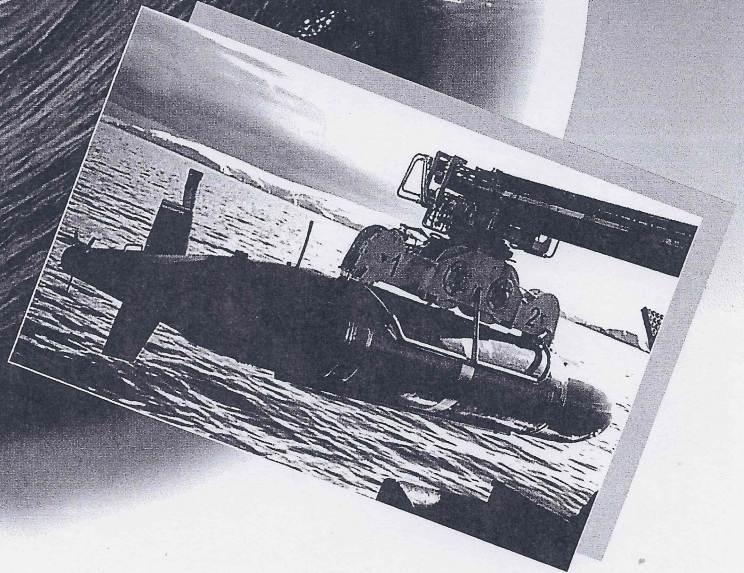
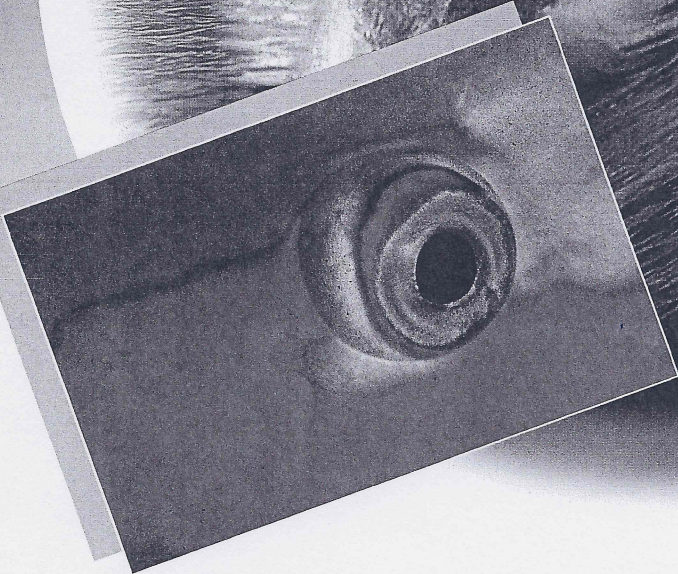
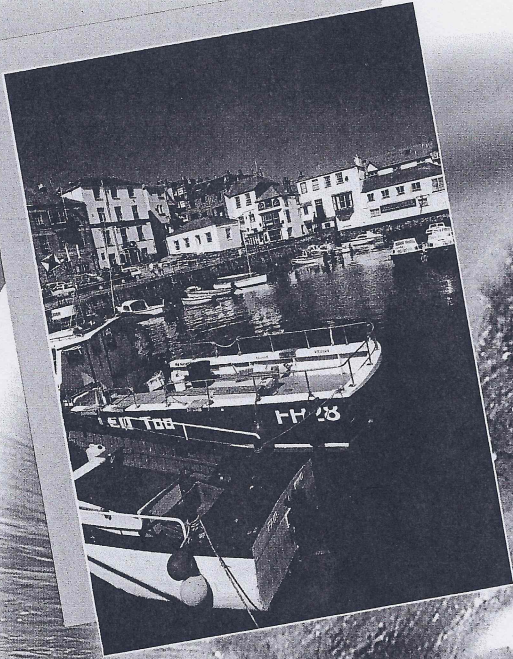


# OCEAN

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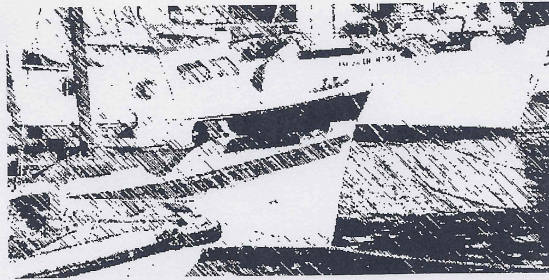
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Kostas Kapiris

# THE PRESENT AND FUTURE OF GREEK FISHERIES

Fishing has been undertaken in the waters around Greece and the Greek islands since ancient times, and information about it can be found in the writings of Homer, Isiodos, Aechylus, Galinos, Aristotle and Oppianos, among others. Because of the geography of Greece, the fisheries sector has traditionally been the basic source of income for the inhabitants of most coastal areas, especially in the case of the islands. The total length of the Greek coastline is over 15 000 km, so it might be expected that fisheries production would play a very important role in the national economy. In fact, its contributions to the Gross Agricultural Product and Gross Domestic Product are relatively small (5.6% and 1.0%, respectively), but fisheries are nevertheless an important sector of the Greek economy because they contribute to the maintenance of social and economic cohesion of many regions around the country. Most of the fishing activity is small-scale, or even artisanal (using traditional techniques to catch fish for local consumption). Greece (and indeed the Mediterranean in general) has not seen the development of industrialized fishing, involving large investments by companies/financial groups, such as occurs, for example, in the North Sea.

## Fishing grounds exploited by Greece

On average, fish catches in Greek waters are lower than those in other areas of the world ocean. This is because the waters have relatively low nutrient concentrations, and so are not very productive. The commercial fishery mainly operates down to 400–500 m depth, and is mostly confined to the waters over the continental shelf, which is generally narrow. This is partly because fishermen lack experience of fishing in deeper waters, and partly because of the low commercial value of deep-water species in the Greek market up until recently.

However, the northern/north-western Aegean Sea (cf. Figure 1) not only has a large area of continental shelf, but also receives a relatively large amount of freshwater runoff and hence has a relatively high concentration of nutrients (in the Aegean, nutrient concentration decrease from north to south). As a result, the density of pelagic species in the Aegean is higher than the average for the Mediterranean as a whole, and the majority of vessels in the Greek fishing fleet work there, with small-scale fishing boats taking 80% of the catch. (The Turkish fishing fleet operates along the coast of the eastern Aegean; its catch is very much smaller than that of the Greek fishing fleet.)

Very few fishing boats work in the waters to the west of Greece, in the Ionian Sea (cf. Figure 1). Here, fishing is mainly confined to the narrow continental shelf, as the flanks of the (volcanic) Ionian Islands slope down steeply to the sea-bed.

## Box 1: The composition, capacity and engine power of the Greek fishing fleet

- Fishing vessels operating in distant waters, i.e. the Atlantic Ocean and north African coast (< 1% of total vessels, 19% of capacity and 6% of engine power\*). Most of the catch (8% of total output) is frozen.
- Trawlers operating in Greek open waters (~2% of total vessels, 23% of total capacity and 17% of power). Their catch accounts for 22% of total output.
- Purse-seiners<sup>†</sup> operating in Greek open waters and coastal waters (~2% of total vessels)
- Coastal boats, including beach-seiners,<sup>†</sup> small ring-netters, drifters, liners, etc.), operating along the Greek coasts (~98% of total vessels, ~59% of total capacity and 77% of total power), accounting for approximately 70% of total output.

The above figures are based on 2003 data. In 2004, the total catch of the Greek fishery fleet was about 90 444 tonnes, and its total engine power was ~ 725 000 HP.

### Notes for Box 1

\*Engine power is a measure of 'fishing effort', the resources used in fishing. Managing fishing effort is a way of managing fishing activity in order to combat overexploitation of fish stocks. Engine power is a particularly useful measure of fishing effort because it is applicable to a variety of fishing techniques; other measures of fishing effort – e.g. vessel size, days at sea, number of nets, etc. – may be meaningful for some techniques but not for others.

<sup>†</sup>Purse-seining involves encircling the fish with a vertical net and then pulling tight a drawstring along the bottom of the net, so enclosing the fish; in use, the net resembles an old-fashioned purse with a drawstring neck. 'Seine' is the old name for any net set vertically in the water, with floats along the top and weights along the bottom. Beach seines are vertical nets (sometimes with a 'bag') that are deployed in very shallow water, usually from small boats.





*Most important Greek fishing ports are around the Aegean Sea, which is shallower and more productive than the Ionian Sea*

**Figure 1** The most important Greek fishing ports. As this map suggests, the Greek fishing fleet works mainly in the Aegean Sea, with many fewer vessels working in the Ionian Sea and along the southern coast of the Peloponnese. The grey zone around the coastline is the Greek territorial sea (6 nautical miles) within which Greek fishermen have exclusive fishing rights.

The Greek part of the Ionian Sea comprises part of a larger area in which stocks are fished by a number of other major fishing nations (especially Italy, Albania, Libya, Malta and Tunisia). Only 7% of the total Ionian Sea catch was caught in the Greek sector in the period 1982–87.

Further east, the Greek part of the Levantine Sea also comprises part of a larger area in which stocks are fished by a number of other major fishing nations (Lebanon, Turkey, Israel, Syria, Cyprus, Egypt and Gaza Strip). The Greek catch from the north-western Levantine Sea is relatively small (on average <1% of the total Levantine catch over the period 1982–87).

For the period 1982–89, of the mean annual catch of ~93 000 tonnes, ~ 87 000 t came from the Aegean Sea and ~6000 t from the Ionian Sea. Fish, cephalopods and crustaceans made up respectively 94%, 3% and 3% of the total Aegean catch, and 96%, 3% and 1% of the mean Ionian catch.

### The Greek fishing fleet

As shown in Box 1, small coastal boats make up the largest part of the Greek fishing fleet (see also Table 1). Although their contribution to the total tonnage and engine power of the fishing fleet is low (~13% in both cases), fishing vessels under 20 HP make a significant contribution to the total fleet in terms of numbers of vessels (60%) and employment (46%) (see also Tables 2 and 3, overleaf).

### Greek fishing resources

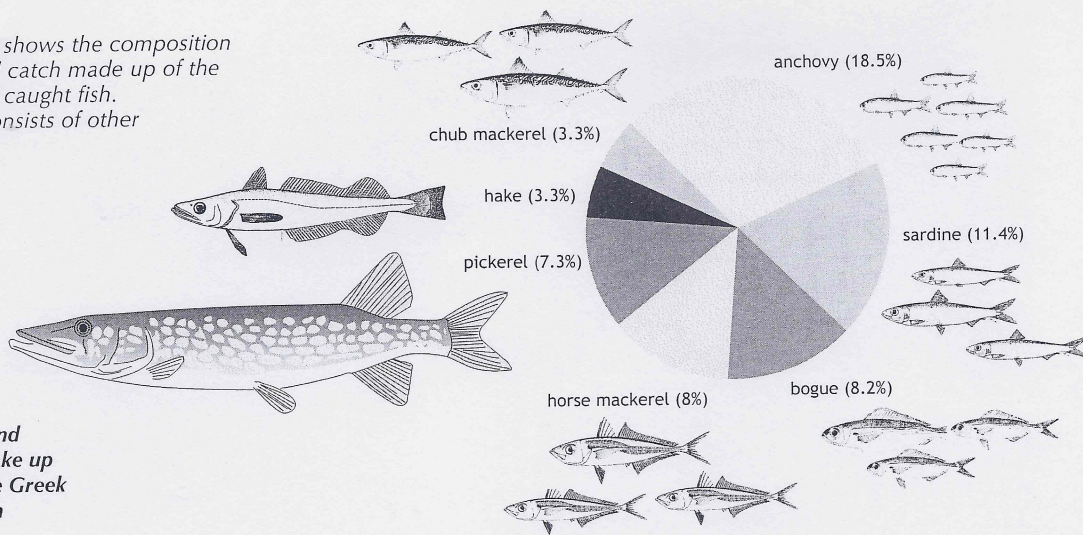
Greek seas are characterized by a warm-water tropical and subtropical fauna, with the total number of fish species found in the waters around Greece (447) being lower than that reported from the Mediterranean Sea as a whole (579), indicating the impoverishment of the eastern Mediterranean. In all, the fish fauna of Greece consists of 447 fish species (belonging to 129 families), of which 283 species are of Atlanto-Mediterranean character, 86 species are endemic in the Mediterranean Sea, 65 species are of worldwide distribution (i.e. known in the Atlantic and Indo-Pacific), and 13 species are immigrants from the Red Sea that colonized Greek seas by following the main currents along the coasts of Syria and Turkey.

**Table 1** The Greek fishery fleet in terms of gear and numbers of vessels in different length categories. (National Project of Fishery Data Collection, 2005)

Gear		Length category			Total
		< 12 m	12–24 m	24–40 m	
Mobile gears	Trawls	1	88	131	220
	Purse seines	7	294	21	322
	Beach seines	353	53	–	406
	Multiple gears	–	76	47	123
Passive/static gears	Hooks		70		
	Fixed nets	17 230	357	–	17 657
	Traps		–		
Total		17 591	938	199	18 728



**Note:** The pie-diagram shows the composition of the 60% of the total catch made up of the seven most commonly caught fish. The remaining 40% consists of other less abundant species.



**Anchovy and sardine make up 30% of the Greek marine fish catch**

**Figure 2** Composition of the mean fish catch from Greek seas, in terms of the seven most commonly caught fish. The values given in brackets are percentages of the total marine fish catch; all other species contribute <3% of the total (data from 1964–89). Anchovy, sardine, horse mackerel and bogue dominate the purse-seine catches; hake, pickerel ('northern pike'), horse mackerel and red mullet dominate trawl catches.

Fisheries in Greek waters are typically multi-species, and target mainly small pelagic fish (i.e. small shoaling fish living in the water column) and demersal fish (those living in association with the sea-bed). Demersal fish such as hake and red mullet, along with shrimps and cephalopods (squid and octopi) are mainly caught by trawling, while pelagic fish such as sardine, anchovy, bogue, Mediterranean horse mackerel, along with various species of tuna, albacore, bonito and true mackerel, are caught by purse-seiners. The beach-seine catch is typically dominated by pickerel, sardine and bogue. (Unfortunately, since 1969, local customs authorities have not recorded catches of smaller inshore ring-netters, drifters and liners.) Overall, anchovy and sardine dominate the Greek catch, together making up one-third of the total, over the period 1964–89 (Figure 2).

Although 50–60% of total domestic fisheries production consists of small pelagic fish, the main commercially valuable species are migratory species such as bluefin tuna, swordfish and albacore. According to ICCAT,\* in Greek waters, stocks of highly migratory species are heavily over-exploited, although lack of data means that there is some uncertainty about the extent of overfishing.

#### Seasonal variability of catches

Monthly catches of pelagic species such as anchovy, sardine, horse mackerel and Atlantic chub mackerel (as well as the monthly catches of all fish combined) increase from a minimum in January to a maximum in May–September (depending on species), and decline thereafter. This marked seasonal cycle is probably related to seasonal offshore and inshore migrations of small and medium-sized pelagic fishes and the nature of the purse-seine fishery. Also, the majority of these

fishes spawn close to shore in and around summer, commencing some time in May; in winter they are more dispersed and distributed mainly offshore.

On the other hand, monthly catches of demersal species such as hake, blue whiting and red pandora, along with cephalopods and crustaceans, are very low in June–September when trawling and beach-seining are prohibited in Greek waters.

#### Employment

Employment in the fishery sector represents 1.9% of employment in the primary sector of the economy (that part which exploits natural resources) and 0.3% of employment in the whole economy. In 2004, 14 094 people were employed in the fishery sector, 1 642 fewer than in 2002 (Table 2). Around 60% of people employed in the sector work for themselves, 24% are employees, and 11% are unpaid family workers. The majority of self-employed fishermen work in small-scale fisheries.

Employment in fisheries in Greece has a 'two-tier' structure: on the one hand there is so-called 'professional' fishing activity undertaken by full-time fishermen (inshore, open sea and overseas); and on the other, there are 'part-time' fishermen who use small low-horsepower vessels. This situation reflects the diffuse character of Greek fisheries, and of Greek rural economic activities in general.

As in other European countries, women's position in fishery enterprises differs greatly from that of men: whereas 60–70% of men involved in fishing are either 'self-employed' or 'employers', for women it is only 15–30%, with 55–70% of women being classed as 'assisting members in the family enterprise' (only 6–15% of men are occupied as 'assisting members'). Overall, men are

**Table 2** Employment in fisheries by type (2001–2004)

Type of fishery	2001	2002	2003	2004
Overseas	157	173	185	211
Open sea	1197	1180	1257	1258
Inshore	14 541	14 383	13 290	12 626
Total	15 895	15 736	14 732	14 095

Source: NSSH.

\*ICCAT is the International Commission for the Conservation of Atlantic Tunas, established in 1969. The organization is responsible not only for conservation of various species of tuna in the Atlantic and adjacent seas, but also tuna-like species such as swordfish, sailfish and various kinds of marlin and mackerel.



more commonly identified as 'skipper or fisherman'; women are more frequently described as 'wives/daughters of fishermen' or 'skipper's helpers'.

## Trends in fisheries in Greece

### Decline in fishing activity and employment

The number of vessels in the Greek fishing fleet has been decreasing over the last decade and a half. In 1991, the fleet consisted of 22 237 vessels, while in 1996 it was 20 594, and in 2003 it was 18 836. In 2004, the total number of fishery vessels was 18 728 (see also Box 1 and Table 1). This considerable reduction of the fishing fleet will be discussed in more detail later.

As shown in Table 2, the number of people employed in fisheries decreased during the 1990s. There has also been a trend away from fishing as a full-time occupation, towards part-time fishing along with other economic activities. Many of those active in fisheries are relatively elderly: the Labour Force Survey data for 1997 indicate that 53% of those employed in fisheries are over 45 years of age, with the figure rising to nearly 60% for small-scale fisheries.

### Decline in production

Estimates based on catch rates reinforce the view that most commercial species in Greek waters are overexploited. In particular, catch statistics for the most important species or groups of species (demersal and small pelagic species) showed a negative trend in the 1990s. In particular, in some areas, long-lived species and larger specimens have disappeared from demersal catches. In the northern Aegean, where small pelagic fish (caught by purse-seiners) constitute a large proportion of the catches, a marked decline in the anchovy stock has been observed in recent years. However, there is no evidence for overfishing of sardines in Greek waters.

Overall, marine fishery production has been steadily declining in Greece. Table 3 gives the total annual landings per fishing category in Greek seas, over the period 1997–99. Over the period 1988–98, the largest decrease was in overseas fisheries (52%), followed by the open sea Mediterranean fisheries (21%), while in inshore fisheries there was only a small decrease (7%). In 2001, the total catch was 94 497 tonnes, in 2002 it was 99 029 tonnes, and in 2004 it was 90 444 tonnes.

Average per capita consumption of fish in Greece is similar to that in Italy and Denmark (about 26 kg in 1997), and overall fish production (capture fisheries plus aquaculture) is insufficient to meet local needs, with the result that Greece is a net importer

**Table 3** Annual landings per fishing category (1997–1999) (tonnes)

	1997	1998	1999
Inshore fisheries (>19 HP)	71 481	47 868	50 000
Inshore fisheries (<19 HP)	42 000	43 000	43 000
Trawlers, purse-seine	76 254	59 119	60 000
Overseas fishery	5 053	5 914	6 000
Total	194 788	155 901	159 000

Source: Ministry of Rural Development and Food.

## Box 2: Sources of Greek fisheries statistics

Greek fisheries statistics are collected by four independent organizations: the National Statistical Service of Hellas (NSSH), the Agricultural Bank of Greece, the National Company for the Development of Fisheries (ETANAL SA), and the Ministry of Rural Development and Food. So far, there has been no attempt at coordination between these organizations and, as a result, confusion often arises.

NSSH has recorded fisheries statistics for Greek waters since January 1964. For a better evaluation of the available data, the waters fished by our fishermen have been divided into 18 statistical fishing sub-areas. Although NSSH statistical data suffer from various biases (which are greater for inshore fisheries) and the degree of bias is hard to estimate, they are the best figures available.

The Agricultural Bank of Greece collects data on active fishing vessels and provides assessments of their landings from 1974 onwards. The Ministry of Rural Development and Food is the official administrator of the Greek fishing industry and the body responsible for management of fisheries resources. ETANAL is a non-profit organization under state control, whose role is the management of the major Greek fishing ports; it belongs to the Agricultural Bank of Greece (ATE) (75%) and to the National Bank of Industrial Development (ETBA) (25%). ETANAL has been granted by law exclusive jurisdiction over auctions (eleven in several parts of the country) and supervision of related transactions. Auction centres handle about 30% of the total fish landed in Greece. The 166 port authorities (central harbour authorities, port police stations, sub-stations and outlying stations) employ 3 226 officials, of whom 250 are full-time.

of fishery products. This is despite the fact that aquaculture is one of the most dynamic sectors in the Greek economy, with Greece being the largest producer of farmed sea bass and sea bream in the Mediterranean.

In the 1980s, fishery imports were larger than exports, but the value of fishery consumption in Greece rose steadily in the period 1988–98. During the 1990s, the value of fishery exports exceeded the value of fishery imports (both at current prices). For example, in 1999, imports were worth 8.2€ billion (21 000 tonnes) and exports were worth about 17€ billion (50 000 tonnes). Thus, fishery production in Greece needs both to increase fishery exports and to satisfy the rising domestic demand for fish.

## Strengths and weaknesses of the fishing industry in Greece

### Problems with CFP legislation

Since becoming a member of the European Community, Greece has relied on its Fisheries Code of 1970 (420/70) as the foundation of its national fisheries legislation. This law has been amended on several occasions, most recently in 1997. As in other EU countries, the Common Fishery Policy (CFP) and its legislation is directly applicable.

Market structure and market policies have been applied and enforced in the Mediterranean as in other Community areas, but in the Mediterranean implementation of some aspects of the control policy has been delayed. The first regulation covering technical measures for conserving fishery resources in the Mediterranean (Council Regulation (EC) No.1626/94) came into force on 1 January 1995. Greece was exempted until



1 January 2000 but the Greek administration attempted to overcome existing problems by introducing amendments to the relevant national legislation. Apart from the allocation of a total allowable catch (TAC) for bluefin tuna in 2003, no TAC or quota has been allocated to Greece or any other Mediterranean country.

The CFP aims to promote sustainable fishing practices in the Mediterranean, as in other EU waters,\* and the high seas. However, the special characteristics of Mediterranean fisheries mentioned earlier – the fact that most fishing takes place over narrow continental shelves, and is undertaken mainly by small vessels – mean that CFP measures are sometimes not appropriate for the Mediterranean, and so have only been partially applied there. Furthermore, conservation measures specifically designed for the Mediterranean have not had the desired impact.

Beside Community law there are a variety of national measures aimed at regulating fishing effort, as well as technical measures involving mesh-sizes, maximum landing sizes etc. Management regulations currently in force for the Greek demersal, inshore and pelagic fisheries are shown in Table 4. The fact that, despite these measures, many fish stocks (and the coastal marine environment) are in a vulnerable state, has been attributed mainly to the multi-species, multi-gear nature of Greek fisheries, which mean that it is difficult to design and implement uniform protective measures, particularly for demersal and inshore fisheries.

#### Administration and resources

At a national level, four different ministries are involved in fisheries monitoring, inspection and surveillance: the Ministry of Rural Development and Food's General Directorate for Fisheries is responsible for developing and implementing fisheries policy; the Ministry of Mercantile Marine's

Directorate of Port Police and the local port offices are responsible for inspecting the implementation of marine fishery policy; the Fisheries Divisions of Local Authorities of the Prefectures (Periferia, in Greek) are responsible for implementing fisheries policy; and the Ministry of Commerce studies the market for fisheries products (this organization exists because of a tradition that fisheries are managed locally or regionally and the involvement of national authorities is therefore limited).

For 1999 the total amount allocated to the administration of fisheries was 25.2 M€ (16.3 M€ from the national budget, and 8.9 M€ from the EU budget). For the period from 2000 to 2006, a six-year plan provided Greek fisheries with subsidies amounting to nearly 500 M€, 236 M€ of which came from the structural fund of the EU.

#### Need for modernization

Despite the growth of Greek fisheries in recent decades, the sector must deal with the following weaknesses:

- The large number of small, old and poorly equipped fishing vessels with high operating costs (75% of the vessels are over ten years old).
- The limited area of Greek fishing grounds because of the small area of shelf.
- The inadequacy of available marketing channels.
- Limited research activities, and poor infrastructure and facilities at fishing ports.

The limited area of shelf has meant that Greece has developed a multi-gear coastal fishery composed of many low-powered vessels, operating within the 100 m depth contour, which, in many areas, does not extend beyond the 1-mile zone. The 1-mile limit is the boundary between the wider coastal fishery sector and the fishery conducted mainly by trawlers (the most economically important sector of medium-sized fishery enterprises). Thus different types of fishing vessels are often operating in the same fishing grounds, which results in competition between different groups of fishermen, contributing to over-exploitation of fish stocks.

While most shallow-water stocks are over-exploited, extensive potential fishing grounds in deeper waters remain underexploited. The discovery of new fishing grounds and new resources could play an important role in the sustainability of exploited Greek marine fishing resources – for example, a potentially exploitable deep-water red shrimp stock was recently reported off the Greek coast of the Ionian Sea. However, it should be borne in mind that some deep-water resources are particularly sensitive to over-exploitation, because their habitats and ecosystems are very fragile.

Modernization of the fleet should lead to more rational and more profitable exploitation of fishery resources, improved productivity and economic viability of fishing enterprises, a wider radius for fishing activities, allowing fishing in under-exploited areas, improved working conditions on board (especially in terms of health and safety), and improved quality of catch.

\*EU waters outside the Mediterranean are made up of the exclusive economic zones (EEZs) of the various EU states. For political and practical reasons, most Mediterranean states have not declared EEZs, only territorial seas.

**Table 4** Regulations currently in force for demersal/inshore and pelagic fisheries in Greek seas

Vessel licensing	Limits imposed on the fishery
Purse-seiners	Closed season for 3 months in winter; minimum stretched mesh size of 14 mm for those operating at night and 40 mm for those operating in daytime. Fishing prohibited within 100 m of the coastline, at depths < 30 m. Max. engine horsepower 300 HP.
Trawlers	Closed season from 1 June to 30 Aug., minimum stretched cod-end mesh size 28 mm. Fishing prohibited within 1–2 miles of the coast and 3 miles from estuaries. Many gulfs and bays closed to fishing. Max. engine horsepower 500 HP.
Beach-seiners	Closed season from 1 June to 30 Aug.; minimum stretched mesh size 16 mm. Fishing allowed no farther than 70 m from the coast. Many gulfs and bays closed to fishing. Fishing prohibited at night. No new entries to fishery permitted. Max. engine horsepower 150 HP.
Nets	Some areas closed to fishing; fishing not allowed with monofilament nets. Max. engine horsepower 150 HP.
Fish size limits	Prohibited to land fish of lengths < 10 to 30 cm according to species (10 cm: red mullet, striped red mullet, red pandora, gilt sardines, crayfish, bogue; 14 cm: gilthead sea bream; 16 cm: <i>Mugil</i> sp. and sea bass; 18 cm: soles; 30 cm: eels); and lobsters and octopi of weights < 320 and 500 g, respectively.



In order to improve the infrastructure supporting fisheries and fisheries research, the European Regional Development Fund needs to finance a series of measures including: improvement and protection of lagoons and harbours; computerization of the departments concerned; informing the public about the operational programme for fisheries; and training for administrative staff.

### **Improving and marketing fish products**

Measures to improve the quality of fish products must include:

- Improving facilities at fishing ports, including those for storage and chilling.
- Processing: building new processing units, extending and modernizing existing ones, including computerization and installation of biological cleaning systems for treatment of waste.
- Marketing: construction of some new auction halls, and modernization of existing ones; product promotion, and exploration of new distribution arrangements (promotion campaigns, quality certificates and product labelling, consumer surveys, trade fairs, exhibitions etc.).
- Improving co-operation among fishermen, which up until now has been limited: even today, fishery cooperatives are not very active and their impact is small. This is partly a result of the diffuse nature of fishery production, but also of the lack of specialized knowledge and skills, and the lack of state support for cooperative enterprises.

### **Decommissioning**

The CFP is primarily looking for a sustainable balance between fish stocks and fishing activities. In order to reduce the total fishing effort there needs to be permanent withdrawal of some fishing vessels. In 2002, 18 trawlers, 7 purse-seiners, 26 beach trawlers and 490 coastal fishing vessels were withdrawn from fishing activity, reducing the fishing fleet by 940 GRT\*, and resulting in the loss of about 867 permanent jobs. Temporary withdrawal of other vessels, due to unforeseen one-off events (e.g. temporary reduction of certain types of fish) will also help.

### **Identifying appropriate control measures**

Limits on the minimum size of marketed fish are generally not recommended for multi-species fisheries (which target various fish that attain different sizes) because such measures usually result in high discard rates. This is particularly true for catches including hake and red mullet, of which a relatively high percentage of specimens are caught at lengths <120 mm and <100 mm, respectively. This part of the catch is either marketed illegally or discarded. In any case, minimum landing sizes are meaningful only when they have been adopted on the basis of sound biological reasons, and trawl and gill-net selectivity experiments conducted in Greek waters clearly show that this has not been the case for many fish species in Greek waters (e.g. hake, john dory, anglerfishes, red pandora, red mullet, striped red mullet).

\*GRT = gross registered tonnage.

Although closed seasons can be effective in restricting fishing mortality of particular life-stages, they may lead to an overall *increase* in mortality if catch rates are high outside the closed seasons. In addition, they cause severe economic problems for Greek fishermen. However, restrictions on the number of licenses issued may be quite successful if introduced sufficiently early in the history of a fishery. It is worth mentioning that banning of the beach seine could be essential for conservation of demersal and inshore biodiversity in Greek waters.

At present, there is no official information about recruitment overfishing in Greek seas (recruitment overfishing is catching too many young fish, which can never mature and breed). However, results of experimental fishing indicate that all the commercially important Greek demersal and inshore stocks are increasingly suffering from overfishing; affected stocks include hake, poor cod, blue whiting, whiting, gurnard, red mullet, striped red mullet, red pandora, pickerel, blotched pickerel and Norway lobster). In addition, many commercial catches have been consisting mainly of young immature individuals, suggesting that the spawning stocks are endangered.

## **General recommendations**

### **Creation of Marine Protected Areas**

Stergiou and Pollard (see Further Reading) have suggested that the managerial measures at present in use should be either replaced or complemented by the creation of marine refuges (Marine Protected Areas). Such an approach, in which fishing vessels are excluded from particular areas, is potentially a highly effective management technique, particularly for multi-species fisheries.

The creation of Marine Protected Areas will help to protect small fish, and should result in increased catches outside the reserves. Creation of areas where fish are highly concentrated, and so can be exploited with reduced fishing effort, should improve resource development and living conditions in areas such as eastern Greece, western Macedonia and Thrace.

### **An improved Common Fisheries Policy**

The European Union started a process of revision of the CFP in 2002 and since then a series of new rules have been adopted. Discussion of a new rule concerning the management of Mediterranean fisheries, and of the Fisheries European Fund for the period 2007–2013, will be of the utmost importance for the social, economic and biological sustainability of the fishing industry in the Mediterranean. The need for decisive action aimed at recovering fish stocks has been recognized, and new tools have been introduced. Some of these are already included in Rule 2371/02 (for the conservation and sustainable exploitation of resources), while others have been drafted as measures to be implemented within the programmes to be approved within the Structural Fund.

### **Protecting fishing communities**

Fishing plays a very important socio-economic role in Greece. To protect its future we need greater determination from all concerned, better



scientific data, strengthened control of fisheries activities, improved compliance with the rules and increased co-operation among all parties involved. The efforts of those who apply conservation measures must not be undermined by those who do not.

The problems faced by the fisheries sector in Greece are most serious among those who are disadvantaged socially and economically. Thus, the target group for support and development activities should be small-scale coastal and inshore fishermen running small family businesses. In particular, small-scale coastal fishermen need support in diversifying their activities, along the lines of rural development projects set up in areas of the Greek countryside where there are few alternative employment opportunities. These projects must (1) to be better tailored to local needs than in the past, with local traditions and customs taken into account; (2) be planned at the local level; (3) be well supported by local government and state services; and (4) focus on development that is sustainable, given the coastal development and over-exploitation which has harmed many fisheries in Greece.

#### Concluding comments

In tackling the problems of fishing communities around Greece, the Greek government has had two aims:

- Finding the right balance between fishing effort and the available marine resources.
- Maintaining employment at a level favourable to the development of the sector, while contributing to the modernization of fishing enterprises.

In general, progress towards these aims has been in the right direction, but much still needs to be done.

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### 38th SIBM Congress

Genoa, Italy, 29 May – 2 June 2007

The 38th Congress of the Italian Society for Marine Biology (SIBM) is being held at Santa Margherita Ligure, Genoa, and is being organized by the University of Genoa in collaboration with the Marine Protected Area (MPA) of Portofino, the Municipality of Santa Margherita Ligure, Portofino Coast and others. The main themes of the Congress are:

- Scientific research in and for MPAs
- The coralligenous biocoenosis
- The bathyal environment and fisheries

The opening presentation, 'Climate Change and Managing Marine Ecosystems', will be by Prof. Stephen J. Hawkins. There will be a workshop on MPAs in the Ligurian Sea for MPA managers, fishermen, politicians and stakeholders.

For more information, please see the SIBM website: [www.sibm.it](http://www.sibm.it)

### 14th International Symposium on Environmental Pollution and its Impact on Life in the Mediterranean Seville, Spain, 10 – 14 October 2007

The objectives of the symposium are to provide opportunities for scientists of different countries to:

- Exchange recent results relating to environmental pollution and its effects on public health in the Mediterranean region
- Discuss current technological and legal measures to avoid or reduce the degradation of the environment
- Present suggestions and recommendations to the regulatory authorities on equality and safety in the Mediterranean area.

For more information see <http://intarese.imperial-consultants.co.uk/>, or email Prof. Juan Cornejo (President of MESAEP): [cornejo@irnase.csic.es](mailto:cornejo@irnase.csic.es)