

Reconciling fisheries and habitat protection in Romanian coastal marine protected areas

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Summary: The extension of the Natura 2000 European ecological network to the Romanian marine territory (1 site according to the Birds Directive requirements and eight sites according to the Habitats Directive requirements, one also being a natural reserve and one part of the Danube Delta Biosphere Reserve) might cause conflicts between the Romanian marine fishery and these sites. In order to minimize such conflicts, the evaluation of the interaction between fishery and the preservation objectives of the Natura 2000 sites is compulsory and extremely important. The assessment of the environmental impact is a key tool of the EU environmental legislation, which is used in evaluating the effect of human activities on the ecosystem. In addition, the involvement of all interested stakeholders in the development of the fishery on the Romanian littoral and in environmental protection will be the key to success in finding viable co-management solutions in the Natura 2000 sites. The present paper aims to examine how the fisheries interact with the marine environment on the Romanian coast in the network of marine protected areas.

Keywords: marine fisheries; marine protected areas; Romanian littoral.

Cómo reconciliar la pesca y la protección de hábitats en áreas marinas protegidas de Rumanía

Resumen: La extensión de la red de trabajo ecológica europea Natura 2000 en el territorio marino de Rumanía (1 lugar según los requisitos de la Directiva de aves y 8 lugares según los requisitos de la Directiva de Hábitats, siendo también uno de ellos una reserva natural y una parte de la Reserva de Biosfera del Delta del Danubio) podría causar conflictos entre las pesquerías marinas rumanas y estos lugares. Para minimizar estos conflictos, es obligatorio y extremadamente importante llevar a cabo la evaluación de la interacción entre la pesca y los objetivos de preservación de los lugares de la red Natura 2000. La evaluación del impacto ambiental es una herramienta clave de la legislación ambiental europea, que se utiliza en la evaluación del efecto de las actividades antropogénicas en el ecosistema. Además, la participación de todos los actores interesados en el desarrollo de las pesquerías del litoral rumano y en la protección ambiental, servirá para demostrar la viabilidad de las soluciones alcanzadas a través de la cogestión en los lugares de la red Natura 2000. El presente documento tiene como objeto examinar como interaccionan las pesquerías con el medio marino en la costa de Rumanía dentro del sistema de Áreas Marinas Protegidas.

Palabras clave: pesca marina; áreas marinas protegidas; litoral rumano.

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INTRODUCTION

Marine Protected Areas (MPAs) are generally designated with biodiversity conservation objectives, to protect fishery resource species or habitats, or with a broader ecosystem purpose within the framework of the Ecosystem Approach to Fisheries (EAF). Within

this context, MPAs tend to be conceived and implemented to achieve a subset of a wide variety of potential objectives (FAO 2011).

The ecosystem effects of fishing may be classified into three broad groups if we include humans as part of the ecosystem. These are the (i) the conservation of species, including maintaining fish populations above

certain critical thresholds, enhancing the possibility of egg and larval export and adult dispersal, and hedging against natural and anthropogenic disasters and uncertainty; (ii) the conservation of marine habitats, their protection from degradation resulting from fishing activities, and preservation of marine biodiversity, healthy ecosystems and critical habitats; and (iii) the maintenance of sustainable employment and economic activity based on marine resources (Sumaila et al. 1999).

These are all challenges that Romania must face after adhesion to the European Union and the creation of an MPA network. This network was created by extending the Natura 2000 European ecological network to Romanian territory (including the Special Protection Areas for birds [SPAs] classified under the Birds Directive 79/409/EEC and Sites of Community Importance (SCIs) designated under the Habitats Directive 92/43/EEC). In accordance with the Birds Directive, Romania has selected the most appropriate sites and assigned them directly as SPAs, declaring the protected areas for birds as part of the Natura 2000 European ecological network in Romania. Thus, on the Romanian coast, the marine site ROSPA0076 Black Sea was designated. Responsibility for proposing the Sites of Community Importance under the Habitats Directive (SCIs) was endorsed to Romania after it became an EU Member State. To date, 8 marine SCIs have been designated along the Romanian coast, six of them having their own administration or custody (Fig. 1). In all these sites, small-scale traditional fisheries are practiced, resulting in interactions between fisheries and MPAs that involve the deterioration of specific habitats, by-catch of dolphins, removal of target species, discarding of by-catch and by-catch of sea-birds.

DESCRIPTION OF THE MPAs

Study areas

The study area covered the eight Natura 2000 marine sites designated during 2007-2012, of which two fully overlap protected areas previously designated by national legislation (Fig. 1)

ROSCI0269 - Vama Veche - 2 Mai (overlapping the Vama Veche - 2 Mai natural reserve) – custodian, NIMRD “Grigore Antipa”

ROSCI0094 - Mangalia sulphur seeps – custodian, GeoEcoMar

ROSCI0281 - Cape Aurora – custodian, none

ROSCI0293 - Costinești - 23 August - custodian, none

ROSCI0273 - Marine area from Cape Tuzla – custodian, GeoEcoMar

ROSCI0197 - Eforie North - Eforie South submerged beach – custodian, SC Eurolevel SRL

ROSCI0237 - Methanogene underwater carbonate structures from Sfântu Gheorghe – custodian, GeoEcoMar

ROSCI0066 - Danube Delta - marine zone (overlapping the Danube Delta Biosphere Reserve - marine zone) – custodian, Danube Delta Biosphere Reserve Administration

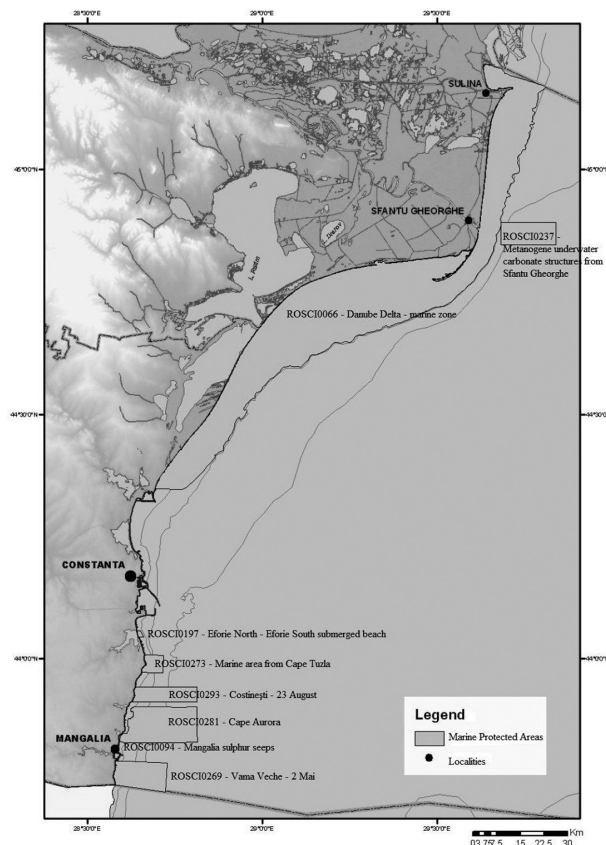


Fig. 1. – Romanian Marine Protected Areas network.

All sites are located in the same biogeographical area (Black Sea), differing one from another in the habitats they contain and therefore in the species present. In the northern part sandy and muddy habitats are dominant, while in the southern part rocky habitats are dominant (Zaharia et al. 2012a).

All data collection and sampling were performed in March-October 2010, the season during which marine fisheries are practiced along the Romanian coast. In 2013, an inventory of the fishing gears used along the littoral was made, with the aim of assessing their effects on cetacean populations (Radu and Anton 2014).

Fisheries data were collected from all fishing points operating on the Romanian coast and by taking statistical data from the competent national authority (National Fisheries and Aquaculture Agency). During the mentioned period, samples were collected bimonthly from all fishing points, with a view to establishing state and pressure indicators on the marine living resources on the Romanian coast.

The following activities were carried-out to monitor the interaction between fisheries and MPAs:

Documentation: a review of existing data in the specialized literature on fisheries and MPAs;

Organizing the data resulting from field work in 2010-2013;

Data interpretation: in accordance with the European Commission requirements (Interpretation Manual of European Union Habitats - EUR 27/2007 and the Strategy for the Integration of Environmental Protection Requirements into the Common Fisheries Policy);

Table 1. – Marine species protected under the Habitats Directive.

Scientific name	Annex Habitats Directive/ GEO 57/2007	Presence in biogeographical region acc. O.G. no. 2387/2011
MAMMALS		
CARNIVORA		
<i>Tursiops truncatus</i> (bottlenose dolphin)	Annex II, IV/ Annex 3, 4a	Marine Black Sea
<i>Phocoena phocoena</i> (harbour porpoise)	Annex II, IV/ Annex 3, 4a	Marine Black Sea
<i>Delphinus delphis</i> (common dolphin)	Annex IV/ Annex 4a, 4b	Not mentioned
FISH		
CLUPEIFORMES		
Clupeidae		
<i>Alosa immaculata</i> (Danube shad)	Annex II, V/ Annex 3, 5a	Marine Black Sea
<i>Alosa tanaica</i> (Azov shad)	Annex II, V/ Annex 3, 5a	Marine Black Sea
<i>Alosa maeotica</i> (Black Sea shad)	Annex II, V/ Annex 5a	Not mentioned
ACIPENSERIFORMES		
Acipenseridae		
<i>Huso huso</i> (Beluga)	Annex II, IV /	Marine Black Sea
<i>Acipenser gueldenstaedtii</i> (Russian sturgeon)	Annex 5a/	Marine Black Sea
<i>Acipenser stellatus</i> (starry sturgeon)	Annex II, IV /	Marine Black Sea

Table 2. – Marine habitats protected under Habitats Directive.

Natura 2000 name and code	Annex Habitats Directive / GEO 57/2007	Presence in biogeographical region acc. O.G. no. 2387/2011
1110 Sandbanks which are slightly covered by sea water all the time	Annex I / Annex 4	Marine Black Sea
1130 Estuaries	Annex I / -	Marine Black Sea
1140 Sandflats and mudflats not covered at low tide	Annex I/ Annex 4	Marine Black Sea
1150* Coastal lagoons	Annex I / Annex 4	Black Sea
1160 Large shallow inlets and bays	Annex I / Annex 4	Marine Black Sea
1170 Reefs	Annex I / Annex 5 of O.G. 1964/2007	Marine Black Sea
1180 Submarine structures made by leaking gases	Annex I / Annex 5 of O.G. 1964/2007	Marine Black Sea
8330 Submerged or partially submerged sea caves	Annex 4	Marine Black Sea

Conducting GIS measurements and using them to determine the spatial overlap between MPAs and fishery resources. The coordinates of all fishery points along the Romanian coast were recorded using geodetic class GPS devices (Trimble R3) and GIS class GPS devices (Trimble GeoXH and ProXH). In order to monitor the occurrence of fishing vessels inside MPAs, the data provided by the National Agency for Fisheries and Aquaculture within the Vessel Monitoring System were used. The maps were drawn-up using ESRI ArcGIS 9.x;

The overall assessment of the conservation status of marine species and habitats was performed in accordance with the matrix in Annex 2 of the official reporting format, pursuant to the requirements of the Habitats Directive. The results of assessing the favourable conservation state (FCS) parameters were given using the four available categories: favourable (FV), unfavourable - inadequate (U1), unfavourable - bad (U2), and unknown (XX). In addition, if the conservation state determined was inadequate or bad, the marks “+”, “-”, “=” or “x” were used to indicate whether the status was improved, deteriorated, stable or unknown. For example, “U1+” = unfavourable - inadequate, but improving, and “U1-” = unfavourable - inadequate and deteriorating.

The establishment of MPAs in Romania was aimed at protecting and preserving national, regional, European and international interest species and habitats. The first designation of a marine protected area occurred in 1980, through Decision no. 31 of the Constantza County Council, which declared the first Romanian marine reserve, the “Vama Veche - 2 Mai Marine Littoral Aquatory”. In 1990, the Danube Delta

Biosphere Reserve was designated, with an operational area also including the “marine buffer area” (103000 ha). After Romania’s EU accession in 2007, six marine sites were put under special conservation regime; in all these sites, the Special Conservation Interest - SCI area regime was established. Based on the proposed national lists, the Commission, in agreement with the Member States, adopted the list of marine sites by Decision 2009/92/EC. The MPA network in Romania was completed in 2012 by adding two marine sites.

Thus, in compliance with the Habitats Directive, these sites provide for the protection of:

- Species (Table 1): *Tursiops truncatus*, *Phocoena phocoena*, *Delphinus delphis*, *Alosa immaculata*, *Alosa tanaica*, *Alosa maeotica*, *Huso huso*, *Acipenser gueldenstaedtii*, *Acipenser stellatus*;

- Habitats (Table 2): 1110 - Sandbanks which are slightly covered by sea water all the time, 1130 - Estuaries, 1140 - Sandflats and mudflats not covered at low tide, 1150* - Coastal lagoons, 1160 - Large shallow inlets and bays, 1170 - Reefs, 1180 - Submarine structures made by leaking gases, 8330 - Submerged or partially submerged sea caves.

Other important species (of national and regional importance) include *Cystoseira barbata*, *Corallina officinalis*, *Halichondria panicea*, *Ophelia bicornis*, *Necallianassa truncata*, *Donacilla cornea*, *Donax trunculus*, *Pholas dactylus*, *Tricolia pullus*, *Hemimysis serrata*, *Proterorhinus marmoratus*, *Pomatoschistus minutus*, *Hippocampus guttulatus*.

Other important habitats (of national and regional importance) include coarse sands with *Donacilla cornea* and facultative *Ophelia bicornis*, *Pholas dactylus* and/or *Barnea candida* in infralittoral soft rock,

Petricola litophaga in infralittoral hard rock, *Chamelea gallina*, *Lentidium mediterraneum* and *Lucinella divaricata* in shallow clean sands, *Solen marginatus* in sheltered infralittoral fine sands, and *Zostera* meadows in lower shore or infralittoral clean or muddy sands; all these habitats are in critical state on the Romanian littoral and the existence of the Natura 2000 network guarantees their protection.

However, marine living resources were, are and will inevitably be connected to the Romanian littoral, being part of the economic and cultural identity of the area. Commercial and leisure fishery, as well as small-scale fishery (sometimes for subsistence) are sectors of interest for the Romanian littoral area (Maximov et al. 2010, Radu et al. 2011, Zaharia 2010, Zaharia et al. 2012 b).

DESCRIPTION OF FISHERIES

During the past few years, marine fisheries in the Romanian Black Sea area have been restricted to practicing stationary fishing in the shallow coastal area, using fixed gears such as pound nets, gillnets, longlines and beach seines. This small-scale fishery operates during the first four/seven months of the fishing season (March-October), when the main commercial fish species reach the coastal area for spawning and feeding. Along the Romanian coast there are four fishing ports for landings (Sulina, Cape Midia, Constanța and Mangalia) and 18 small fisheries points (official statistics for 2013), located between Sulina and Vama Veche, at depths ranging between 2 and 20 m and sometimes up to 60 m for specialized turbot, shad or dogfish fisheries (Fig. 1). Open-sea fisheries practised by trawler vessels are characterized by poor activity: among the 18

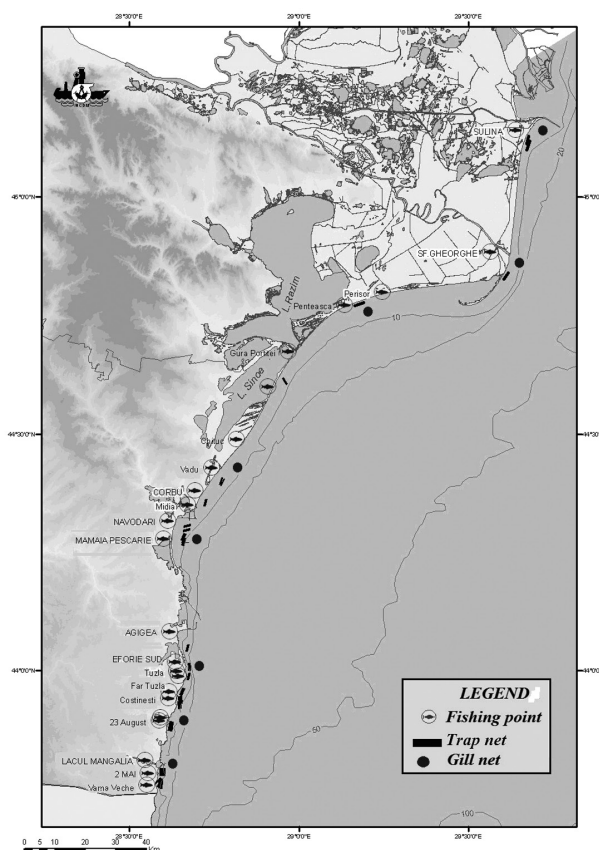


Fig. 2. – Fisheries points along the Romanian coast.

vessels registered in the Vessel and Boat Records only two were active during brief periods of time, at depths ranging between 20 and 80 m (Fig. 2).

Table 3. – Correlation between fisheries and MPAs on the Romanian littoral in 2010.

Fisheries points	Boats (no.)	Fishing gears (no.)	Fisher-men (no.)	Fishing days (no.)	Catches (kg)	Marine Protected Areas
Sulina Port Sf. Gheorghe fishing point Periboina fishing point Vadu fishing point Corbu fishing point Cape Midia Port	198	5700	350	1621	98362	ROSCIO066 Danube Delta marine zone (overlapping the Danube Delta Biosphere Reserve - marine zone)
Mamaia fishing point Pescarie fishing point Constanta Port Agigea fishing point	-	-	-	-	-	No MPA
Eforie North fishing point	1	1	7	108	10260	ROSCIO197 - Submerged Beach Eforie North - Eforie South
Cape Tuzla fishing point	No available data					ROSCIO273 - Marine Zone from Cape Tuzla cape
Costinesti fishing point	No available data (designated in 2011)					ROSCIO293 - Costinești - 23 August
Olimp fishing point Neptun fishing point Jupiter-Venus fishing point Saturn fishing point	No available data (designated in 2011)					ROSCIO281 - Cape Aurora
Mangalia Port	41	1608	75	1079	14116	ROSCIO094 - Underwater sulphur seeps from Mangalia
2 Mai fishing point						ROSCIO269
Vama Veche fishing point	5	290	20	172	39361	Vama Veche - 2 Mai (overlapping the natural reserve)

Table 4. – Number of nets on the Romanian littoral (2013).

Port / Fisheries point	Gillnetters (Large mesh: >101 mm)				Gillnetters (Small mesh: <100 mm)				Tangle netters				
	<6m	6-12	12-18	>40	<6m	6-12	12-18	>40	<6m	6-12	12-18	>40	
Sulina Port	8	24	1	0	10	6	0	0	270	701	25	0	
Gheorghe fishing point Sf.	1	1	0	0	0	1	0	0	10	10	0	0	
Peribotna fishing point	2	10	0	0	0	2	0	0	70	380	0	0	
Vadu fishing point	0	5	0	0	0	3	0	0	0	168	0	0	
Corbu fishing point	1	2	0	0	0	2	0	0	10	131	0	0	
Cape Midia Port	1	14	0	0	0	2	0	0	0	319	0	0	
Mamaia fishing point	1	2	0	0	0	2	0	0	0	6	0	0	
Pescarie fishing point	0	0	0	0	2	3	0	0	6	12	0	0	
Constanta Port	-	-	-	-	-	-	-	-	-	-	-	-	
Agiea fishing point	0	0	0	0	2	2	0	0	16	46	0	0	
Eforie North fishing point	0	1	0	0	0	1	0	0	0	10	0	0	
Cape Tuzla fishing point	0	4	0	0	0	0	0	0	0	100	0	0	
Costinesti fishing point	1	6	0	0	1	2	0	0	14	450	0	0	
Olimp fishing point	1	5	0	0	0	0	0	0	6	530	0	0	
Neptun fishing point	0	1	0	0	0	0	0	0	0	0	0	0	
Jupiter-Venus fishing point	1	4	0	0	0	0	0	0	0	10	0	0	
Saturn fishing point	0	1	0	0	0	0	0	0	0	0	0	0	
Mangalia Port	1	23	1	1	1	8	0	0	38	200	210	250	
2 Mai fishing point	0	5	0	0	0	2	0	0	0	88	0	0	
Vama Veche fishing point	0	3	0	0	0	0	0	0	0	80	0	0	
Total	18	111	2	1	16	34	0	0	440	3,251	235	250	
												200	0

In 2010, in the Romanian marine sector, the fishing industry practiced by fishermen was done in two ways: with active fishing gear - coastal trawler vessels at depths of 20 m; and fixed fishing gear, practiced along the coastline at 20 fisheries points located between Sulina and Vama Veche, in shallow waters (3-11 m). Additionally, we mention the small-scale coastal fishing. The fishing effort continues the trend of reduction reported since 2000. Thus, in 2010, only one vessel was active for active fishing specialized for sprat (using the pelagic trawler) and 114 vessels for turbot (6-12 m). Fishing with fixed gear, practised along the Romanian coast, involved 205 crafts (36 boats smaller than 6 m, and 169 boats sized between 6-12 m), 20 trap nets, 3691 turbot gillnets, 1442 shad gillnets, 41 goby gillnets, 8 beach nets, 187 mullet gillnets, 171 dogfish gillnets, 27 horse mackerel gillnets, 400 long liners and 950 handlines (Nicolaev et al. 2010).

Gillnets and tangle nets are the most dangerous for dolphins. An inventory realized in 2013 showed that 4539 nets are active on the Romanian littoral, most of them being active inside or in the proximity of MPAs (Table 4), with a major impact on the cetacean populations.

Dolphin habitat damage by fishing can be caused in several ways (Nicolaev et al. 2013):

- The large number of fixed gear, seines, gillnets, and so on reduce the area of existence of dolphins, increasing the chances of entangling in them.

- Mid-water trawl fisheries, armed in the demersal variant, have an indirect impact on cetaceans by destroying the benthic fauna and eliminating important links in the food chain.

- Also, mid-water trawl fisheries can also have a direct impact on cetaceans by capturing them in the cone net during trawling operations.

However, turbot gillnet gears remain the most dangerous for dolphins. Turbot gillnets do not have adverse functional effects on benthic biocoenoses (used for food or refuge for fish) and their specific habitats. Instead, the data and information that we obtained revealed that gillnets are the most dangerous for dolphins, which travel to get food in areas where these gears are installed (Nicolaev et al. 2013).

Each year, accidental dolphin catches and thus fatalities caused by them (strandings) are recorded on the Romanian Black Sea coast, affecting especially the small species *Phocoena phocoena*, which proved to be the most vulnerable to this type of fishing (Radu and Anton 2014). This vulnerability can be attributed to the small size of the body in relation to mesh size/yarn fineness. The small species thus have a lesser reaction force than large species when become caught and entangled in the mesh network of this type of gear.

Lost or abandoned fishing nets are another imminent threat to dolphin populations. They have been observed to remain operational and continue to retain dolphin individuals that cross them). Field investigations have revealed that over 95% of dolphins stranded on the Romanian coast of the Black Sea are caught accidentally in this type of gear.

Table 5. – Structure of dolphin by-catches on the Romanian coast in 2002-2012

Year	<i>P. phocoena</i>	<i>D. delphinus</i>	<i>T. truncatus</i>	Total
2002	20	-	-	20
2003	7	-	-	7
2004	-	-	-	-
2005	-	-	-	-
2006	20	2	-	22
2007	70	1	-	71
2008	8	-	1	9
2009	11	-	1	12
2010	15	-	2	17
2011	54	-	-	54
2012	-	-	-	-

The information from commercial operators practising specialized turbot fishing revealed that on the Romanian coast the average number of dolphin by-catch in turbot gillnets with mesh size $\phi=200$ mm, with a check carried-out periodically (4-5 days, conditional on the weather), is about 1-2 dolphins in 30-40 gillnets (Table 5, Table 6).

If in the past gillnetting was not representative, now, because of low catches taken by trawl and pound net gears and high operating costs, fisheries have started to perform this type of fishing. The fishing effort with this kind of gear has come to occupy an important place for boats in the 6-12 m and <6 m length classes. At the moment, the gillnet fishing gear effort, with boats smaller than 6 m and 6-12 m has come to represent 97% of the total fishing capacity.

Starting in 2008, the gears which increased in number are gillnets, mainly turbot gillnets, which added 20% to 40% (for boats of 0-6 m length) and 40-50% (for boats of 6-12 m length) of the total number of gillnets used in fisheries. This trend can be explained by the fact that the price is 2-5 times higher for one kg of turbot than for the other species.

The highest pressure on MPA is exerted in the marine zone of the Danube Delta, in terms of number of boats and fishing gears, and in the catch obtained. We must also consider the large area covered by this site (approx. 121697 ha) compared with the other sites (with areas ranging between 141 ha [ROSCI197] and 5272 ha [ROSCI0269]). The targeted species are dominated by Danube shad (approx. 44% of the catch), followed by turbot (approx. 30%), sprat (approx. 8%) and horse mackerel (approx. 6%). The other species fished are in small amounts (representing approx. 0.03%-4% of the catches): thornback ray, sole, European flounder, bonito, bluefish, garfish, red mullet, goby, gray mullet, dogfish, whiting and anchovy. In recent years

the catches have started to include the invasive Rapa whelk, as a bioresource which has started to be exploited. In the marine zone of the Danube Delta (overlapping ROSCI0066), 350 fishermen were active in 2010, using 198 boats and 5700 fishing gears, adding to a total of 1621 days.

In terms of caught amounts, ROSCI0269 (overlapping the natural reserve on the south of the coast) follows, with a total catch of 39361 kg, obtained with 5 boats, 290 fishing gears and 20 fishermen. The catch distribution comprised sprat (56%), anchovy (15%), whiting (8.5%) and turbot (6.2%), the other species (horse mackerel, red mullet, gray mullet, garfish, goby and shad) occurring in very small amounts. In the other two sites (ROSCI197 and ROSCI0094), the catches were close (10260 kg and 14116 kg, respectively), with the difference that in the former sprat dominated the catches (approx. 60%), while in the latter gobies (63%) were dominant, in close connection with the peculiarities of the habitats present in the two sites.

Given the results obtained as a follow-up of monitoring habitats and species carried out in 2013 in compliance with Art. 17 of the Habitats Directive, the overall conservation status of marine species and habitats on the Romanian littoral is the following:

- species *Tursiops truncatus* (bottlenose dolphin): conservation status U1, Unfavourable - Inadequate;
- species *Phocoena phocoena* (harbor porpoise): conservation status U2, Unfavourable - Bad;
- species *Delphinus delphis* (common dolphin): conservation status U1, Unfavourable - Inadequate and deteriorating;
- species *Alosa imaculata* (Danube shad): conservation status Favourable;
- species *Alosa tanaica* (Azov shad): conservation status Favourable;
- species *Huso huso* (beluga): conservation status U1+, Unfavourable - Inadequate;
- species *Acipenser gueldenstaedti* (Russian sturgeon): conservation status U2+, Unfavourable - Bad;
- species *Acipenser stellatus* (stellate sturgeon): conservation status U1+, Unfavourable - Inadequate;
- habitat 1110 Sandbanks which are slightly covered by sea water all the time: conservation status U1+, Unfavourable - Inadequate;
- habitat 1130 Estuaries: conservation status Favourable;
- habitat 1140 Mudflats and sandflats not covered by seawater at low tide: conservation status U1+, Unfavourable - Inadequate;

Table 6. – Monthly structure of dolphin strandings on the Romanian coast in 2002-2012.

Year/ Month	II	III	IV	V	VI	VII	VIII	IX	X	XI	Total
2002	-	1	7	39	4	1	2	2	-	-	56
2003	-	-	5	18	3	83	10	-	-	-	119
2004	-	-	5	4	7	-	1	1	-	-	18
2005	-	-	3	13	2	18	3	2	-	-	41
2006	-	6	9	30	20	35	1	3	-	-	104
2007	1	-	1	1	2	2	3	-	-	-	10
2008	1	-	4	5	9	2	2	-	-	-	23
2009	-	-	7	3	5	1	2	-	-	-	18
2010	-	-	6	3	3	25	3	2	-	-	42
2011	-	-	3	34	5	7	3	-	-	-	52
2012	-	-	2	24	38	82	20	7	1	2	176

- habitat 1150* Coastal lagoons: conservation status U1+, Unfavourable - Inadequate.

Given the current conservation state of habitats in the Romanian marine area, we consider that the severe disturbance caused by anthropogenic activities (illegal and unregulated fisheries included) may negatively influence their evolution, resulting in the reduction of areas covered and the significant and irreversible degradation of these habitats, which, under chronic circumstances, might cause their complete extinction. Consequently, fisheries management within MPAs is a fundamental tool for reaching the Favourable Conservation Status of habitats they contain.

It must be pointed-out that, for the eight Natura 2000 marine sites, there are no management plans approved by the national authority in the field: For ROSCI0269, ROSCI0094, ROSCI0273, ROSCI0197 and ROSCI0237, the management plans are under development in the framework of a project funded by the Sectorial Operational Programme Environment. For ROSCI0066, there is another ongoing Sectorial Operational Programme Environment project, which will provide for the management measures to be embedded in the integrated management plan of the Danube Delta Biosphere Reserve of which the site forms part. ROSCI0281 and ROSCI0293, designated in 2011, have no custodian and no management plans under development or approved. The minimum measures required to be implemented through the regulations of the MPAs were drafted for most of the sites and have been submitted pending approval. These regulations have not been made public so as to reveal which activities are banned.

Under Art. 6 of the Habitats Directive, there are specific requirements within Natura 2000 sites meant not only to prevent further deterioration of the habitats and species present, but also to establish priorities for maintaining or restoring these species/habitat types to Favourable Conservation Status. To adequately cover the full diversity of marine ecosystems under the Marine Strategy Framework Directive, Romania should establish management measures outside Natura 2000 sites where necessary and might need to broaden the scope of management measures within the Natura 2000 sites.

DISCUSSION

The resource-use restrictions that an MPA implies are likely to affect different groups of people and stakeholders in different ways. When planning an MPA, it is important to ensure that it will not deprive particular groups of their livelihoods without providing alternatives. This is particularly important for coastal MPAs in contexts of poverty or in areas with limited livelihood options. The designation of MPAs needs to be based on a combination of bio-ecological and socio-economic criteria, ensuring long-term sustainability, but also considering and mitigating short-term costs. The best way to ensure successful MPAs is to use a

participatory planning and implementation process (FAO 2011).

The extension of the Natura 2000 European ecological network to the marine Romanian territory (1 site according to the Birds Directive requirements and eight sites according to the Habitats Directive requirements) might cause conflicts between the Romanian marine fishery and these sites. In order to minimize these conflicts, the assessment of the interaction between fishery and the preservation objectives of the Natura 2000 sites is compulsory and extremely important. The evaluation of the environmental impact is a key tool of the EU environmental legislation, which is used in evaluating the effect of human activities on the ecosystem.

In addition, the involvement of all stakeholders in the development of fishery on the Romanian littoral and in environmental protection will be the key to success in finding viable co-management solutions in the Natura 2000 sites. Consequently, the process of drawing up the MPA regulations and management plans must be participatory, involving all stakeholders in the area concerned.

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