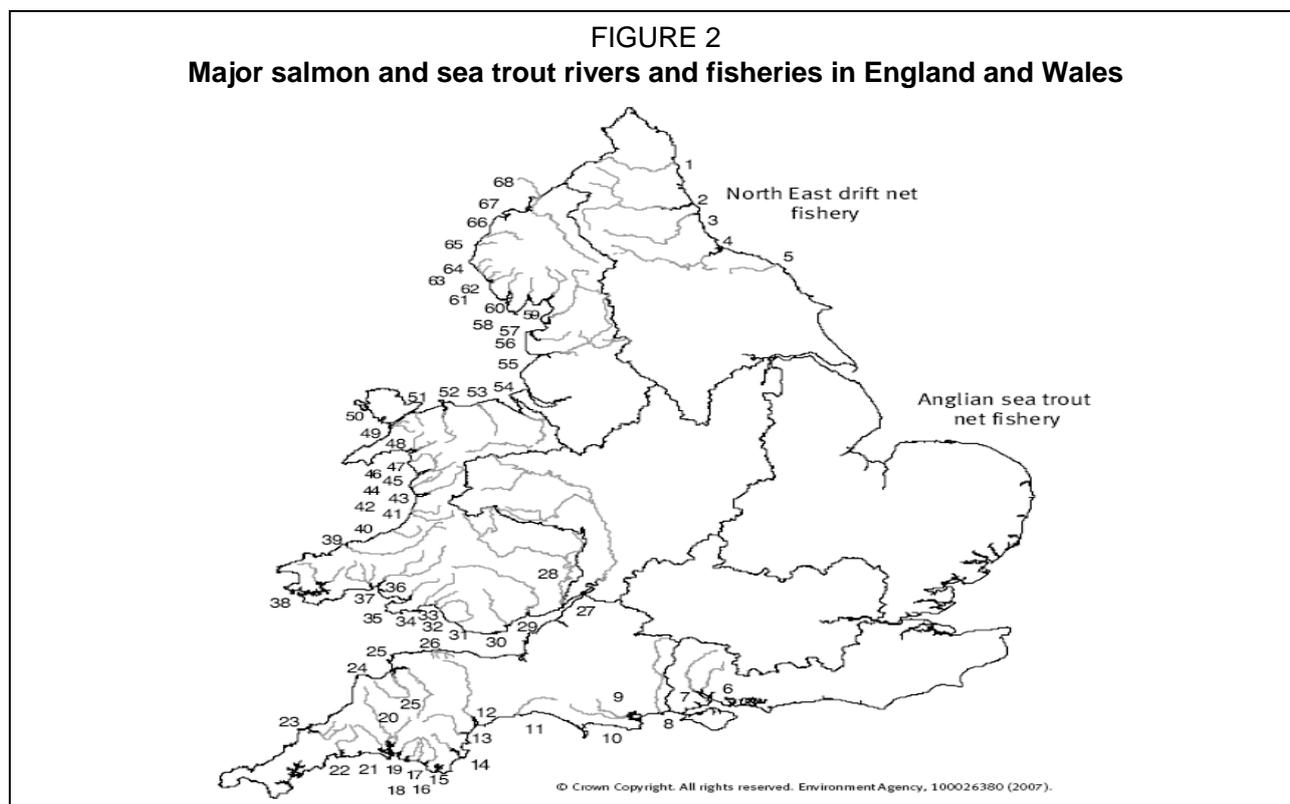
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Salmon Fishery Boards are responsible for ensuring the conservation and management of salmon stocks (Scottish Government, 2008). In Northern Ireland the Department of Culture, Arts and Leisure is responsible for the salmon and inland fisheries but is not responsible (except for overall policy) for the Foyle and Carlingford catchments, which are the responsibility of the Loughs Agency of the Foyle, Carlingford and Irish Lights Commission, sponsored by the Department of Agriculture and Rural Development (DARD, 2008). Relevant legislation in Northern Ireland includes the Fisheries Act (Northern Ireland) 1966 and Foyle Fisheries Act 1952 (FAO, 2004a).

According to the Salmon and Freshwater Fisheries Act 1975 (Chapter 51, as amended), inland water is defined as “any area of inland waters within the meaning the Water Resources Act 1991,” which includes: any river, stream or other watercourse, whether tidal or not; any lake, pond, reservoir or dock; and any channel, creek, bay, estuary or arm of the sea. According to the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003 (2003 asp 15), inland waters are defined to include “all rivers above estuary limits and their tributary streams, and all waters, watercourses and lochs whether natural or artificial which drain or drain to some extent into the sea.” According to the Fisheries Act (Northern Ireland) 1966 (Chapter 17), inland waters are defined as “the waters of any river above the boundary between the tidal and freshwater portions thereof, and the waters of any freshwater lake.” According to the Foyle Fisheries Act, 1952, “river includes lake and estuary.”

The Fisheries Act (Northern Ireland) 1966 (Chapter 17) defines inland fishery as “any fishery of whatsoever kind, other than a salmon fishery, in inland waters,” and salmon fishery is defined to include “any salmon fishery, whether in fresh water, any estuary or the sea.” The Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003 (2003 asp 15) defines salmon fishery as “a salmon fishery in any river or estuary or in the sea.”



Source: Environment Agency (2007).

Ownership and access

In the UK, 100% of lakes (includes reservoirs) and rivers are privately owned, while 99% of estuaries are state-owned (Aprahamian, 2007). The right to fish for salmon in freshwater beyond tidal limits in England and Wales is a private one, and anyone using a net to fish for salmon must

hold a licence issued by the Environment Agency (Defra, 2005). Salmon fishing rights in Scotland are under private ownership by riparian landowners or other individuals or organizations (Scottish Government, 2008). The rights to exploit freshwater fish in Scotland are also privately owned, and they may be leased to individuals or clubs (FRS, 2009). The main commercial inland fishery in Northern Ireland, the Lough Neagh and Lower River Bann eel fishery, is under “common ownership” by the fishing community and is maintained and managed by the Lough Neagh Fishermen’s Co-operative Society Ltd (DARD, 2008).

Employment

The population of the United Kingdom in 2004 was 59 405 000 (FAO, 2006). Over 1 000 people are involved, mostly part-time, in the migratory salmonid and eel net fisheries of England and Wales (Environment Agency 2004; Aprahamian, 2009). In 2008, there were a total of 293 salmon and sea trout commercial net licences and 846 fishermen who took out licences to fish eels and elvers in England and Wales (Aprahamian, 2009). The main commercial inland fishery in Northern Ireland, the Lough Neagh eel fishery, provides employment for about 350 fishermen and helpers (DARD, 2008).

Catches and important species

Most UK inland waters are exploited for recreational purposes, and there is little commercial exploitation of inland waters other than eel fisheries and limited salmonoid fisheries (FAO, 2004b). For England and Wales, the declared inland fishery catch (rod, net and fixed engine) in 2005 was 138 tonnes (Defra, 2008), with the eel fishery probably being the most valuable commercial inland fishery (FAO, 2004b). For Scotland, there is little commercial exploitation of freshwater and migratory fish, with limited commercial trapping of eels and around 30% of salmon and sea trout taken by commercial fixed engine and net and coble fisheries (FRS, 2009), which reported a catch of about 64 tonnes in 2007 (FRS, 2008). For Northern Ireland, the main commercial inland fishery is the Lough Neagh and Lower River Bann eel fishery, which has an annual catch of around 600 tonnes of yellow and silver eels (DARD, 2008).

In England and Wales, the declared catches of glass eel have been below 1 - 2 t since 2001, compared to 10 - 70 t in the 1970s and 1980s. Declared catches of yellow and silver eel peaked in the late 1980s and mid-1990s (peak 280 t), but have been low since 2001 (mean 29 t). Nett export data suggests catches may be 4 times higher. Eel landings are reported as bycatch from various marine fisheries around the UK coasts, with landings from 2001 to 2007 ranging from 0.2 to 13.7 t per annum. (Aprahamian & Walker, in press)

Current status and future trends

Eel recruitment in England and Wales has declined to 25% of peak historic levels (Aprahamian & Walker, in press). Incomes and export values have declined as a result of declining stocks, falling demand, competition from farmed eels and cheap imports. Following a peak in 1997 of around £2.5 million, export values in 2000 declined to around £0.5 million (Knights, 2001). A National Eel Management Strategy has been developed, which includes stocking eels and elvers into suitable river catchments, improving access together with reductions in fishing effort. In the case of salmon and sea trout, stocks are in a depleted state, although there are improving trends in some parts of the country (Aprahamian, 2009). Commercial salmonoid catches have declined throughout the UK as fishing rights are increasingly bought out by recreational fishermen. In 1988 total net economic value of commercial salmon fishing in England, Wales and Scotland was estimated to be between £9.2 million and £16.9 million, but catches and employment have declined since (FAO, 2004b).

In May 2003 an important £3.4 million buyout agreement was reached which has significantly cut the number of salmon caught off the North East coast of England by drift nets (Figure 2). 52 of the remaining 68 netsmen signed a formal agreement undertaking to give up their drift net licences in return for a compensation payment to which the Government contributed £1.25 million with private interests raising the remainder. From June 2003, just 16 netsmen were licensed to use drift

nets along the coast between North Yorkshire and the Scottish Border, compared to 142 in 1992. The evidence so far has been encouraging with an increase in salmon runs and catches. (Defra, 2005)

Since 1985 there has been a 65% reduction in the number of net licences issued annually in England & Wales (from 1 026 to 363) (Environment Agency, 2007). Overall, salmon and sea trout netting is declining in response to phasing out mixed stock fisheries and falling demand for wild salmon, and eel and elver net fishing has fluctuated in response to market forces (Environment Agency, 2004).

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ANNEX I. QUESTIONNAIRES

EIFAC WORKING PARTY ON SOCIO-ECONOMIC ASPECTS OF INLAND FISHERIES 10.7.2007

QUESTIONNAIRE CONCERNING PROFESSIONAL FISHING

Country:

1. Is professional fishing allowed in the inland waters of your country?

Yes

No, why not?.....
.....
.....

2. Where are the most important professional inland fisheries carried out in your country? Figures should NOT include aquaculture.

Please give the names of five hot spots* for each category below and please provide a map, sent by fax, geographically indicating these hot spots*.

Lake fisheries:
.....
.....

River fisheries:
.....
.....

Reservoirs:
.....
.....

Estuaries:
.....
.....

*Areas of major importance as regards professional inland fisheries

3. Ownership of water areas and availability of professional fishing grounds. Figures should NOT include aquaculture.

The objective is to find out the outcome of existing administrative structures in terms of fishing grounds presently available for professional fishermen, i.e. the waters areas which they actually are allowed to harvest. Give either numbers (km²) or an estimate of percentage (%) for each ownership type.

What are the most common forms of ownership concerning inland waters fishing grounds in your country? Please complete the table below.

		Total water surface area	Private ownership	State ownership	Other*
Lakes	Physical resource, km ²				
	Available for professional fishing, km ² or %				
Rivers	Physical resource, km ² or length km				
	Available for professional fishing, km ² /km or %				
Reservoirs	Physical resource, km ²				
	Available for professional fishing, km ² or %				
Estuaries	Physical resource, km ²				
	Available for professional fishing, km ² or %				

*Please, give more detailed information about this alternative:

.....

.....

.....

4. References

As regards professional fishing, we have the following references. The aim is to get approximately 10 most relevant publications from each country. Please, make amendments.

5. This questionnaire is completed by:

Name:

Organisation:

Address:

.....

.....

E-mail:

Thank you for your contribution!

Matti Sipponen

Please return this questionnaire before 15.8.2007 to: matti.sipponen@te-keskus.fi**Matti Sipponen, Fisheries manager, PhD.**

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**EIFAC WORKING PARTY ON SOCIO-ECONOMIC ASPECTS OF INLAND FISHERIES
26.3.2009**

FEEDBACK QUESTIONNAIRE CONCERNING COMMERCIAL INLAND FISHING

Country:

1. Inland waters and commercial fishing areas

a) Is the data on inland water bodies in the country profile accurate?

Yes

No, please correct (add correction below or directly to the country profile)

.....
.....

b) Is the information on commercial inland fishing areas in the country profile accurate?

Yes

No, please correct (add corrections below or directly to the country profile)

.....
.....

c) Is the map on inland waters (or commercial inland fishing areas) in the country profile sufficient?

Yes

No, please add new map(s) (add below or directly to the country profile and provide source*)

* assuming no copyright infringement

.....
.....

2. Administration and legislation

a) Is the information on responsible authority(s) for inland fisheries in the country profile accurate?

Yes

No, please correct (add corrections below or directly to the country profile)

.....
.....

b) Is the information on law/act(s) for (commercial) inland fisheries in the country profile accurate?

Yes

No, please correct (add corrections below or directly to the country profile)

.....
.....

c) Is the legal definition of commercial inland fisheries (if it exists) in the country profile accurate?

Yes

No, please correct (provide definition or add corrections below or directly to the country profile)

3. Ownership and access

a) Is the information on property rights regimes* for inland waters in the country profile accurate?

* state/public (mostly) or private (mostly) ownership of inland waters

Yes

No, please correct (add corrections below or directly to the country profile)

b) Is the information on availability/accessibility/use of inland waters for commercial fishing in the country profile accurate?

Yes

No, please correct (add corrections below or directly to the country profile)

4. Employment

Is the data on professional inland fishers in the country profile accurate and updated?

Yes

No, please correct (add corrections below or directly to the country profile)

5. Catches and important species

Is the data on commercial inland catch (or catch value) in the country profile accurate and updated?

Yes

No, please correct (add corrections below or directly to the country profile)

6. Current status and future trends

a) Is the information on importance of commercial inland fishing in the country profile accurate?

Yes

No, please correct (add correction below or directly to the country profile)

b) Is the information on status/trends of commercial inland fishing in the country profile accurate?

Yes

No, please correct (add corrections below or directly to the country profile)

.....

Other corrections or additions to the country profile

Please add any other corrections or additions as necessary, below or directly to the country profile.

.....

This questionnaire is completed by:

Name:

Organisation:

Address:

.....

E-mail:

Thank you for your contribution!

Matti Sipponen

Please return this questionnaire before 10.4.2009 to: matti.sipponen@te-keskus.fi

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Annex II. TIME SERIES DATA TABLES

Table 1. Employment (numbers of professional fishers) for commercial inland fishing in EIFAC member countries

Country	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Albania								900				> 2 000	
Austria										150			
Belgium													
Bosnia & Herz.													
Bulgaria									1 620				
Croatia							17			25			29
Cyprus													
Czech Rep.									1 group				
Denmark					200-300		100-200						
Estonia								700				963	
Finland		1 192									840		
France*	815					776	750	710	708		666	~ 800	
Germany**		836	857	> 750		803	747	822	835	887	880	884	843
Greece			2 701						919				
Hungary			3 300							3 390		3 500	
Iceland													
Ireland	2 011	2 097	2 083	2 114	2 015	1 942	1 960	1 987	1 585	1 472	1 731	1 731	310
Israel***											71		
Italy*									400				
Latvia						3 447	3 370	3 333	3 487	1 601	1 262	515	
Lithuania							210					300	
Luxembourg													
Netherlands			530						475			450	
Norway											30-50		
Poland									2 000			1 350	
Portugal	1974	1 939				1 210				973		1 028	
Romania											2 531		
Slovakia													
Spain													
Sweden	288	~ 250	~ 250		218	212	213	208	203	186	175	> 200	
Switzerland	432	432	404							349			
Turkey												7 670	
UK													> 1 350

Note: * freshwater; ** enterprises; *** vessels. Source: country profiles.

Table 2. Catches (tonnes) for commercial inland fishing in EIFAC member countries

Country	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Albania			273	817	1267	1462	1828	1608	1687	2309	2450	2360	
Austria		450								400			
Belgium													
Bosnia & Herz.													
Bulgaria											2025		
Croatia							30			46			39
Cyprus													
Czech Rep.									52				
Denmark			236									40	42
Estonia		2361	2439	3878	3041	3189	2461	4580	3592	2368	2400	2856	2568
Finland		4628				5359		5217			5074		
France*						2131						2000	
Germany	4238	2882	2804	3469		3625	3542	3471	3466	3625	3314	3086	3031
Greece		2938											
Hungary									2296	2871	3075	2796	
Iceland						33	36		50	37		32	28
Ireland	947	858	738	895	775	881	900	789	605	555			
Israel											1396		
Italy*						4565	5527	4242	4379	5147	3823		
Latvia									565	360	356	328	
Lithuania												1434	
Luxembourg													
Netherlands			3500									2450	
Norway							176			210	175	274	
Poland	8000										3500	2870	
Portugal		~ 1022								~ 63			
Romania	9048	6145	4574	4630	5336	4896	5207	4868	8438	3255	4042	3799	
Slovakia													
Spain													
Sweden	1927	1786	2011	1575	1487	1459	1246	1435	1490	1395	1418	1642	
Switzerland						~ 1500	~ 1500	~ 1500	~ 1500	~ 1500	~ 1500	~ 1500	~ 1500
Turkey												44000	
UK													~ 800

Note: * freshwater. Source: country profiles.

Table 3. FishStat Plus data: Catches (tonnes) from inland waters in EIFAC member countries for commercial, industrial, recreational & subsistence purposes

Country	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Albania	219	317	180	823	814	955	1 373	1 167	1 265	1 807	2 210	2 442
Austria	404	450	465	451	432	439	362	350	372	400	370	360
Belgium	511	511	511	511	536	511	511	511	511	496	496	496
Bosnia & Herz.	1 500	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000
Bulgaria	762	1 127	1 881	2 336	2 475	861	1 640	1 453	1 824	2 434	2 025	1 916
Croatia	364	434	408	10	10	17	34	25	19	37	33	46
Cyprus	65	64	70	70	70	78	70	60	50	40	30	20
Czech Republic	3 929	3 524	3 321	3 952	4 190	4 654	4 646	4 983	5 127	4 528	4 242	4 646
Denmark	264	196	232	349	206	183	99	77	129	123	61	41
Estonia	2 366	2 361	2 439	3 878	3 108	3 190	2 461	4 578	3 593	2 373	2 472	2 941
Finland	48 436	47 618	47 618	36 813	36 813	34 782	34 782	35 563	35 563	36 265	36 265	36 508
France	4 500	4 540	4 540	4 500	2 134	2 131	2 130	2 130	2 130	2 120	2 110	2 100
Germany	22 987	22 987	22 916	22 916	22 868	22 868	22 818	22 798	22 611	22 611	21 400	21 442
Greece	3 606	2 903	2 601	2 818	3 280	3 433	3 181	3 000	3 166	1 940	1 580	1 413
Hungary	7 314	7 606	7 406	7 265	7 514	7 101	6 638	6 750	6 536	7 242	7 609	7 543
Iceland	739	608	404	416	370	176	160	210	225	222	219	189
Ireland	3 761	3 806	3 804	3 976	801	881	902	796	615	610	521	443
Israel	1 214	1 845	1 476	2 164	2 145	1 852	1 286	1 569	1 064	1 137	1 396	1 600
Italy	10 035	6 764	6 690	4 667	5 436	4 565	5 527	4 242	4 379	5 099	3 823	3 915
Latvia	514	536	544	501	610	612	581	581	565	360	356	328
Lithuania	1 260	1 295	1 713	1 737	1 715	1 912	1 854	758	1 959	1 766	1 547	1 437
Luxembourg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Netherlands	4 107	2 157	2 293	1 547	2 303	2 250	2 200	2 578	2 150	2 100	2 100	2 100
Norway	413	338	439	507	514	578	550	500	450	405	507	679
Poland	24 889	22 037	13 832	13 236	13 875	17 543	17 789	18 947	19 994	20 330	19 469	19 183
Portugal	2	<0.5	<0.5	<0.5	<0.5	<0.5	1	12	1	4	6	2
Romania	9 048	6 145	4 574	4 630	5 336	4 896	5 206	4 867	8 278	3 255	4 042	6 050
Slovakia	1 950	1 414	1 364	1 361	1 396	1 368	1 531	1 746	1 646	1 603	1 693	1 718
Spain	8 869	8 710	8 710	8 710	8 710	8 000	7 300	6 600	6 000	6 000	6 000	6 000
Sweden	1 934	1 810	1 980	1 559	1 478	1 459	1 234	1 436	1 491	1 393	1 417	1 644
Switzerland	1 588	1 841	1 859	1 809	1 840	1 659	1 715	1 544	1 815	1 602	1 475	1 422
Turkey	47 976	49 600	50 460	54 500	50 190	42 824	43 323	43 938	44 698	45 585	46 115	44 082
United Kingdom	2 146	1 930	1 491	4 569	4 835	2 743	3 142	3 431	3 875	1 120	1 172	2 421
TOTAL	217 672	207 474	198 221	194 581	188 004	176 521	177 046	179 200	184 101	177 007	174 761	177 127

Source: FAO Fisheries and Aquaculture Information and Statistics Service. 2008. Capture production 1950-2006. FISHSTAT Plus - Universal software for fishery statistical time series [online or CD-ROM]. FAO.