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STUDY

## Policy Department B Structural and Cohesion Policies

# FISHERIES IN CROATIA

FISHERIES

2009

EN





ΕΒΡΟΠΕΪΣΚΙ ΠΑΡΛΑΜΕΝΤ ΠΑΡΛΑΜΕΝΤΟ ΕΥΡΟΠΕΟ ΕΥΡΟΠΣΚΪ ΠΑΡΛΑΜΕΝΤ ΕΥΡΟΠΑ-ΠΑΡΛΑΜΕΝΤΕΤ  
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**Directorate-General Internal Policies of the Union**

## **Policy Department B: Structural and Cohesion Policies**

### **FISHERIES**

# **FISHERIES IN CROATIA**

## **STUDY**

**Content:**

Document describing the fisheries and aquaculture sector in Croatia for the Delegation of the Committee on Fisheries visiting from 25/02/2009 to 27/02/2009. The note describes Croatian fisheries, aquaculture and related activities. Special attention is paid to bluefin tuna fattening. The development of relations between Croatia and the European Union is also described.

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## Executive Summary

Official figures of Croatia's fisheries production should be treated with caution, due to weaknesses in the system of obtaining statistics. These weaknesses are due to 'subsistence fishing', for which 13 000 licences have been granted; the absence of landing declarations and sales notes, as well as the lack of a system for collecting data from logbooks, which would enable cross-checking. Moreover, Croatian statistics only include catches made inside Croatian internal waters. Thus, catches made in the Ecological and Fisheries Protection Zone (ZERP) or in other waters are not reflected in the statistics.

Fishing in Croatia is mainly non-industrial. Its contribution to GNP is nearly 0.25% (about EUR 56 million) and it employs around 20 000 people. Nonetheless, on the coast and, above all, the islands, there are a number of populations dependent on fishing. About 70% of fishing, aquaculture and processing takes place on the islands. However, the development of tourism and aquaculture is reducing the dependency on fishing in some areas.

66% of production comes from marine fisheries and 9% from freshwater fisheries. Aquaculture contributes 25% to the total production. Marine aquaculture and, especially, bluefin tuna fattening, has increased in recent years. Bluefin tuna fattening now represents a substantial part of the economic activity in the fisheries sector and, above all, of exports. The bluefin tuna accounts for 54% of the total stocks produced by marine aquaculture and more than 60% of its value. Moreover, it accounts for more than 70% of fishery products' export value. Furthermore, another large fishing ground, the fishery for small pelagic species, is also dependent on bluefin tuna fattening, since part of the catch is used to feed the tuna.

The Croatian fishing fleet is made up primarily of small-size boats, which are fairly old and obsolete. Nevertheless, the tuna fleet is one of the largest in the Mediterranean and shows signs of being too large for the bluefin tuna quota set by the ICCAT.

The management of fisheries resources is overseen by a large number of responsible bodies. Occasionally, responsibilities overlap and there is room for improvement in the vertical and horizontal cooperation of the responsible bodies.

The development of the fisheries sector is being hindered by deficient infrastructure and the lack of investment in production operations, whether this is in the fleet, in aquaculture or in processing. However, the lack of investment is much more pronounced with regard to infrastructure (ports and markets), which creates serious shortcomings. There is a serious shortage of fishing ports and landing points. Moreover, the lack of refrigeration facilities on the boats and at ports has an impact on the entire channel of commerce. The marketing process is also faced with a very underdeveloped processing industry, mainly made up small-scale businesses with obsolete technology. Despite the dependency of the islands on the fisheries sector, the required infrastructure is being developed very slowly.

The Croatian market has a high potential demand for fisheries products. There are opportunities to increase domestic demand and tourism has opened up a large market. In addition, the shortfall in fisheries products on the Community market also offers additional possibilities, provided Community standards and norms are complied with. However, the deficient infrastructure and the disorganisation of the channel of commerce make it difficult to exploit these opportunities. The marketing process is faced with problems of a different kind, such as the limited development of organisations and cooperatives. This is due to a resistance to associationism, which is greater in older populations.

The accession process of Croatia to the European Union has been hindered by fisheries-related issues. In particular, the main obstacles have been created by the declaration of the Ecological and Fisheries Protection Zone (ZERP) and disputes with Slovenia over the boundaries of the territorial waters in Piran Bay.

At first it was regarded as probable that accession would take place in 2010. However, since the rejection of the Treaty of Lisbon in the referendum in Ireland, the enlargement timetable is running the risk of being changed substantially. Croatia presented its bargaining position on the fisheries question on 26 September 2008.

The Commission has pointed out various weaknesses in Croatia's management of fisheries resources. The management of the Croatian fleet also has certain shortcomings with regard to Community rules, especially the lack of an entry-exit system compatible with the system in force in the European Union. Moreover, Croatia will have to make substantial improvements in inspection and control, structural actions and state aid.

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# 1. Geographical Situation

Croatia is located on the eastern shore of the Adriatic Sea. To the northwest, it is bounded by the Alps and to the east by the Transdanubian plain and the river Danube. The central area is crossed by the Dinaric Alps and its topography is therefore very varied. The relief is flat near the frontier with Hungary and hilly near the Adriatic coast, with a maximum elevation of 1 830 metres. The climate is Mediterranean on the coast, with hot summers and mild winters. In the interior, the climate is continental, with hot summers and cold winters.

The total surface area of the country is 56 542 km<sup>2</sup>, of which 128 km<sup>2</sup> is water. The coastline extends for 5 835 km, 1 777 km of which is the mainland coastline, the other 4 058 km being island coastline.

The Croatian coastline includes about 1 185 islands, islets and reefs. The islands are long and run parallel to the coast, creating channels. For this reason the baseline is very remote from the mainland, and the internal waters thus created have a surface area of 30 073 km<sup>2</sup>. Croatia's territorial waters extend 12 nautical miles and its continental shelf has a depth of 200 metres or up to the depth of exploitation.

Its borders are 2 197 km long, shared between Bosnia-Herzegovina (932 km), Hungary (329 km), Serbia (241 km), Montenegro (25 km) and Slovenia (670 km).

Croatia's population is 4 437 460. The population trend is downward (-0.21% annually). The population density is 78.5 inhabitants/km<sup>2</sup>. The capital city, Zagreb, has a population of about 800 000. The total population of Zagreb and its metropolitan area is 1 200 000. Other important cities are Split (350 000), Rijeka (250 000) and Osijek (150 000). Then there are smaller cities such as Zadar, Pula, Šibenik, Varaždin, Sisak, Karlovac and Dubrovnik.

Administratively, Croatia is divided into twenty counties (*zupanija*) and one city: Zagreb. The twenty counties are *Bjelovarsko-Bilogorska*, *Brodsko-Posavska*, *Dubrovačko-neretvanska* (Dubrovnik-Neretva), *Istarska* (Istria), *Karlovačka*, *Koprivničko-križevačka*, *Krapinsko-Zagorska*, *Ličko-senjska* (Lika-Senj), *Međimurska*, *Osječko-baranjska*, *Požeško-slavonska* (Požega-Slavonia), *Primorsko-Goranska*, *Šibensko-kninska*, *Sisačko-moslavačka*, *Splitsko-dalmatinska* (Split-Dalmacia), *Varaždinska*, *Virovitičko-podravska*, *Vukovarsko-Srijemska*, *Zadarska* and *Zagrebačka*.

The economic situation is improving, although high rates of inflation and unemployment persist. The contribution of fisheries to GDP is limited, amounting to 0.25%. On the other hand, the average income in the fisheries sector is 75% of the national average, which approximates to 90% of the average income in the agricultural, forestry and fisheries sector as a whole. The fisheries sector provides around 0.3% of jobs. Two thirds of the jobs in the fisheries sector are in non-industrial coastal fishing.

Istarska (the Istrian peninsular) is the most developed region from an economic viewpoint. Employment is more diversified. Moreover, the region has the advantage of better developed infrastructure and proximity to the capital, Zagreb. In addition, this region was barely affected by the war in the 1990s, unlike the central and southern regions. In those regions, although the consequences of the war are still obvious, improvements in road transport infrastructure and the development of tourism are boosting the economy. In general, the islands have a low population density and scarce resources to sustain economic activity. Nonetheless, the islands receive special support.

Map 1: Administrative division of Croatia



Seven of the counties are on the Adriatic coast. From north to south, they are: *Istarska*, *Primorsko-Goranska*, *Ličko-senjska*, *Zadarska*, *Šibenska-kninska*, *Splitsko-dalmatinska*, and *Dubrovačko-Neretvanska*.

Table 1: Coastal counties of Croatia

County	Administrative centre	Ports	Boats	Catches in 2006	Fishing enterprises
Istarska	Pula	11%	30%	14%	10
Primorsko-goranska	Rijeka	18%	18%	23%	10
Ličko-senjska	Senj	4%	2%	0%	
Zadarska	Zadar	21%	13%	40%	8
Šibenska-kninska	Šibenik	9%	8%	4%	3
Splitsko-dalmatinska	Split	25%	22%	15%	10
Dubrovačko-neretvanska	Dubrovnik	14%	7%	3%	7
<b>Total</b>		<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>48</b>

Source: Ministry of Agriculture, Fisheries and Rural Development, Fisheries Directorate. Own table.

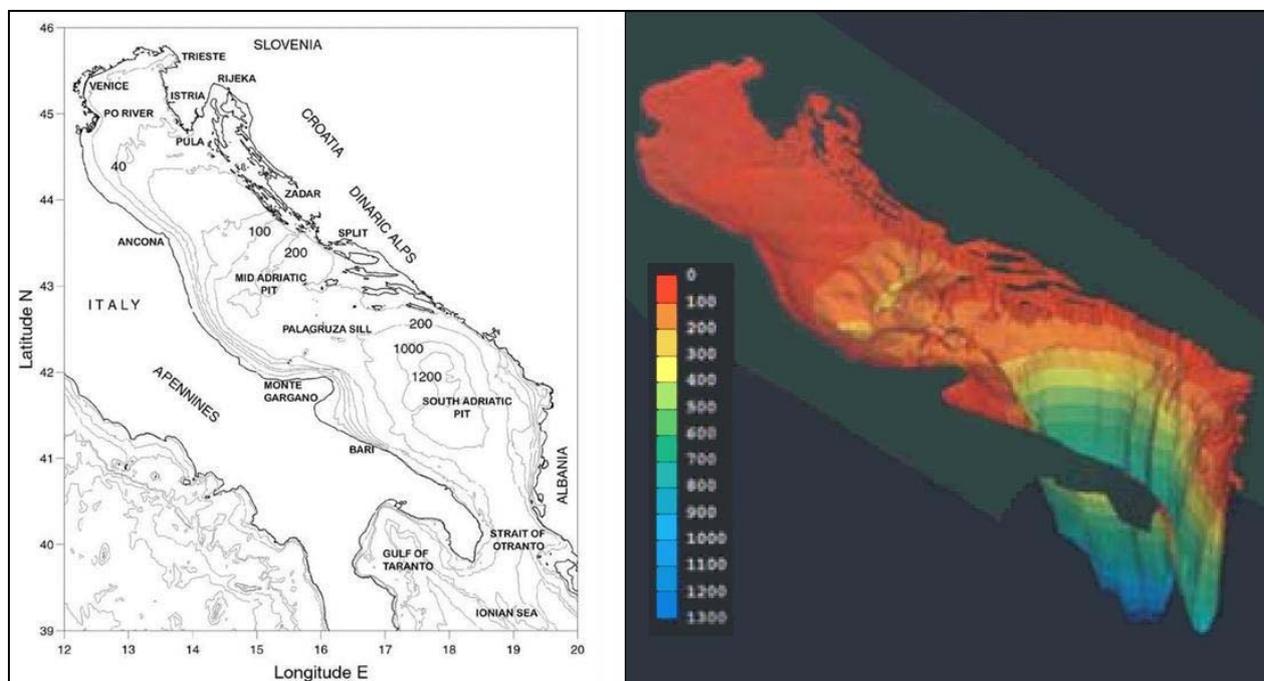
Moreover, two marine fishing enterprises are based in Zagreb, and there are two freshwater fishing enterprises, one in Istarska and the other in Zagreb. Of the seven coastal counties, only four (Istarska, Primorsko-goranska, Zadarska and Splitsko-dalmatinska) are significant in terms of fisheries activities. Most catches and larger-size boats are based in **Zadarska**. The meagre development of commercial infrastructure is compensated for by the existence of processing

industries and some bluefin tuna fattening centres. In **Istarska**, although the volume of catches is limited and the fleet is primarily made up of small vessels, the ports hold a larger number of boats and the commercial infrastructure is comparatively better-developed. At the end of 2008, the Poreč wholesale market was due to start operating. In addition to Zadarska, there are the catches in **Primorsko-goranska**, where there is a wholesale market (Rijeka). In **Splitsko-dalmatinska**, because the ports are scattered, a large part of the catches is used for aquaculture, although Split plays a not unappreciable role as a consumer market.

## 1.1. Physical environment. Seabed and Hydrography

The Adriatic Sea is a semi-enclosed basin within another semi-enclosed sea, the Mediterranean. It has a surface area of 138 000 km<sup>2</sup> and can be divided into three areas: northern, central and southern. The depth of the basin decreases from south to north, and along the longitudinal axis substantial geomorphological and ecological differences are to be found.

**Map 2: Bathymetry of the Adriatic Sea**



The Adriatic continental shelf is the largest in the Mediterranean and extends across its northern and central parts, where the depth varies between 75 and 100 metres. The only exception is the Pomo/Jabuka Pit in the central Adriatic. However, in the southern Adriatic the continental shelf is much narrower, having a slope with a very marked gradient. The southern Adriatic reaches depths of 1 223 metres.

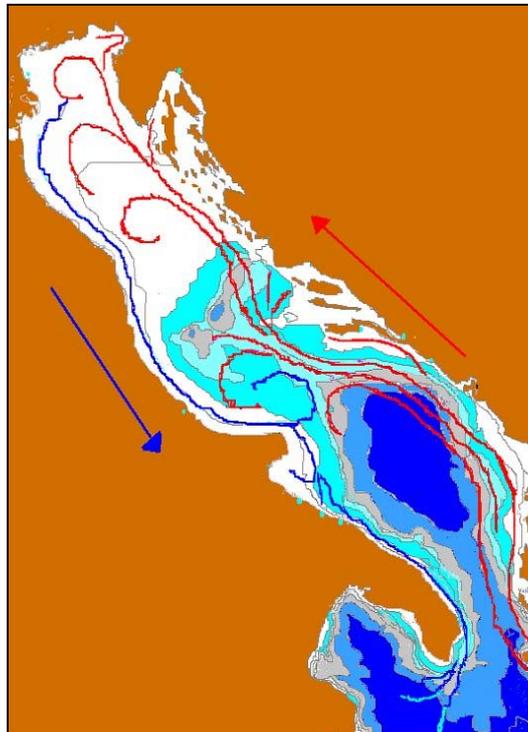
The seabed is also very varied. At depths greater than 100 metres the seabed is muddy. However, in the northern and central areas the seabed is sandy. The two shores are also very different. In the west, the Italian coast is flat and floodplains are common. The Croatian coast is hilly and rocky, with many islands.

The salinity of the Adriatic is quite high. It is somewhat lower than in the eastern Mediterranean, but greater than in the west. The salinity decreases from south to north and from the open sea to the coast. The waters of the Adriatic are relatively warm. The deepest waters are always warmer than 11 or 12°C. In summer, the surface water temperature in the open sea is 22–25°C, dropping to 11.5°C at the bottom of the Pomo/Jabuka Pit and 12°C in the South Adriatic

Pit. In winter, the difference in temperature between the north and the south varies between 8 and 10°C.

The waters of the Adriatic consist of three layers with relatively independent movement: surface, intermediate and deep. The surface layer extends to a depth of 40 metres. The intermediate layer extends to a depth of 150 metres in the central area and to a depth of 400 or 500 metres in the south. The circulation in the surface layer moves anticlockwise, due to the entry of water from the eastern Mediterranean through the Strait of Otranto. This current flows along the Croatian coast and is stronger in summer. In addition, it is affected by the inflows of freshwater from the Italian rivers, which are greater during the winter months. Due to the differences in salinity and temperature and, therefore, density, several horizontal currents exist. In the intermediate layer, the entry current from the eastern Mediterranean predominates throughout the year, but especially in summer. However, in the deep layer, the exit current prevails, to compensate for the inflows into the surface and intermediate layers. As a result, the greatest productivity occurs along the Croatian coast, even though fishing is made difficult by the uneven morphology. Productivity is somewhat lower in the north and the lowest is in areas with the deepest waters.

**Map 3: Winter currents in the surface layer of the Adriatic**



Source: Adriamed, FAO

The Adriatic is one of the largest areas where demersal and small pelagic species occur. Some high-value species such as hake (*Merluccius merluccius*) and Norway lobster (*Nephrops norvegicus*) are very common in the vicinity of the Pomo/Jabuka Pit. In addition, the abundance of juveniles of highly migratory species has enabled the development of activities such as bluefin tuna fattening.

## 1.2. Maritime space

Croatian territorial waters extend for 12 nautical miles and the continental shelf extends to a depth of 200 metres or to the depth of exploitation. Until 1991, the maritime space in the Adriatic Sea was shared between three states: Italy, Yugoslavia and Albania. The Italian and Yugoslavian coastlines were directly opposite each other and there were never problems in delimiting the boundaries of territorial waters. Yugoslavia set the baselines in the vicinity of the islands off the Dalmatian coast in 1948, while Italy did this alone in 1977. This did not prevent both countries from reaching an agreement on delimiting the boundaries of the continental shelf in 1968.

Since the coasts of both countries are directly opposite one another, the rule of equidistance was used. The only modifications made concerned the Yugoslavian islands of Galijula, Jabuka and Pelagruza, and the Italian island of Pianosa, which are fairly remote from the coast. The delimitation in the Gulf of Trieste was made by the Treaty of Osimo in 1975.

After the break-up of Yugoslavia in 1991, three new coastal nations appeared (Slovenia, Croatia and Bosnia-Herzegovina), and a fourth, Montenegro, in 2006. As a result, it was necessary to delimit the maritime spaces of each of these countries.

In principle, there were potential problems in delimiting Croatia's maritime spaces with three bordering nations: in the waters of **Piran Bay** with Slovenia, in **Neum** with Bosnia-Herzegovina and in **Kotor Fjord** with Montenegro. Of these three places, only Piran Bay continues to be an important friction point. In 2003, conflict broke out after the declaration of the Ecological and Fisheries Protection Zone (ZERP: in Croat, *Zaštićeni ekološko-ribolovni pojas*, ZERP). In this case, the problem involved Croatia and the European Union, in that it affected the maritime spaces and fisheries operations of two EU Member States, Slovenia and Italy.

### 1.2.1. Piran Bay

The main problem of jurisdiction concerns the interests of Croatia and Slovenia in **Piran Bay**. Croatia and Slovenia made a draft agreement in 2001. Slovenia would relinquish its claims to territory south of the river Dragonja (4 km<sup>2</sup>). In exchange, Slovenia would increase its sovereignty in Piran Bay to 113 km<sup>2</sup> and a corridor of 3.6 by 12 km, which would enable it to access the open sea without passing through Italian or Croatian waters. However, this draft agreement was not ratified by the Croatian parliament.

The agreement between Croatia and Slovenia on border transit governs fishing on the maritime border between both countries. However, the provisions referring to fishing, which are very similar to a bilateral agreement on fisheries, have never been applied. Nevertheless, until the accession of Slovenia to the European Union, a code of conduct allowed Slovene fishermen to fish in Croatian waters, especially for demersal species. Since the accession of Slovenia to the EU, most of these fishing options have been stopped. Furthermore, the declaration of the ZERP reduced the appeal of the corridor, since it did not lead to the open sea but to Croatian territorial waters. The Slovene government argues that the limited length of the Slovene coastline, 40 km, and its position at the end of the Gulf of Trieste, justifies an exception to the rule of equidistance and claims exclusive sovereignty over Piran Bay.

**Map 4: Maritime space in Piran Bay**

At present, Croatia and Slovenia have not even reached agreement on the appropriate body which could mediate in the conflict. Croatia is trying to submit the case to the International Tribunal for the Law of the Sea in Hamburg. However, Slovenia is bringing up additional land border disputes. The inclusion of a dispute over land borders would fall outside the jurisdiction of the Tribunal for the Law of the Sea. As it stands, the issue of Piran Bay seems to be the major factor behind Slovenia's position of delaying Croatia's accession to the European Union.

### **1.2.2. Ecological and Fisheries Protection Zone (ZERP)**

The Croatian Maritime Code of 1994 already planned an enlargement of territorial waters. The ZERP was created by the Croatian Peasant Party, which was part of the coalition government in 2003. Although the creation of the Ecological and Fisheries Protection Zone (in Croat, *Zaštićeni ekološko-ribolovni pojas*, **ZERP**) by Croatia has been justified as a measure to manage fisheries resources, its scope is much wider. With the creation of the ZERP, Croatia increased its jurisdiction over open seas by 23 870 km<sup>2</sup> over and above its territorial waters (31 757 km<sup>2</sup>).

The decision to create the Ecological and Fisheries Protection Zone (see Annex 1) was published on 3 October 2003. It entered into force one year later, but excluded from its scope of application the Member States of the EU. Since 1 January 2008, the zone has been fully applicable to the Member States of the EU.

In the European Council of June 2004, Croatia was awarded the status of candidate country. The Council also included in its conclusions a political agreement between Croatia, Italy and Slovenia that would suspend the application of the ZERP for boats from the European Union. Likewise, this suspension was mentioned in the framework for accession negotiations.

The Council Decision of 13 September 2004 adopted as a short-term priority that Croatia should **'work to find definitive solutions to pending bilateral issues, in particular border issues with Slovenia, Serbia and Montenegro and Bosnia and Herzegovina without taking**

**unilateral initiatives. Resolve all issues arising from the unilateral declaration of the protected “Ecological and Fishing Zone” in the Adriatic.’**

In its 2006 report on the ‘Accession Partnership with Croatia’, the EU did not include the subject of the ZERP among its main priorities; it merely asked Croatia to continue to apply the tripartite agreement of 2004. The Croatian parliament reviewed its position and on 15 December 2006 imposed a moratorium until 1 January 2008 for boats from EU fishing fleets. Despite the requests of the General Affairs Council of 10 December 2007 and the commitments made in 2004, Croatia maintained 1 January 2008 as the deadline for the moratorium.

On 12 February 2008, the Council updated the conditions imposed on Croatia for its accession to the EU and reviewed the list of priorities<sup>1</sup>. Thus Croatia was to make additional efforts to resolve the problems created by the declaration of the Ecological and Fisheries Protection Zone (ZERP). As a result, on 13 March 2008, the Croatian parliament changed its decision, thus excluding EU Member States until an agreement could be reached. (See Annex 2).

The boundaries of the ZERP exceed Croatian territorial waters, which were established by agreement at the 1968 Treaty between Italy and the Federal Socialist Republic of Yugoslavia. Therefore, by virtue of the 1968 Treaty, the ZERP extended to the median line between Italy and Croatia over the continental shelf of the Adriatic. However, although Italy does not question the division of the continental shelf, it contests jurisdiction over the column of water above it.

In principle, the ZERP guarantees all the countries the freedom of navigation and overflight, as well as the freedom to lay underwater cables and oil pipelines. With regard to fishing, it provides for the conclusion of agreements with other states to exploit the remaining part of the allowable volume of catch, which is fixed in such a way that biological resources are protected. The ZERP empowers the Croatian authorities to protect a vulnerable marine environment and to exploit fisheries resources.

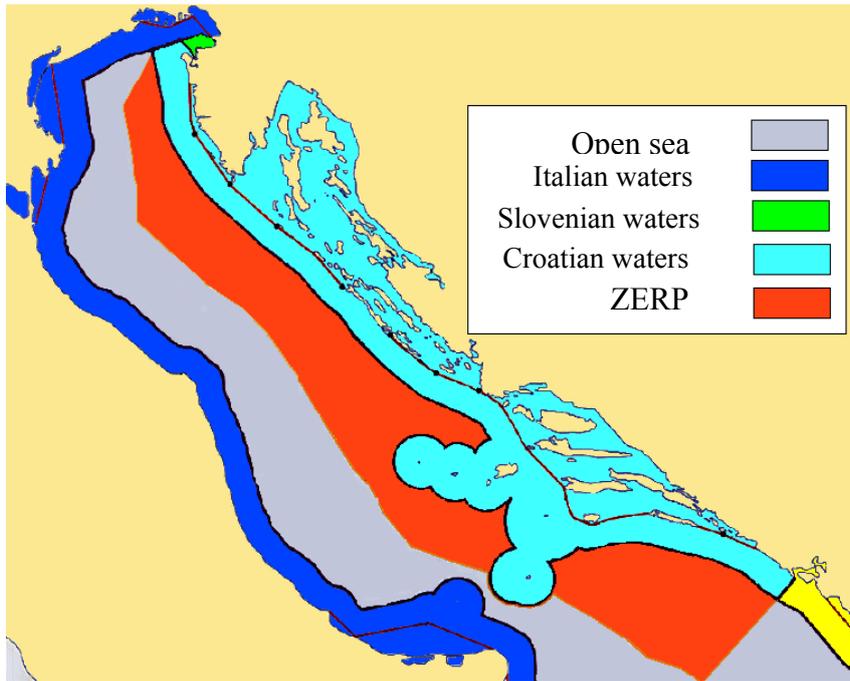
In creating the ZERP, Croatia was supported by the Montego Bay Convention on the Law of the Sea and the Croatian government informed the United Nations of its decision before making the zone operational (see Annex 3). However, Croatia did not comply with Article 123 of the United Nations Convention on the Law of the Sea with regard to concluding consultations with neighbouring countries.

Croatia is also invoking some precedents in the enlargement of areas of jurisdiction in the Mediterranean, such as the Ecological Protection Zone (France), the Fisheries Protection Zone (Spain), the Fisheries Management Zone (Malta), the Exclusive Fishing Zone (Algeria), the Fisheries Zone (Tunis), the Exclusive Economic Zone (Morocco, Egypt and all the countries bordering the Black Sea) and the Enlarged Territorial Waters (Syria).

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<sup>1</sup> <http://register.consilium.europa.eu/pdf/fr/08/st05/st05122.fr08.pdf>

**Map 5: Maritime spaces in the northern Adriatic. ZERP**



Italy is placing great importance on the possible economic effects of the restrictions on fishing. It is calculated that the value of the Italian fleet's catch in the zone amounts to EUR 300 million. Federcoopescas estimates that a third of the value of the Italian catch comes from the ZERP.

Slovenia wants to retain its historical access for a limited number of fishing boats, with very restricted opportunities in Croatian territorial waters along the northwestern coast of Istria.

The annual Slovenian catch is more than 1 000 tonnes, 40 % of which is caught in international waters. Of the 165 boats in the Slovenian fleet, only 23 are longer than 12 metres. The possible access problems would therefore affect these 23 boats and a catch of some 400 tonnes annually.

### 1.2.3. Neum

**Map 6: Neum**



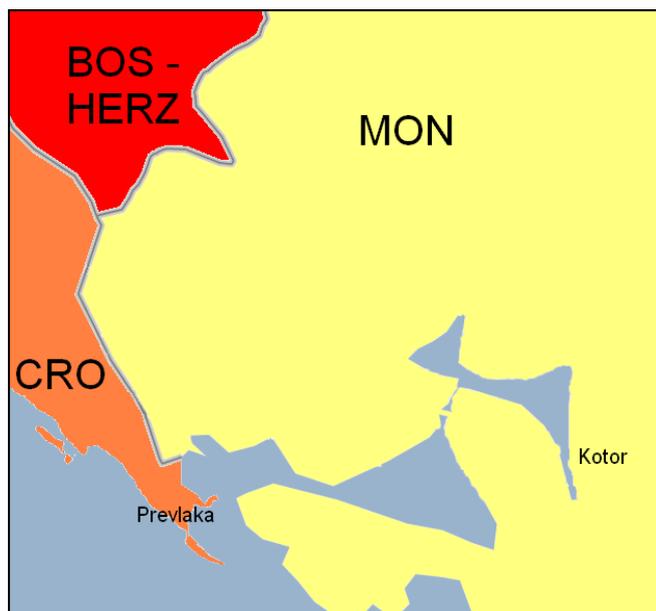
In 1999, Bosnia-Herzegovina and Croatia reached an agreement on the delimitation of the maritime space in **Neum**. It is a very special agreement, since Bosnia-Herzegovina's waters are located within Croatian internal waters as defined by the baselines set for Yugoslavia.

Recently, some friction has been caused by the passage fees of EUR 150 payable annually to Bosnia-Herzegovina by owners of Croatian boats. Another contributing factor to these tensions is the use of the port of Ploce and the construction project of a bridge to connect the Peljesak peninsular with northern Croatia. These issues have brought some territorial claims to the

surface, such as sovereignty over the islets of Veliki Škoj and Mali Škoj. In the absence of ratification of the 2005 agreement to delimit the border between Croatia and Bosnia-Herzegovina, these claims have yet to be resolved.

### 1.2.4. Kotor Fjord

Map 7: Kotor Fjord



Another special case, which may affect Croatia and Montenegro, is that of **Kotor Fjord**. The Kotor naval base is on the territory of Montenegro, at the end of a fjord, the mouth of which opens into a bay overlooked by the Prevlaka peninsular, on Croatian soil. At the end of 2002, Croatia and Serbia-Montenegro reached a provisional agreement on the Prevlaka peninsular in favour of Croatia. This agreement, which enabled the withdrawal of the United Nations monitoring mission, has applied to Montenegro since its independence in 2006. Croatia and Montenegro were to delimit their maritime spaces. For the moment, this issue still appears not to be under negotiation, since

the complete demilitarisation of the area is still in abeyance.



## 2. Fishing Fleet

The Croatian fishing fleet is dominated by small vessels, which is a response to the needs of non-industrial coastal fishing. In 2006, **3 710 vessels** were registered with an average tonnage of 12 tonnes and an average engine power of 68 kilowatts. There is a preponderance of very old boats and a lack of capital to modernise them.

### 2.1. Fleet management

Croatian legislation distinguishes between fishing vessels and boats. **Fishing vessels** are longer than 12 metres and their tonnage is greater than 15 GRT. **Boats** do not satisfy the above criteria, but are used for commercial purposes. These definitions do not comply with Community rules, which covers all vessels equipped for commercial fishing, regardless of their dimensions. In any case, in accordance with Croatian classification, in 2006 there were **485 fishing vessels** and **3 225 boats**.

Croatia is setting up a fishing fleet register which complies with Community rules. At present, Croatia has a register of the fleet which is available on the website <http://www.crs.hr/introduction.asp>. Furthermore, the Fisheries Directorate operates a Commercial Fishing Licence Register, with technical data, both for fishing vessels and boats. However, these registries do not contain all the information required by Community rules for the fishing fleet register.

The management of the fleet in Croatia has some shortcomings with regard to Community rules. For example, there is still no **entry-exit system** compatible with the system in force in the European Union. Furthermore, the **satellite-based monitoring** system of fishing boats (VMS) is still not in operation. Nevertheless, the Croatian authorities hope that this system will be in operation by January 2009 for all boats longer than 24 metres.

Croatia has no structural policy or fund such as those in the European Union. However, state aid is granted through multiannual support plans for fishing, aquaculture and processing of fishery products. In the plan started in 2002, over and above the measures intended for the construction of wholesale markets for fishery products and the funding of assessment and monitoring systems for fishery products, the major portion of the funds is intended for measures related to modernisation and management of the fleet. Some of these measures are:

- Support for investments in maintenance, acquisition or modernisation of equipment. Support may cover 25% of investments up to a limit of €133 000 for individual projects.
- A programme for the withdrawal of trawling licences.
- A programme for the modernisation of the fleet.

Until 2003, the Croatian fishing fleet was maintaining an accelerated growth rate. Between 1999 and 2003, the number of boats increased by 47%, capacity by 40%, and engine power by 52%. Until 2005, the fleet size itself increased slightly, increasing again in 2006.

In 2005, a process of modernisation and renovation of the fishing fleet began. 33 applications were received. In principle, the applications of 23 enterprises were accepted for the construction of 26 boats, at a cost of 218 million kunas (some EUR 30 million). Of these, 15 were purse-seiners between 25 and 37 metres in length. A further eight were trawlers between 21 and 25 metres in length. Finally, the construction of three bulk carriers was planned. However, it seems that a lack of funds has enabled the construction of only five of these boats.

In addition, 22 million kunas (some EUR 3 million) was set aside for the modernisation of seven boats. Four of these were trawlers and the other three were purse-seiners.

As a complement to the measures to modernise the fleet, in April 2008 the Croatian government excluded new registrations of boats which were more than 15 years old from the fishing vessels register.

## 2.2. Geographical distribution of the fishing fleet

The Croatian fishing fleet is very concentrated. 81% of the boats, 86% of the tonnage and 83% of the engine power is concentrated in four (Istarska, Primorsko-goranska, Zadarska and Splitsko-dalmatinska) of the seven coastal counties.

**Table 2: Geographical distribution of the Croatian fishing fleet**

County	Share of the total Croatian fishing fleet			Average dimensions of the boats	
	No of boats	Tonnage (GRT)	Engine power (kW)	Average tonnage (GT/boat)	Average engine power (kW/boat)
Istarska	29%	15%	27%	5.76	62.78
Primorsko-goranska	17%	17%	18%	10.73	69.53
Ličko-senjska	2%	1%	1%	4.4	32.92
Zadarska	13%	27%	17%	23.35	89.68
Šibenska-kninska	9%	6%	10%	8.34	78.53
Splitsko-dalmatinska	22%	28%	21%	14.2	65.03
Dubrovačko-neretvanska	8%	7%	6%	9.5	49.49
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>11.53</b>	<b>67.55</b>

Source: Ministry of Agriculture, Fisheries and Rural Development, Fisheries Directorate. Own table.

The fleet is very different in each of these counties. In Zadarska and Splitsko-dalmatinska, larger-sized boats are more common. However, smaller boats predominate in Istarska and Primorsko-goranska, while there is a higher average engine power in Istarska. In the other three counties (Ličko-senjska, Šibenska-kninska and Dubrovačko-neretvanska) the fleet is made up primarily of small boats used for non-industrial coastal fishing.

## 2.3. The Croatian tuna fleet

Croatia, together with Turkey, France, Italy and Libya, has one of the largest purse-seine tuna fleets in the Mediterranean. In November 2008, the Croatian tuna fleet numbered 116 boats, 14% of the total number of boats registered by the ICCAT and 10% of the total capacity and engine power. This is due to the relatively high number of bulk carriers.

The Croatian tuna fleet is made up of 10 large purse-seiners over 33.1 metres in length. There are also 48 average-sized boats between 24.17 and 33.1 metres in length. Finally, there are 58 bulk carriers under 24.17 metres in length. At least two of the larger and more modern boats

were built with the support of the plan for the renovation and modernisation of the Croatian fishing fleet.

According to the study '*Race for the last bluefin*'<sup>1</sup>, the Croatian tuna fleet is **too large** for the quota allotted by the ICCAT. This study states that the capacity of the Croatian tuna fleet is seven times greater than the quota. Its potential catch amounts to 5 157 tonnes. According to the study, the Croatian tuna fleet is **over-capitalised**, since it cannot take the necessary minimum catch to cover fixed and variable costs and make a minimum profit. To break even, the Croatian fleet would need a quota four times higher.

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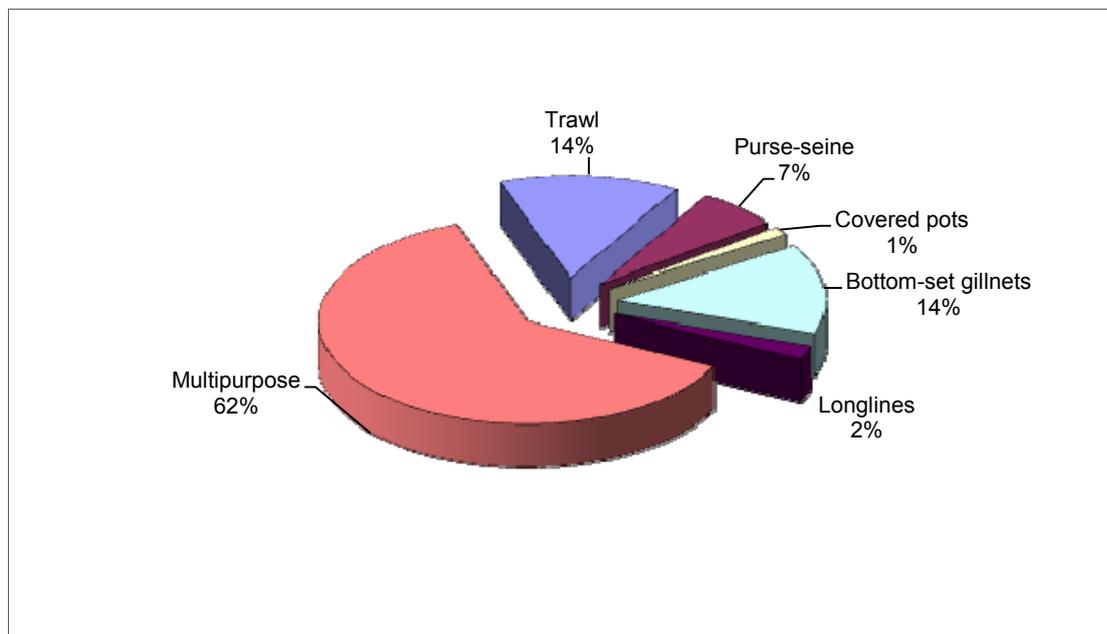
<sup>1</sup> WWF Mediterranean, 2008



### 3. Fishing Gear

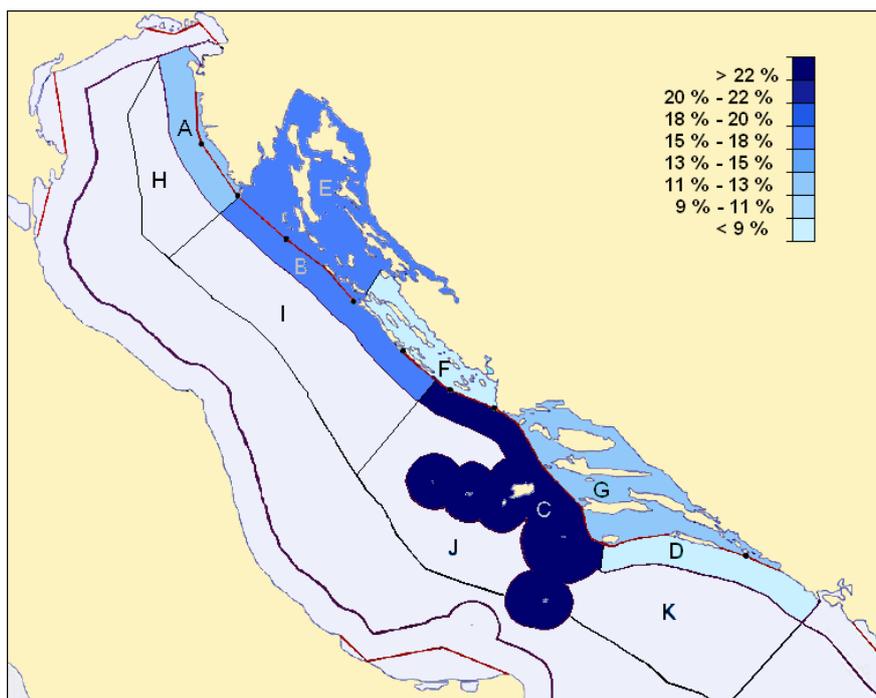
The differentiation in the Croatian fleet between ‘fishing vessels’ and ‘boats’ is explained by the classification of the ‘boats’ as multi-purpose in terms of the use of fishing gear. Thus only an average quality of clear information is obtained on the gear used in boats over 12 metres long. Some of the fishing gear used by the ‘boats’ is not taken into consideration under Community rules.

**Figure 1: Fishing gear used in the Croatian fleet**



Source: Ministry of Agriculture, Fisheries and Rural Development, Fisheries Directorate. Own figure.

**Map 8: Geographical distribution of the Croatian trawler fleet. (% of number of boats)**



Data: Ministry of Agriculture, Fisheries and Rural Development, Fisheries Directorate. Own map.

With regard to ‘fishing vessels’, Croatian statistics focus on the activity of boats which practise trawling and purse-seining. Likewise, in terms of catches, only the fleet’s activity in the internal part of Croatian territorial waters is recorded.

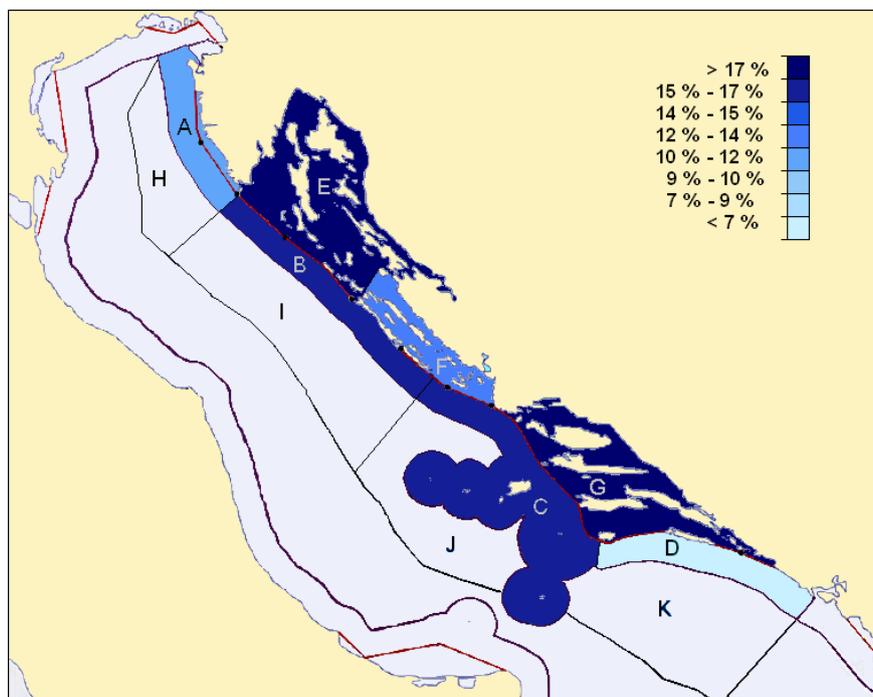
The Croatian trawler fleet is much more concentrated than the purse-seiner fleet. 24% of the trawler fleet is located in Zone C. Trawler activity in Zone C may be indicative of trawler activity in other zones included in the ZERP, especially in Zones H, I and J. Demersal species are concentrated in Zone J. The concentrations of hake, Norway lobster and red mullet are documented.

However, very few boats operate in Zones D and F as trawlers. In Zone D, off the coast of Dubrovačko-neretvanska, trawler activity is restricted by the great depths of the southern pit of the Adriatic. In Zone F, it is the abundance of islands in the channel of internal waters along the coast of the county of Zadarska which makes trawler activity difficult.

Furthermore, the fishing done by the trawlers in Zone C is especially intensive. On the other hand, the catch per unit of effort in Zone A, off the western coast of the Istrian peninsular, are quite a lot higher than in the other zones. In this respect, the fishing effort made by the small fleet operating in Zone D is intensive, as are the results in terms of catch per unit of effort. In Zone F, the catch per unit of effort of the trawler fleet is also higher than average.

The Croatian purse-seiner fleet is distributed fairly uniformly across Croatian territorial waters. Nevertheless, there is a considerably smaller number of purse-seiners in Zone F, and above all in Zone D, off the coast of Dubrovačko-neretvanska. 35% of purse-seiners operate in Zones B and E, to the south and east of the Istrian peninsular, and carry out a fishing effort per boat somewhat higher than average. This fact is especially accentuated in Zone E, which is more protected from adverse climatic conditions. In Zone C, the unit fishing effort of the purse-seiner fleet is also somewhat higher than average.

**Map 9: Geographical distribution of the Croatian purse-seiner fleet. (% of number of boats)**



Data: Ministry of Agriculture, Fisheries and Rural Development, Fisheries Directorate. Own map.

## 4. Fisheries Production

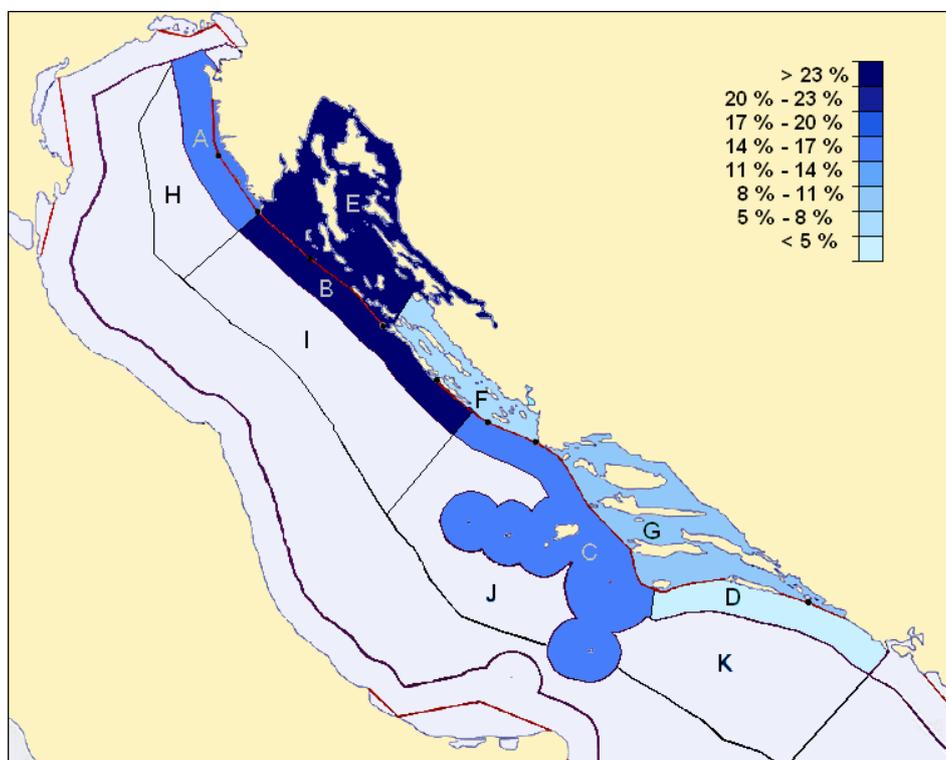
The major part of Croatian fisheries production comes from the eastern part of the Adriatic. There is also a limited amount of catch of freshwater species in the rivers Sava, Danube and its tributaries. 66% of production comes from marine fishing and 9% from river fishing. Aquaculture contributes 25% of total production.

Marine fishing is mainly non-industrial. It can be coastal, in the waters of the channel formed by the islands or even carried out in the open sea. Pelagic trawling predominates in coastal fishing, while in the open sea purse-seining is used.

Production figures should be regarded with caution, due to the weaknesses in the Croatian system of obtaining statistics. These weaknesses are primarily due to the role played by ‘**subsistence fishing**’, for which 13 000 licences have been granted, even though the number of licences used may be substantially lower. Given that a daily catch of up to five kilogrammes is authorised, this arrangement may be obscuring a considerable volume of catches. Another problem is the **absence of landing declarations and sales notes**, as well as the lack of a system of collecting logbook data, which would enable crosschecking.

There are other problems related to the statistics. Croatia divides its territorial waters into seven zones (A, B, C, D, E, F and G). In addition, the ZERP is split into four more zones (H, I, J and K). **Croatian statistics only include catches made inside Croatian internal territorial waters. Thus, catches made in the ZERP or in other waters are not reflected in the statistics.**

Map 10: Distribution of the catch in Croatia. Average 2003-2005

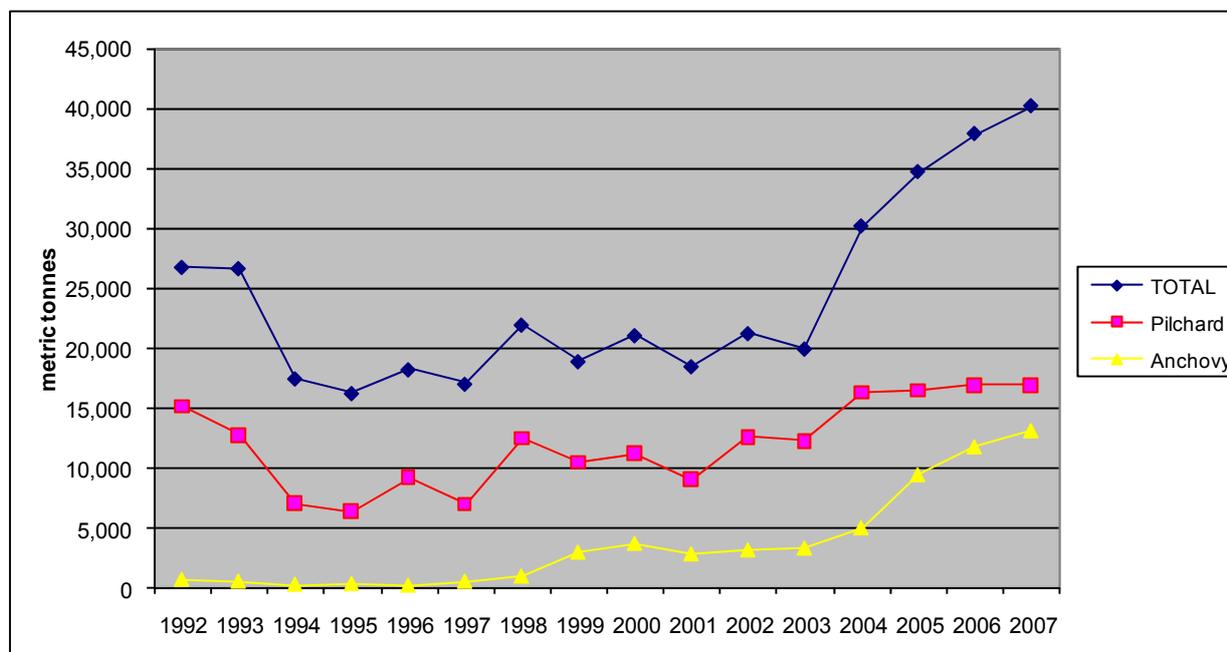


Data: Ministry of Agriculture, Fisheries and Rural Development, Fisheries Directorate. Own map.

51% of the total catch is made in Zones B (24%) and E (27%). Significant catches are also made in Zones A (15%) and C (17%).

The main species caught are European pilchard (*Sardina pilchardus*, 42% of the catch), European anchovy (*Engraulis encrasicolus*, 33% of the catch), northern bluefin tuna (*Thunnus thynnus*, 2% of the catch), European hake (*Merluccius merluccius*, 2% of the catch) and red mullet (*Mullus barbatus*, 2% of the catch). The catches of Norway lobster (*Nephrops norvegicus*), octopi (*Eledone* spp.), sea bream (*Pagellus* spp.) and various flatfish are also significant, by dint of their high prices.

Figure 2: The catch in Croatia



Source: Ministry of Agriculture, Fisheries and Rural Development, Fisheries Directorate. Own figure.

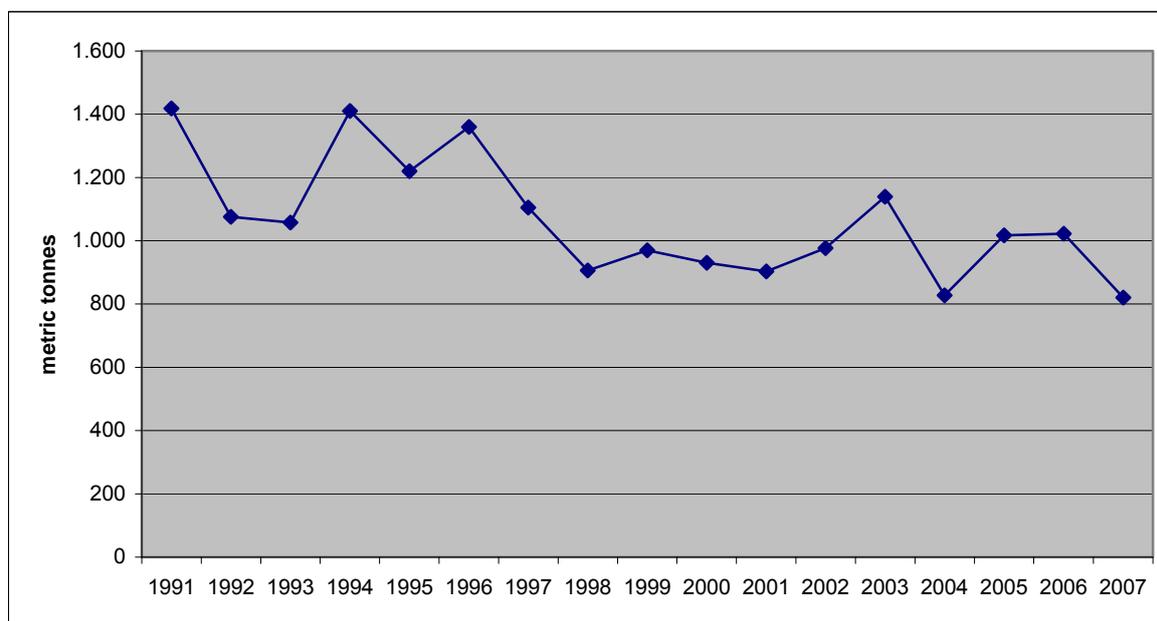
**Pilchards** and **anchovies** alone make up 75% of the Croatian catch. The pilchard catch is especially important and its development has an impact on the whole catch, as can be seen from the reduction at the beginning of the 1990s. Although the pilchard catch is gradually increasing, its growth is slower than the anchovy catch. Both increases have run in tandem with a growth in bluefin tuna fattening. However, this is to a large extent also a response to the introduction of incentives for small pelagic species in 2003 and the establishment of the catch register.

Given the bluefin tuna's migratory nature, the limitation of the catch register to territorial waters encourages underestimates of catches. Various studies have made estimates of catches which were three or four times higher than official statistics (see 5.3 Bluefin tuna fattening). The official figures of the bluefin tuna catch are given in

Figure 3. According to these statistics, about 78% of the catch is made in Zone C, in the waters off the island of Vis and in the Jabuka zone. Given the central position of this zone in the Adriatic, it is probable that if the catch made in the waters of the ZERP was included, the total catch volume would increase considerably.

The tuna catch is gradually decreasing as the resource's situation deteriorates and the quotas set by the ICCAT have also been reduced. Nevertheless, although the bluefin tuna catch has gradually decreased in importance in terms of its proportion of the overall fishing activity and in terms of the Croatian economy, it has grown.

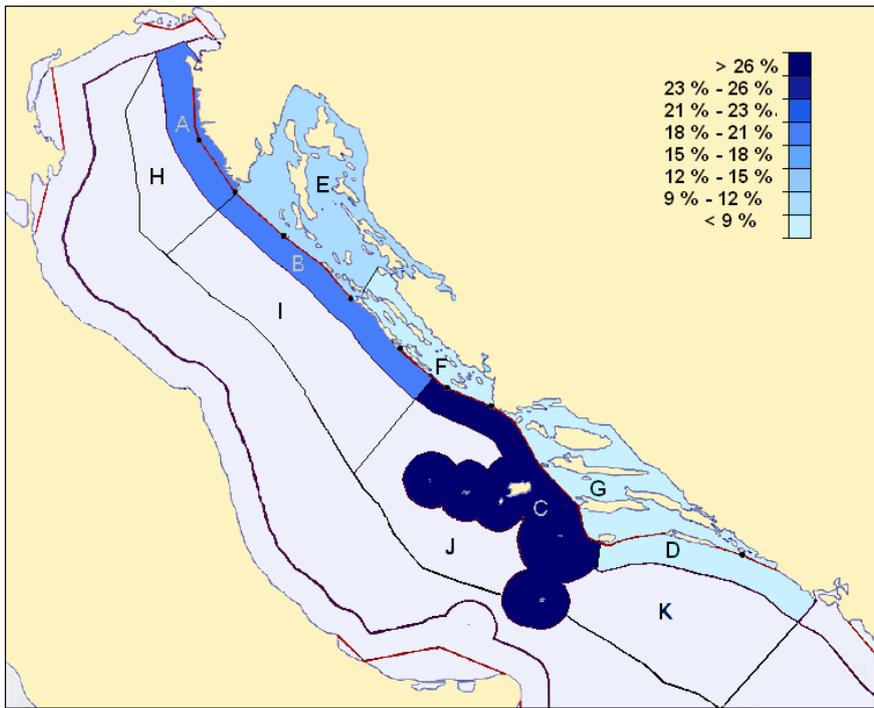
Figure 3: The tuna catch



Source: ICCAT. Own figure.

According to official data, the bluefin tuna catch alone has exceeded the quotas on two occasions. In 2001 it exceeded the quotas, for the first time, by 3%. In 2006 it exceeded them, for the second time, but only by a few tonnes. The ICCAT agreements in Marrakesh in November 2008 reduced the bluefin tuna quota for Croatia, as they did for every other state. If the Marrakesh agreements were to be ratified, the catch for Croatia in 2011 would be reduced to 71% of the official catch in 2007.

Map 11: Geographical distribution of the catch of demersal species

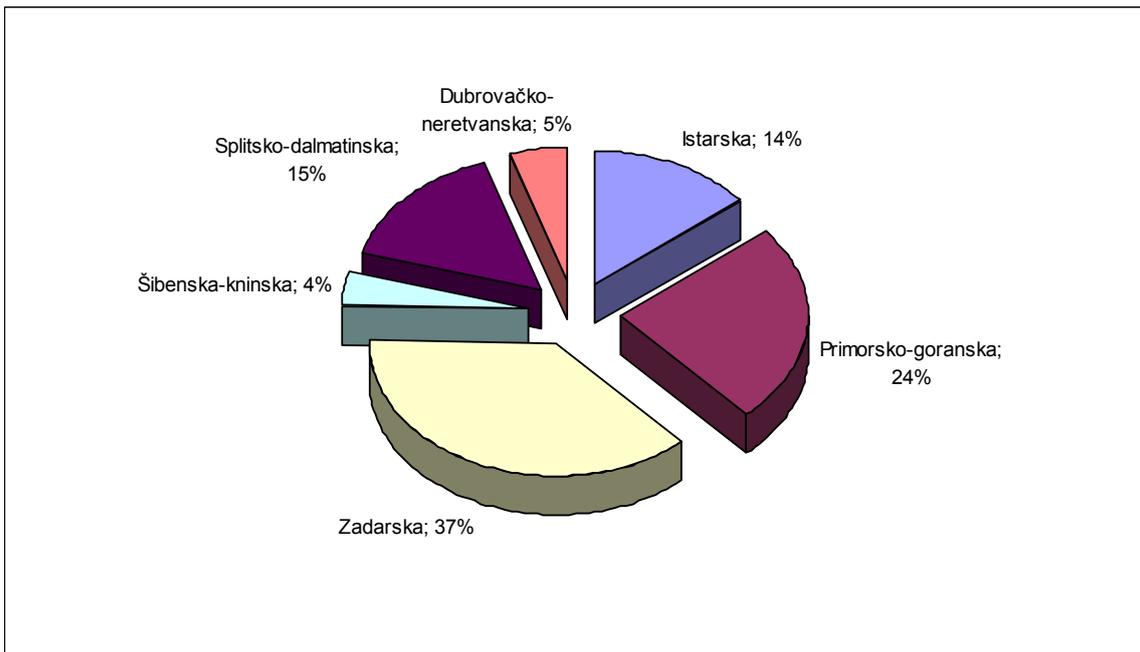


Data: Ministry of Agriculture, Fisheries and Rural Development, Fisheries Directorate. Own map.

The statistics for catches of **demersal species** have shown an increase since the year 2000. In reality, these statistics reflect, above all, the introduction of the obligation to keep a logbook. However, it is still too early for them to reflect the subsidy of 14% of the catch value, which started being granted in 2006. Thus, the hake catch amounted to 870 tonnes, even though in 2001 the statistics only claimed 570 tonnes. Although the statistics for the squid catch showed an increase in 2005, this trend has not been observed in other cephalopods, nor in the case of crustaceans such as the Norway lobster.

The catches of demersal species (see Map 1) are concentrated in Zones C (29%), A (20%) and B (19%), faithfully reflecting the operational zones of the trawler fleet. As in the case of the tuna, the statistics undergo significant changes if we include the catch made in Zones H, I and J of the ZERP.

**Figure 4: Geographical distribution of the catch**



Source: Ministry of Agriculture, Fisheries and Rural Development, Fisheries Directorate. Own figure.

Given the large proportion of small pelagic species in the overall catch, its geographical distribution faithfully reflects the concentration of the catches of pilchards and anchovies. Thus 61% of the catches recorded in the statistics are unloaded in only two counties, **Zadarska** and **Primorsko-goranska**. In both counties, small pelagic species make up the majority of the cargo unloaded, while in Primorsko-goranska significant quantities of hake and Norway lobster are also caught. Cargoes unloaded in Splitsko-dalmatinska and Istarska are also significant, although smaller in quantity. In **Splitsko-dalmatinska**, as well as small pelagic species, hake and red mullet are also caught, while, additionally, in **Istarska**, cephalopods and flatfish are part of the catch.

Catches in Dubrovačko-neretvanska and Šibenska-kninska are much smaller. In **Dubrovačko-neretvanska** the majority species are small pelagic species, hake and Norway lobster, while in **Šibenska-kninska** demersal species predominate. In **Ličko-senjska** catches only amount to anecdotal quantities.

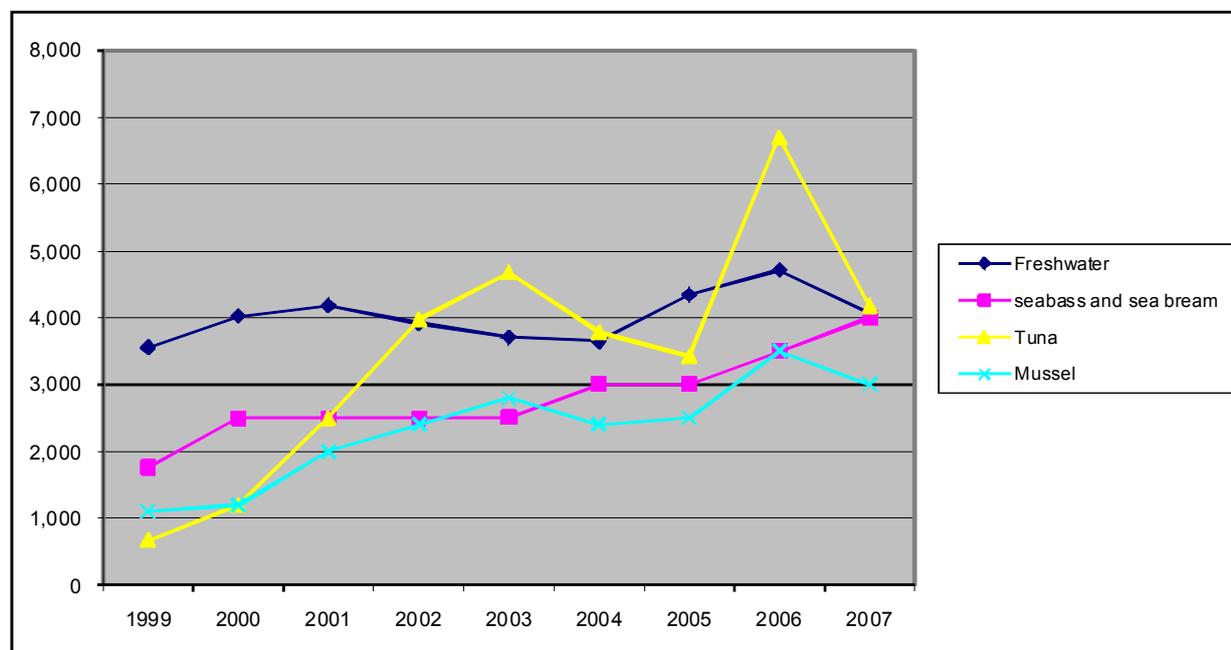
Catches of **freshwater species** amount to very limited quantities, around 50 tonnes. It is sufficient to note that they only make up 8% of the catches from angling and recreational fishing. Catches of freshwater species only started being recorded from 2004. Catches are very varied, with the exception of common bream (*Abramis brama*), which is 30% of the total. The catch of Wels catfish (*Silurus glanis*), common carp (*Cyprinus carpio*) or ide (*Leuciscus idus*) make up between 5 and 6% of the freshwater species catch.



## 5. Aquaculture

Aquaculture in Croatia is carried out both in freshwater and in the sea. Although production of species in freshwater and bivalve is at a standstill, marine aquaculture has been developed in recent years.

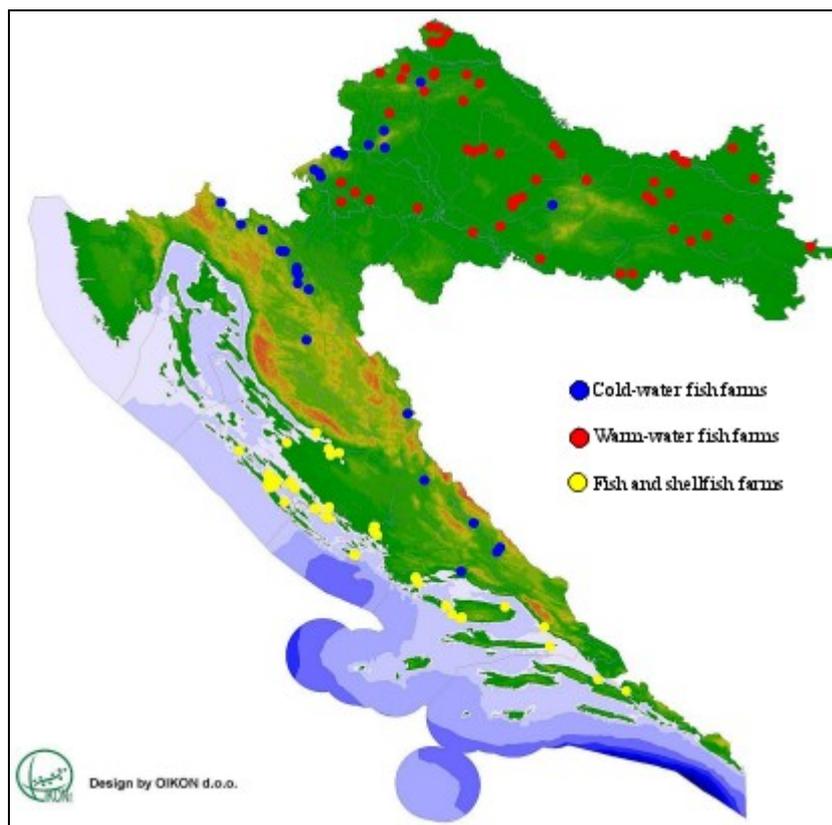
Figure 5: Croatia aquaculture production in tonnes



Source: Ministry of Agriculture, Fisheries and Rural Development, Fisheries Directorate. Own figure.

Aquaculture faces a changing situation in the market. As a result, Croatian aquaculture needs to adapt, in terms of production processes, packing and marketing. However, it faces a series of obstacles. There is a certain lack of adaptation to Community health standards and norms, including ignorance of them by some producers. Marketing faces the same problems of a lack of infrastructure and the same shortcomings in channels of commerce as the entire Croatian fisheries sector. Furthermore, there is a lack of processing plants to add value to aquaculture products. In particular, the production of bivalve molluscs is at a standstill due to a shortage of purification facilities which conform to Community health standards.

Croatia has geographical and climatic conditions which are very favourable for the development of aquaculture, be it in the sea or in freshwater. There are abundant freshwater resources and some fairly well-preserved ecosystems, which provide opportunities for the development of sustainable aquaculture that respects the environment. However, difficulties have arisen in finding new sites of production, due to limited land use planning and competition with other activities for the use of the coast. Furthermore, integrated management of the coastal zones faces public acceptance problems and there is a limited awareness of environmental protection.

**Map 12: Geographical distribution of centres of aquaculture production**

In spite of reduced labour costs, aquaculture has some relatively high production costs. Marine aquaculture relies on imports for the supply of raw materials for feed. For its part, freshwater aquaculture has low revenues due to its obsolete technology. Despite the fact that in recent years marine aquaculture has attracted some foreign investment, there is a lack of capital to improve production structures. Moreover, corporate governance in aquaculture requires improvement.

### 5.1. Freshwater aquaculture

In freshwater, the main species produced are **common carp** (*Cyprinus carpio*) and **rainbow trout** (*Onchorhynchus mykiss*). 83% of freshwater aquaculture production is represented by these two species. In addition, grass carp (*Ctenopharingodon idellus*), silver carp (*Hypophthalmichthys molitrix*), Wels and Amur catfish (*Silurus glanis* and *Silurus asotus*), bighead carp (*Hypophthalmichthys nobilis*), pike (*Esox lucius*), pike-perch (*Stizostedion lucioperca*) and tench (*Tinca tinca*) are also produced, although in much smaller quantities.

**Freshwater aquaculture** is carried out in two types of environment; in warm water fish ponds (for the carp) and in plants with circulating cold water (for the salmonids). Production has decreased in recent years due to the disappearance of markets and problems connected with the transition process. In ten years, the surface area given over to freshwater aquaculture has been reduced by half. In 2005 there was a surface area of 6 289 hectares in warm water fish ponds. Furthermore, in the hilly areas there was a surface area of production of 5.48 hectares in circulation channels.

The production of **trout** is very concentrated. 82% of the 22 production centres are concentrated in just four counties. In Zagrebačka there are 6 operations; in Karlovačka 5; in Ličko-senjska there are 4 and in Splitsko-dalmatinska 3. However, the production of **carp** is much more evenly

spread in the counties of the interior. Nevertheless, 76% of the 21 production centres are concentrated in five counties. The counties with a higher number of operations are: Osječko-baranjska (5), Bjelovarsko-Bilogorska (4), Požeško-slavonska (3), Zagrebačka (2) and Koprivničko-križevačka (2).

In 2005, Croatian freshwater aquaculture produced 1 855 tonnes of fish fry and 4 344 tonnes of fish for consumption. **Common carp** (*Cyprinus carpio*) represented 80% of fish fry production and 51% of production for consumption. **Rainbow trout** (*Onchorhynchus mykiss*) represented 6% of fish fry production and 30% of production for consumption. The production of the rest of the species is considerably lower. The next species in order of importance is the **catfish** (mainly *Silurus asotus*), with 6% of fish fry production and 9% of production for consumption.

Given that freshwater fish farming production is extensive in most parts of the country, returns are low. Furthermore, freshwater aquaculture is confronted by various problems, such as high veterinary costs, water management, and the impact of predation by some species of wild birds.

## 5.2. Marine aquaculture

Marine aquaculture is governed by Regulations on licences for aquaculture and on the register of licences (29/02, 42/04 and 134/05). There is also another Regulation requiring a record sheet of operations in centres of aquaculture production.

In 2006, 32 producers of marine fish producers, 7 bluefin tuna producers and 71 bivalve mollusc producers were registered. The first experiments in marine aquaculture began in 1980, and bluefin tuna fattening began in 1996. European sea bass (*Dicentrarchus labrax*) and gilthead sea bream (*Sparus aurata*) are produced, while bluefin tuna (*Thunnus thynnus*) is the species with the most economic importance. Production takes place mainly in cages. The **bluefin tuna** makes up 54% of all marine aquaculture production; the **sea bass** 32% and the **sea bream** 13%. Recently the production of dentex (*Dentex dentex*) and sharpnose sea bream (*Diplodus puntazzo*) has started, but only has marginal importance. The production of bivalve molluscs is restricted to mussels (*Mytilus galloprovincialis*) and oysters (*Ostrea edulis*).

Of the 32 marine fish farming centres, 12 are in the county of Zadarska, 8 in Splitsko-dalmatinska, 5 in Dubrovačko-neretvanska and the rest are distributed in other counties. It is expected that the production of sea bass and sea bream will increase in the coming years, due to increased domestic demand, the revitalisation of tourism and new investment opportunities. Additional development of marine aquaculture will depend on the adaptation of the Croatian production structure to EU health requirements and on the sufficient availability of fish fry to increase production.

During the 1980s, the production of sea bass and sea bream began in wooden cages, but now cages made of flexible plastic are universally used. Production is tending to move away from the coast out to sea.

## 5.3. Bluefin tuna fattening

The production of bluefin tuna began in 1996, after the return of two big producers from Australia: Dinko Lukin and Tony Santic. Dinko Lukin was the owner of two tuna production firms in Australia (Dinko Tuna Farmers Pty Ltd and Lukin Fisheries Pty Ltd), and Tony Santic owned Tony's Tuna International Pty Ltd.

The share of bluefin tuna as a proportion of the value of marine aquaculture is 61%. However, due to the reduction in availability of fish to fatten, it is expected that the production of bluefin tuna will also fall heavily.

In Croatia, unlike other countries, tuna are fattened for longer, for periods of up to three years. In other countries the fattening period is six months, producing a doubling in weight. However, while in Croatia the tuna are kept in cages for 18 months, quintupling their weight, but mortality and costs increase considerably.

Nevertheless, conditions in Croatian waters are limiting an increase in mortality, and reduced labour costs are partly limiting costs increases. Furthermore, the abundance of juvenile tuna in the Adriatic and the trend to reduce quotas are making the extended fattening time profitable. However, the tendency to fill the quota with younger, smaller fish is having an increased impact on the tuna population. Also, the minimum allowable catch sizes of tuna are smaller than the sizes applicable in the European Union.

In tuna fattening, large cages are used with a circumference which normally varies from 30 to 50 metres, but which can reach 150 metres. They house wild tuna, most of which weigh less than 10 kilogrammes, caught in a purse-seine net.

The tuna are fed with fresh, small pelagic fish caught by the Croatian fleet, frozen imported herring and cephalopods. Herring makes up 88% of their diet, and pilchards around 7%. There have been attempts to increase the use of pilchards but the same quantity of herring ended up being used. Nevertheless, tuna fattening represents a considerable part of the market for the catches of small pelagic species.

According to statistics from the Fisheries Directorate, 1 200 tonnes of bluefin tuna was produced in 2000, reaching a maximum in 2003 of 4 679 tonnes. According to these figures, a 19% reduction of bluefin tuna fattening occurred between 2003 and 2004. With regard to this figure, it should be noted that eight production centres are listed by the ICCAT, with a capacity of 7 880 tonnes. If the statistics are correct, this would imply that the bluefin tuna fattening centres are operating at 46% of their capacity.

Exports to Japan reached significant levels in 1997 and are the main destination for Croatian production of bluefin tuna. Sources such as ATRT<sup>1</sup> have often pointed out differences between Japanese and Croatian external trade figures. The Japanese figures for imports from Croatia are larger than Croatia's figures for its exports to Japan.

In its periodical studies '*The plunder of BlueFin tuna in the Mediterranean & East Atlantic*', ATRT carries out estimates which imply that the Croatian figures underestimate real catches. ATRT bases its estimates on Japanese imports from Croatia, Croatian imports of juvenile tuna, fattening periods, the operations of the boats and fattening centres, among other factors. For example, in 2006, estimates of catches were three times the ICCAT quota<sup>2</sup>. In that year, with a quota of 970 tonnes, 2 145 tonnes were exported and the catch was estimated at 3 101 tonnes.

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<sup>1</sup> Advanced Tuna Ranching Technologies S.L.

<sup>2</sup> The plunder of BlueFin tuna in the Mediterranean & East Atlantic during 2006 and 2007. Advanced Tuna Ranching Technologies S.L. 2007. Table: 2.2.1.9.: Summary of Croatia's 2006 Processed BFT Exports and Real Estimated BFT Catches per Fishing Gear.

Moreover, the '*Race for the last bluefin*'<sup>1</sup> study estimated an even higher catch. According to this study, the catch was as high as 4 793 tonnes.

Table 3: The figures for bluefin tuna production in Croatia

Bluefin tuna fattening centres	ICCAT Capacity (mt)			7 880
	Average production 2004/2005 FAO (mt)			3 600
	% production/ICCAT capacity			46%
Croatian total catch				Production of fattening farms (mt)
	ICCAT quota (mt)	Catch (mt)	% catch/quota	
2001	1 259	903	72%	2 500 <sup>(1)</sup>
2002	1 232	977	79%	3 971 <sup>(1)</sup>
2003	1 155	1 139	99%	4 679 <sup>(1)</sup>
2004	951	827	87%	3 777 <sup>(2)</sup>
2005	1 069	1 017	95%	3 425 <sup>(2)</sup>
2006	1 022	1 022	100%	
2007	862	820	95%	
2008	833			
2009*	641			
2010*	582			

\* ICCAT Marrakesh agreements, November 2008

<sup>(1)</sup> Fisheries Directorate data

<sup>(2)</sup> Fisheries Directorate data communicated to the FAO

Sources: ICCAT, Fisheries Directorate, FAO. Own table

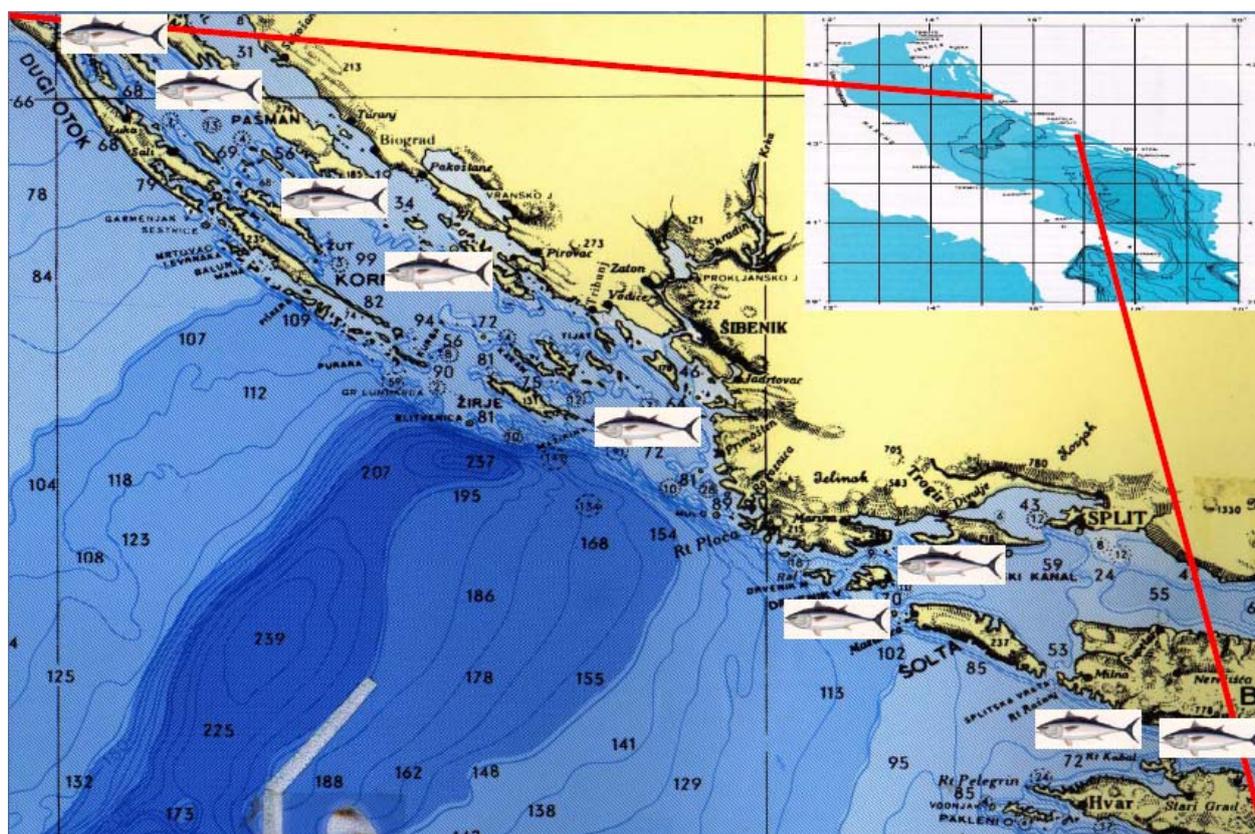
In 2003, producers in Libya sold part of their tuna to Croatian producers, because of high mortality rates in the Garabouli fish farms. According to official data, between 2003 and 2004 there was a 19% reduction in catches and in production from bluefin tuna fattening farms. This reduction, linked to joint enterprise operations, caused a reduction in employment of 4% in the fisheries sector. This shows the dependence of the Croatian fisheries sector on bluefin tuna fattening. Bearing in mind the lamentable state of bluefin tuna populations, there appear to be a number of question marks over the future of this activity in the short term and its place in the Croatian fisheries sector. With regard to this, it should be noted that, in Marrakesh, the ICCAT reduced the Croatian quota by nearly 33% (pending ratification).

Bluefin tuna fattening often requires the cooperation of foreign fleets, which supply fish for fattening. Until 2000, tuna fattening used catches from the Croatian fleet exclusively. Subsequently, catches from the Italian, French, Tunisian and Spanish fleets have been used. Until 2003, foreign fleets supplied around 1 100 tonnes of bluefin tuna to Croatian fattening centres. In 2004 the supplies dropped to 636 tonnes. Subsequently, the use of catches by foreign fleets has increased considerably, exceeding 1 600 tonnes in 2006.

<sup>1</sup> WWF Mediterranean, March 2008. Table 016: Estimated minimum real yearly PS BFT catches by Croatia's PS fishing fleet based on yearly total processed farmed PS BFT production figures according to the Croatian Chamber of Economy and CROSTAT, total exports to Japan during that same period, and exports according to INFOSAMAK.

57% of bluefin tuna production occurs in Zadarska (4 520 tonnes), and 38% in Splitsko-dalmatinska (2 960 tonnes). Sizes of the production centres differ greatly and production is very concentrated. The two major enterprises, Kali Tuna d.o.o. (1 990 tonnes) and Marituna d.d. (1 500 tonnes), make up 44% of production capacity. Sardina d.d. oversees the management of the production centres of two enterprises (Sardina d.d. and Brač tuna d.o.o.), with a capacity of another 1 800 tonnes. These three enterprises make up 67% of bluefin tuna production capacity. Other enterprises are Drvenik Tuna d.o.o. (900 tonnes), Jadran Tuna d.o.o. (800 tonnes), Bepina Komerc d.o.o. (560 tonnes) and Zadar Tuna d.o.o. (230 tonnes). In addition, there is Adriatic Tuna d.o.o., which appears to be operating, but which, in January 2009, did not appear on the ICCAT list of production centres. There are many other management links. For example, Adriatic Tuna d.o.o. and Zadar Tuna d.o.o. have the same management team. Also, Bepina Komerc d.o.o. was formed by persons linked with Drvenik Tuna d.o.o.

Map 13: Locations of tuna fattening centres



Source: Ivan Katavić, 2008

Efforts are still required to reduce the environmental impact of tuna fattening centres and to avoid conflicts with other sectors in the use of coastal areas. In particular, better control of feed and a reduction in waste would benefit both the economy of production and the environment. Better definition of the production zones and an improvement in production technology further off the coast would also enable the environmental impact of this activity to be reduced.

#### 5.4. Production of bivalve molluscs

With regard to **bivalve molluscs**, a certain quantity of mussels (*Mytilus galloprovincialis*) and oysters (*Ostrea edulis*) are produced in the Bay of Malostonski (Dubrovačko-neretvanska) and the Bay of Limski (Istarska). Of the 71 registered operations, 45 are located in the county of Dubrovačko-neretvanska, 11 in Istarska and another 11 in Šibenska-kninska. In general, the

production of bivalves is carried out in family operations and there are only ten or so operations which produce more than fifty tonnes annually.

Mussels make up 88% of the production of bivalve molluscs. In general, mussels are produced hanging on ropes, although some producers use plastic baskets. Bivalve mollusc production is at a standstill, since its marketing is restricted to the domestic market, due to the lack of purifying plants complying with Community health standards. Nevertheless, a process to identify and authorise new production zones is underway. In the county of Dubrovačko-neretvanska there are around a hundred applications for the installation of new operations, and another twenty in Šibenska-kninska.



## 6. Management of fisheries resources

The Commission, in its screening report of 18 July 2006 on the Community *acquis*, pointed out various weaknesses in Croatia's management of fisheries resources. Among them we can cite the status of '**subsistence fishing**', the **differences in technical measurements**, the improvement required in the quality of **catch data, fishing effort and assessment of resources** in order to improve the scientific basis of the management of the resources. In addition, it also pointed out the need to improve the collection of **economic data**.

The management of fisheries in Croatia is the responsibility of the **Fisheries Directorate**, a department of the Ministry of Agriculture, Fisheries and Rural Development. The Fisheries Directorate has its headquarters in Zagreb and has seven provincial offices.

The Fisheries Directorate is organised into four departments: marine resources management, freshwater resources management, fisheries inspection and cooperation with international projects. There are two bodies representing producers which play a consultative role in the legislative process: the **Croatian Economic Chamber** (HGK, enterprises, with 222 members) and the **Croatian Chamber of Cottage Industry and Commerce** (HOK, small producers and individual fishermen, with 1 900 members).

The basic legislation on fisheries in Croatia is the Marine Fisheries Law of 6 October 1994. This Law has been revised (57/96 and 46/97) and was consolidated in 2005 (48/05). The Law is complemented by a 2006 Regulation on commercial fishing (DO 6/2006, 46/06, 66/07), which establishes the main measures of management in commercial fishing, and by the Regulation on fishing gear and tools in commercial fishing (6/06, 46/06, 93/06).

Fishing operations are regulated by a system of licences. Since 2001, it has been compulsory to keep a logbook, with a record of catches, but without specifying the quantities per species. The **lack of landing declarations and sales notes** as well as the lack of a system for capturing logbook data, which would enable cross-checking, makes the efficient management of fisheries resources difficult to achieve. The single species subject to **quotas** is the **bluefin tuna**, in accordance with the TACs set by the ICCAT.

The Marine Fisheries Law establishes distinctions between commercial and subsistence fishing and angling and recreational fishing. **Commercial fishing** by foreign natural or legal persons in Croatian waters is not permitted. Neither is it permitted for Croatians working on behalf of foreigners. These restrictions clash with the provisions of the EC Treaty on the right of establishment and free movement of capital. However, the provisions to combat **Illegal, Undocumented and Unregulated fishing (INDNR, IUU)** are restricted to boats registered in Croatia, but do not affect boats registered in countries which may have economic ties with Croatia.

Croatian legislation defines '**subsistence fishing**' as being for personal consumption. Under this definition, catches of up to five kilogrammes per day are allowed. Although there are 13 000 licences, the number of licences used is slightly fewer. Nevertheless, subsistence fishing presents serious problems of control, may be concealing a considerable volume of catches and may be creating a grey economy.

Management tools, such as permits, the fleet register, the protection of species, monitoring and control of logbooks are governed by these Regulations:

- Regulation on permits and the fishing fleet register (155/05 and 135/06);

- Regulation on logbooks and the presentation of data on catches (95/07);
- Regulation on the control and supervision of fishing and monitoring (62/06 and 135/06);
- Ordinance on the protection of fish and other marine organisms (101/02).

Freshwater fishing is regulated by Law 26 of November 2001, amended by 7/03, 174/04 and 10/05 and consolidated in 49/05. Its application is governed by the Regulation on commercial fishing in freshwater (82/05).

The management of resources is based on technical measurements, control measurements and regulatory measurements of the fishing effort. The main measurements are based on minimum sizes of landings, closed seasons for some species and closed seasons and areas for some fishing gear.

The waters of the channel between the islands and the mainland are subject to numerous closed seasons. This means that a large part of Croatian internal waters are very restricted in terms of fishing opportunities. There are some 20 zones protected with special management measures, due to their importance as spawning grounds.

There are species with minimum sizes under Community rules on the Mediterranean<sup>1</sup> for which Croatia has not set minimum sizes (seven fish species, one crustacean species and one bivalve mollusc species). These species do not appear in the catch statistics. On the other hand, Croatian rules<sup>2</sup> have set minimum sizes for species which lack them under Community rules (eleven fish species, one crustacean species and two bivalve mollusc species).

**Table 4: differences in species with minimum sizes under Croatian and Community rules**

	Species with minimum size in Croatia but not in the EU	Species with minimum size in the EU but not in Croatia
<b>1. Fish</b>	Dentex ( <i>Dentex dentex</i> , 30 cm) Angler ( <i>Lophius spp.</i> , 30 cm) Mullet ( <i>Liza spp.</i> , <i>Chelon spp.</i> , 16 cm) Flathead mullet ( <i>Mugil cephalus</i> , 20 cm) Atlantic bonito ( <i>Sarda sarda</i> , 45 cm) Brown meagre ( <i>Sciaena umbra</i> , 30 cm) Largescaled scorpionfish ( <i>Scorpaena scrofa</i> , 25 cm) Greater amberjack ( <i>Seriola dumerili</i> , 45 cm) Black seabream ( <i>Spondyliosoma cantharus</i> , 18 cm) European sprat ( <i>Sprattus phalericus</i> , 8 cm) Mediterranean spearfish ( <i>Tetrapturus belone</i> , 120 cm)	Annular sea bream ( <i>Diplodus annularis</i> , 12 cm) Sharpsnout sea bream ( <i>Diplodus puntazzo</i> , 18 cm) Common two-banded sea bream ( <i>Diplodus vulgaris</i> , 18 cm) Striped sea bream ( <i>Lithognathus mormyrus</i> , 20 cm) Axillary sea bream ( <i>Pagellus acarne</i> , 17 cm) Blackspot sea bream ( <i>Pagellus bogaraveo</i> , 33 cm) Wreckfish ( <i>Polyprion americanus</i> , 45 cm) Mackerel ( <i>Trachurus spp.</i> , 15 cm)
<b>2. Crustaceans</b>	Spinous spider crab ( <i>Maja squinado</i> , 10 cm)	Deepwater rose shrimp ( <i>Parapenaeus longirostris</i> , 20 mm CL)
<b>3. Bivalve molluscs</b>		Clams ( <i>Venerupis spp.</i> , 25 mm)

There are no differences in the minimum sizes of anchovy (*Engraulis encrasicolus*), grouper (*Epinephelus spp.*), goatfish (*Mullus spp.*), chub mackerel (*Scomber spp.*), common sole (*Solea vulgaris*), Gilthead sea bream (*Sparus aurata*), Norway lobster (*Nephrops norvegicus*), great scallop (*Pecten jacobaeus*) and striped venus (*Venus spp.*). Table 5 shows the minimum sizes for landings in Croatia where there are differences compared to the sizes established by the

<sup>1</sup> Regulation (EC) No 1967/2006

<sup>2</sup> Ministerial decree on the protection of fish and other marine organisms. NN 101/02 1660 (NAREDBU O ZAŠTITI RIBA I DRUGIH MORSKIH ORGANIZAMA)

Community rules for the Mediterranean. There is only one species, the common sea bream, for which Croatian rules have established a minimum size greater than that established under Community rules, and the difference is substantial: 67%. In contrast, sizes under Community rules are greater than those under Croatian rules for: white sea bream (53%), hake (25%), common pandora (25%), European lobster (25%), European pilchard (10%) and sea bass (9%). There are also differences for spiny lobsters. In this case, Community rules have established a minimum size for all spiny lobsters (*Palinuridae*), while Croatian rules have focused on the common spiny lobster (*Palinurus elephas*).

Moreover, Croatian rules have established a minimum size of 70 cm or 6.4 kg for the **bluefin tuna** (*Thunnus thynnus*) where Regulation (EC) 1559/2007<sup>1</sup> lays down a benchmark of 115 cm or 30 kg for the European Union. However, Regulation (EC) 520/2007<sup>2</sup> lays down a minimum size of 80 cm or 10 kg for the Mediterranean. For the **swordfish** (*Xiphias gladius*), Croatian rules lay down a minimum size of 70 cm or 6.4 kg, while Regulation (EC) 520/2007 lays down a minimum size of 125 cm or 25 kg, but only for the Atlantic Ocean.

**Table 5: Differences in minimum sizes for landings in Croatia and the EU (Mediterranean)**

Scientific name	Common name	Minimum size	
		Croatia	EU (Reg. 1967/2006)
<b>1. Fish</b>			
<i>Dicentrarchus labrax</i>	Sea bass	23 cm	25 cm
<i>Diplodus sargus</i>	White sea bream	15 cm	23 cm
<i>Merluccius merluccius</i>	European hake	16 cm	20 cm
<i>Pagellus erythrinus</i>	Common pandora	12 cm	15 cm
<i>Pagrus pagrus</i>	Common sea bream	30 cm	18 cm
<i>Sardina pilchardus</i>	European pilchard	10 cm	11 cm
<b>2. Crustaceans</b>			
<i>Homarus gammarus</i>	European lobster	240 mm TL	300 mm TL 105 mm CL
<i>Palinuridae</i>	Spiny lobster	240 mm TL ( <i>P. Elephas</i> )	90 mm CL

TL = total length; CL = carapace length.

Trawling is prohibited within one nautical mile of the shore. From 31 December 2009, this prohibition will be extended to three nautical miles and to depths under 50 metres. Under Regulation (EC) No 1967/2006 on the management of fisheries resources trawling is prohibited within 1.5 nautical miles, although 0.7 and 1.5 nautical miles may be used where the depth is no lower than the 50 metre isobath.

Croatia is interested in retaining certain traditional fishing gear, some of which have different characteristics from fishing gear as defined by the European Union or which, quite simply, are not recognised or authorised by the EU. The main differences are in the identification of passive fishing and beam trawls, the size of the mesh, the minimum mesh size for certain traditional types of bottom-trawling and the maximum dimensions for gillnets and purse-seine nets.

River fishing is also managed through licences. Activity is concentrated on the Danube, with 25 licences, with 10 for the Sava. Fishing is organised by associations in zones which are subject to concessions with management plans.

<sup>1</sup> A multi-annual recovery plan for bluefin tuna in the Eastern Atlantic and Mediterranean

<sup>2</sup> Technical measures for the conservation of certain stocks of highly migratory species

With regard to the major international agreements linked to a greater or lesser extent to fisheries resources management, it should be noted that Croatia is a contracting party to the **United Nations Convention on the Law of the Sea (UNCLOS)**, but not to the **United Nations agreement on straddling stocks and highly migratory species**.

Concerning regional fisheries organisations, Croatia is a member of and applies the recommendations of the **General Fisheries Commission for the Mediterranean (GFCM)** and of the **International Commission for the Conservation of Atlantic Tunas (ICCAT)**.

## 7. Employment in Fisheries

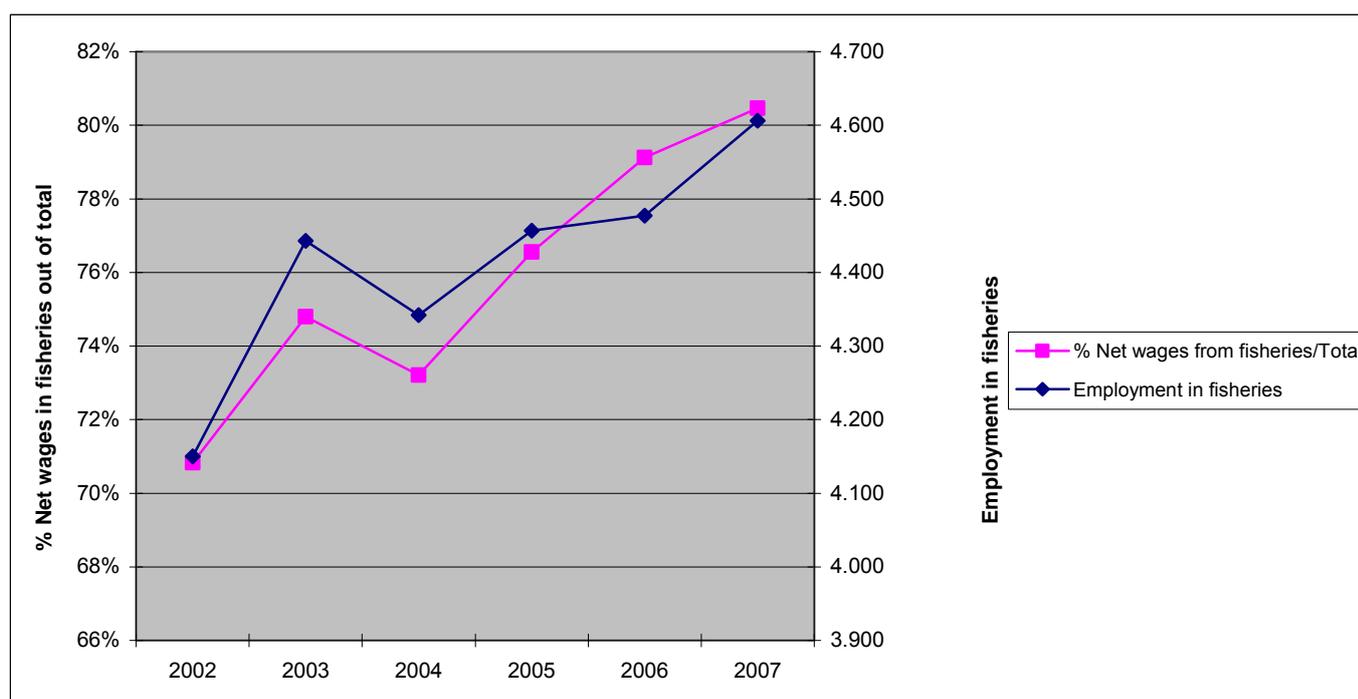
The unemployment rate in Croatia is very high, reaching 18% of the active population. Fisheries only make a small contribution to employment, and indeed to the economy. Included in the group of activities comprising agriculture, hunting, fishing and forestry, fisheries represent only 6% of employment. Fisheries and related activities generate about 20 000 jobs.

There are also the ‘subsistence fishing permits’. In 2007, 13 000 subsistence fishing permits were issued. Although the holders of these permits can only catch 5 kg per day and theoretically cannot sell their catch, their social role cannot be discounted, especially if their catch comprises high-value demersal species.

Fisheries play an important role in employment in some coastal areas, and especially on the islands where there are few alternative activities. In actual fact nearly 70% of fishing, aquaculture and processing takes place on the islands.

In 2007 fisheries provided direct employment for 4 606 people; 11% more than in 2002. This clearly shows the dependence of certain areas on employment generated by fisheries.

**Graph 6: Employment in fisheries and comparison of net wages from fisheries with the total**



Source: Republic of Croatia – Central Bureau of Statistics. Own graph.

Another factor to be taken into account in the increase of employment in fisheries is the process of alignment of wages in the fisheries sector with the average for all activities (see Graph 6). In 2002 wages in the fisheries sector were at about 71% of the total average, but in 2008 they increased to 80%. The increase in 2003 and decrease in 2004 is due to the trend in employment in ‘**mixed ownership**’ (*Mješovito vlasništvo*) enterprises, which are enterprises with foreign investment. This trend accompanied the peak in bluefin tuna farming production in 2003 and its subsequent decline.

Between 2003 and 2004 there was a 19% reduction in both catches and production from bluefin fattening farms. This reduction led to a 4% decrease in the total employment generated in the

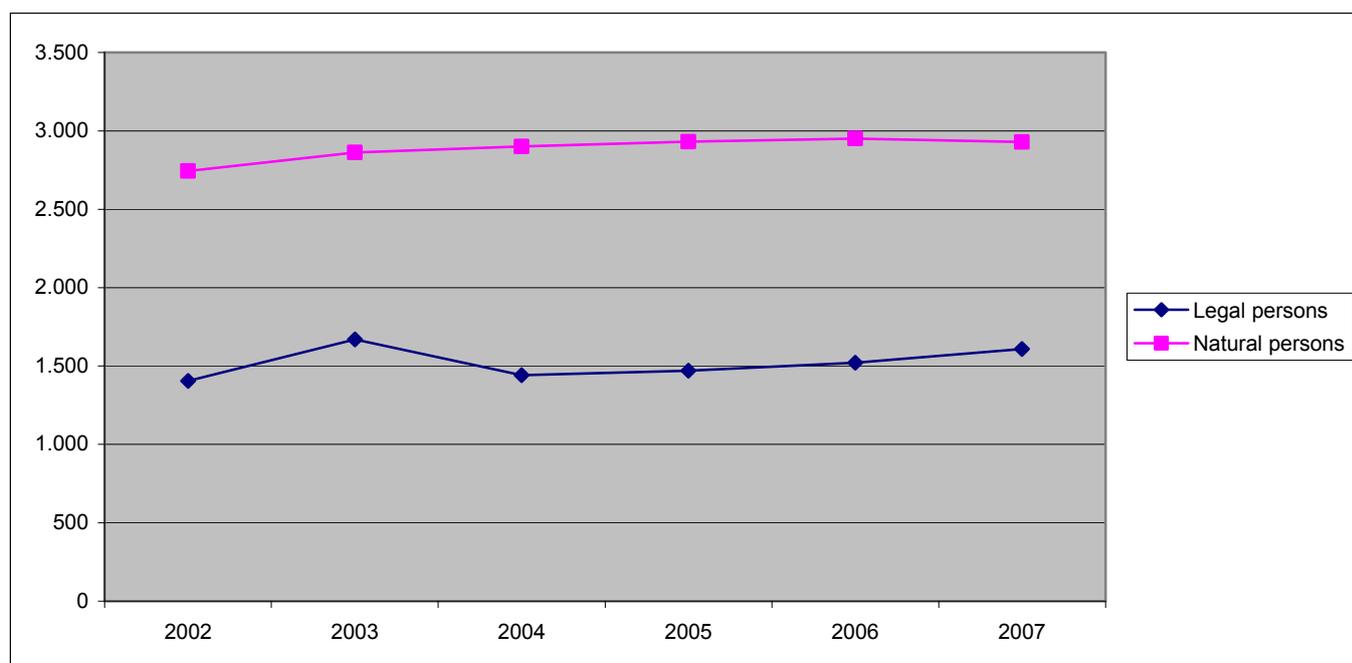
fisheries sector and a 43% decrease in the employment generated by mixed ownership enterprises. This demonstrates the dependence of the Croatian fisheries sector with regard to bluefin farming, and so it is necessary to analyse the effects of the 33% reduction in the bluefin quota which will be applied until 2011.

In Croatia, fishing enterprises are classified as either legal persons (*pravne osobe*) or natural persons (*obrt i slobodne profesije*). In 2007, enterprises belonging to legal persons provided 35% of the employment in the fisheries sector, while enterprises owned by natural persons provided the remaining 65%.

Within the **enterprises belonging to legal persons**, 93% of the employment is in private enterprises, 5% in **‘mixed ownership’** enterprises, 2% in cooperatives and 1% in State enterprises. It should be remembered that in 2003, 25% of the employment generated by enterprises belonging to legal persons was in **‘mixed ownership’** enterprises.

Employment in enterprises under State ownership has fallen considerably, since in 2002 it represented 6% of employment in enterprises belonging to legal persons. The largest reduction is in **‘mixed ownership’** enterprises. However, employment in cooperatives has increased.

**Graph 7: Employment in fisheries according to type of enterprise**



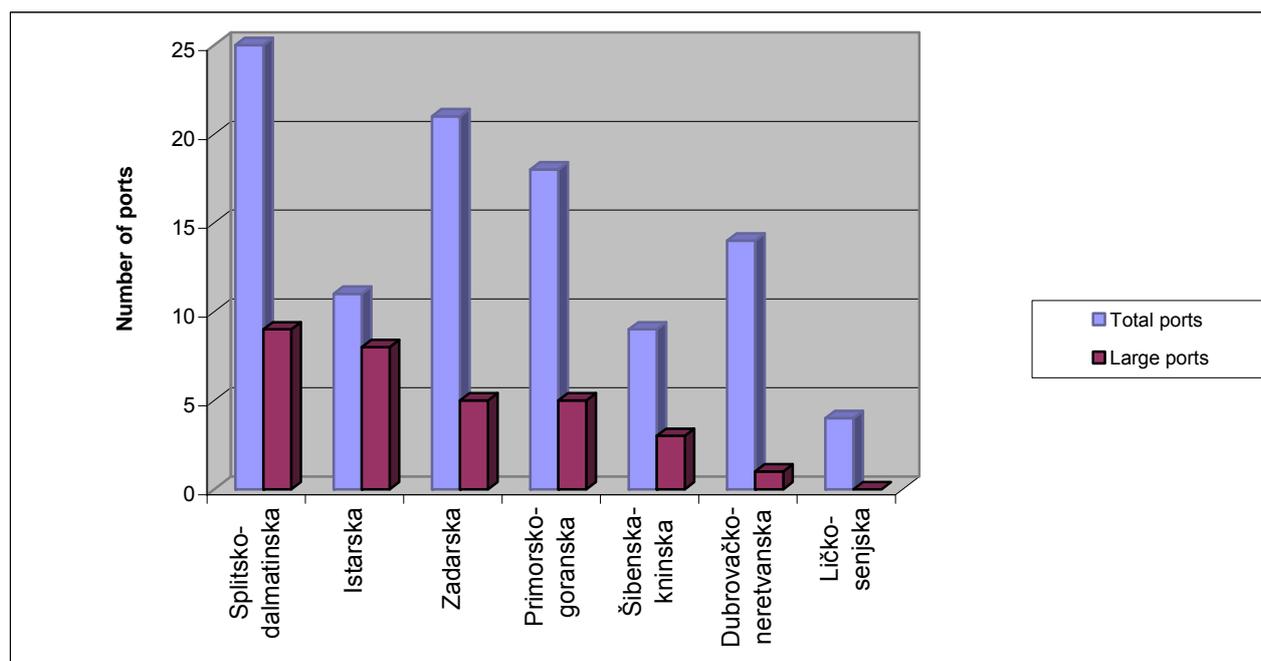
Source: Republic of Croatia – Central Bureau of Statistics. Own graph

In enterprises belonging to **natural persons**, 55% of the employment relates to the owners and 45% to their employees. A slight rising trend in the average number of employees per enterprise may be observed.

## 8. Fishing Ports

The Croatian coast is very rough and the islands very numerous. Consequently there are many catch landing places. The port infrastructure is not very developed, and in general the fishing activity is carried out at the same time as the transport of passengers or goods. Catches are landed either directly at the processing facilities or in public ports. Nevertheless, Croatia has defined 137 landing places: 52 for vessels longer than 15 metres and 85 for boats under this length. The regulations on landing places will enter into force in June 2009.

Graph 8: Provincial distribution of the ports



Source: Ministry of Agriculture, Fishing and Rural Development. Fisheries Directorate. Own graph.

There are 102 ports in Croatia where vessels of the fishing fleet are registered. Of these, 31 may be considered large in terms of the number of vessels they have registered. However, they differ considerably in terms of number of vessels, infrastructure, landings and territorial importance. Splitsko-dalmatinska has the largest number of ports, but few of these are included among the large ports. This is due to the importance of the islands of Hvar, Vis and Brač in the fisheries activity of this county. In Istarska, however, most of the ports have a large number of vessels registered.

It is not easy to describe the fishing ports. Sometimes a port may be significant either because of its local importance or because of the volume of its landings, even if the fleet registered there may not be significant in the context of the State as a whole. This is the case of Ugljan in the county of Zadarska. The same applies to the ports of Makarska, Stari Grad, Sućuraj, Podgora or Jelsa in the county of Splitsko-dalmatinska or those of Vela Luka, Korčula, Ston or Cavtat in the county of Dubrovačko-neretvanska.

Map 14: Main ports in Croatia



In **Istarska**, the main ports are Pula, Umag, Poreč and Rovinj. They have 744 registered vessels, representing 71% of the provincial fleet. The main catches are pilchards and demersal species, mainly cephalopods and flat fish.

With the exception of Rijeka, the main ports of **Primorsko-goranska** are on islands. Rab is the biggest, but Krk and Cres are large too. 402 vessels (62% of the provincial fleet) are registered at these four ports. The bulk of the landings comprises small pelagic species, hake and Dublin Bay prawn.

In **Zadarska**, it is mainly small pelagic species that are landed at the ports of Zadar, Kali-Preko, Biograd-Tkon and Ugljan, where 227 vessels are registered, representing 48% of the provincial fleet. In **Šibenska-kninska**, however, most of the landings are of demersal species. In this county the fleet is highly concentrated in the ports of Šibenik, Murter-Jezera and Vodice-Tribunj. These three ports are home to 76% of the provincial fleet (204 vessels).

The **Splitsko-dalmatinska** fleet is concentrated in the ports on the islands of Hvar (Hvar, Stari Grad and Sućuraj), Vis (Komiža, Vis and Jelsa) and Brač (Postira). On the mainland there are

the ports of Trogir-Kaštela, Split, Makarska and Podgora. 642 vessels are registered at these ports, representing 80% of the provincial fleet. The main ports are Hvar, Trogir-Kaštela, Split and Komiza. The catches mainly comprise small pelagic species, hake and red mullet.

**Table 6: Main fishing ports in Croatia**

Port	Number of vessels				Percentage of the Croatian fleet				County
	< 10 m	10-18 m	> 18 m	Total	< 10 m	10-18 m	> 18 m	Total	
Pula	168	67	3	238	7%	7%	1%	7%	Istarska
Rab	84	128	1	213	3%	14%	0%	6%	Primorsko-goranska
Umag	169	42	0	211	7%	5%	0%	6%	Istarska
Hvar	140	18	3	161	6%	2%	1%	5%	Splitsko-dalmatinska
Poreč	103	49	0	152	4%	5%	0%	4%	Istarska
Rovinj	102	40	1	143	4%	4%	0%	4%	Istarska
Trogir-Kaštela	97	17	3	117	4%	2%	1%	3%	Splitsko-dalmatinska
Split	65	11	28	104	3%	1%	13%	3%	Splitsko-dalmatinska
Zadar	58	20	18	96	2%	2%	8%	3%	Zadarska
Šibenik	81	11	2	94	3%	1%	1%	3%	Šibenska-kninska
Rijeka	47	26	16	89	2%	3%	8%	2%	Primorsko-goranska
Komiza	64	19	0	83	3%	2%	0%	2%	Splitsko-dalmatinska
Medulin	58	21	0	79	2%	2%	0%	2%	Istarska
Mali lošinj	56	20	2	78	2%	2%	1%	2%	Primorsko-goranska
Kali -Preko	25	13	32	70	1%	1%	15%	2%	Zadarska
Novigrad	39	24	0	63	2%	3%	0%	2%	Istarska
Murter-Jezera	35	26	2	63	1%	3%	1%	2%	Šibenska-kninska
Labin	44	8	2	54	2%	1%	1%	2%	Istarska
Biograd- Tkon	37	6	10	53	2%	1%	5%	1%	Zadarska
Krk	19	21	10	50	1%	2%	5%	1%	Primorsko-goranska
Cres	37	6	7	50	2%	1%	3%	1%	Primorsko-goranska
Vodice-Tribunj	19	26	2	47	1%	3%	1%	1%	Šibenska-kninska
Vrsar	24	20	1	45	1%	2%	0%	1%	Istarska
Vis	41	4	0	45	2%	0%	0%	1%	Splitsko-dalmatinska
Pag	19	25	0	44	1%	3%	0%	1%	Zadarska
Dubrovnik	0	37	2	39	0%	4%	1%	1%	Dubrovačko-neretvanska
Kukljica	6	9	6	21	0%	1%	3%	1%	Zadarska
Dugi rat	8	5	4	17	0%	1%	2%	0%	Splitsko-dalmatinska
Supetar	5	6	5	16	0%	1%	2%	0%	Splitsko-dalmatinska
Vinišće	2	8	5	15	0%	1%	2%	0%	Splitsko-dalmatinska
Postira	3	3	7	13	0%	0%	3%	0%	Splitsko-dalmatinska

Source: Ministry of Agriculture, Fishing and Rural Development. Fisheries Directorate. Own table

The ports of **Dubrovačko-neretvanska** are generally small and the fleet, consisting of small boats, is very scattered. The main ones are Dubrovnik, Vela Luka, Ston, Cavtat and Korčula which have 124 registered boats, representing 12% of the provincial fleet. The predominant catches are small pelagic species, hake and Dublin Bay prawn.

It is not easy to describe the ports in relation to vessels registered, as there are so many small boats. There are ports with a large number of boats, but because they are small, their contribution to fisheries production is very small.

44% of vessels longer than 18 metres are concentrated in only four ports: Kali-Preko, Split, Zadar and Rijeka. The part of the fleet of length between 10 and 18 metres is concentrated in Rab (14%) and Pula (7%).

The ICCAT has authorised 16 Croatian ports for the **transshipment or landing of bluefin tuna**. Five of these are in the county of Splitsko-dalmatinska (Brac-Postira-Milna-Sumartin, Hvar-Vira, Kaštel Sucurac-Sveti Kajo, Komiža and Split-Sjeverna Luka). Another three ports are in the county of Zadarska (Biograd, Kali and Zadar-Gaženica). There are two authorised ports in each of the counties of Dubrovačko-neretvanska (Dubrovnik-Sustjepan and Vela Luka), Istarska (Pula and Umag), Primorsko-goranska (Mali Lošinj and Rijeka) and Šibenska-kninska (Primošten and Tribunj).

## 9. Marketing

Croatia does not have a Common Market Organisation for fish products as defined in the Community acquis, nor does it have an intervention system. However, since 2006 Croatia has been paying a compensation of 14% of the sales price for demersal species.

The problems start with the boats, which are usually small and do not have adequate storage and refrigeration capacities. Like the port infrastructure, the infrastructure for marketing fish products has serious shortfalls. The structure of the marketing chain and the price formation process suffer from a lack of adequate landing installations and storage and refrigeration facilities.

The shortfalls in the marketing infrastructure make it difficult to meet European Union health requirements. They also permeate through the market, hindering the development and modernisation of the Croatian fisheries sector and the areas which depend on it.

The absence of auctions and wholesale fish markets poses serious difficulties for the establishment of a price collection and monitoring system. However, the Ministry of Agriculture, Fishing and Rural Development has introduced a market information system. Prices are collected on a monthly basis through questionnaires from fish farms, buy-off stations, fish markets and processing enterprises.

In 2007 there were 110 establishments for processing and storing fish products. Of these, 72 received approval to export to countries in the European Union and 39 to operate on the domestic market or to export to third countries. The Croatian authorities realised that two establishments would not meet EU health requirements and that a further 22 would only be able to meet them at the time of accession. Furthermore, there are six bivalve mollusc depuration establishments. Although in 2007 none of these was authorised to export to the European Union, the Croatian authorities considered that they would all meet Community requirements.

There are hardly any **wholesale fish markets** in Croatia. The role of the wholesale market is usually fulfilled by private markets which buy the fish directly from the fishermen or fish farmers and supply the marketing networks. There are two wholesale markets in the north (Rijeka and Poreč). The Rijeka market has been operating since January 2008 and the Poreč market was to start operating in December 2008. Other wholesale markets are also planned. In addition there are small markets in the main cities (Pula, Rijeka, Zadar, Šibenik, Split, Dubrovnik) and in the areas where the fisheries activity is most concentrated, especially on the islands and around Šibenik and Zadar.

The structure of the retail market is mainly based on small specialised establishments. There are also other types of structure; for example, in coastal towns fishermen rent premises in the public markets for one or several days. Inland, some fishermen or fish farmers often sell their own produce together with produce bought from other producers.

There are marketing enterprises on the islands, Istarska and around Šibenik, Zadar and Split. These enterprises send the goods to the main fish markets (Zagreb, Split or Rijeka), the supermarket chains or for export.

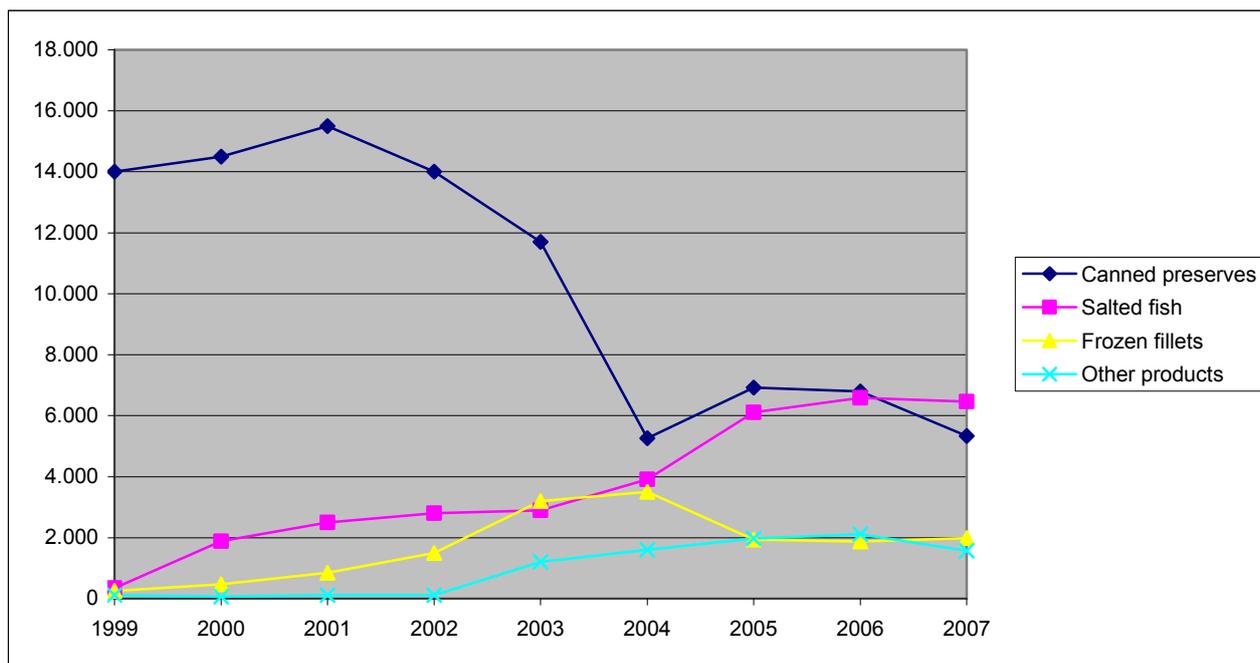
Demersal species and aquaculture products are sold for direct consumption on the domestic market or are exported to Italy, except for bluefin tuna, nearly all of which is exported to Japan.

However, most of the catches of small pelagic species (pilchard and anchovy) are sold directly to the processing industry or to feed tuna in the fattening farms. The rest is sold for consumption or is exported to Italy or Slovenia. The catches of these species are usually landed directly at the purchaser’s facilities, whether these are a processing enterprise or fattening farm. The fattening farms are concentrated in Zadar and Splitsko-dalmatinska. The processing enterprises are concentrated in Rovinj (Istarska), Sali (Zadarska), Dugi Otok and around Zadar.

In 2006 there were 28 enterprises dedicated to the **fish processing industry**. However, Croatian enterprises are much smaller than the European Union average. None of these enterprises can be considered large, while there are 5 medium-sized enterprises, 11 small enterprises and 12 artisanal establishments. Three of the five medium-sized enterprises and ten small ones are in the coastal counties. Most of the enterprises are concentrated in the counties of Splitsko-dalmatinska, Istarska and Zadarska. Only four enterprises meet European Union health requirements and are authorised to export.

The obsolescent technology of the processing industry causes problems of alignment with the Community market, not to mention hampering fulfilment of health requirements, reducing competitiveness and preventing diversification of production. The lack of investment in technology and new product development reduces competitiveness and limits the product range to pilchards and anchovies for sea products and trout and carp for freshwater products.

**Graph 9: Processing industry production**



Source: Ministry of Agriculture, Fishing and Rural Development. Fisheries Directorate. Own graph

**Canned preserves** are mainly manufactured from pilchards, although some are made from mackerel or tuna fillets. Before Croatia’s independence, virtually all fish-based processed products were canned preserves. However this market changed dramatically after independence. The traditional markets were largely lost and customs restrictions arose. It was also very difficult to penetrate new markets as most of the industries did not meet European Union health requirements and lacked sufficient sources of investment. Thus the production of canned fish preserves fell from 15 500 tonnes in 2001 to 5 300 in 2007, and now only represents 35% of the total volume of fish processing. This trend led to the disappearance of a large number of enterprises. In this short period of time, the number of active enterprises fell from 40 to 28.

Because of their small size and high costs, they have little chance of being competitive in the Community market.

On the other hand, the production of **salted fish** (mainly anchovies) has gradually increased, especially since 2003. In 2007 it reached 6 460 tonnes (42% of the processed products production). Unlike canned preserves, salted fish can be competitive on the Community market. The production of **frozen fillets** increased up until 2003, but remained stagnant in 2004 and plummeted in 2005. Over the last few years, and especially since 2003, the production of salads and other products has developed and has now virtually caught up with that of frozen fillets.

The Croatian fishing sector is very weakly structured in terms of enterprises and organisation. In spite of the relatively high number of boats in the Croatian fishing fleet, there are only 52 enterprises formed as legal persons. Only two companies are dedicated to freshwater fishing, one based in Zagreb and the other in Istarska.

The level of organisation of production is generally very poor. This is usually because older fishermen are reluctant to join associations. There are **ten cooperatives** with an economic activity, although there may be up to a further ten smaller ones with some activity. The two largest cooperatives are in the county of Istarska. There are no **producers' organisations** recognised under the Community acquis. However, there are plans to create three pilot producers' organisations at the end of 2009. Two will be created under the protection of the Chambers (HGK for trading companies and HOK for natural persons).

In addition to its function of representation and its role as consultant in the legislative process, the **Croatian Chamber of Economy** establishes foreign trade relations and carries out promotion, training and technology transfer activities.

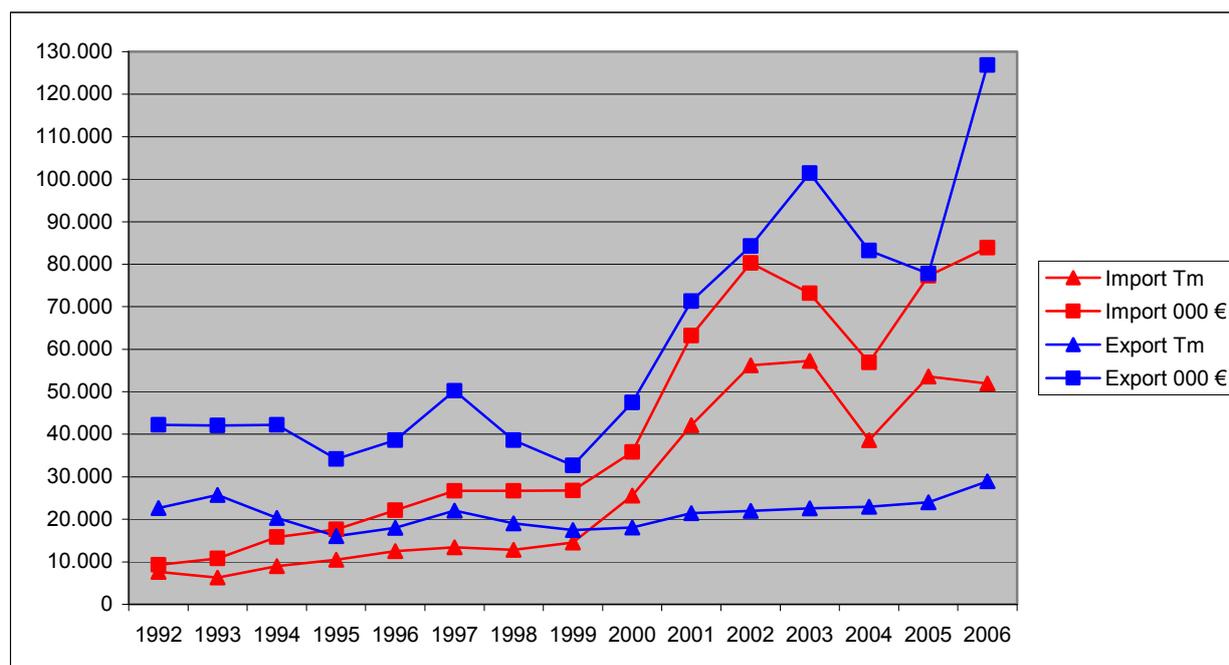
The **Association of Fishery and Fish Processing** was created with the support of the Croatian Chamber of Economy to encourage cooperation between its members. It has about 130 members. It comprises three sections: fishing, aquaculture and processing.



## 10. Foreign trade

In terms of quantities, Croatia is a net importer of fish products. Its imports exceed the quantities exported, but the value of exports exceeds that of imports. Most of the value of imports relates to bluefin tuna for the Japanese market. The bulk of the imports consists of frozen herrings for feeding to the bluefin tuna. The activities relating to bluefin tuna farming clearly play a significant role in both exports and imports, and also in the economy of the Croatian fisheries sector as a whole.

Graph 10: Foreign trade of edible fish products

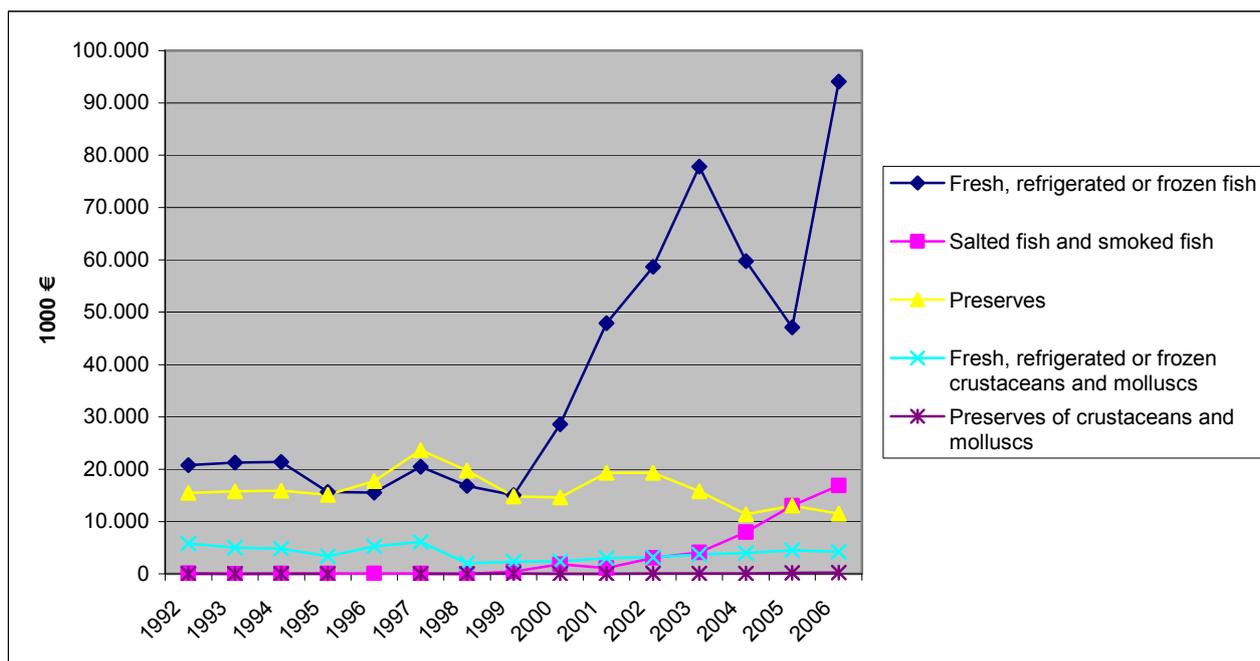


Source FAO – FishStatPlus – Commodities Production and Trade 1976-2006. Own graph.

Most of the value of exports relates to bluefin tuna for the Japanese market. In fact the peak in exports recorded in 2006 corresponds to a year in which bluefin tuna farm production was virtually double that of the previous year, even though catches remained stable. Fresh and frozen fish is also exported to the European Union, mainly to Italy and Slovenia. Exports of products processed into preserves are mainly for Bosnia-Herzegovina and Serbia.

The reduction in value of exports of fresh, refrigerated or frozen fish observed between 2003 and 2004 reflects the reduced production by bluefin tuna fattening centres. A paradoxical situation arose because of the high value of bluefin tuna exports. While the reduction in bluefin tuna production was 19%, the reduction in total value of exports reached 23%. Following the reduction in the Total Allowable Catch adopted by the ICCAT in November 2008, exports over the next few years should decrease considerably. Consequently the quota of bluefin tuna catches in 2010 alone will be half that of 2003. It should nevertheless be borne in mind that even if the volume of tuna exports is falling, its value will tend to increase. At all events, the economic crisis may affect demand and bring about a reduction in prices, as for other top-of-the-range products.

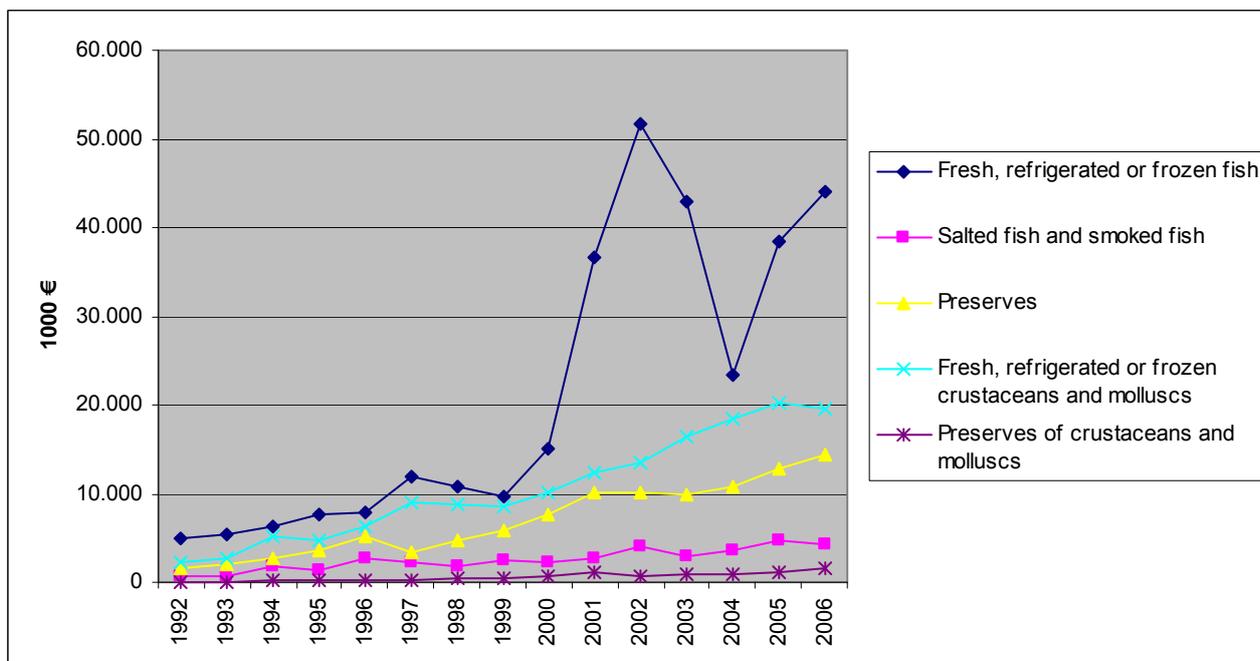
**Graph 11: Value of exports of fish products**



Source FAO – FishStatPlus – Commodities Production and Trade 1976-2006. Own graph.

The reduction in exports of preserves reflects the loss of markets in central European countries after the independence of Croatia. It is unlikely that exports will recover in the short or medium term, unless substantial investments are made to adapt to European Union health requirements and competitiveness is significantly improved. However, the sustained growth of salted fish exports shows the competitiveness of this sector of the Croatian processing industry.

**Graph 12: Value of imports of fish products**



Source FAO – FishStatPlus – Commodities Production and Trade 1976-2006. Own graph.

Imports of small pelagic species increased following the growth in production and exports of bluefin tuna. Although imports recovered in 2005, the foreseeable reduction in bluefin tuna production will put downward pressure on imports of frozen pelagic fish in the medium term.

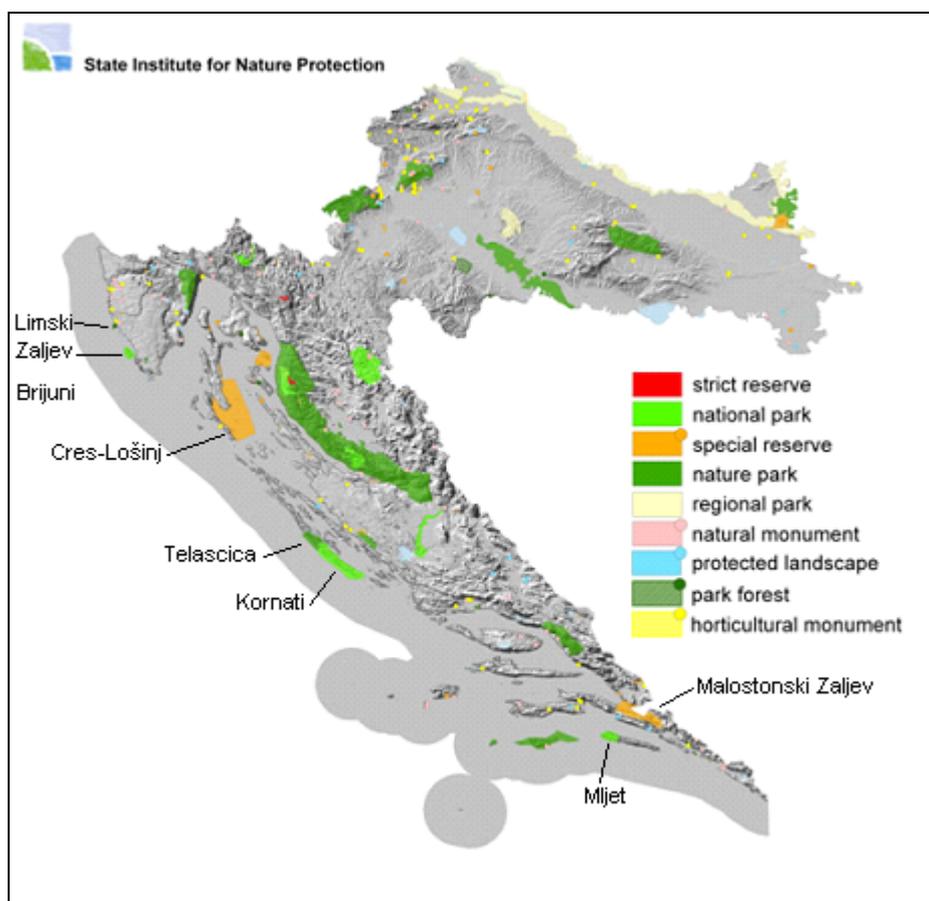
In 2006 there were 72 exporting enterprises. 48 of these – two thirds of the total – are concentrated in almost identical proportions in three counties: Zadarska (17 enterprises), Splitsko-dalmatinska (16 enterprises) and Istarska (15 enterprises). There are a further eight exporting enterprises in Primorsko-goranska, five in Šibenska-kninska and four in Dubrovačko-neretvanska.



## 11. Marine protected areas

In Croatia, marine protected areas are regulated by Law No 30-94 on nature protection, amended in 1994 and 2003. The duties are shared by the Nature Protection Division of the Ministry of Culture, and the Sea and Coastal Conservation Unit of the Ministry of the Environment and Territorial Management.

Map 15: Marine protected areas



Source: State Institute for Nature Protection

There are seven marine protected areas in Croatia. The total area of marine protected areas is 83 745 hectares, which represents a little over 2.5% of waters under Croatian jurisdiction. Of these, 25 748 hectares (31% of the area) are national parks, and 5 421 hectares (69% of the area) are marine special reserves.

63% of the protected area is in the county of **Primorsko-goranska**, owing to the large size of the **Cres-Lošinj** area. This area was originally envisaged as a dolphin reserve. It is benefiting from a temporary preventive protection measure lasting three years, up until the middle of 2009. The protection methods and final legal status will be decided when the protection becomes final.

The protected areas in the county of **Zadarska** are also considerable (25% of the total area), including the very large **Kornati** area. This is the area where there are most restrictions on human activity. In the central part, both commercial fishing and submarine or recreational fishing are prohibited, as are bathing, diving, anchoring of boats or navigation. Only research is permitted, but is subject to regulation. In the central area of **Telascica**, however, only

commercial fishing is prohibited, while recreational fishing, diving, anchoring of boats and navigation are subject to regulation and there are no buffer areas.

**Table 7: Marine protected areas**

Zone	County	Year of creation	Marine area (ha)	Legal status
Brijuni	Istarska	1983	2 651	National park
Cres-Lošinj	Primorsko-goranska	2006	52 576	Marine special reserve
Kornati	Zadarska	1980	16 750	National park
Limski Zaljev	Istarska	1979	600	Marine special reserve
Malostonski Zaljev	Dubrovačko-neretvanska	1983	4 821	Marine special reserve
Mljet	Dubrovačko-neretvanska	1996	2 375	National park
Telascica	Zadarska	1988	3 972	National park

9% of the protected area is in the county of **Dubrovačko-neretvanska**. There are several unusual situations in this county. Although it only has 9% of the area in the form of national parks (Mljet), it includes 8% of the area of marine special reserves (Malostonski Zaljev). The **Mljet** area is rather special because in actual fact the central area, created in 1960, has only 145 hectares of lakes. The 2 375 marine hectares correspond to a buffer area created in 1996. In the central area of **Malostonski Zaljev**, commercial and submarine fishing are prohibited, while recreational fishing, diving, anchoring of boats and navigation are subject to regulation.

## 12. Relations with the European Union

Relations between Croatia and the European Union started on 15 January 1992, when the European Union recognised the independence of Croatia. In April 1997, the Council adopted the **‘regional focus’** strategy in its relations with the countries of the former Yugoslavia. This strategy bore little fruit in terms of alignment to Community policies and the establishment of long-term relations. For this reason, in June 1999 the Council replaced the **‘regional focus’** with a new strategy, the **process of stabilisation and association**. This process was to reflect a new generation of agreements with Croatia, Serbia, the former Yugoslav Republic of Macedonia, Bosnia-Herzegovina, Albania and, after its independence, Montenegro. At the end of October 2001, Croatia signed the Stabilisation and Association Agreement with the European Union.

Croatia submitted its application for membership of the European Union in 2003. A first obstacle in the accession process was the lack of cooperation with the International Criminal Tribunal for the former Yugoslavia. Consequently the entry into force of the Stabilisation and Association Agreement was stalled for several years. In addition, the border disputes with Slovenia (see **Error! Reference source not found. Error! Reference source not found.**) and the establishment of the Ecological and Fisheries Protected Zone (ZERP) (see 1.2.2 Ecological and Fisheries Protected Zone (ZERP)) have also hindered the process of joining the European Union.

On 20 December 2004, the European Council set the **opening of accession negotiations** for 17 March 2005, on the condition that Croatia cooperated fully with the International Criminal Tribunal for the former Yugoslavia. However the day before the negotiations were to begin, they were postponed by the European Union. The reason was that the International Criminal Tribunal for the former Yugoslavia considered that Croatia was making insufficient efforts to catch the fugitive general Ante Gotovina. In the end, the Spanish police arrested Ante Gotovina in Tenerife and he was taken to The Hague for trial. Negotiations began anew after this arrest and after certification of Croatia’s cooperation by the International Criminal Tribunal for the former Yugoslavia.

At the beginning of 2004, the Commission recommended that Croatia be granted the status of candidate country, and this was recognised by the European Council in the middle of that year. Accession negotiations started in October 2005, although they had been planned to start in March. The Commission adopted monitoring reports of 9 November 2005<sup>1</sup>, and 8 November 2006<sup>2</sup>.

Initially, foreigners were not authorised to buy land in Croatia. This caused difficulties with Italy until an agreement was reached in the middle of 2006. In July 2006, the Commission, in its report to the Council, recommended opening the fisheries chapter of Croatia’s accession negotiations without prior conditions. The Council, with the exception of Slovenia, supported this position. Slovenia demanded, as a prior condition, an agreement concerning mutual access to the territorial waters of Piran Bay.

On 22 September 2006, Slovenia submitted to COREPER its prior condition for opening the fisheries chapter of the negotiations: ‘Croatia would have to engage constructively in settling the issue of commercial marine fishing, in accordance with the agreement between the Republic of Slovenia and the Republic of Croatia on border traffic and cooperation, and finally it should reach an agreement with the European Commission on the content of its implementing regulations’.

<sup>1</sup> COM (2005) 561 final

<sup>2</sup> COM (2006) 649 final

Currently, the Piran Bay issue appears to be the main element influencing the attitude of Slovenia in delaying Croatia's accession to the European Union.

**Table 8: Chronology of relations between Croatia and the European Union with regard to fisheries**

Date	Event
29 October 2001	Croatia signs the Stabilisation and Association Agreement
21 February 2003	Formal application for membership of the European Union submitted
3 October 2003	Decision to create the ZERP
9 October 2003	Croatia submits answers to the Commission's questionnaire
29 October 2003	Notification of the Decision on the expansion of the jurisdiction of the Republic of Croatia in the Adriatic Sea to the United Nations
20 April 2004	The Commission replies to the answers with a positive opinion (Avis)
18 June 2004	Croatia receives official candidate status
13 September 2004	The Council urges Croatia to seek final solutions to the border disputes with Slovenia, Serbia, Montenegro and Bosnia and Herzegovina and to issues resulting from the declaration of the ZERP in the Adriatic.
20 December 2004	The European Council sets the date for entry negotiations to begin on 17 March 2005
1 February 2005	Entry into force of the Stabilisation and Association Agreement
16 March 2005	Postponement of negotiations
3 October 2005	Beginning of negotiations
20 October 2005	Beginning of the screening process
24 February 2006	The Commission completes the screening process with regard to the fisheries chapter
29 March 2006	Croatia completes the screening process with regard to the fisheries chapter
18 July 2006	Publication of the screening report on fisheries
22 September 2006	Slovenia submits to COREPER its prior condition for opening the fisheries chapter
15 December 2006	The Croatian Parliament establishes a moratorium in the ZERP for boats of the EU's fishing fleets up to 1 January 2008
6 November 2007	Commission proposal on the principles, priorities and conditions contained in the Accession Partnership with Croatia
12 February 2008	The Council updates the conditions imposed on Croatia for its accession and revises the list of priorities, including resolving the ZERP problem
13 March 2008	Decision to temporarily not apply the ZERP to boats from EU member States
29 July 2008	Council decision on opening negotiations and benchmarks
26 September 2008	Croatia presents its negotiating position to the Commission

Negotiations with Croatia were arranged by dividing the acquis into 35 chapters. A further four chapters were added to the 31 chapters initially envisaged. In actual fact, these are not new chapters. Certain issues such as agricultural policy and legal issues were split up to speed up the negotiations and make them more efficient.

In its monitoring report of 5 November 2008<sup>1</sup>, the Commission, apart from certain political aspects, considered it necessary to improve regional cooperation and make efforts to resolve the bilateral problems with the neighbouring countries, especially with regard to delimiting borders.

In so far as fisheries are concerned, the 2008 monitoring report reflects a series of improvements in resource and fleet management, and also in inspection and control. In particular:

- The entry into force of legislation on declarations of landings (January) and sales (June).
- The re-structuring of the Fisheries Directorate to adapt to the Common Fisheries Policy.
- The creation of the coastguard service to take on some inspection responsibilities.
- The introduction of wholesale fish markets in Rijeka and Poreč.

However, this report also points out certain shortfalls to be remedied. These shortfalls are mainly in fleet management, inspection and control, structural actions and State aid measures. Of these, the following should be mentioned:

- Some differences in the Croatian technical measures compared to the Community acquis.
- The absence of an entry/exit scheme in the fleet management system.
- The need to finalise the installation of a locating system in certain fishing vessels (*VMS*).
- The need to set up a fisheries monitoring centre.
- The need to reinforce administrative capacity and the equipment of the inspection services.
- The absence of producers' organisations.
- The differences in marketing standards.
- The absence of progress in structural actions and State aids.
- The need for an institutional framework for applying Community structural policy and preparing the necessary strategic documents.
- The need to suppress certain State aids which are incompatible with the acquis.

The **State aid** schemes include:

- A blue diesel system for fishing vessels.
- A programme for modernisation of the fleet (see **Error! Reference source not found. Error! Reference source not found.**).
- An investment aid programme (see **Error! Reference source not found. Error! Reference source not found.**).
- A programme for withdrawing trawler licences (see **Error! Reference source not found. Error! Reference source not found.**).
- An income support scheme.

The blue diesel system consists of a compensation for fishermen of a sum equal to the price paid which exceeds 5 kunas per litre (about EUR 0.7).

The total annual amount of direct aid schemes granted is around EUR nine million. The Croatian system of direct aids to fisheries has no equivalent in the European Union, in terms of either recipients or methods. Aids are granted to both fishermen and the processing industry. Also, minimum catch or production quantities have to be achieved in order to be able to receive these aids. In other words, those enterprises that are in the best position on the basis of economies of scale are entitled to receive the aids. These direct aids will therefore accelerate the natural selection of enterprises, giving an additional advantage to the most competitive ones. This system can only be justified in the unusual structures of Croatia, with a fleet dominated by

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<sup>1</sup> SEC(2008) 2694

small boats and a fragmented industry, and with small enterprises compared to those of the European Union.

**Table 9: Direct aids to fishing and aquaculture**

Type of aids	Minimum quantity	Basic amount	Amount for disadvantaged areas
Farmed production of native marine species	3 000 kg	5.40 kunas/kg; 0.76 euros/kg	7.30 kunas/kg; 1.02 euros/kg
Mussel farming	3 000 kg	0.80 kunas/kg; 0.11 euros/kg	
Oyster farming	3 000 pieces	0.50 kunas/piece; 0.07 euros/piece	
Production of young fish	100 000 pieces	0.25 kunas/piece; 0.04 euros/piece	
Freshwater farming of group I species (fillets)	3 000 kg	3.50 kunas/kg; 0.49 euros/kg	
Freshwater farming of group II species (preserves)	2 000 kg	4.80 kunas/kg; 0.67 euros/kg	
Capture of small pelagic species	10 000 kg	0.35 kunas/kg; 0.05 euros/kg	
Group I fish products (fillets, filleted pilchards and pilchard paste)	250 kg	4.70 kunas/kg; 0.66 euros/kg	6.20 kunas/kg; 0.87 euros/kg
Group II fish products (preserves)	1 000 kg	2.30 kunas/kg; 0.32 euros/kg	3.10 kunas/kg; 0.43 euros/kg
Group III fish products (salted and smoked fish)	2 000 kg	1.80 kunas/kg; 0.25 euros/kg	2.50 kunas/kg; 0.35 euros/kg
Group IV fish products (fresh or frozen packaged products)	3 000 kg	1.20 kunas/kg; 0.17 euros/kg	1.80 kunas/kg; 0.25 euros/kg

Source: Ministry of Agriculture, Fishing and Rural Development. 2008. Own table.

Croatia recognises that these measures are incompatible with Community regulations on State aids. An additional difficulty is that neither the Croatian Competition Agency nor any other body is in charge of State aids for fisheries.

Initially it was considered likely that accession would take place in 2010. However, after the rejection of the Lisbon Treaty by the Irish referendum, the enlargement schedules risk being substantially changed. When presenting the 2008 monitoring report, the Enlargement Commissioner, Olli Rehn, declared that negotiations should be completed by the end of 2009 and that accession could be achieved in 2011.

The official positions with regard to the negotiation of the fisheries chapter have not yet been made public. However, from certain comments that have appeared in the press, it is likely that Croatia may present the following demands:

- Authorisation of traditional fishing gear and methods not mentioned in the Community acquis.

- Determination of the year of reference for fleet management after Croatia's accession to the European Union.
- Establishment of a transitional period of five years for abolishing the 'subsistence fishing' category.
- Establishment of a transitional period up to 2015 to adapt to the minimum size of hake (16 cm in Croatia compared with 20 cm in the EU).
- Preservation of Croatian rules and standards for the domestic market. Application of Community rules and standards exclusively for foreign sales.
- Maintenance of the bluefin tuna quota.
- Exclusive use of Croatian territorial waters for Croatian fishermen.

Support for Croatia from the European Union has made use of various financial instruments, including the Community programmes for reconstruction, development and stabilisation (CARDS and PHARE). From January 2007, Community financing is channelled only through the instrument for pre-accession assistance (IPA). From 2008 and up until accession, this assistance is based on strengthening institutions, cross-border cooperation, human resources and rural development.

Since 1991, the European Union has granted EUR 6 800 million in aid to countries in the Western Balkan countries. In 2000 the CARDS (*Community Assistance for Reconstruction, Development and Stabilization*)<sup>1</sup> programme was launched for implementation in the Western Balkans. This programme was intended to be the main instrument in the process for stabilisation and association, with specific measures for each of the countries participating in this process, and a total financial contribution of EUR 4 600 million. Between 2001 and 2004, the EU granted EUR 261 million to Croatia. So until 2005, CARDS was the only instrument of assistance for accession, being supplemented by PHARE and ISPA until the end of 2006. The activities financed by PHARE include those under TAIEX (*Technical Assistance Information Exchange Office*) for assisting alignment of national legislation with that of the *acquis*. SAPARD (*Special Accession Programme for Agriculture and Rural Development*) entered into force in 2006 and IPA in 2007. ISPA (*Instrument for Structural Policies for Accession*) is intended to open the way to implementing the Cohesion Fund in the fields of transport and the environment.

The PHARE (*Pologne et Hongrie – Aide à la Restructuration Economique [Poland and Hungary – Aid for Economic Restructuring]*) programme, as a pre-accession instrument, focused on assisting the administrations of candidate countries to acquire the necessary capacity to apply the *acquis* and bring industry and its basic infrastructure in line with Community standards.

The Croatian fisheries activity received the support of the European Union through PHARE 2005. It has a technical assistance aspect, divided into small projects, which is aimed at helping the administration meet the requirements of the *acquis* on fisheries policy. In addition, PHARE is partly financing the construction of two fishing ports and has help lines for setting up and operating producers' organisations.

On 8 February 2006 the Commission approved the Croatian plan for agriculture and rural development (SAPARD) for the 2005-2006 period. The multi-year financing agreement between Croatia and the European Union came into force on 6 April 2006. So from 2006, pre-accession funds under SAPARD were made available to the processing industry. In view of the

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<sup>1</sup> Council Regulation (EC) No 2666/2000 of 5 December 2000

situation in Croatia, SAPARD is very important, as it is intended to support the modernisation of the processing industry and bivalve mollusc depuration.

The IPARD programme is in force between 2007 and 2013. The IPARD programme has three priority aspects:

1. Improving the efficiency of the market and application of Community standards.
2. Preparing agro-environmental measures and rural development strategies.
3. Development of the rural economy.

Actions involving the fisheries sector are in practice limited to the **‘marketing and processing’** aspect, and similarly in the case of SAPARD, the main beneficiary is the processing industry. The planned actions are aimed at meeting Community health standards and improving competitiveness and marketing.

To avoid double financing, different criteria have been established for IPARD and State assistance for investments:

**Table 10: Comparison of the criteria for State assistance and IPARD**

Priority aspect	IPARD criteria	State assistance criteria
Marketing and processing	Selection depending on size or annual production	No restrictions relating to size or annual production
	Possibility of financing with subsidies	Financing exclusively with credits
	Support up to 50% of subsidisable investments	Support up to 25% of the credit amount, but no more than 34 153 kunas per year
	Minimum investment 33 800 euros	Minimum amount of credit 10 928 euros
	Exclusion of investments in companies authorised to export to the EU	Possibility of supporting investments in companies authorised to export to the EU
	Linking of investments to conformity to Community standards	Investments must not be necessarily linked to conformity to Community standards
Development of the rural economy	Selection depending on size or annual production	Different types of beneficiaries, including non-profit making associations
	Fixed amount	Aid defined in public bidding competitions depending on the type of measure
	Support up to 50% of subsidisable investments	

Source: Ministry of Agriculture, Fishing and Rural Development. Fisheries Directorate. Own table.

Aquaculture and the processing of fish products are the only parts of the food processing sector which maintain a positive balance in Croatian foreign trade. There are five medium-sized enterprises and several small ones, with obsolete equipment and technology. This makes conforming to Community standards difficult, reduces their competitiveness and prevents the diversification of production. In particular, none of the mollusc depuration facilities is equipped with modern technology.

Consequently, under the IPARD programme, facilities for processing fish products for refrigeration, filleting, drying, smoking or packaging have been considered as subsidisable investments. Investments in computer programs are also included. Investments in distribution installations or mollusc depuration facilities are subsidisable too. Only investments in enterprises with an annual production of over 18 tonnes will be subsidisable. So in 2007, investments in four enterprises were considered subsidisable, while in 2008 and 2009, six enterprises are considered as subsidisable. The annual amounts used in fisheries fluctuate around EUR 5.5 and 6 million, however, Croa.

For the **‘development of the rural economy’** aspect, subsidies for investments in freshwater aquaculture installations are envisaged. The annual amounts of subsidies for freshwater aquaculture have fluctuated between EUR 400 000 and 500 000. Both the Croatian Government and the Croatian Chamber of Commerce suggested that marine aquaculture and equipment for improving boats should be included among the subsidisable investments for marketing and processing, but this possibility was dismissed by the Commission, in line with the situation applicable to Member States of the European Union.



## 13. Research

The main fisheries research institution is the Institute for Oceanography and Fisheries in Split. This institute participates in several programmes such as the FAO ADRIAMED programme (trawling and sonar), MEDITS (evaluation of demersal resources in the northwestern Mediterranean), financed by the European Union, SIPAM (Information System for the Promotion of Aquaculture in the Mediterranean) and SEA-SEARCH.

The activities of the Dubrovnik Institute for the Sea and Coast are based on demersal species and ecology. The Ruđer Bošković Institute, for its part, works on environmental issues and ecology. For example, the Ruđer Bošković Institute is collaborating on various projects on water quality:

- MMW – Mediterranean Mussel Watch;
- ALIS;
- Ecosystem Dynamics, Marine Chemistry, Aquaculture and Management in the Adriatic and North – Norwegian Coastal Zone;
- Mitigating War Consequences in Croatia – Environmental Risk Assessment of Chemical Pollution;
- Integrated Environmental Monitoring System for Croatian Freshwater, Estuarine and Coastal Marine Areas;
- BECPELAG: Biological Effects of Contaminants in Pelagic Ecosystems;
- Study of Metal Effects to the Marine Organisms by Means of Biomarker.

Croatia is using national hydroacoustic programmes for assessing demersal species (DEMMON, *Demersal Monitoring*) and pelagic species (PELMON, *Pelagic Monitoring*). DEMMON is financed by Norway and is being carried out by the Institute for Oceanography and Fisheries in collaboration with the Institute of Fisheries Biology in Tromsø, Norway. In PELMON, which is partly financed by Italy, the Institute for Oceanography and Fisheries is collaborating with the *Istituto di Ricerche sulla Pesca Marittima* (IRPEM) [Institute for Research on Marine Fishing].

However the Commission, in its screening report on the acquis dated 18 July 2006, cast doubts on the capacity of the Croatian scientific framework to assess and monitor resources. These doubts were mainly focused on its capacity to assess the position of exploited populations in terms of their long-term sustainability. The Ministry of Agriculture also launched a project intended to set up a plan for managing coastal areas with regard to mariculture.

The Jadran project (Adriatic) was started in 1997 and consists of systematic research to obtain the scientific information necessary for establishing a strategy for preserving the environment and sustainable development in the Croatian part of the Adriatic Sea. The main aim of this project is to determine the restrictions on activities that could interfere with sustainable development. It is also hoped that it will provide the information necessary for improving national legislation relating to the protection of the marine environment.

Various projects are studying the hydrography of the Adriatic. The EACE (*East Adriatic Coastal Experiment*) project is studying the coastal current of the East Adriatic (*East Adriatic Coastal Current, EACC*). The ADRICOSM project, with Italian financing, aims to model and predict the variability of coastal currents for the management of coastal areas.

The ASEMP (*Adriatic Sea Environmental Master Plan*) project was started in 2002, with financing from UNESCO. Its aim is to create an Internet tool for planning the Croatian coast using geographic information systems (*GIS*) and decision support systems (*DSS*).

The project on Environmental Management in Adriatic Marine and Coastal Zones is receiving GTZ financing and is being carried out by GTZ (*Deutsche Gesellschaft für Technische Zusammenarbeit GmbH*).

The CARDS Community programme is financing a pilot programme on the Environmental Effects of Development Strategies, with a view to creating a national framework for the protection of the Adriatic.

## **Anexo 1: Decision on the extension of the jurisdiction of the Republic of Croatia in the Adriatic Sea**

Pursuant to Article 1042 of the Maritime Code and on the basis of Article 55 of the United Nations Convention on the Law of the Sea, the Croatian Parliament, at its session of 3 October 2003, has adopted the

### ***DECISION ON THE EXTENSION OF THE JURISDICTION OF THE REPUBLIC OF CROATIA IN THE ADRIATIC SEA***

On the basis of the 1982 United Nations Convention on the Law of the Sea which establishes the right of coastal States to proclaim the exclusive economic zone, and Part V of the Convention which determines the sovereign rights and jurisdiction of coastal States, and rights of other States in this zone,

Keeping in view the 1994 Maritime Code which in Chapter IV (Articles 33 through 42) defines the exclusive economic zone of the Republic of Croatia and sovereign rights and jurisdiction which Croatia can exercise in it, and which in Article 1042 stipulates that the Croatian Parliament is to decide on the proclamation of the exclusive economic zone of the Republic of Croatia, and which states that the provisions of Articles 33 through 42 shall become applicable once the Croatian Parliament has decided to proclaim the exclusive economic zone,

Concerned about the fact that the living resources of the Adriatic Sea are seriously endangered,

Considering the fact that in the past several years the fishing pressure of non-Adriatic and non-Mediterranean States, including the use of the so-called industrial vessels, has been growing.

Aware of the fact that excessive exploitation of the living resources of the Adriatic Sea, due to the impossibility of applying the measures for planning, restricting and controlling the fisheries, mostly occurs in the part of the Adriatic under the high seas regime,

Convinced that the continuation of such practices endangers the sustainable management of fish stocks and their sustainable exploitation, and that it encourages illegal, unregulated and unregistered fishing, and that it is detrimental to the interests of the Republic of Croatia and all other Adriatic States,

Bearing in mind that, according to the definition contained in the United Nations Law of the Sea Convention (Article 122), the Adriatic Sea is an enclosed or semi-enclosed sea, which, because of its small size, is far more vulnerable to pollution than is the case with other seas,

Aware that a disaster, like the one involving the tanker "Prestige", would have a devastating effect on the living resources of the Adriatic and would cause serious social and economic consequences to the coastal area of the entire Adriatic, including the Croatian economy in general and the Croatian tourism in particular,

Supporting the multilateral efforts aimed to ensure sustainable fisheries in the Mediterranean, as well as the main principles on which arrangements are being made for the Ministerial Conference on Sustainable Fisheries in the Mediterranean scheduled for November 2003 in Venice, in particular:

- the sovereign right of every State to extend, in accordance with international law, its jurisdiction on the sea;
- the extension of national jurisdiction as a way of ensuring and controlling sustainable fisheries;
- a need for urgent action for protection both the fish stocks and the marine environment;
- co-ordination of measures taken by all coastal States in the field of research, management and fisheries control;
- resort to multilateral mechanisms in reaching these goals,

Believing that the extension of national jurisdiction in the Mediterranean will create conditions for sustainable fisheries, contribute to efficient prevention of illegal, unregistered and unregulated fisheries, and lay foundations for productive bilateral and multilateral co-operation of the Mediterranean States,

Reaffirming the sovereign rights and jurisdiction which the Republic of Croatia, in conformity with international law, is already exercising over its continental shelf,

Taking into account the interests of the Republic of Croatia to preserve traditional fisheries in the Adriatic as one of the principal preconditions for the development of tourism and as an incentive for the local population to remain on the islands,

As a prerequisite for long-term sustainable and rational management of the living resources of the sea and for appropriate protection of the marine environment of the Adriatic Sea, in accordance with Part V of the 1982 United Nations Convention on the Law of the Sea and pursuant to Article 1042 of the Maritime Code:

1. The Croatian Parliament hereby proclaims the content of the exclusive economic zone related to the sovereign rights for the purpose of exploring and exploiting, conserving and managing the living resources beyond the outer limits of the territorial sea, as well as the jurisdiction with regard to marine scientific research and the protection and preservation of the marine environment, whereby the ecological and fisheries protection zone of the Republic of Croatia is established as of today.
2. The Croatian Parliament reserves the right to proclaim, when it deems appropriate, the other elements of Chapter IV of the Maritime Code, in accordance with the United Nations Convention on the Law of the Sea.
3. The implementation of the legal regime of the ecological and fisheries protection zone of the Republic of Croatia shall commence twelve months after its establishment. As of that day, the implementation of Articles 33, 34 paragraph 1 (a), Articles 35, 41 and 42 contained in the Chapter IV Economic Zone of the Maritime Code, shall also commence. The said period shall be used for preparing the implementation mechanisms and for possible signing of agreements or making arrangements with interested States and the European Communities.
4. Without prejudice to the sovereign rights and jurisdiction of the Republic of Croatia, the ecological and fisheries protection zone of the Republic of Croatia protected in this manner, remains a sea area where all States shall enjoy freedoms, as guaranteed under international law, of navigation, overflight, laying submarine cables and pipelines, and other internationally lawful uses of the sea.
5. The ecological and fisheries protection zone of the Republic of Croatia comprises the maritime area from the outer limit of the territorial sea seaward up to its outer limit allowed under general international law. The outer limit of the ecological and fisheries protection zone of the Republic of Croatia shall be determined through the delimitation agreements with the States whose coasts are opposite or adjacent to the Croatian coast.

6. Pending the conclusion of the delimitation agreements, the outer limits of the ecological and fisheries protection zone of the Republic of Croatia shall temporarily follow the delimitation line of the continental shelf established under the 1968 Agreement between the SFRY and the Italian Republic on Delimitation of the Continental Shelf, and, in adjacent delimitation, the line following the direction of and continuing the provisional delimitation line of the territorial seas, as defined in the 2002 Protocol on the Interim Regime along the Southern Border between the Republic of Croatia and Serbia and Montenegro.

7. The Republic of Croatia will closely co-operate with all Adriatic and other interested Mediterranean States in an effort to protect the Adriatic and the Mediterranean through a concerted action.

8. This Decisions shall become effective forthwith.

File No: 30201/0301/02

Zagreb, 3 October 2003

CROATIAN PARLIAMENT

PRESIDENT OF THE CROATIAN  
PARLIAMENT

Zlatko Tomčić  
*[signed]*



## **Annex 2: Decision not to apply the ZERP to EU Member State vessels**

Pursuant to Article 1018 and Article 33 of the Maritime Code (Official Gazette No 181/04 and 76/07) and on the basis of Article 55 of the UN Convention on the Law of the Sea, the Croatian Parliament has, at its session on 13 March 2008, adopted the following

### **DECISION AMENDING THE DECISION ON THE EXTENSION OF THE JURISDICTION OF THE REPUBLIC OF CROATIA IN THE ADRIATIC SEA**

I. In the Decision on the Extension of the Jurisdiction of the Republic of Croatia in the Adriatic Sea (Official Gazette No 157/03, 77/04 and 138/06) Point 3, paragraph 2 is amended and reads as follows:

‘The Ecological and Fisheries Protection Zone of the Republic of Croatia shall not apply provisionally to the Member States of the European Union as of March 15, 2008, until a common agreement in the EU spirit is found.’

II. The Republic of Croatia, as a candidate country in the process of accession to the European Union, shall continue and additionally strengthen the dialogue with the EU Member States and the European Commission with a view to reaching an agreement swiftly that will ensure the maximum protection of the environment and fish stocks in the Adriatic, taking into account all legitimate interests of the Republic of Croatia.

III. Croatian fishermen (all natural and legal persons from the Republic of Croatia engaging in fishing in the Adriatic Sea) shall have the same status as fishermen from the EU Member States in the Ecological and Fisheries Protection Zone until the agreement referred to in Point II is reached.

IV. This Decision shall become effective forthwith.

Class: 302-01/08-01/02  
Zagreb, 13 March 2008

CROATIAN PARLIAMENT

SPEAKER

Luka Bebić



### **Annex 3: Text of verbal note No 331/2003 of 29 October 2003 from the Permanent Mission of the Republic of Croatia, passing on the text of the Decision on the extension of the jurisdiction of the Republic of Croatia in the Adriatic Sea**

The Permanent Mission of the Republic of Croatia to the United Nations offers its compliments to the Secretary General of the United Nations, in his capacity as guardian of the 1982 United Nations Convention on the Law of the Sea, and has the honour of informing him of the following:

The Croatian Parliament passed a decision on the extension of the jurisdiction of the Republic of Croatia in the Adriatic Sea on 3 October 2003. By means of this law of the Croatian Parliament, from this day forward, the Republic of Croatia's ecological and fisheries protection zone has been established outside the external limits of Croatian territorial waters. The Republic of Croatia will, in its ecological and fisheries protection zone, in accordance with the United Nations Convention on the Law of the Sea and on the basis of the Exclusive Economic Zone regulations (Article 56), exercise its sovereign rights of exploration and exploitation, conservation and management of living resources outside the boundaries of its territorial waters, as well as jurisdiction over marine scientific research, and the protection and conservation of the marine environment. The implementation of the regulations established by this decision shall enter into force on 3 October 2004.

Without prejudice to the sovereign rights and jurisdiction of the Republic of Croatia, the ecological and fisheries protection zone of the Republic of Croatia remains a maritime zone in which all states shall have freedoms, as guaranteed under Article 58(1) of the United Nations Convention on the Law of the Sea: '...navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms, such as those associated with the operation of ships, aircraft and submarine cables and pipelines, and compatible with the other provisions of this Convention'.

The Republic of Croatia's ecological and fisheries protection zone covers a maritime area from the external limit of the territorial waters to the open sea up to its external authorised limit under general international law. The external limits of the Republic of Croatia's ecological and fisheries protection zone shall be determined by delimitation agreements with the neighbouring states in accordance with Article 74 of the United Nations Convention on the Law of the Sea.

While awaiting the conclusion of the delimitation agreements, the external limits of the Republic of Croatia's ecological and fisheries protection zone shall temporarily follow the delimitation line of the continental shelf established under the 1968 agreement between FYROM and the Italian Republic on the delimitation of the continental shelf, and, for the adjacent delimitation, the line along the direction and the continuation along the provisional delimitation of territorial waters, as defined in the 2002 protocol on the interim regulations along the southern border between the Republic of Croatia and Serbia and Montenegro.

A copy of the decision of the Croatian Parliament of 3 October 2003 on the extension of the jurisdiction of the Republic of Croatia in the Adriatic Sea, which was published in the Official Gazette of the Republic of Croatia No 157/2003, is enclosed, along with an English translation.

The list of the coordinates of the provisional external limits of the Republic of Croatia's ecological and fisheries protection zone shall be submitted in good time to the Secretariat.

Yours faithfully,

New York, 29 October 2003.