CURRENT SITUATION OF SMALL-SCALE FISHERIES IN THE ROMANIAN BLACK SEA AREA DURING 2012-2017

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ABSTRACT

During recent decades, the Black Sea suffered changes that determined the deterioration of all components of the marine ecosystem, which had direct impact on decreasing the biological diversity and productivity, affecting the quality of life and ecological balance (Maximov et al., 2010). The fishery sector is one of the most affected by the changes occurred in the Black Sea ecosystem. In this condition, commercial fishing activities contribute themselves to the continuous degradation of the ecological situation and depletion of the fish stocks.

The Romanian fishing area is comprised between Sulina and Vama Veche, the coastline extends for over 240 km with a high importance in the feeding and breeding of the main fish species, although the catches in this area do not exceed 2-3% of the total catch taken in the Black Sea basin.

In the coastal zone of the Romanian marine sector, small-scale fisheries are practiced with fixed and active gear, being characterized by the concentration of activity mainly in the first six-seven months of the season (March-September) (Maximov et al., 2010), when usually the turbot migrates to the coastal area for reproduction and other species migrate for feeding.

The catches and fishing productivity vary from year to year, depending on environmental conditions, fishing effort, the status of the main fishable species stocks and anthropogenic factors. Catches in the shallow area in the analyzed period (2012 - 2017) at the Romanian coast fluctuated between 758 - 2,721 tons.

Key-words: Black Sea, catches, Romanian marine sector, fishing productivity, catches, small-scale fisheries

AIMS AND BACKGROUND

In the last decades, in the light of the new conditions of fishing, with the diminishing of state subsidies and the principle of economic competitiveness, there have been radical changes in the conditions for national marine fisheries (Raykov et al., 2008). At the same time, the competition created by the opening of imports for fishery products, in particular imports of frozen and refrigerated fish, the lack of experience in the new operating conditions, the age of the vessels and, in particular, the high cost of diesel and maintenance led to a drastic involution of active fishing on the Romanian Black Sea coast. Year after year, coastal fishing activity gradually declined to the point where, in 2016, out of the 20 vessels with LOA between 24-40 m, registered in the Fleet Register, only three vessels were active , one of which is a trawler and the other one only engaged in trawl and beam trawl fishing.

At the same time, catches made at the Romanian coast have always been dependent on the type of activity and the technology used in fishing ((Maximov et al., 2010). Since 2001, economic operators in the Romanian fishing sector have changed their options and interests by giving priority to vessels equipped with fishing gear specialized in catching highly commercially valuable species such as turbot and rapana. Under these circumstances, the number of vessels operating with gillnets and other fixed gear (pound nets, longlines, handlines) increased.
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EXPERIMENTAL

The methodology and techniques that were used for the collection, verification, processing and analysis of data and for the assessment of fish stocks are those generally accepted for the Black Sea basin and in accordance with the international methodology. The qualitative and quantitative composition of fish catches was obtained from the fishing statistics achieved through the centralization, on time periods, of the data obtained from the commercial companies in the field operating at the Romanian coast.

RESULTS AND DISCUSSION

The Romanian fishing fleet is operating in the area of competence of the Regional Fisheries Management Organizations - G.F.C.M, Area 37 - Mediterranean and Black Sea, Sub-area 37.4., Division 37.4.2, GSA 29.

In the coastal zone of the Romanian marine sector, small-scale fisheries are practiced with fixed and active gear, being characterized by the concentration of activity mainly in the first six-seven months of the season (March-September), when usually the turbot migrates to the coastal area for reproduction and other species migrate for feeding. Marine fisheries in the Romanian Black Sea area, in the last years, were restricted to practicing stationary fishing, in the shallow coastal area, using fixed gear such as: pound nets, gillnets, longline, cages/traps, seines and handlines, but starting with 2013 the category of vessels LOA (length overall) between 6-12 m practiced active fishing using beam trawls and pelagic trawls. The caught fish is landed in 4 fishing ports (Sulina, Cape Midia, Constanta and Mangalia) and in other 18 small fishing stations located across the Romanian coastline. The fishing activity is realized at depths between 3-20 m and occasionally more than 50 m, when the targeted species is turbot (Fig. 1) (Photo 1).
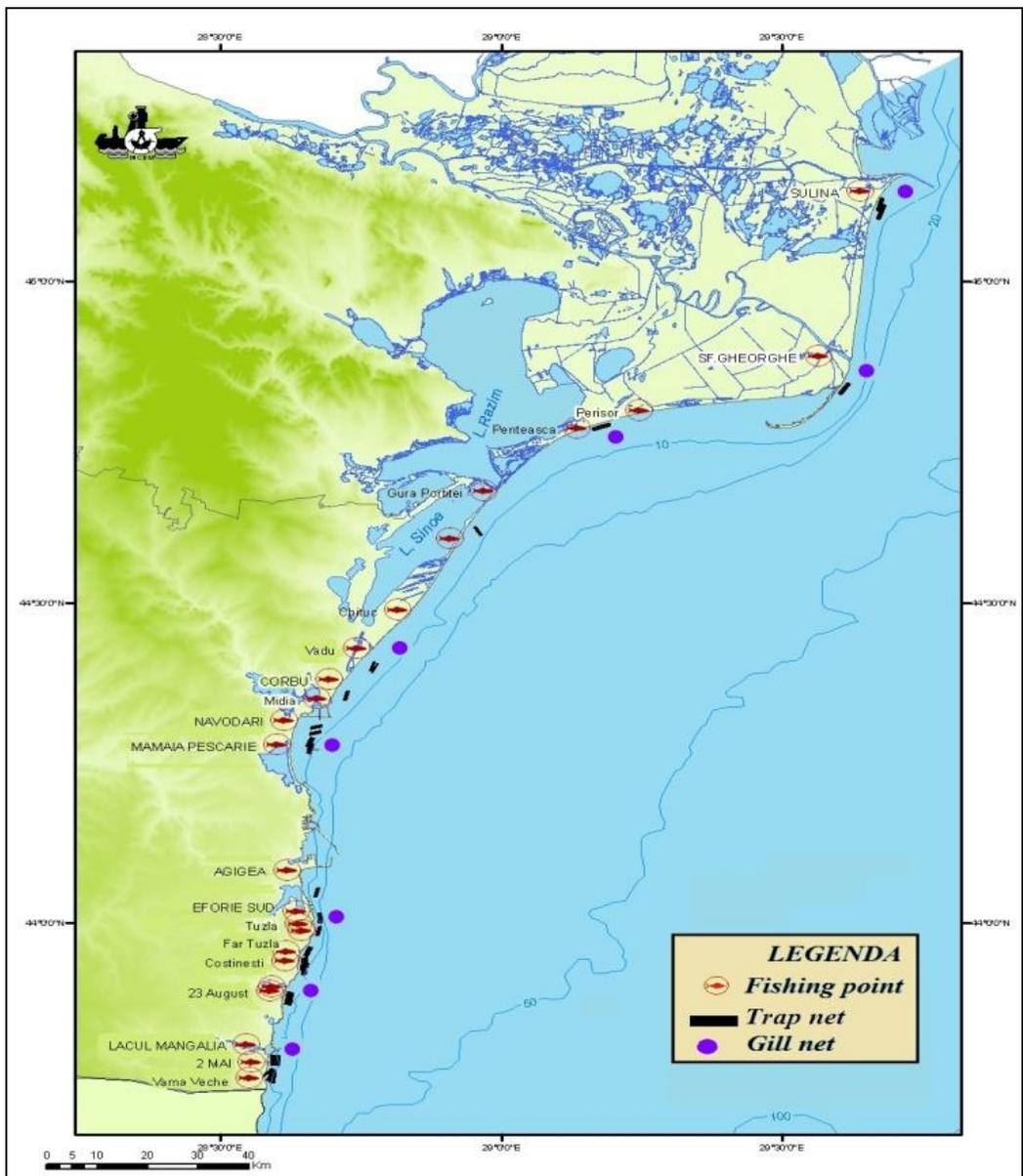
Fig. 1. Fishery ports and distribution area for stationary fishing gears.
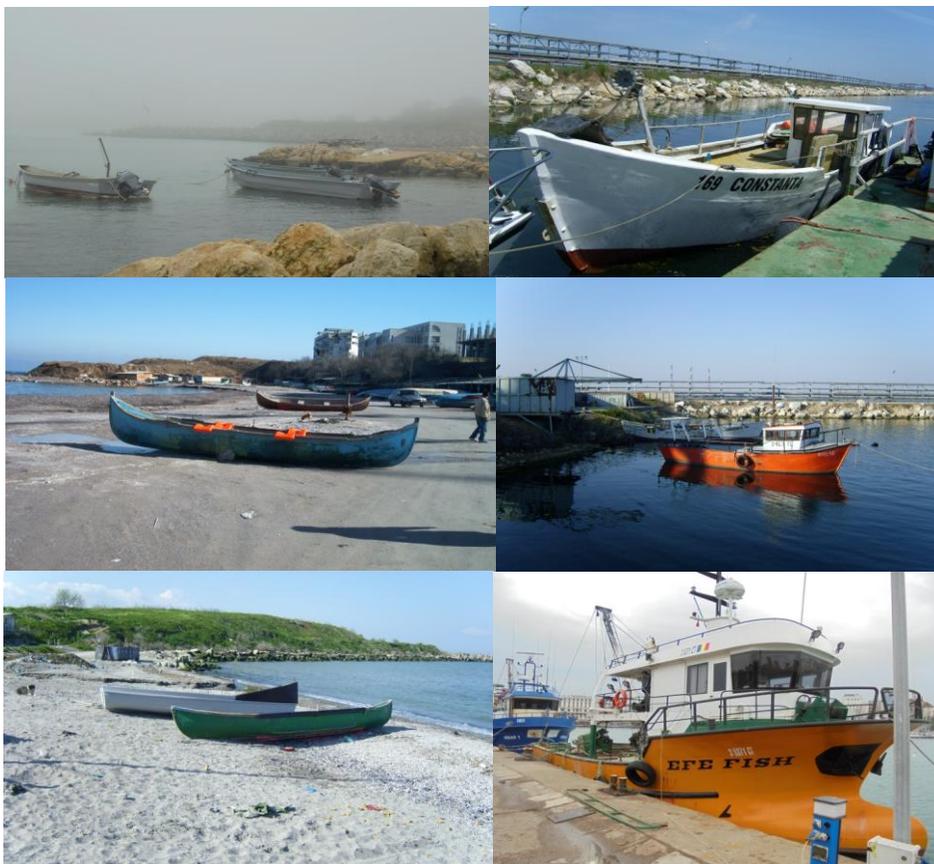
Photo 1. Fishery activity in the Romanian marine sector *(NIMRD original photos).*

A total number of 179 - 111 licensed active vessels/year during 2012 - 2017, in the Romanian small-scale coastal fisheries, of which 9 - 19% were boats smaller than 6 m and 81 - 91% boats 6 - 12 m long, were recorded. The number of vessels decreased between 2012 - 2013 with 65 units and, after this period, the trend was of maintaining the number close to value of 100 - 110 vessels/year (Fig. 3 and 4). A large part of these boats are fitted with engines (93.38%).
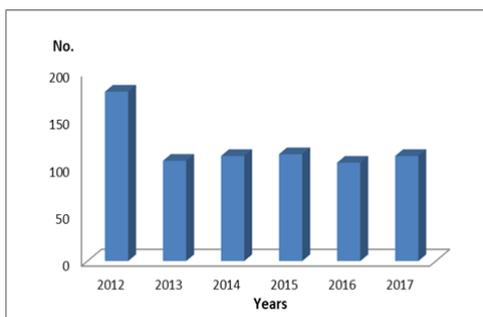

Fig. 2. Number of fishing boats used during 2012- 2017.
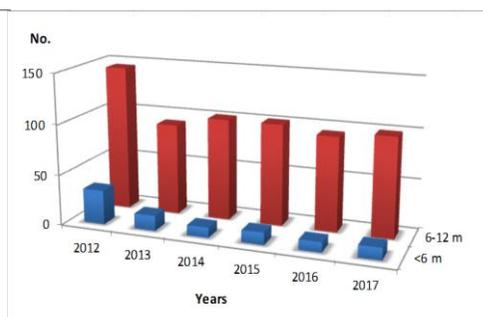
Fig. 3. Type and number of fishing vessels used during 2012-2017.

Regarding the distribution of fishing boats during the past three years, the most active port is Sulina, with 26.89 - 27.95% of the total number of fishing boats, followed by Mangalia, with 17.78 - 19.26%, Cape Midia, with 9.13 - 9.57%, Periboina, with 7.46 - 7.96%, Costineşti, with 5.35 - 5.58%, Vadu, with 4.15 - 4.53%, and 2 Mai, with 3.65 – 4.04% (Fig. 4).
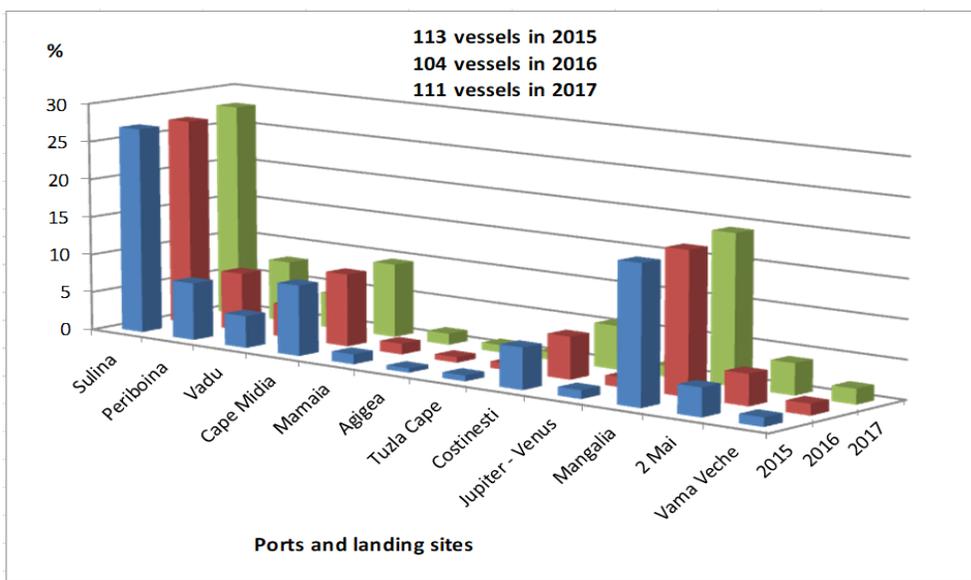

Fig. 4. Distribution of fishing boats at the Romanian coast during 2015-2017.

Small-scale fisheries at the Romanian Black Sea coast use the following types of fishing gears: pound nets, gillnets, longlines, beach seines, cages/traps, handlines (Maximov et al., 2011) and, starting with 2013, pelagic trawl and beam trawl. The fishing gear used during 2012 - 2017 varied from one year to the other. The number of pound nets ranged between 32/2015 and 27/2017, while the gillnets used by coastal fisherman ranged between 1,546/2015 and 1,514/2017, the number of beam trawls ranged between 13/2015 and 12/2017, the number of longlines ranged between 67/2015 and only 24/2017, the number of handlines ranged between 140 – 94 and the number of cages ranged between 100 – 60 (figure 5).

The main fishing gear in the small-scale fisheries is the gilllnet, used for catching pelagic and demersal species. The biggest number is held by turbot gillnets, with 70.89-59.31%, followed by shad gillnets, with 15.65 - 16.77%, and other types of gillnets (horse mackerel, gobies, bluefish, Azov shad), with 13.45 - 11.88% (Fig. 6).
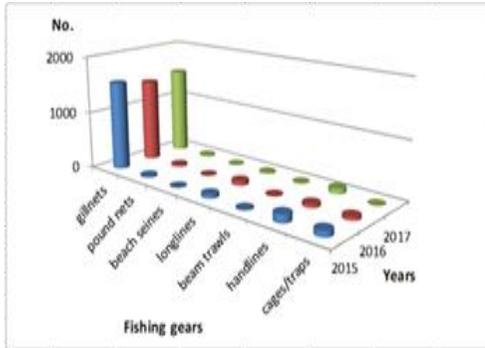
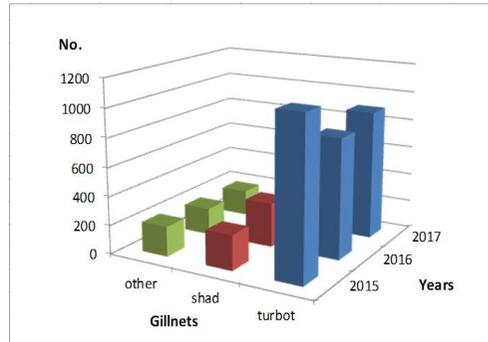**Fig. 5.** Type and number of fishing gears used during 2015 -2017.

Fig. 6. Type and number of gillnets used during 2015 - 2017.

Total catches at the Romanian coast had a decreasing trend during 2002-2010, when they dropped from more than 2.000 t in 2002, to 1.390-1.940 t, during 2003-2006, and below 500 t during 2007 - 2009, reaching a minimum value in 2010/258 t. In the past years the total catch has had an increasing trend, namely 568 t, in 2011, 835 t, in 2012, 1,711t in 2013, 2,231 t in 2014 4.847 in 2015, 6.839 t, and 9.553 tons (28.41% higher than the previous year), officially registered.

The increase of catches during the past years was not due to the fish fauna, but to the emergence of economic operators' interest in the manual harvesting of the rapa whelk (*Rapana venosa*), which was about 10% of the total catch in 2010, 65% in 2012; 89% in 2014; 95.1% in 2016 and 96.2 in 2017. Also the catches from small-scale fisheries registered this growth starting with 2012. Catches in the shallow area in the analyzed period (2012 - 2017) at the Romanian coast, fluctuated between 758 t in 2012 and 2,721 t in 2017(Fig. 7).
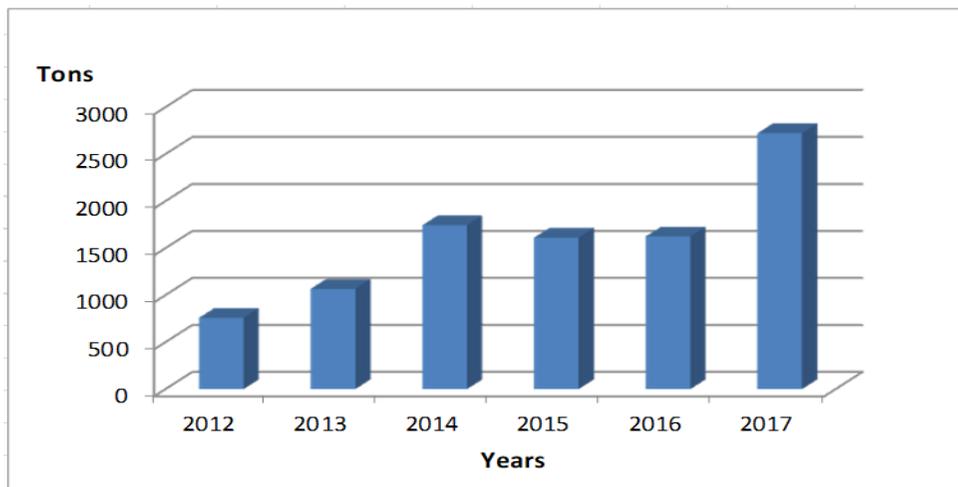

Fig. 7. Catch dynamics evolution in small-scale coastal fisheries.

The fish population structure indicates, as in previous years, the presence in the catches of a greater number of species (over 20), in which the mainstream belonged to small species (sprat, anchovy, whiting, goby), as well as to the larger ones (turbot and Danube shad). The low share of some species, such as: dogfish, horse mackerel, mullet, bluefish, but also the occurrence as isolated specimens of blue mackerel and bonito were reported. The main species in 2017 catches were: rapa whelk - 9.244.247 t; anchovy (27.275 t), sprat (28.738 t); horse mackerel (34.569 t), turbot (43.220t); Danube shad (8.326 t) and red mullet (2.503 t) (Fig. 8).
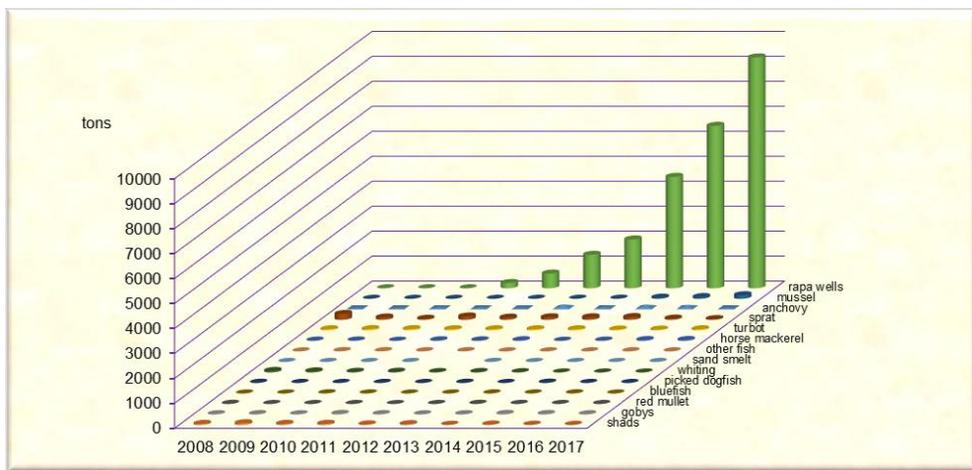

Fig. 8. Total catches and structure on species at the Romanian coast, during 2008 - 2017.

Along with these species, the following species were also found in the catches: big-scale sand smelt (0.085 t), flathead grey mullet (0.647 t), other mullets (1.212 t), gobiidae (9.411 t), knout goby (3.219 t), Azov shad (1.486 t), mussels (142.120 t), bluefish (0.446 t), garfish (2.217 t), thornback ray (2.055 t), Atlantic bonito (0.197 t) and common stingray (0,224 t). The main catches are obtained with trawls, pound nets and gillnets.

CONCLUSIONS

The Romanian small-scale fisheries were considered in decline and the fish catches still have low values, and the alternative for fishermen, also registered in catch data, is represented by the rapa whelk.

The small-scale fisheries are targeting multi-species and multi-gear fisheries, fishermen switching from one gear to another several times throughout the year.

This paper makes a brief description of the state of small- scale fisheries at the Romanian Black Sea coast during the past six years.

Fishery is one of the most affected sector by the changes of the Black Sea ecosystem. It is imperative that a special policy to preserve and improve the situation of fishery resources and to ensure that the fishery sector is suited to the Black Sea basin to be implemented.

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