Summary of the Project "Development of a National Network for Monitoring the Black Sea Cetaceans (Stranded and By-caught) in Romania and Identifying Relevant Measures for the Mitigation of the Adverse Impact of Fisheries" (*G. Radu, S. Nicolaev, E. Anton, V. Maximov, C. Dumitrache, M. Cândea, R. Fabian*)	"Cercetări Marine" Issue no. 42 Pages 121-138	2012

SUMMARY OF THE PROJECT "DEVELOPMENT OF A NATIONAL NETWORK FOR MONITORING THE BLACK SEA CETACEANS (STRANDED AND BY-CAUGHT) IN ROMANIA AND IDENTIFYING RELEVANT MEASURES FOR THE MITIGATION OF THE ADVERSE IMPACT OF FISHERIES"

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ABSTRACT

Project provided a basis for implementing the recommendations and resolutions of ACCOBAMS, such as: recommendation 1.2 of ACCOBAMS Scientific Committee (SC) on by-catch in response to Implementation Priorities no. 2 and 3 adopted by First Meeting of the Parties (MOP1); resolution 2.21 of MOP2; resolution 3.11 of the Third Meeting of the Parties and also of many other international agreements and conventions as for alleviating the impacts of human activity on cetacean population.

The objective was to establish an operative mechanism for collecting information on cetaceans in the Romanian Black Sea area: stranded alive, found dead on the coast, entangled in fishing gears, and outline measures for preventing cases of increased mortalities.

The project was implemented mainly in the southern part of the Romanian marine area, between Cape Tuzla and Vama Veche, to be connected with the northern part of the Bulgarian area. Also, considering prior observations, the southern part is a more hazardous one, with more frequent cetacean stranding and by-catch events related to higher turbot biomass and traditionally higher seasonal turbot fishing activities, mostly by bottom-set gillnets. On the other hand, the central and northern area are not of lesser concern, because of larger fish school concentrations (turbot, mullet, Danube shad) attracting cetacean herds.

KEY WORDS: Black Sea, cetaceans, common dolphin, bottlenosed dolphin, harbour porpoise, cetacean stranding network, by-catches, strandings

INTRODUCTION

Recommendation 1.2 of the ACCOBAMS Scientific Committee (SC) on by-catch in response to Implementation Priorities no. 2 and 3 adopted by the First Meeting of the Parties (MOP1) suggests that this matter be brought to the attention of the Parties as soon as possible, in order to allow the Secretariat to obtain updated information on cetacean by-catch in the Agreement area on an annual basis.

Resolution 2.21 of MOP2 - Assessment and Mitigation of the Adverse Impacts of Interactions between Cetaceans and Fishing Activities in the ACCOBAMS Area pointed the action programs aimed to mitigate cetacean by-catch.

Recalling that, the Third Meeting of the Parties to ACCOBAMS adopted the Resolution 3.11 on "Conservation Plan for the Black Sea Cetaceans", urging Parties notably to establish a regional by-catch network integrated into a regional stranding network and a network of marine protected areas.

Also, in Recommendation 2.6 of SC on national stranding networks, ACCOBAMS urged the Parties to develop appropriate networks and send the information to MEDACES.

In this context, a Memorandum of Understanding (MoU - No. 02/2010) between the ACCOBAMS Secretariat and National Institute for Marine Research and Development "Grigore Antipa" Constanța was signed for the project "Development of a National Network for Monitoring the Black Sea Cetaceans (Stranded and By-caught) in Romania and Identifying Relevant Measures for the Mitigation of the Adverse Impact of Fisheries", financed by ACCOBAMS in the framework of the Additional Conservation Fund.

The duration of this Memorandum of Understanding covered the period from March 1,2010, to December 31, 2010.

MATERIALS AND METHODS

The project was carried out in the Romanian Black Sea area. The Romanian Black Sea coastline extends for over 240 km and can be divided into two main geographical and geomorphologic sectors (Fig. 1):

- 1) the northern sector (about158 km in length) lies between the secondary delta of the Chilia branch and Constanța, is constituted of alluvial sediments; the shallow waters up to 20 m depth of this sector are included in the Danube Delta Biosphere Reserve (designated through Law no. 82/1993);
- 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.

Considering prior observations, there was noted a close relation between the number of the fishing gears and the number of dolphins stranded on the Romanian beaches. The turbot fishing season appears as the main fishing factor causing cetacean by-catch.

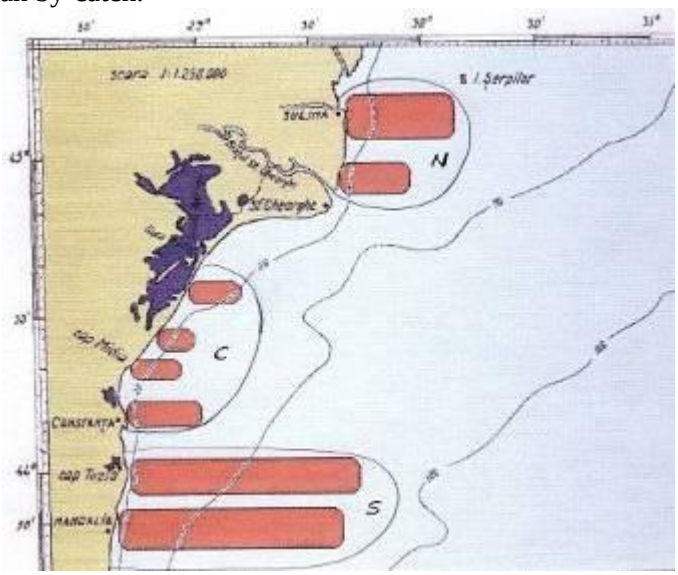

Fig. 1. Distribution of gillnets (red area) in the Romanian marine area, scheme of stranding network subareas: N, C, S (north, central and south)

Based on the importance of cetacean conservation in the two neighbouring areas, northern Bulgarian and southern Romanian one, pointed out by the evaluator (ACCOBAMS SC), it was envisaged to establish a common transboundary monitoring.

The project was implemented mainly in the southern part of the Romanian marine area, between Cape Tuzla and Vama Veche (subarea S), to be connected with the northern part of the Bulgarian area (Fig. 2).

Also, considering prior observations, the southern part is a more hazardous one, with more frequent cetacean stranding and by-catch events related to higher turbot biomass and traditionally higher seasonal turbot fishing activities, mostly by bottom-set gillnets (Fig 1. Distribution of gillnets). On the other hand, the central and northern areas are not of lesser concern, because of larger fish school concentrations (turbot, mullet and Danube shad) attracting cetacean herds.

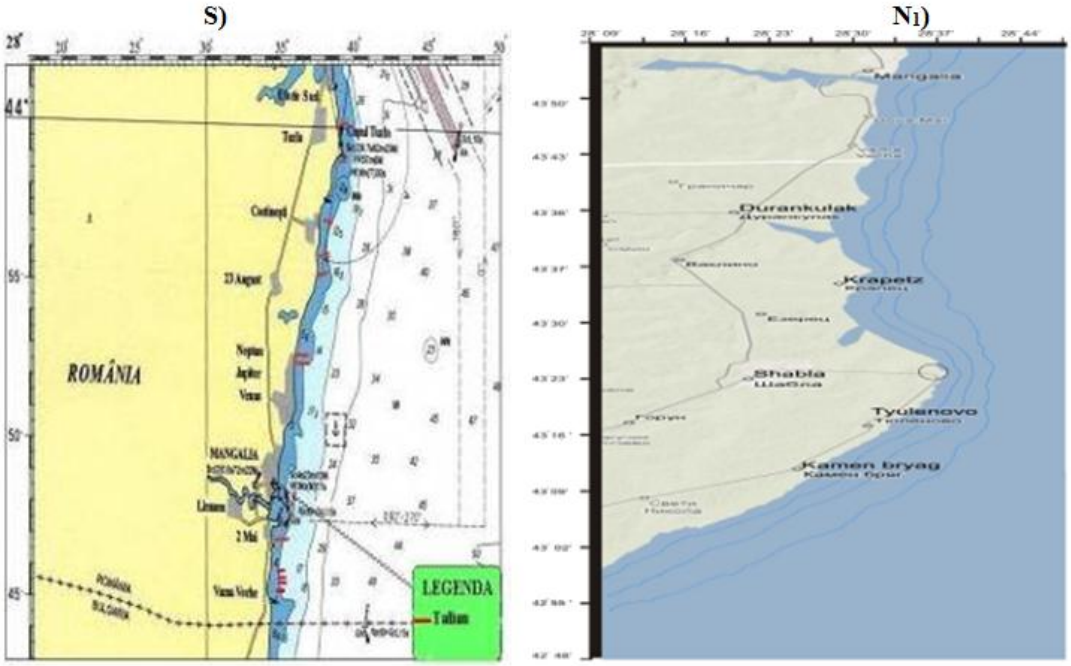

Fig. 2. Scheme of the stranding network subareas, in the northern part of Bulgaria (N_1) and southern part of Romania (S)

The main tasks of the project were:

- Prepare Cetacean Stranding Network module (CSNm);
- Improve network for notifying by-catches and strandings;
- Collect basic data as an input for further own life history and health studies;
- Raising the awareness of fishermen about the need of closer joint activities on protecting the cetaceans and mitigating the impact of fishing on cetacean populations;
- Define most hazardous areas in relation to increased cetacean mortality events;
- Inquire about the ways of mitigating the adverse effect of interactions between cetaceans and fishing actions;
- Prepare recommendations to strengthening the national network for cetacean monitoring and conservation, undertaking respective measures for mitigating adverse impacts;
- Results dissemination.

RESULTS AND DISCUSSIONS

For the Final Technical Report, data was reported on the following activities:

1. Prepare Cetacean Stranding Network module (CSNm) based on the material prepared in the frame of the ACCOBAMS project on "Cetacean Stranding Network for the Black Sea" [5, 7]:
   - Guide on the Romanian network (translation in Romanian);
   - Practical recommendations on strandings (translation in Romanian);
   - Poster (translation into English and Romanian);
   - PowerPoint presentations.
2. Improve network for notifying by-catches and strandings:

- Organization of the field work for the CSN;
- Organization of the seagoing work for by-catch, on board of fishing vessel;
- Surveys with the Institute's boat;
- Interviews - simultaneously with the by-catch and stranding monitoring;
- Collect basic data as an input for further own life history and health studies.

3. Define most hazardous areas in relation to increased cetacean mortality events.
4. Prepare recommendations for strengthening the national network for cetacean monitoring and conservation, measures for mitigating the adverse impacts of fisheries.
5. Awareness activities.

1. Prepare Cetacean Stranding Network Module (CSNm)

Based on the materials prepared in the frame of the ACCOBAMS project "Development of Cetacean Stranding Networks for the Black Sea", the following two documents were translated into Romanian:
- ACCOBAMS priorities and development of national cetacean stranding networks in the Black Sea region [5]
- Methodology used to monitor cetacean strandings - Survey design and management [7].

In the same context, a Cetacean Monitoring Guide was realized, with the following contents [8]:
- Biological and ecological characteristics of cetacean species at the Romanian littoral:
  - *Delphinus delphis ponticus* Barabasch-Nikiforov, 1935
  - *Tursiops truncatus ponticus* Barabasch-Nikiforov, 1940
  - *Phocoena phocoena relicta* Abel, 1905
- Visual assessment of the age class (newborn, baby, young, adult)
- Stranding cetaceans monitoring
- Sheet for registering the stranding cetacean on shore
- Body measurements and status

a) Collection and preservation of samples: status code; labelling of samples; samples for the historical life; histopathology samples; virusology samples; bacteriological samples; parasitological samples; toxicological samples.

b) Post-mortem examination and tissues sampling: external examination; abdominal organs examination; the head, neck and thorax examination.

2. Improve the Network for Notifying By-catches and Strandings

2.1 Organization of the field work for the CSN

Observations on the distribution and frequency of occurrence of strandings at the Romanian littoral in 2010

In order to obtain the necessary data and information for the cetaceans stranded on the Romanian beaches, a few activities were developed:
- organization of the field work for the CSN;
- organization of the land-based and sea-based surveys along the Romanian littoral;
- accomplishment of surveys by car and walking along the seacoast searching for cetaceans stranded ashore - ill, traumatized and dead ones and to collect basic biological data, measurements, comments and advanced data according to Mediterranean Database of Cetacean Strandings (MEDACES);
- travel in the southern and central areas: by car - two times/month, 200 km on average each (the distance covered by observers walking on foot was about 10-12 km on each trip);
- travel in the northern area: 3 trips/entire period (the distance covered by observers walking on foot was about 6-7 km in each trip - in the Sulina and Sf. Gheorghe areas);
- interviews with local fishermen and managers of fishery enterprises during the walks and sea surveys;
- collaboration with the administrative, patrolling and controlling institutions, such as: "Dobrogea-Litoral" Water Directorate, Border Police Constanța, National Agency for Fishing and Aquaculture Constanța, "Danube Delta" Biosphere Reserve Administration, Commissariate of the "Danube Delta" Biosphere Reserve of

the Environmental Guard Tulcea, "Mare Nostrum" NGO Constanța, Museum Complex of Natural Science Constanța, Environmental Protection Agency Constanța etc.

Started a few years ago, the collaboration among NIMRD and the above mentioned institutions was intensified in 2010 (resulting in the gathering of a great amount of data and information able to mirror the real situation in the field and finally the elaboration of the measures and recommendations necessary for decision makers for minimizing the mass mortalities produced by the dolphin incidental catches in the turbot gillnets [1, 2, 3, 9, 10].

Table 1 presents the situation of the stranded cetaceans by species in the last 10 years.
Table 2 presents the monthly situation of the stranded cetaceans in the last 10 years.

Table 1. The situation of stranded cetaceans recorded at the Romanian littoral, in the last 10 years

Years	**Species**				**Total**
	Phocoena phocoena	*Delphinus delphis*	*Tursiops truncatus*	Unidentified	
2001	5	2	3	1	11
2002	20	2	13	21	56
2003	78	2	2	37	119
2004	7	2	4	5	18
2005	7	4	4	26	41
2006	33	2	2	67	104
2007	5	3	2	-	10
2008	16	1	2	4	23
2009	13	-	5	-	18
2010	35	1	6	-	42
Total	219	19	43	161	442

Table 2: The monthly situation of cetacean strandings recorded at the Romanian littoral in the last 10 years

Year	February	March	April	May	June	July	August	September	TOTAL
2001	-	-	1	2	5	2	1	-	11
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	4	7	20	2	3	42
Total	2	7	48	119	64	164	27	11	442

The Monthly Stranding Structure in 2010

In 2010, obtaining the data and information needed to monitor the stranded dolphins at the Romanian shore was achieved in the expeditions organized by NIMRD Constanța along the Romanian littoral both on land

and sea, respectively, due to the good collaboration with various institutions which developed administrative activities, control, inspection and others, at the Romanian littoral, such as the „Dobrogea - Littoral" Romanian Waters Directorate Constanța**,** Constanța Border Police Directorate, National Agency for Fisheries and Aquaculture, Constanța Branch, the "Danube Delta" Biosphere Reserve Administration - Tulcea, DDBR Environmental Guard Commissariate, NGO "Mare Nostrum", Agency of Environmental Protection - Constanța, Museum Complex of Natural Sciences.

The intensification of surveillance actions made by NIMRD Constanța in collaboration with the above mentioned institutions favoured obtaining the data and information which had the purpose to describe the real situation in the land and to allow the elaboration of the measures and recommendations for mortalities mitigation, induced by accidental catches of cetaceans in turbot gillnets.

Overall, we can say that, during April-November 2010, there were a total of 42 stranding cetaceans and the frequency of occurrence of cetaceans stranding in these areas of the Romanian coast was the following: 11.9% in the southern littoral; 14.3% in the central zone; 73.8% in the northern zone (Fig. 3).

In terms of species composition, the frequency and distribution in the areas of interest, the strandings situation between April-November 2010 was presented as follows:

a) *Delphinus delphis* was represented by one specimen located in south area.

b) *Phocoena phocoena* was represented by 35 specimens, located in the northern, central and southern areas. The distribution on the three sectors of the Romanian littoral, as percentage, was the following: 71.4% in the northern sector (Cape Midia - Sulina); 14.3% in central sector (Constanța - Cape Midia); 14.3% in the southern sector (Vama Veche - Constanța).

c) *Tursiops truncatus* was represented by 6 specimens (5 specimens located in the northern sector and one in the central sector).

Between the identified species of cetaceans in the areas of interest, the largest number of stranded specimens were reported for the species *Phocoena phocoena*, 35 specimens (83.34%) (Fig. 4) compared to *Tursiops truncatus* (6 specimens were identified (14.28%)) (Fig. 6) and *Delphinus delphis* (one specimen (2.38%)) (Fig. 5).

Therefore, the most recorded stranded species is represented by *Phocoena phocoena*, which proved to be the most vulnerable to gillnet gears, particularly when did not respect the mesh size, the yarn fineness and the materials construction provided in the current legislation.

The main cause of dolphin stranding is the death by suffocation, due to accidental catches in fishing gillnet gear but also, must be taken into consideration that, in a small percentage, the stranding may come both from mortality caused by viral, bacterial diseases - as the natural mortality.

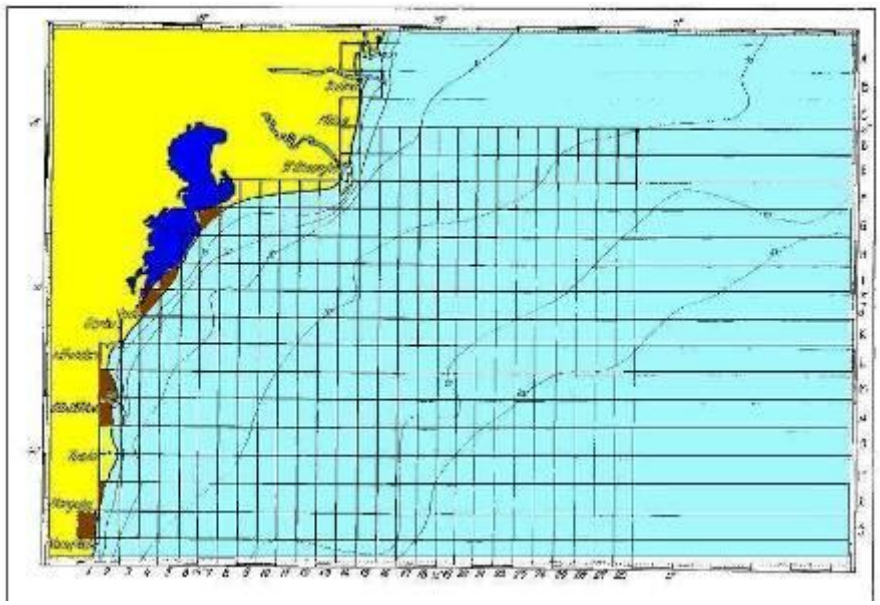

Fig. 3. Distribution map of stranded cetaceans on the shore, in April-September 2010

Fig. 4. *Phocoena phocoena*

Fig. 5. *Delphinus delphis*

Fig. 6. *Tursiops truncatus*

2.2 Organization of the Seagoing Work for By-catch

Survey of Incidental Cetacean Catches in Commercial Fishing Gears

In the Project it is described that the first and obvious requirement for the implementation of this task is the updated collection of information from various sources (national and local authorities, fishing enterprises, private fishermen associations) with regards to the types and timing of different fishing methods/gears used in the Romanian coastal zone.

For achieving these tasks, the Project stipulated that, twice a month, during the fishing seasons, the project team would visit the fishing units and ports, using a special questionnaire to survey the opinion of fishermen regarding dolphin incidental catches, as well as the data referring to the number and type of fishing gears, number and size of fishing boats and ships was registered.

At the beginning, we must mention that NIMRD, through the Marine Living Resources Department - staff of fishing resources - has been dealing for many years with the status of the fishing resources along the Romanian littoral, focused on: capture on fish species, number and type of fishing gears, number of boats and ships, fishing effort, fishing seasons and sites, fishing productivity, by-catches, incidental catches etc.

In order to collect the necessary information, NIMRD has an adjusted network; it was completed with new collaborators through some Partnership Agreements concluded with the Border Police, Environmental Protection Inspectorate Constanța, Department for Fishing and Aquaculture from MWEP, private fishing enterprises etc.

Table 3 - The cetacean accidental catches situation registered at the Romanian littoral, in the last 10 years

Year	SPECIES			TOTAL
	Phocoena phocoena	*Delphinus delphis*	*Tursiops truncatus*	
2001	40	2	1	43
2002	20	-	-	20
2003	7	-	-	7
2004	-	-	-	-
2005	-	-	-	-

2006	20	2		22
2007	70	1	-	71
2008	-	-	-	-
2009	-	-	-	-
2010	15	-	2	17
Total	172	5	3	180

Also in 2010, the NIMRD specialists carried out cruises up to 30 -50 Nm offshore with commercial fishing vessels in each fishing season - spring, summer and autumn - aiming at: investigation on the composition of cetacean by-catches - species; number of cetaceans by-caught; number of nets; fish catch; marine litter.

To compare the data related to the gillnet number impact on the cetaceans, the institute specialists made also cruises with "Mare Nostrum"'s boat using gillnets from institute.

In 2010, the cetacean accidental catches monitoring, once with the starting of fishing activities at the Romanian littoral and, according to the processing data and information, allowed to establish the accidental catches distribution (Fig. 7)**,** as follows:

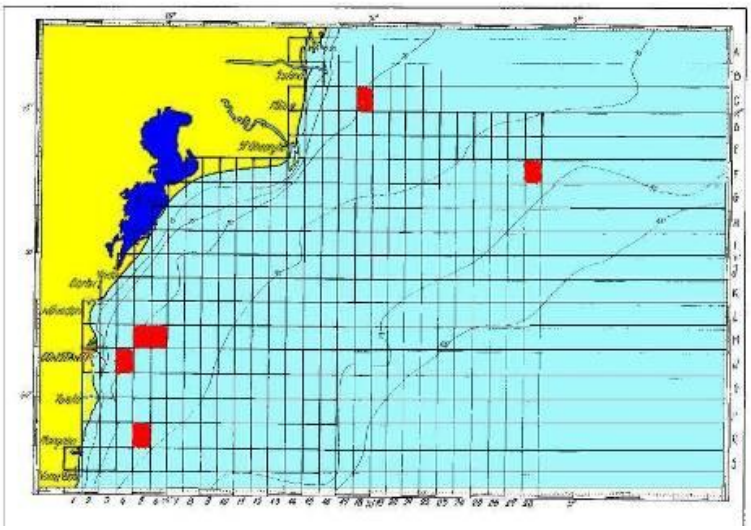

Fig. 7. Distribution map of cetacean by-catches, between April - November

- In April 2 dolphins were registered - *Phocoena phocoena* species - accidental catches in turbot gillnets abandoned East from Sf. Gheorghe, at 65 - 70 m depths, square F_{28} (Fig. 7);

- In May and June, only one dolphin/month was registered (*Phocoena phocoena)* accidentally caught in trawl, squares R_5 and M_5 (Fig. 7);

- In July, 10 dolphins were recorded (eight *Phocoena phocoena* and two *Tursiops truncatus****)*** accidentally caught in turbot gillnets installed traverse of Constanța and Sulina at 30 - 40 m depths and three in the Sulina area, squares N_4, M_6 and C_{18} (Fig. 7);

In October, three specimens were registered of the *Phocoena phocoena* species, caught in gillnets installed traverse of Constanța at 40 m depths, square M_6 (Fig. 7).

In terms of species composition, frequency and distribution in the areas of interest, the accidental catches situation was presented as follows:

- in total, 17 accidental catches were registered, of which 15 *Phocoena phocoena* and two *Tursiops truncatus;*

- the frequency of occurrence of dolphin catches in commercial fishing nets was: 88.24% in gillnets and 11.76% in trawl;

- the distribution in the areas was: 14.28% in the central zone, 14.28 % in the southern zone and 71.44% in the northern zone;

- The species frequency of occurrence of dolphin by-catches was 88.24% (*Phocoena phocoena)* and 11.76% (*Tursiops truncatus).*

Therefore, the most or even all recorded accidental catches of cetaceans in gillnet gears is represented by the species *Phocoena phocoena*, which proved to be the most vulnerable to this type of fishing. This vulnerability can be attributed to small body size in relation to mesh size/fineness of the yarn, respectively the smaller force of reaction compared to larger species, when they cling and get entangled in the gillnet gear mesh. The interview taken from a vessel skipper shows that generally, at 150 gillnets with average length per gillnet of 60 m, the cetacean by-catch is about 7 specimens, especially *Phocoena*. For these reasons, it is necessary to:

- improve the constructive characteristics and selectivity of fishing gear;
- purchase the optimal type of hydro-acoustic devices for the removal of dolphins from fishing gear;
- ban the use of stationary fishing gear without marking them with identification marks;
- personalization with the trademarks of fishing gear to establish their legal ownership and manufacture;
- further control actions in fishing areas by competent authorities;
- endowment of the competent authorities with technical equipment and appropriate control procedures.

3. Define Most Hazardous Areas in Relation to Increased Cetacean Mortality Events

The most hazardous areas in relation to increased cetacean mortality are connected to the distribution of the turbot agglomerations and, implicitly, the distribution and size of the fishing effort (number of gillnets) [4]. In the following lines we present the turbot distribution in May-June 2010, obtained through a common survey realized by Romanian and Bulgarian scientists in the frame of National Data Collection Program (Fig. 8).

The densest agglomeration was in the southern part of Sf. Gheorghe at depths of 35 - 40m (288.0 kg/km^{-2}) and in the south Tuzla area - between the 30 - 50 m isobaths. Concerning the reference species (*Psetta maxima*) in Bulgarian waters, a high biomass index (more than 100 kg/km^2) was observed in the area between Kavarna and Krapets.

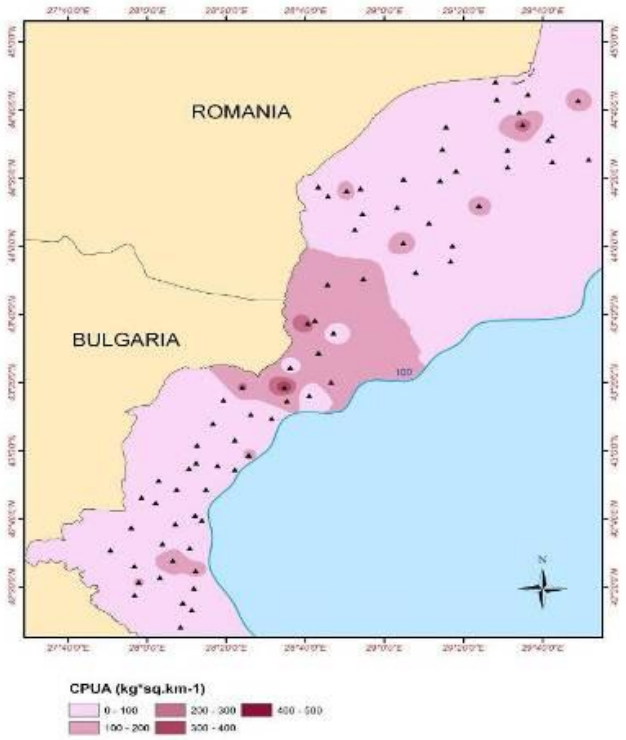

Fig. 8. Distribution of abundance index for *Psetta maxima* in May- June 2010

4. Recommendations for Strengthening the National Network for Cetacean Monitoring and Conservation, Measures for Mitigating Adverse Impacts of Fisheries

Interaction between cetaceans and fishery activities is a well known phenomenon, the incidental catch of cetaceans in fishing gear is one of the most dramatic contemporary threats that affect the Black Sea dolphins. All species of dolphins are affected, but the *Phocoena phocoena* by-catches are the most significant, this species can be caught accidentally in a variety of fishing gears, but the most dangerous fishing gear remain turbot gillnets [1, 2, 4].

Every year, at the Romanian Black Sea littoral, dolphin catches are recorded and thus they induce mortality (stranding) especially for thesmall species *Phocoena phocoena*, which proved to be most vulnerable to this type of fishing gear. This vulnerability can be attributed to the small size of the body in relation to mesh size/fineness of yarn and lower reaction force compared to large species [2, 4].

Following the intensification of inspection and control actions realized by NAFA Constanța, Border Police, illegal fishing activities have declined in recent years, which led, as it has been observed, to the decrease of mortality and hence the decrease of strandings.

Damaging the marine ecosystem by practicing illegal and inappropriate use of gears can be considered as very high and may become unrecoverable if no permanent actions are undertaken to combat fish poaching [2, 4].

Considering the annual records of by-catches and strandings caused by these factors, it can be said that they induce population imbalances causing serious damage to species conservation effort.

In this respect, were realized complex studies to determine the optimal solutions (constructive improvements to the gillnet gear, techniques, hydro-acoustic equipment etc.) to reduce the incidental catch of dolphins.

From the results of research conducted both nationally and globally, it emerged that a reduction in by-catches of dolphins in gillnet gear type can be achieved by:

- Using the turbot fishing nets with mesh size equal to or greater than 200 mm and twine thickness less than 0.50 mm (giving the possibility that dolphins accidentally clinging to escape by producing tears under their own power in the gear mesh network) (NIMRD researches);

- Using the turbot fishing nets impregnated with barium sulphate (BaSO4). As it is known, for deep space exploration, the dolphin has developed a guidance system, echolocation. Using ultrasonic frequencies, this system is highly developed and highly sensitive. With echolocation, dolphins can detect and identify prey or enemy, but also communicate with other dolphins. By impregnation with barium sulphate, gill nets or trammel nets will have a better sound reflection, in which case they will be detected by the dolphins from greater distances and therefore it will enable them to avoid the intersection with fishing gear [6].

- Equipping turbot gillnets with ADD's (pingers).

Pingers generate relatively low-intensity sounds. The primary purpose of using hydro-acoustic devices is to keep out the dolphins from fishing gears.

Based on a detailed bibliographical study and by conducting our own research (NIMRD and NGO "Mare Nostrum") on the Romanian seaside, the hydro-acoustic device (Pinger) Aquamark 200 type was established as suitable for removing dolphins from gear.

The arguments behind this choice (Aquamark 200) were as follows:

- They can be installed on all types of nets used in marine fisheries (fixed and drifting nets);

- They are designed to take away from gillnets both dolphins in foraging trips in areas where such gears are installed and when actively looking for fish snagged and tangled in the net;

- The emit ultrasonic signals within the range of frequency of 5-160 kHz covering the whole spectrum for dolphins;

- The battery life is 1-2 years if used continuously, for about four years if used seasonally.

5. Awareness Activities

Through a sustained awareness campaign with the fishermen and decision-makers, the acceptance and observance degree of the recommendations and measures proposed for the mitigation of the impact of fisheries on the Black Sea cetaceans will be increased.

It is required to carry out a campaign aiming at drawing the attention to the need to mitigate the impact of fishing on cetaceans, at informing fishermen about the practices and procedures to be followed to avoid by-catch in their fishing gears and that is necessary to take measures.

By that time, we realized the following materials:
- Poster - Impact of Fisheries on Cetaceans;
- Poster - Vessels and boats used at the Romanian littoral;
- Leaflet designed by NGO "Mare Nostrum".

Part of the information were presented at the Fishery Training Centre (Annex 5-1;5-2) from our Institute. Also, the awareness actions were sustained at fishery points and fishing ports.

Also, NGO "Mare Nostrum" realized campaigns of information and awareness.

Local and Tourist Information and Awareness Campaigns Realized by NGO "Mare Nostrum"

For increasing the level of information and awareness of the population from the project implementing area, informative materials - flyers and posters - were edited and then distributed during an informing campaign. There were a total number of 6 informing campaigns, organized in: Costinești, Olimp, Neptun, Jupiter, Venus, Mangalia and Vama Veche.

At the end of these campaigns, according to the reports, 2,150 persons were informed:

- Costinești - 400 distributed materials, 400 informed persons;
- Jupiter - 400 distributed materials, 400 informed persons;
- Mangalia - 150 distributed materials, 150 informed persons;
- Neptun - 250 distributed materials, 250 informed persons;
- Olimp - 400 distributed materials, 400 informed persons;
- Vama Veche – 300 distributed materials, 300 informed persons;
- Venus - 250 distributed materials, 250 informed persons;

Dolphin's Day

Each year, NGO "Mare Nostrum" celebrates the *"Dolphin's Day"*, organizing public campaigns for informing and awareness. This is an opportunity to bring to the locals' and tourists' attention the problems which the three dolphin species from the Black Sea are facing and actively involve them in identifying the solutions.

In 2011, "Mare Nostrum" organized the Dolphin's Day at Vama Veche. The event took place on August 7 and was carried out within the „Development of a National Network for Monitoring the Black Sea Cetaceans (Stranded and By-caught) in Romania and Identifying Relevant Measures for the Mitigation of the Adverse Impact of Fisheries" project (Fig. 9).

Fig. 9. Activities celebrating the *"Dolphin's Day"*

The event's goal was to increase the informative and awareness level of the tourists and local community, regarding to the necessity of protecting the marine biodiversity, especially to the three dolphin species living in the Black Sea. The Dolphin's Day activities consisted in organizing a sand sculpture contest and an informative and awareness campaign. The winners of the sand sculpture contest were given, beside diplomas, free-entry tickets for the Natural Sciences Museum Complex (Aquarium).

CONCLUSIONS

- The Project aimed to provide a basis for implementing the above recommendations and also of many others international agreements and conventions as for alleviating the impacts of human activity on cetacean population. The objective was to establish operative mechanisms for collecting information on cetaceans in the Romanian Black Sea area: stranded alive, found dead on the coast, entangled in fishing gears, and outline measures for preventing cases of increased mortalities.
- The by-catches and strandings of dolphins have been reported, particularly in the breeding period of turbot, mainly when they were caught illegally by Turkish fishing vessels with turbot gillnets, which are not complying with national legislation (smaller mesh size and use of larger diameter wires). Also, an imminent threat

to turbot stocks, for other demersal species and dolphins are the abandoned gillnets by local and Turkish fishermen, these "ghost" gears keeping catching ability for long periods.

- In some cases, the number of dead dolphins, stranded at the Romanian shore, can be influenced to a lesser extent by the mortality induced by accidental capture of dolphins in fishing gear or other mortalities produced in the waters neighboring Romania (in general, locations in the vicinity of the border with Bulgaria and Ukraine) and stranded to shore under the influence of different hydro-climatic factors.
- Typically, these situations are favored by sea currents, wind etc. and lead directly to results which are not consistent with the existing reality on the ground. Specimens of dead dolphins, brought by currents from the waters of Romanian neighboring countries and stranded at the Romanian shore (the phenomenon can also occur vice versa) will generate errors of calculation and will not prove the correlation which should exist between by-catches, strandings and fishing effort.

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