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EVOLUTION OF ROMANIAN MARINE FISHERIES FOLLOWING EU ACCESSION

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ABSTRACT

The data presented in this paper are obtained by the National Institute of Research and Development (NIMRD) "Grigore Antipa" as a partner of the National Agency for Fisheries and Aquaculture (NAFA) within the National Fishery Data Collection Programs 2008-2012. The paper contains data regarding:
- Fishing areas;
- Structure of the fishing fleet, fishing gears and fishing effort;
- Number of employees in the marine fisheries;
- Qualitative and quantitative structure of catches;
- Influence of fisheries on the marine environment;
- Legal and institutional framework;
- Recommendations on the management of fishery resources.

KEYWORDS: Black Sea, fleet, fishing gears, effort, catch, fishery legislation, recommendations

AIMS AND BACKGROUND

Taken into account the evolution of the marine fisheries in the last 23 years, the structure of the vessels in the fleet during the past 4-5 years (with small size - more than 90% and low technological investment per fishers), generally using traditional fishing techniques, for subsistence or local, small markets, limited infrastructure for landing and keeping of catches, research, management, and monitoring, we can consider as being **small-scale/artisanal fisheries** [21, 22, 28, 29, 30, 31 and 32].

MATERIAL AND METHODS

This paper is based on the Annual Reports realised in the frame of the National Program for Collection of Fisheries Data 2008-2010 and 2011-2013. These Annual Reports have been prepared according to the Guidelines for the submission of Annual Report under the framework of Council Regulation (EC) 199/2008 and implementing Commission Regulation (EC) 665/2008 and Commission Decision 2010/93/EU.

RESULTS AND DISCUSSION

Main fishing grounds

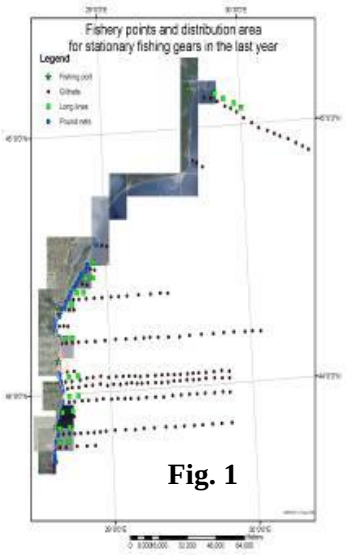
The Romanian fishing fleet is operating in the area of competence of the Regional Fisheries Management Organisations - G.F.C.M., Area 37 - Mediterranean and Black Sea, Sub-area 37.4., Division 37.4.2, GSA 29 [24, 25, 26, 27]. The Romanian fishing area is comprised between Sulina and Vama-Veche; the coastline extends for over 240 km, which can be divided into two main geographical and geomorphologic sectors [19 and 27]:

1 - the northern sector (about 158 km in length) lies between the secondary delta of the Chilia branch and Constanța, constituted of alluvial sediments;

2 - the southern sector (about 85 km in length) lies between Constanța and Vama-Veche characterised by promontories with active, high cliffs, separated by large zones with accumulative beaches often protecting littoral lakes.

The distance from the sea shore to the shelf limits (200 m depth) varies from 100 to 200 km in the northern sector and to 50 km in the southern one. The submarine slope of the shelf is very gentle in the north, while in the southern sector the slope increases very quickly (Fig 1, 2). The shallow waters up to 20 m depth of the northern part are included in the Biosphere Reserve of Danube Delta. The marine zone of the "Danube Delta" - Biosphere Reserve constitutes a traditional zone for spawning and feeding for transboundary species as well as a passage route for anadromous species (sturgeons, Danube shad) [20, 23].

In the South part of the littoral is situated also the Vama Veche - 2 Mai Marine Reserve, with the surface of 5,000 hectares (Fig. 3). The Vama Veche - 2 Mai Marine Reserve is an area with a high diversity of the biotopes and biocoenosis, being settled on the migration routes of the main pelagic and benthic fish and marine mammals [20, 23, 24, 25, 26, 27].



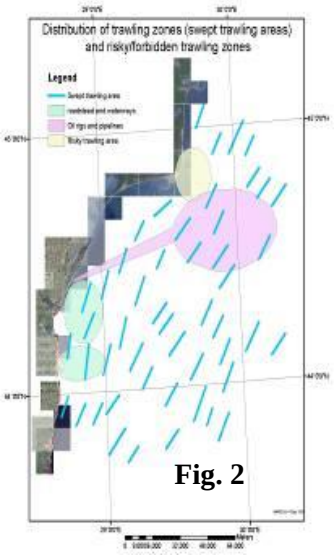


Fig. 1 - Fisheries points and distribution area for stationary fishing gears
Fig. 2 - Distribution of trawling zones
Fig. 3 - Romanian protected areas

Fleets, fishing gears and fishing effort

Traditionally, the fishing in the Romanian Black Sea area has been carried-out in two ways:

- Coastal trawler fishing vessels (type B-410, Baltica, TCMN, other types), equipped with mid-water trawls and turbot gillnets, activating at depths greater than 20 m (Fig. 2) [24, 25, 26, 27].
- Fishing practiced along of the coastline in about 28 fishing points between Sulina - Vama Veche, in the coastal area with small depth (3.0 - 11.0 m) with fixed gears (pound nets, gillnets, long lines and beach seine) and up to 40 - 60 m depth, with gillnets and long lines mainly for turbot and dogfish (Fig. 1) [24, 25, 26, 27].

Year after year, the activity of fishing vessels decreased gradually to the point where from 20 vessels with LOA between 24-40 m registered, in the last years, in the Fishing Fleet Register was registered as active only one vessel for a very short period of time (Fig 4, 5, 6) [24, 25, 26, 27].

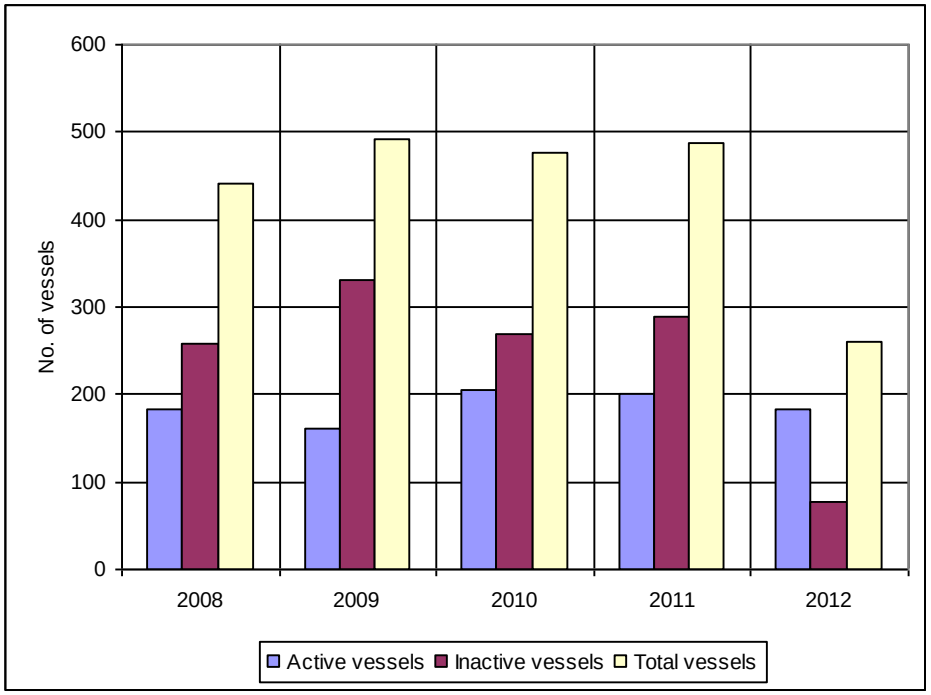


Fig. 4 - Evolution of the number of vessels during 2008-2012

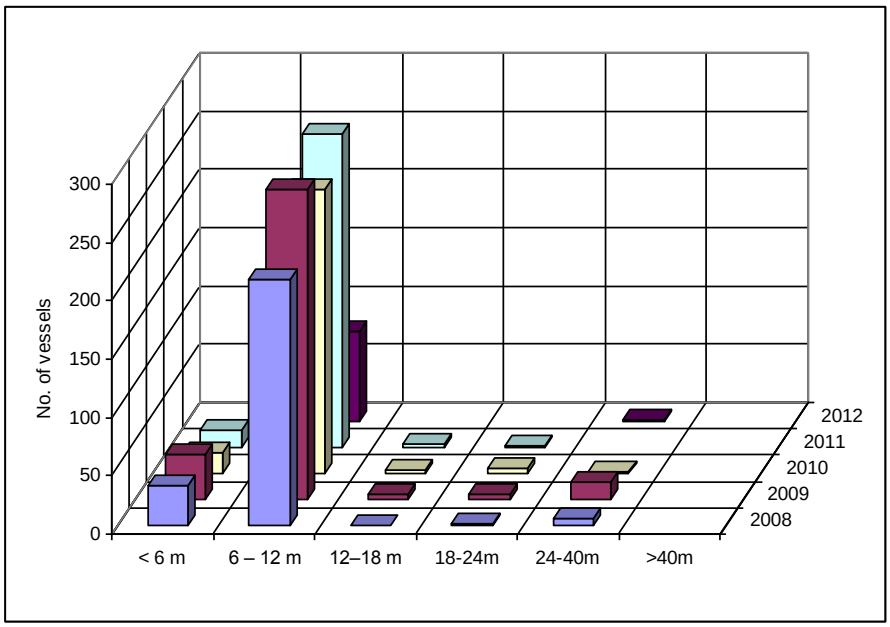


Fig. 5 - Structure of inactive vessels on length classes during 2008-2012

The Romanian fishing fleet capacity at the Black Sea was in 2008 of 441 vessels, registered in the FFR, out of which (Fig. 4-7) [24]:

- 20 over 12 m long; from the whole figure, 20 vessels are over 12 m long, not all of them have been fully operating for the past few years. Only 9 vessels are equipped with VMS devices, and just 10 of them were operational in 2008.

- 421 boats, smaller than 12 m registered, but only 174 of them being active in 2008 [24].

In 2009, the Romanian fishing fleet capacity at the Black Sea was of 491 vessels registered in the FFR at the beginning of the year [26] structured on length classes as follows: 53 boats smaller than 6 m; 405 boats in the length class 6-12 m; and 33 boats/vessels bigger than 12 m. Unfortunately, as in 2008, a small part of this fleet was active (160 boats/vessels) (Fig.6, 8).

In 2010, the situation was similar with 2009, the Romanian fleet capacity at the Black Sea was of 476 vessels registered in the FFR at the beginning of the year [27] structured on length classes as follows: 54 boats smaller than 6 m; 413 boats in the length class 6-12 m, 3 boats in the length class 12-18 m, 4 vessels in the length class of 18-24 m and 2 vessels in the length class 24-40 m. A small part of this fleet was active (206 boats/vessels) (Fig. 6, 9)

The situation was repeated in 2011, of the total number of 488 boats, only 200 were active (Fig. 6, 10). Among active boats, most of them were below 12 m (197) and activated with gill nets, long lines and hand lines. Only three vessels were longer 18 m and activated one with trawl and two with gillnets (Fig. 10).

In 2012, the total number of boats/vessels registered was 261, from which only 183 were active, most of them having LOA of 6-12 m (Fig. 6, 11). Mainly gillnets and long lines were used.

This fleet is in poor conditions and needs improvements of safety on-board, working conditions and facilities for landing. The hulls of boats of more than 12 m are made of metal and others are made of wood or plastic. Their average age began to decline (Fig. 12).The fisheries of this small fleet are typically artisanal type as multi-species and multi-gear fisheries, fishermen switching from one gear to another several times throughout the year [24, 25, 26, 27].

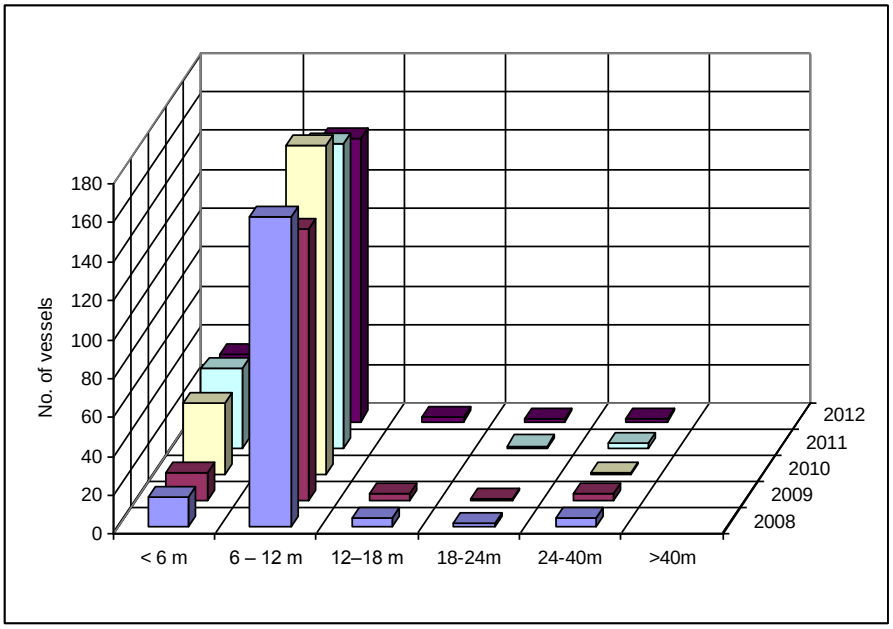


Fig. 6 - Structure of active vessels on length classes during 2008-2012

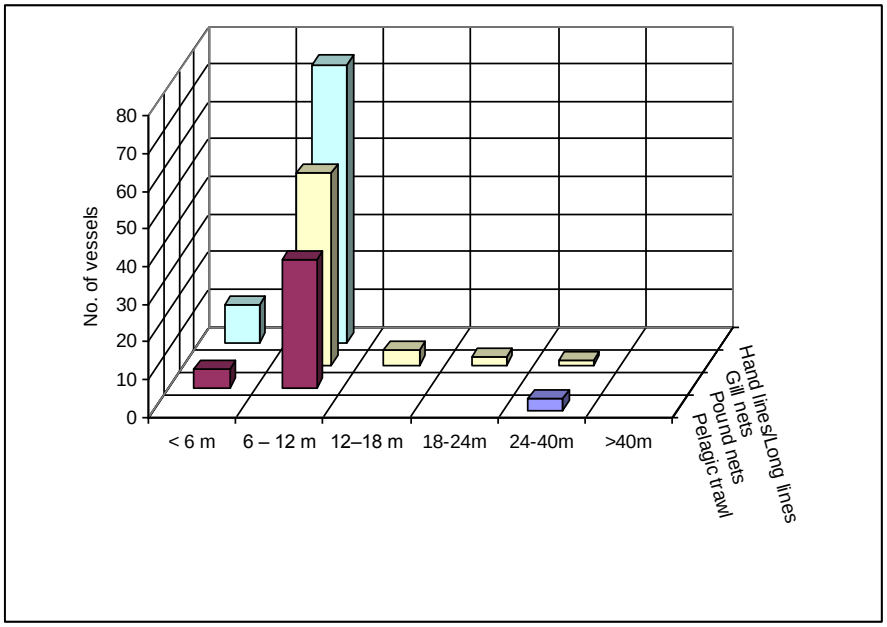


Fig. 7 - Structure of active vessels on length classes and fishing techniques in 2008

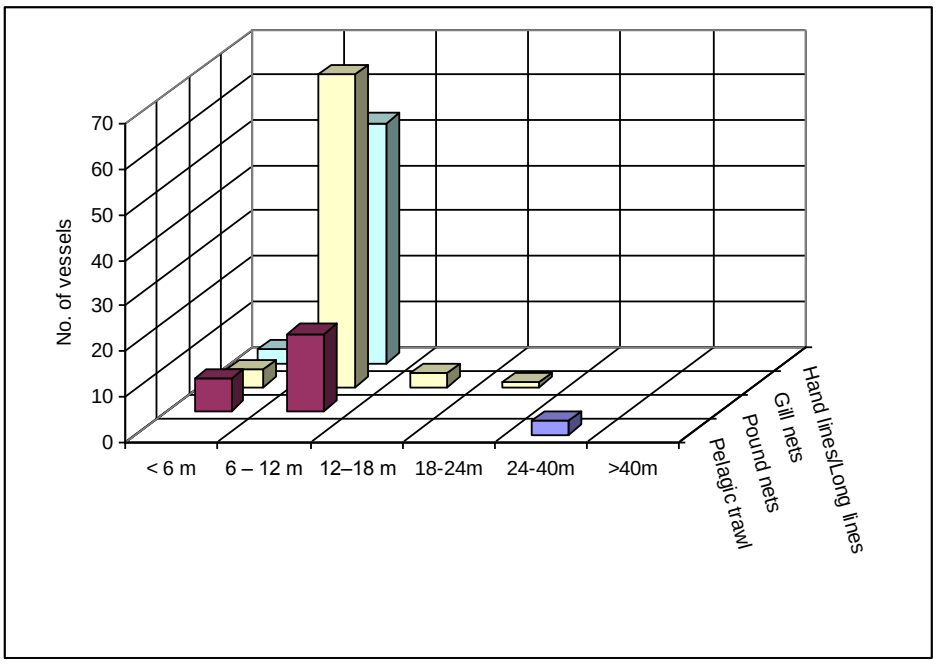


Fig. 8 - Structure of active vessels on length classes and fishing techniques in 2009

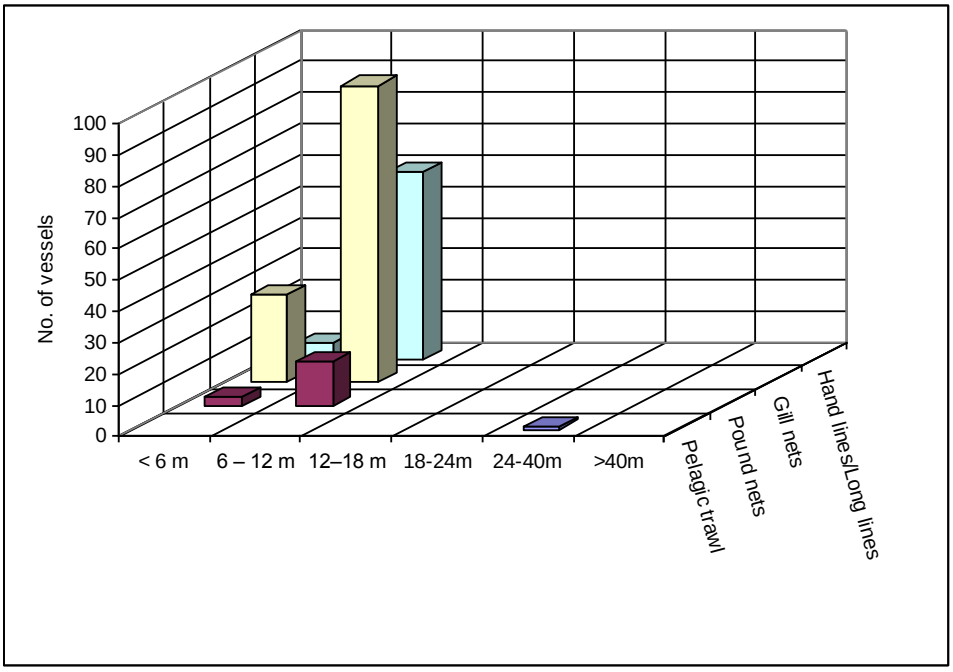


Fig. 9 - Structure of active vessels on length classes and fishing techniques in 2010

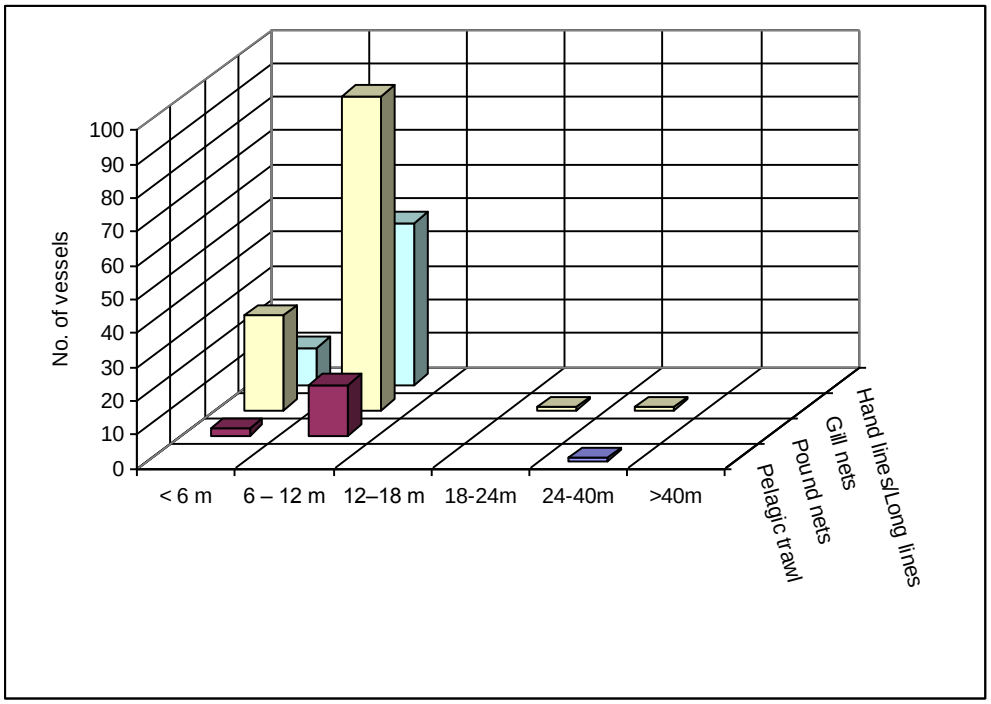


Fig. 10 - Structure of active vessels on length classes and fishing techniques in 2011

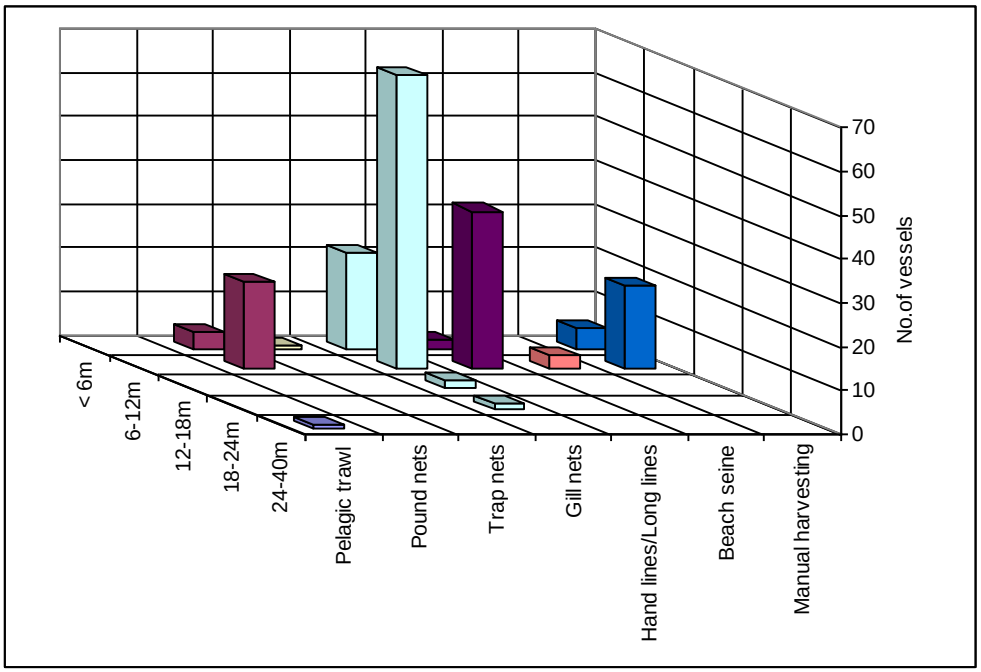


Fig. 11 - Structure of active vessels on length classes and fishing techniques in 2012

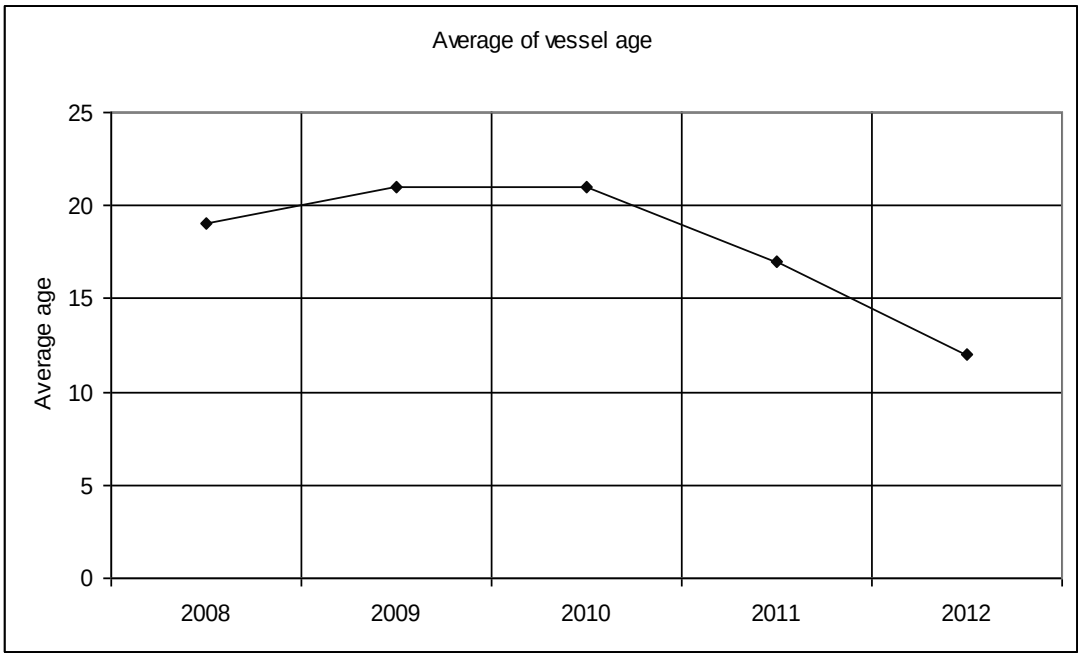


Fig. 12 - Average vessel age

Fishing gears used at the Romanian littoral

There are different types of fishing gears for the active and passive fishery practiced in the inshore and offshore coastal fishery [1, 3].

The passive fishing gears generally include the equipments for catching the fish migrating for spawning and feeding in shallow waters, namely:

- long lines and bottom lines;
- gillnets for the Danube shad and turbot;
- sea pound nets.

Another category of fishing equipments used in the Romanian coastal zone includes the active fishing gear, the beach seine and pelagic trawl.

The number of fishing gears decreased as follows: the number of trawls from 3 to 2; trap nets from 21 to 15; beach seine from 18 to 3; gillnets from 10,037 to 5,202; hand lines from 1,172 to 256 and long lines from 620 to 252 (Fig. 16) [24, 25, 26, 27]. In 2012 increased the number of pound nets (26) and the number of the hand lines used mainly in the subsistence fishing (Fig. 13) [27].

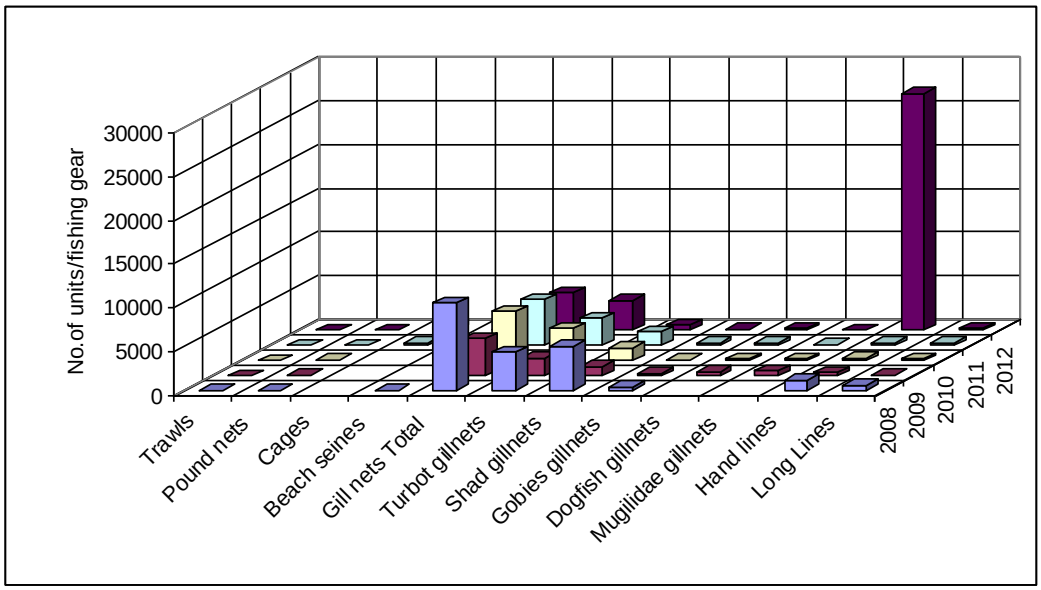


Fig. 13 - Number of units per fishing gear (National Reports 2008-2012/BSC)

In 2011, the Romanian fishing fleet spent a total of around 6.5 thousand days at sea (Fig. 14), 57% of which were actual fishing days. The total number of days at sea increased by around 75% between 2008 and 2010, while total fishing days remained stable during the same period [24, 25, 26, 27].

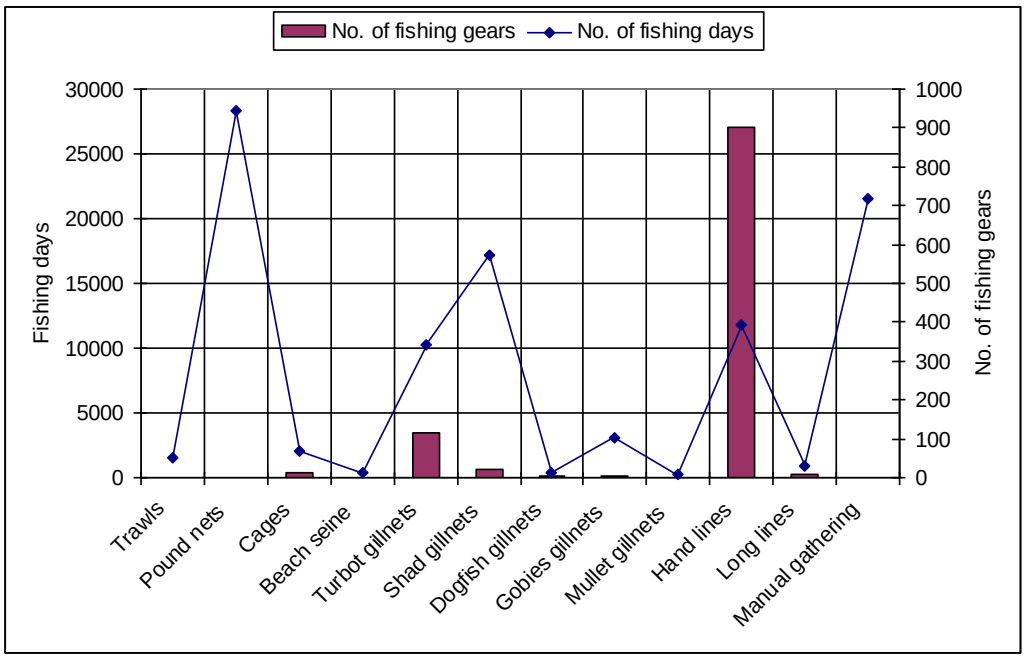


Fig. 14 - Fishing effort in 2012 at the Romanian littoral

The total number of fisherman in 2011 was 447, in 2012 - 471. The number of fishermen for vessels with length bigger than 24 m decreased from 180-200 to the number of two vessels crew (13 persons). Similarly to the situation in the coastal fishing fleet, the stationary fishing at the Romanian littoral has also declined. In 2012, a number of 371 fishermen acted for the small scale fisheries (boats 6-12 m), who served several types of gears. 74 persons acted for boats smaller than 6 m (Fig. 15) [24, 25, 26 and 27].

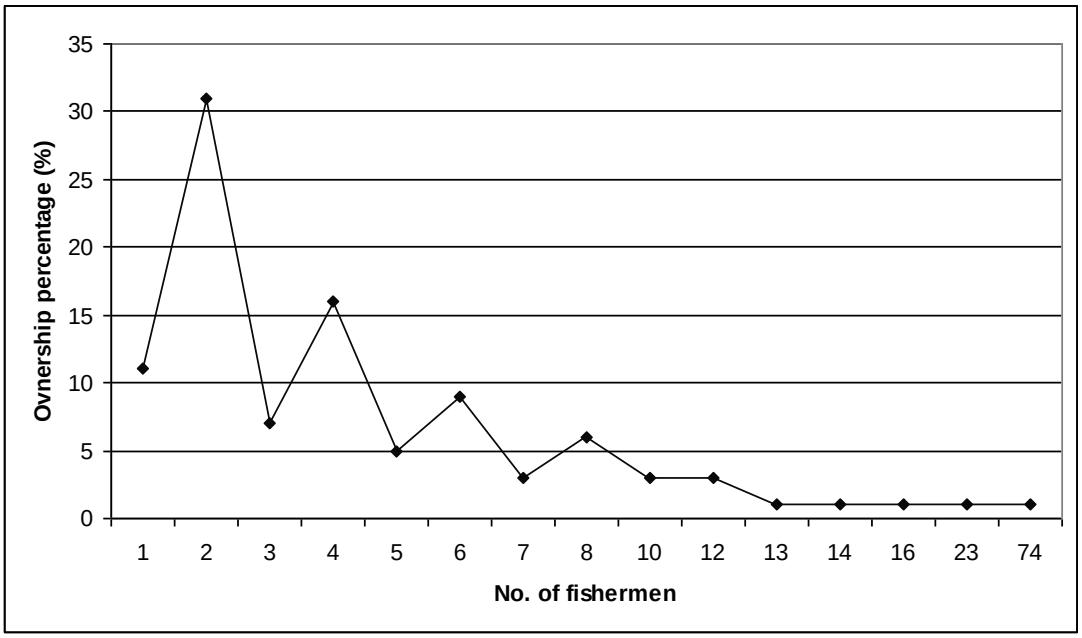


Fig. 15 - Ownership percentages and number of fishermen at the Romanian littoral in 2012

Qualitative and quantitative structure of catches

During 2000-2012, the level of total catch declined from 2,476 tons to 443.9 tons (2008), 330 tons (2009), 258 tons (2010), 568 tons (2011) and 835 (2012), officially registered. In 2011 and 2012, the total catches increased compared to the previous period due to the rapana catches. The main species in the 2012 catches were: rapana (588 tons); sprat (90 tons); turbot (43 tons); anchovy (19 tons); horse mackerel and gobies (about 20 tons) (Fig.17) [5, 10, 13, 16, 17, 18,19, 21, 24, 25, 26 and 27].

The main catches are obtained with trawls, pound nets and gillnets (Fig. 16).

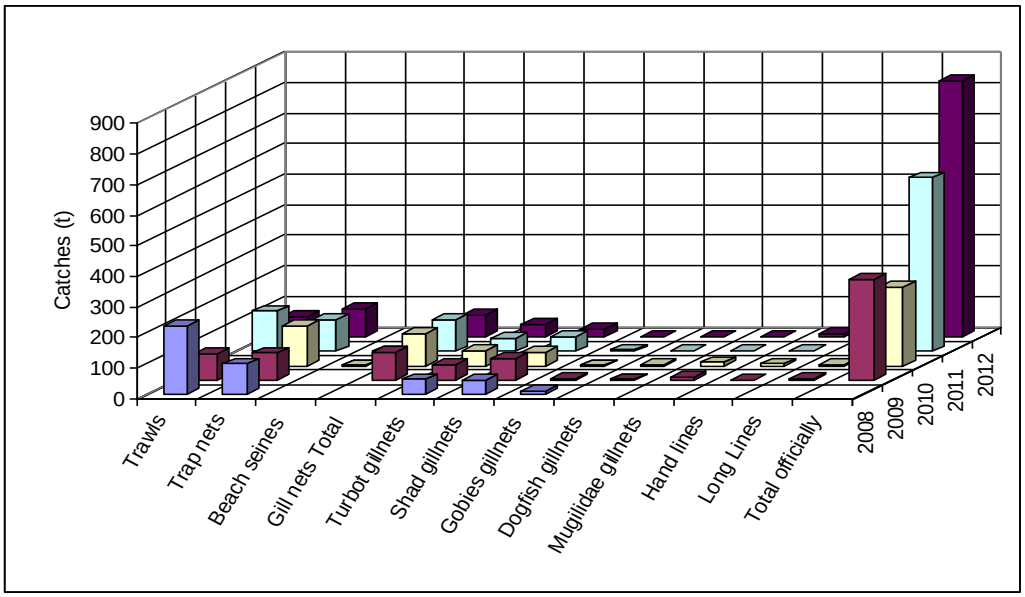


Fig. 16 - Catches per fishing gear in tons per year

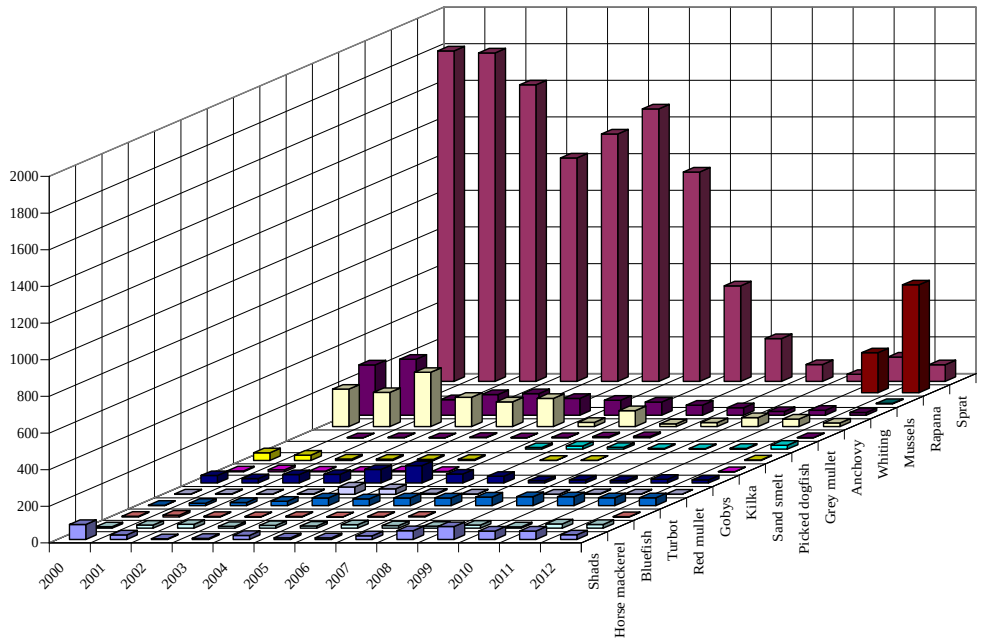


Fig. 17 - Total catches and structure on species at the Romanian littoral during 2000-2012

Influence of fisheries on the marine environment

[1, 3, 6, 8, 9, 11, 12, 15, 20, 21, 22 and 23]

Fishery was the most affected sector by the dramatic changes of the Black Sea ecosystem, but fishing activities contribute themselves to the worsening of the ecological situation and to the depletion of the fish stocks through: open access resources management regime applied individually by each coastal country; overfishing and illegal fishing; and the use of destructive harvesting technique.

The influence of fishing on the fish stocks becomes manifest through: the increase of the rejuvenation of the exploitable part of the biomass; the number of the fish specimens with advanced age decreases both in the exploitable biomass and in the catches; the growth mean rate is changed; decreases the mortality because of age; the mortality because of predatory and cannibalism is changed.

Practically, and also as literature concluded, by increasing the fishing effort, a higher catch can be obtained at the targeted species, but only to a certain level, beneath which the source regeneration (through the reproduction and body growing) did not follow the mutations produced by the fishing.

We can say that the increasing of the exploitation level (the fishing effort) leads to the reduction of the fish production due to the over-exploitation, and the increase of the cetaceans by-catch coefficient, respectively, due to the increase of the number of installations and implicitly of the acting surface.

In order to assure en efficient conservation and protection of the fishing resources and consequently of the dolphin populations, a continual monitoring, control and surveillance of the fish and dolphin populations status, as well as the targeted and non-targeted species and fishing effort must be performed [9].

Legal and institutional framework

Institutional framework

The overall responsibility for fisheries policy in Romania falls under auspices of the National Agency for Fisheries and Aquaculture (NAFA), public institution integrally financed from the state budget subordinated to the Ministry of Agriculture and Rural Development [16, 17, 18, 19, 24, 25, 26, 27, 29, 30, 31 and 32].

This Agency shall draw-up the strategy and legal framework for fisheries in Romania, and it shall carry out the implementation of technical measures and the control of regulations in fisheries and aquaculture.

Fishing and aquaculture entitlements are managed similar for inland and marine fisheries activities by NAFA.

All fishing vessels have to be recorded in the Fishing Vessel Register (FVR) as the first condition for obtaining a fishing licenses issued by the NAFA through FVR unit. An authorized person intending to perform fishing activities must be granted with a fishing permit issued by the National Agency

The National Sanitary-Veterinary and Food Safety Authority (NSVFSA) provides the legal framework and development of the specific regulations for the activities in the veterinary and food safety field. This authority supervises and controls the implementation and observance of the sanitary-veterinary and food safety norms.

The Ministry of Environment and Waters Management draws-up specific legal acts regarding environment protection, waters management as well as authorization procedures for all activities, including fisheries enterprises. The Administration of the Danube Delta Biosphere Reserve (DDBRA) manages the living resources in the Danube Delta Biosphere Reserve area.

Management system

- Vessel licensing
- Fishing authorization
- Fishing Vessel Register (FVR)
- Aquaculture Units Register (AUR)
- Quota System

Policy Framework

The National Strategic Plan for Fishing and Aquaculture in Romania (NSPFAR) was drafted according to Article 15 of Council Regulation (CE) no. 1198/2006 of July 27, 2006 on the European Fishing Fund following a consultation process with the socio-economic stakeholders, national local government authorities, trade unions, NGOs and professional organizations. The National Strategic Plan (NSP) for the period between 2007 and 2013 covers all the aspects of the Common Fisheries Policy (CFP) in Romania. The National Strategic Plan shows the priorities, objectives and public financial resources required for the implementation of the CFP in Romania [30, 31, 32 and 33].

Legislation

The basic law for the fisheries sector in Romania is Law no. 192/ 2001 (amended by GEO no. 23/2008) on live aquatic resources, fishing and aquaculture, regulating the conservation, management and exploitation of live aquatic resources, as well as the processing and trading of fishing and aquaculture products. This law has been amended and completed during the pre-accession period, in order to be in line with the acquis communitarian for fisheries.

In order to achieve the objectives in the basic legislation and transpose the "acquis" in the Romania legislation, secondary legislation has been drafted using ministerial orders, the most important of which referring to [16, 17,18 and 19]

- the organization and operation of the Fishing Vessels Register,
- organization and operation of the Aquaculture Company Register;
- setting up of the Satellite Monitoring Center for Fishing Vessels;
- licensing and authorization procedures;
- prohibition periods.

Romania adopts measures for sustainable exploitation of aquatic resources to contribute to efficient fishing activities for a competitive and viable sector by the economic point of view, for legislation developing:

- Law on the Establishment of the Biosphere Reserve "Danube Delta" no. 82/20.11.1993;
- Law on Environmental Protection no. 137/1995;
- Order no. 179/1 June 2001 regarding the Registering and transmission of the data related to the marine fishing activity;

- Order no. 262/16 July 2001 regarding the Preparation of the Directory of Vessels and Fishing boats;
- Order no. 422/30 October 2001 for the approval of the Regulation on the conditions for the development of the commercial fishing activities in the Black Sea waters;
- Common Order of the Ministry of Environment regarding the conservation of the sturgeon populations from natural waters 262/2006;
- Order no. 344/2008 for approval of the operational and functional manner of fishing vessel and boats file;
- Order no. 342/2008 on minimal size of the aquatic living resources;
- Order no. 449/2008 on technical characteristics and practice conditions for fishing gears used in the commercial fishing;
- GEO no. 23 /2008on Fishing Fund, Fishery and Aquaculture;
- Law no. 317/2009 approving Government Emergency Ordinance 23/2008 on fishing and aquaculture;
- Annual orders for prohibition to delimitate fishing zones, gear, species and prohibited fishing periods.

The general legal framework for the fisheries sector in Romania is in line with the European legislation [29, 30, 31 and 32].

Management measures (Details)

Areas and periods of prohibition

Alosa pontica

- Danube branches from the Black Sea and Danube sector up to Ceatal Chilia, Mm 43
24 Apr - 01 May, 8 days, prohibited
- Danube river and its branches from Ceatal Chilia up to Vadul Oii, km 238
01 May - 22 - May, 22 days, prohibited
- Danube river and its branches from Vadul Oii, km 238 up to Gura Timocului
14 May - 12 June, 30, days, prohibited

For protecting the reproduction or rehabilitation of the stocks of these species, the catches, the minimum admissible size, the periods etc. are regulated.

Squalus acanthias

Black Sea Romanian teritorial waters, from 15 March - 30-April, 47 days, prohibited. Throughout the year, retention on board of the pregnant females is prohibited.

Psetta maxima maeotica

Under EC Regulation no. 1256/2010.

Acipenseridae

Danube river and Black Sea, from Apr-2007 to Apr-2016, 10 years, prohibited.

Marine mammals

Romanian marine waters, whole year, prohibited. It is an obligation to report cetacean by-catches.

The rest of marine fish species are allowed.

The following are declared zones with integral protection regime for aquatic marine resources from the Black Sea:

a. Sacalin-Zătoane area;

b. Vama Veche - 2 Mai Marine Reserve.

Gears, minimum mesh size and fishing methods

In the economic fishing activity, it is banned to use:

a) in marine fishing, all kind of trammel nets, sturgeon gillnets, drifted gillnets whose total length is higher then 2.5 m, as well as the turbot gillnet manufactured from threads with thickness smaller the 6.350 m/kg;

b) the trawl in the marine zone below 20 m depths;

c) gear types dredge and bottom trawl in the Black Sea;

j) gillnets for shad, during 1 August -31 December

m) hooks and lines and little hooks and lines in natural fish basins;

n) monofilament net fishing gears.

It is banned to utilize the fishing gears with minimum mesh size smaller than:

a) a = 30 mm, 2a - 60 mm, respectively, at the actively fishing gears for Danube shad and mugill;

b) a = 20 mm, 2a = 40 mm, respectively, at gears codend type settled at the dams of littoral lakes;

c) a = 7 mm, 2a = 14 mm, respectively, at the room catching of pound nets in the Black Sea Romanian littoral zone;

d) a = 180 mm, 2a = 360 mm, respectively, beyond the territorial waters, and 200 mm, 2a = 400 mm, respectively, in the territorial waters at the turbot gillnets;

e) a = 7 mm, 2a = 14 mm, respectively, at the trawl in the Black Sea;

f) a = 10 mm, 2a = 20 mm, respectively, at codend of beach seines.

g) a = 100 mm, 2a = 200 mm for dogfish gillnets.

The minimum dimensions of the fish in centimetres and other living aquatic resources which can be fished are regulated by Order no. 342/2008 on minimal size of the aquatic living resources.

Recommendations regarding the future management of fishing resources at national/regional level

The Black Sea needs a special policy to preserve and improve the situation of fishery resources and ensure that the fisheries sector is suited to the Black Sea basin, bearing in mind the specificities of the Black Sea region (the cross-border character of the living resources), as well as the fact that the Black Sea fisheries policy should be integral part of the upcoming reform of the CFP [7, 8 and 15].

Actually, in the context of existing drastic changes in the ecosystem components and increasing of climatic changes influence, there is a real need to improve knowledge on marine ecosystem, to implement holistic approaches, including ecosystem based fisheries management [7, 8 and 15].

- To strengthen the regional legal framework for fishing sustainable management at the Black Sea, through the elaboration of legal documents regarding the fishing.

- To harmonize the development strategies of fishing sector with those of environmental protection, through the implementation of the concept regarding the fishing management based on ecosystemic approaching and FAO Code of Conduct for a responsible fishing.

- Development of indicators specific for the Black Sea in order to monitor and assess the state of key resources/habitats.

- Selection of key demersal species and their habitats and development of recovery plans for them.

- Based on the lessons learnt to prepare and implement the other fish stocks recovery plans for the Black Sea.

- To follow principles of responsible fisheries and to implement specific measures based on these principles.

- To harmonize methodologies for assessments and to establish well defined objectives for fisheries sector.

- To elaborate criteria for selection and designating fishing free zones on the national and regional levels.

- To establish marine mammals stranding network on the national and region levels.

- Rapid adoption a regional legally binding document on responsible fisheries;

- To undertake concerted actions to combat illegal fishing and to establish regional consultation mechanism between the Black Sea coastal states.

- To extend/designate marine protected areas of regional significance and establish a network for the Black Sea.

- Cooperation with GFCM, EEA and other relevant organizations on the issues of common interest.

- Finally, protection of living resources from Black Sea must be realized on the basis of an adequate legal and institutional framework both at national and regional level.

- The cross-border character of the living resources from the Black Sea imposes the necessity for coordinated efforts at regional level for their exploiting and protection.

CONCLUSIONS

- Taking into account the evolution of the marine fisheries in the past 23 years, the structure of the vessels in the fleet in the last 4-5 years (small size - more than 90% and low technological investment per fishers), generally using traditional fishing techniques, for subsistence or local, small markets, limited infrastructure for landing and storing catches, research, management and monitoring, we can consider as being **small-scale/artisanal fisheries**.

- The Romanian marine fisheries can be considered almost in collapse, if we take into account the decrease of catches from 16,000 tons in the 1980's period to 200 tons in 2010, the decrease of the number and the GRT of vessels, the actual state of fleet that is in poor conditions and needs improvements of safety on-board, working conditions and facilities for landing.

- Traditionally, the fishing in the Romanian Black Sea area was carried-out in two ways: with coastal trawlers activating at depths greater than 20 m; with fixed gear (pound nets, gillnets, long lines, and beach seine) in the coastal area with small depth (3.0 - 11.0 m) and up to 60 - 70 m depth, with gillnets and long lines mainly for turbot and dogfish.

- All fishing vessels have to be recorded in the Fishing Vessel Register (FVR) as the first condition for obtaining a fishing licenses issued by the NAFA through FVR unit. An

authorized person intending to perform fishing activities must be granted with a fishing permit issued by the National Agency.

- Year after year, the activity of active fishing decreased gradually to the point where, in 2010, from 20 vessels with LOA between 24-40 m registered, in the past years in the Fishing Fleet Register only one vessel was active for a very short period of time.

- The fisheries of this small fleet are typically artisanal type as multi-species and multi-gear fisheries, fishermen switching from one gear to another several times throughout the year.

- During 2000-2012, the level of total catch declined from 2,476 tons to 443.9 tons (2008), 330 tons (2009), 258 tons (2010), 568 tons (2011) and 835 (2012).

- The Ministry of the Agriculture and Rural Development, in order to achieve the objectives in the basic legislation and transpose the "acquis" in the Romania legislation, drafted secondary legislation using ministerial orders, the most important of which referring to: the organization and operation of the Fishing Vessels Register; the organization and operation of the Aquaculture Company Register; the setting-up of the Satellite Monitoring Center for Fishing Vessels; licensing and authorization procedures; prohibition periods.

- The Ministry of Environment and Waters Management draws-up specific legal acts regarding environment protection, waters management as well as authorization procedures for all activities, including fisheries enterprises.

- The National Sanitary-Veterinary and Food Safety Authority provides the legal framework and development of the specific regulations for the activities in the veterinary and food safety field.

- The overall responsibility for fisheries policy in Romania falls under auspices of the National Agency for Fisheries and Aquaculture (NAFA), public institution integrally financed from the state budget subordinated to the Ministry of Agriculture and Rural Development.

- NAFA shall draw-up the strategy and legal framework for fisheries in Romania, and it shall carry-out the implementation of technical measures and the control of regulations in fisheries and aquaculture.

- In recent years, a number of documents, projects refer to the need to achieve a sustainable development in the Black Sea, both regionally and nationally, such as the Strategic Plan for the Rehabilitation and Protection of the Black Sea (1996), the National Strategic Plan for Black Sea, the National Strategic Plan for Fisheries and the Fisheries Operational Program (FOP), 2007 - 2013.

- The National Strategic Plan (NSP) for the period between 2007 and 2013 covers all the aspects of the Common Fisheries Policy (CFP) in Romania.

- The National Strategic Plan shows the priorities, objectives and public financial resources required for the implementation of the CFP in Romania.

- The Ministry of the Agriculture and Rural Development by the General Directorate for Fisheries - Managing Authority for the Operational Program for Fisheries is responsible for the efficiency and correctness of management and implementation of the Fisheries Operational Program (FOP) in accordance with EU regulations and the institutional, financial and legal provisions in force in Romania.

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