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RESULTS OF THE DOLPHIN MONITORING CARRIED OUT BETWEEN 2001-2002

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ABSTRACT

The paper presents the results of actions developed within the Project "Conservation of the dolphins from the Black sea Romanian waters, co-financed by the European Community, LIFE-NATURE Programme.

Based on the observations performed during 2001 and 2002 on the dolphins living the Romanian Black Sea waters, some preliminary data were acquired, concerning the dolphin distribution in the Romanian waters (offshore and seashore), stranding and incidental catches. Also, some information on the social structure of the dolphin groups, the preferred habitats, impact of the fishing gears on dolphins was recorded.

Data on incidental catch and strandings of the dolphins at the Romanian littoral show that the most dangerous fishing gears for dolphins are the turbot gillnets, especially trammel nets, due to the great capacity of retention and tearing strength. Also, the most of the stranded dolphins on the Romanian beaches resulted from the incidental catches abandoned in the sea by fishermen practicing a specialized fishing for turbot, especially illegal fishing.

KEY WORDS : Black Sea, dolphins, monitoring, by-catch, stranding, Life Nature

INTRODUCTION

The status of the Black Sea environment continues to be a matter of concern, due to the ongoing degradation of its ecosystem and the unsustainable use of its natural resources.

The Strategic Action Plan for the Rehabilitation and Protection of the Black Sea (1996) is a step in the process towards attaining sustainable development in the Black Sea region. Its overall aims are **to enable the population of the Black Sea region enjoy a healthy living environment, and to attain a biologically diverse Black Sea ecosystem with viable natural populations of higher organisms, including marine mammals**, which will support livelihoods based on sustainable activities such as fishing, aquaculture and tourism in all Black Sea countries. Article 62 of its chapter "Biological diversity protection" provides the main measures, which shall be taken for restoring populations of marine mammals (GEF, 1996).

Signing the Bucharest Convention (April 1992), and ratifying the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS) (May 2000), Romania has agreed to undertake co-ordinate measures for achieving and maintaining an enhanced conservation status of the cetaceans from the Romanian Black Sea waters. Such measures have been proposed within the LIFE-NATURE project "Conservation of the dolphins from the Romanian Black Sea Waters" (RADU *et al.*,2002). Three partners implement the project: National Institute for Marine Research and Development (NIMRD) “Grigore Antipa”, NGO “Mare Nostrum” and Dolphinarium Constantza.

MATERIAL AND METHODS

To assess the dolphin population status, according to the regional and international fieldwork methodology, the observations must be carried on the shores and offshore, from boat or vessel, even aircraft or helicopter, surveying the sector of interest.

From the observations place viewpoint, there are three types of dolphins monitoring:

- Land-based monitoring,
- Sea-based monitoring,
- Aerial monitoring.

The sector for survey was comprised between Sulina (northern part of the Romanian littoral) and Vama-Veche (southern part), from seashore up to a distance of 30-35 Nm offshore (50-60 depths) (Fig. 1).

The work methodology was established in the “Survey plan”, which constituted the objective of the Action A1 in the above mentioned project, and the data were gathered by the project team members and the network volunteers in the frame of Action D1 and Action D2.

On the whole, 11 terrestrial expeditions (totalling 20 days of observations), 20 sea cruises (totalling 32 days of observations), and two hours aerial survey were carried out. In addition, every NIMRD employees are obliged (through the Survey plan) to register all the information regarding the dolphins, occasioned by any expeditions on land or sea (other then those focused on dolphins).

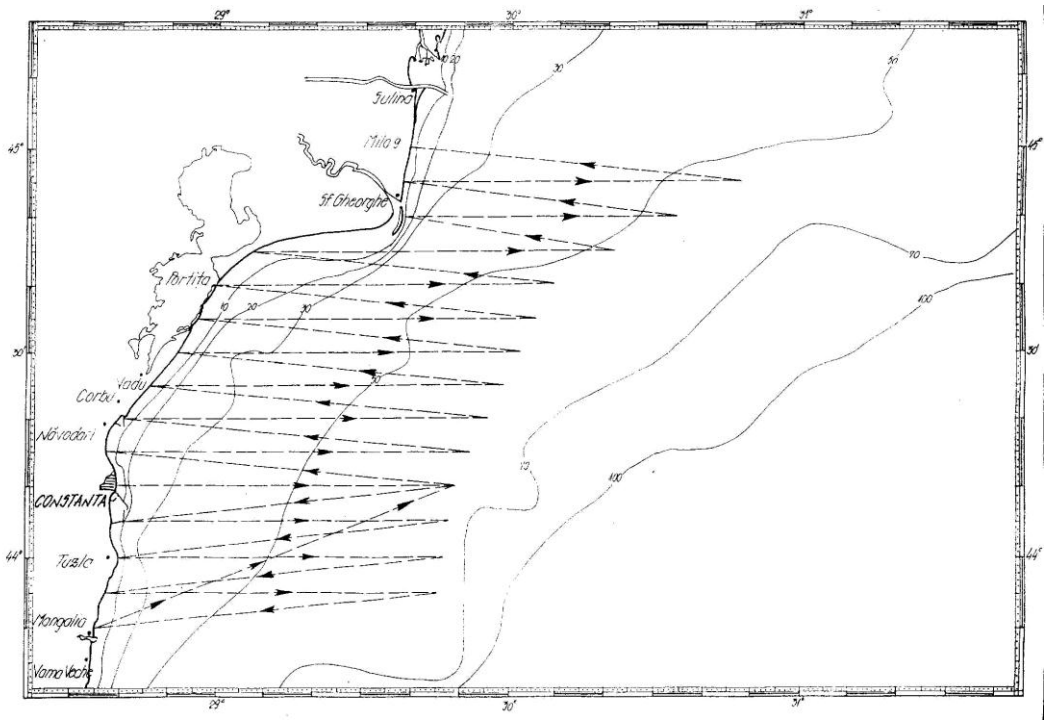

Fig.1 – Dolphin monitoring network

For **land-based monitoring**, as a first step, the survey sectors, surveyors and collaborators were identified, who received the dolphin identification sheets. In parallel, some agreements for collaboration and furnishing data were concluded with the National Company "Apele Romane" - Directorate "Dobrogea Litoral" from Constanta, and Environmental Protection Inspectorate Constantza.

As the second stage of the land-based survey, be-weekly shore-based observation of live dolphins near the shore and stranded dolphins, as well as

the collecting of data from the voluntary surveyors, including those about the incidental catches in the stationary fishery were performed.

Once with the fieldwork or at the collaborator's notifications, the team members made body measurements and collected tissue samples from stranded dolphins.

For **sea-based monitoring**, the survey and observation of the dolphin groups in offshore waters were achieved through several ways:

- Embarkation of observers on coastal trawlers;
- Voluntary observing system (sightening) by people from Border Police, PETROMAR Company, Fishing Company FLAMINGO, etc. based on Protocols for collaboration;
- Quarterly boat surveys (spring, summer, and autumn) with the NIMRD R/V "Steaua de Mare 1";
- Observations on dolphins during other research cruises organized by NIMRD;
- Data collection by the voluntary observers on board the coastal trawlers, ships and drilling platforms pertaining to PETROMAR Company, and Coast Guard ships.

For **aerial monitoring**, the observation and survey of the dolphin groups in the offshore waters were carried out by a helicopter, rented from PETROMAR Company Constantza.

Due to some technical reasons (helicopter supplying, high price/flying hour), the sector surveyed was comprised between broadside Tuzla and Portita, up to a distance of 35 Nm offshore.

RESULTS AND DISCUSSION

During **2001**, the survey for identification of the dolphins in the sea, and on the stranded dolphins on the Romanian beaches was carried out, but the fieldwork methodology was not standardized at international level.

During the sea surveys, carried out between May-October, 2001, 101 dolphins were registered, distributed in the two Romanian marine sectors (northern and southern) as follows:

- 87 individuals in northern area,
- 14 individuals in southern area.

The visits carried out on the Romanian beaches for registering the stranded dolphins resulted in a number of 11 carcasses (April to October), in the zone comprised between Vama-Veche and Chituc. The composition on species and the places of distribution was as follows:

- *Delphinus delphis* - 3 individuals: 33% in North and 67% in South of the littoral;

- *Tursiops truncatus* - 3 adult individuals, in the North of the littoral;

- *Phocoena phocoena* - 4 individuals (newborns and calves), equally distributed in the two zones;

- Unidentified (advanced decomposition) - 1individual, in the northern zone.

Beginning **2002**, the research was systematically and periodically carried out, using the same fieldwork agreed on international and regional level.

On the whole, the observations during April-September 2002 (when an adjusted surveyor network was used), in order to identify the occurrence of individuals or groups of dolphins **near the coast**, evinced 426 specimens registered between Vama-Veche (Southern Romanian littoral) and Chituc (Northern Romanian littoral), at a distance of 100-300 m from seashore and 30-60 m from the protection dams of the ports Midia and Constantza (Fig. 2, 3) (ANTON *et al.*,2001-2002a).

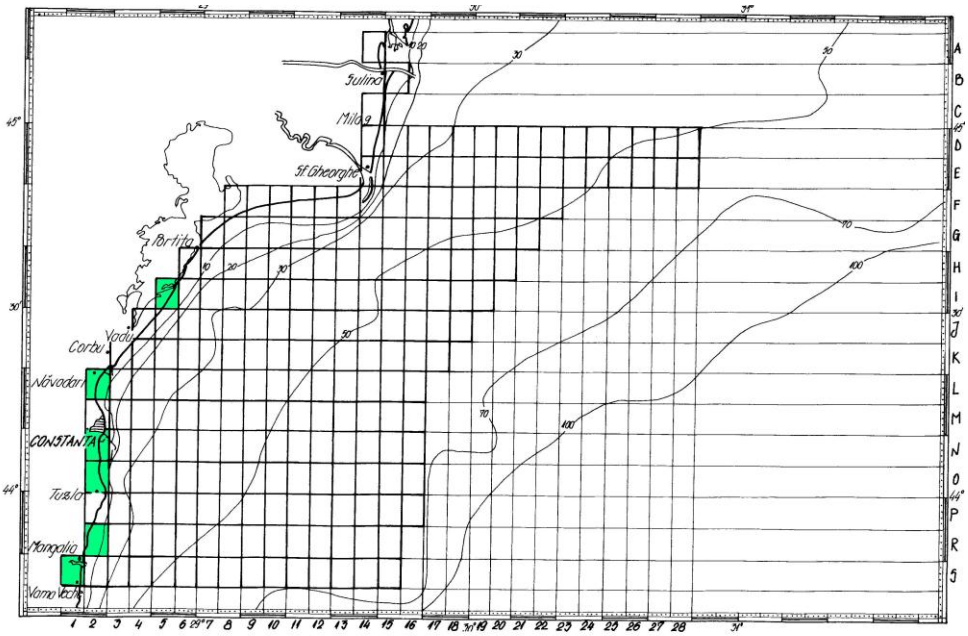

Fig. 2 –Dolphin distribution in the nearshore waters, during April-September 2002

As to the specific composition and distribution :

1. *D. delphis* - 27 individuals identified in the southern littoral (Constantza-Vama Veche) ;

2. *T. truncatus* - 14 individuals: 57% found in the northern sector (Constantza-Chituc), and 43% in the southern sector;

3. *Ph. phocoena* - 28 individuals were distributed in the two sectors as follows: 54% in the northern sector; 46% in southern sector.

4. 357 un-identified individuals (due to the long distance between them and observer), distributed as follows:

- 59% in the northern sector;
- 41% in the southern sector.

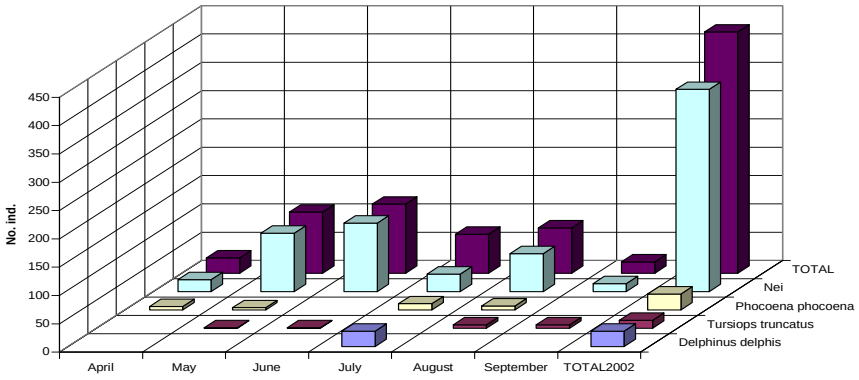

Fig. 3 – Frequency of dolphin occurrence in the nearshore waters

Therefore, the northern sector was the most visited by the three dolphins species of, in the reference period (Fig. 4).

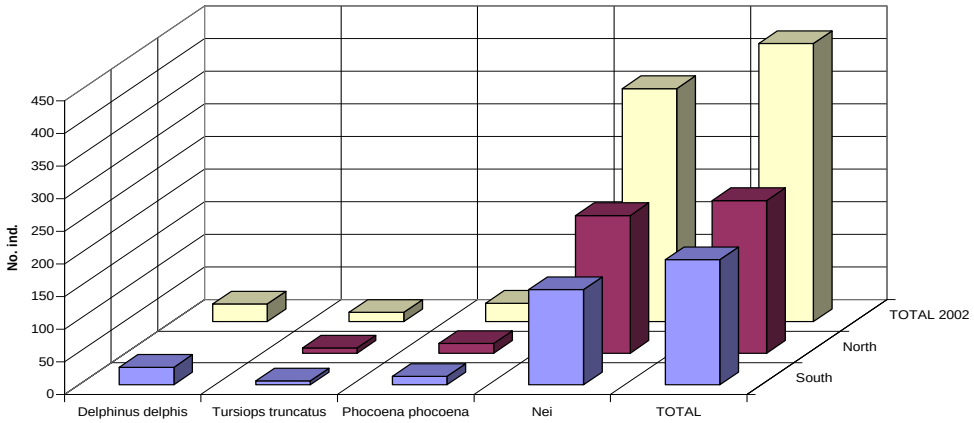

Fig. 4 – Spatial distribution of dolphins in the nearshore waters

The surveillance of the dolphins was carried out in good hydro-meteorological conditions, with calm sea and good visibility, the dolphins being observed on large areas and at a long distance from the seashore.

The dolphins occurring near the shores, prefer the areas with the fish agglomerations in searching food, and their migration routes, respectively, as demonstrated by the frequent occurrence of the vicinity of pound nets.

Also, the dolphins came closer to the protection dams of the ports Midia and Constanta, where small fish shoals, pertaining to species preferred for food (horse mackerel, grey mullet), are sheltered.

The analysis of **shipboard** data registered on dolphin's distribution (787 specimens) in the sea, we evinced that the northern sector of the Romanian littoral is representative, with a percentage of 76 for *T. truncatus*, 85 for *Ph. phocoena*, and 68 for *D. delphis*. As for the un-identified specimens, 19% were noticed in the northern, and 81% in the southern littoral (ANTON *et al.*, 2001-2002a). High frequency of dolphin occurrence in the northern and central part of the Romanian littoral could be explained through the large shoals of fish present here in searching food and for spawning (Fig. 5, 6, 7).

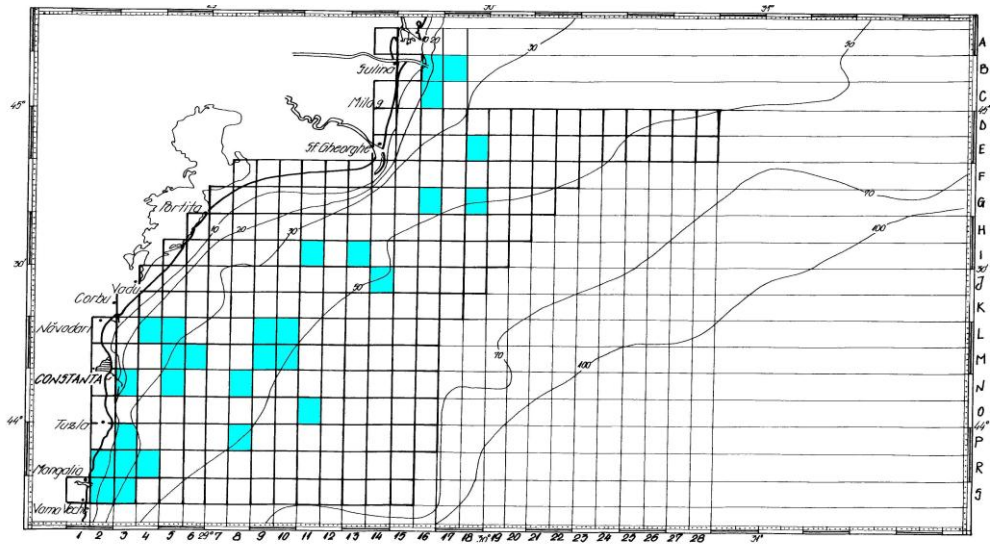

Fig. 5 – Distribution of the dolphin seasights between September 2001 – September 2002

The surveillance of the dolphins in the sea revealed that they prefer the clean waters, with plentiful and diversified food. Many times the dolphins quartered in areas with clean waters (8-10 m transparency, blue-coloured)

were found at the separation line between waters with different salinities (brackish/marine), where from they moved towards the seashore for food.

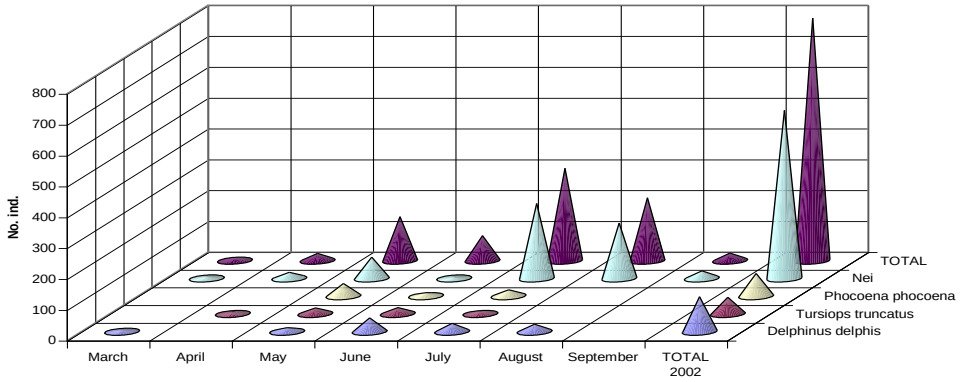

Fig. 6 - Frequency of monthly on board observations

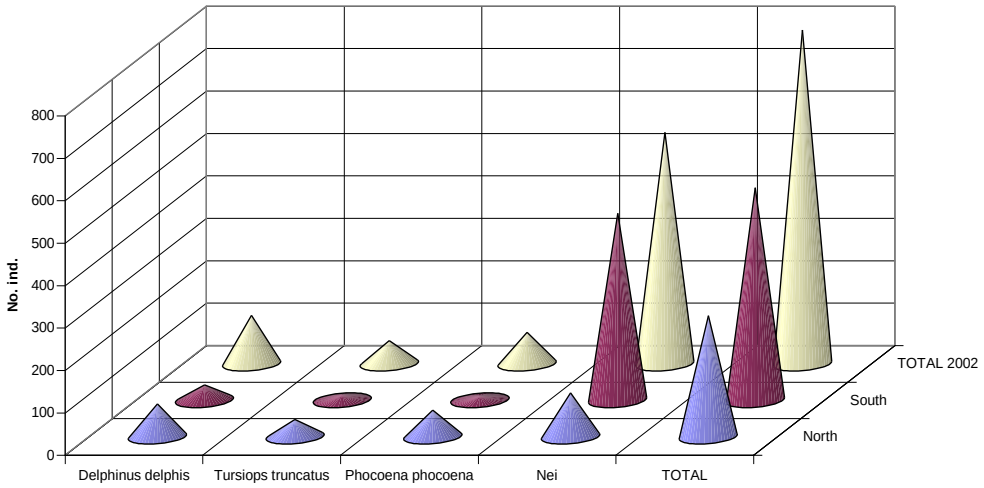

Fig. 7 - Spatial distribution of dolphins during shipboard surveys

During the **aerial monitoring**, by helicopter, 59 specimens pertaining to the three species were registered (Fig. 8). The composition on species was

as follows: 9 specimens *D. delphis*, 44 specimens *T. truncatus*, and 6 specimen *Ph. phocoena*.

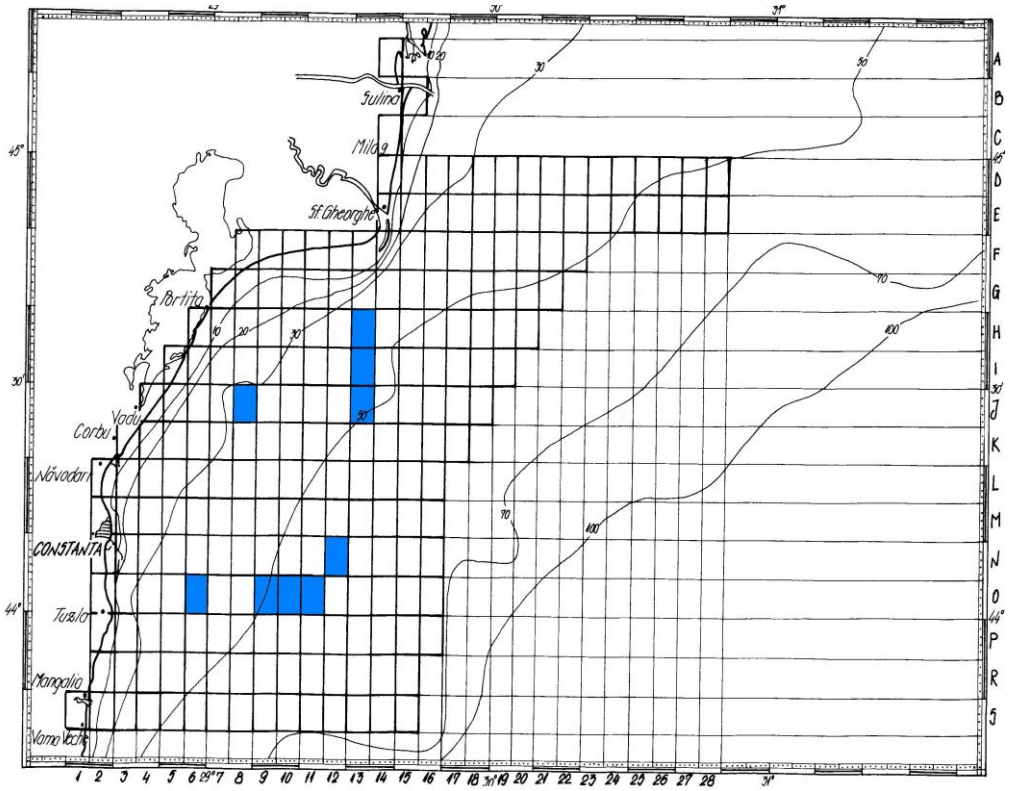

Fig. 8 - Distribution of aerial sightings

The distribution in the two sectors of the Romanian littoral was as follows (Fig.9):

- 18 specimens (31%) occurred in the extended northern sector (Constantza-Gura Portitei): 6 *D. delphis*, 10 *T. truncatus*, and 2 *Ph. phocoena*.
- 41 individuals (69%) in the southern zone: 3 *D. delphis*, 34 *T. truncatus*, and 4 *Ph. phocoena*.

Aerial survey seems to be the most efficient, due to the fact that a large area is covered, in a short time, but unfortunately it is very expensive.

The **incidental catches** were registered in April 2002, due to the fraudulent fishing carried out by Turkish trawlers in the Romanian Exclusive Economic Zone.

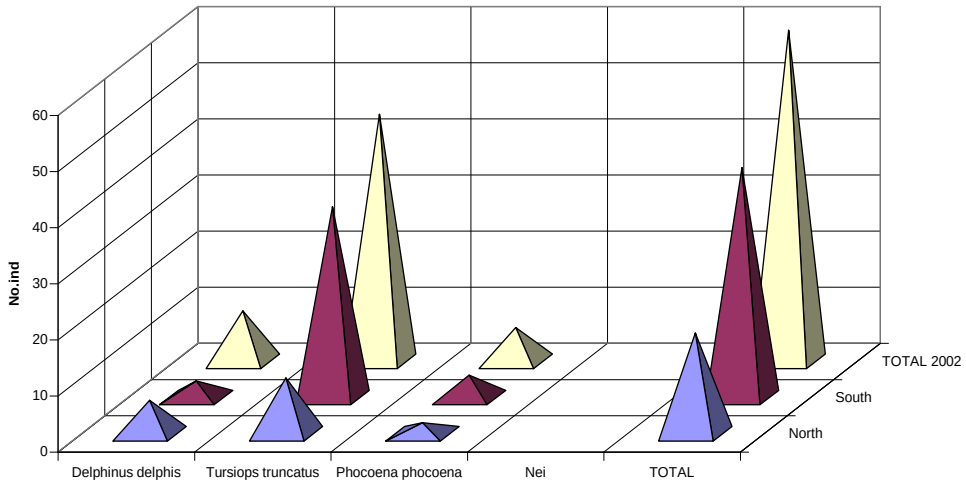

Fig. 9 - Spatial frequency of the aerial surveys

In the gill nets launched, found and recovered by the vessels of the Border Police and NIMRD, 20 specimens of dolphins pertaining to *Ph.phocoena* were registered. The total number of dead animals was about 100; being in advanced decomposition stage, they detached from the nets during the recovery operations. Remaining in the sea, they were moved by waves and currents, and were stranded on beaches (RADU *et al.*, 2003).

The structure on length classes of the analyzed specimens was:

- New-borns - 2 individuals (10%) - 1 male, 1 female;
- Calves - 11 individuals (55%) - 5 males, 6 females;
- Adults - 7 individuals (35%) - 1 male, 6 females.

The small-sized specimens, with lengths of 111-127 cm (new-borns and calves), were prevailing in catches.

According to field observation, the most dangerous fishing gears for dolphins are the gill nets and trammel nets for turbot, because they have more increased tearing charge; the entangled dolphins have no chance to escape, despite efforts to strive against them (ANTON *et al.*, 2001-2002b).

The highest number of the stranded dolphins on the Romanian beaches is the result of the incidentally catches resulted from the turbot fishing, practiced by the fishermen especially during the prohibition of fishing.

The survey performed for **monitoring of strandings** was finalized with the registration of 56 carcasses (March-September 2002), between Vama-Veche and Gura Portitei (Fig. 10).

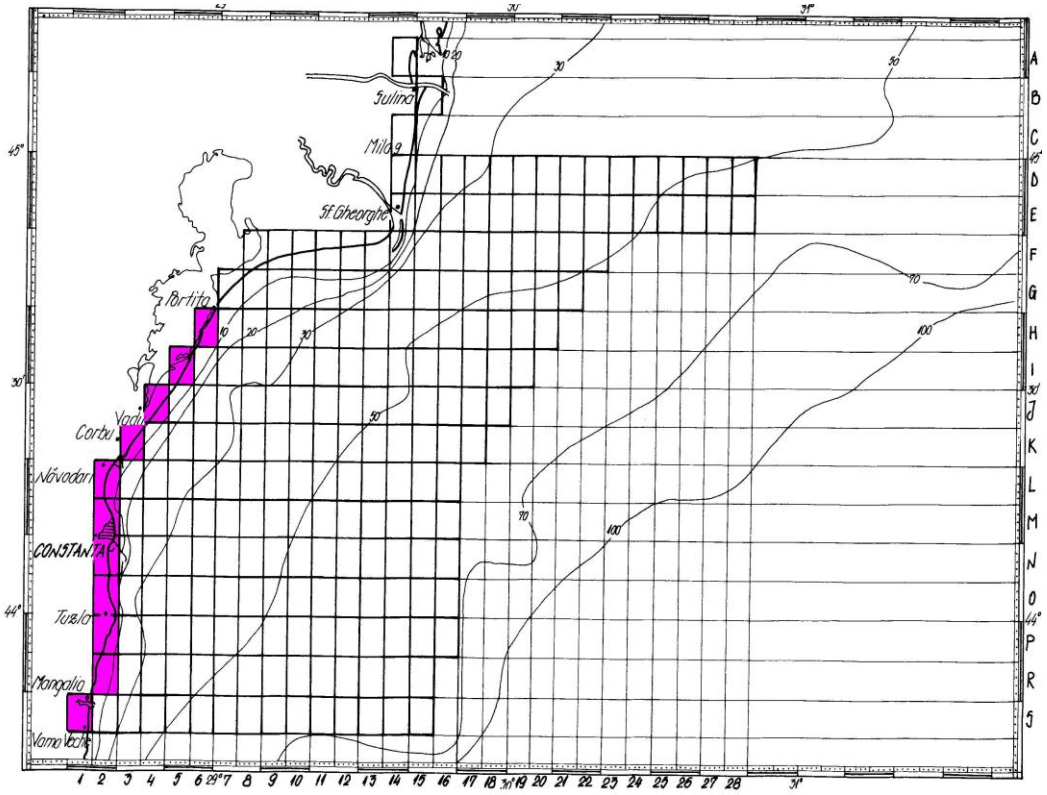

Fig. 10 - Distribution of the strandings on the Romanian beaches in 2002

The species composition, length-classes and distribution of the stranded animals were as follows (Fig. 11, 12):

- *D. delphis* - 2 carcasses, adult, 1 male, in the N and S of littoral;
- *T. truncatus* - 13 carcasses, calves and adults, 77% in N and 23% in S of littoral;
- *Ph. phocoena* - 20 carcasses, new-borns, calves, adults, 35% in N, 23% in S of littoral.
- Un-identified (advanced decomposition) - 21 carcasses, 48% in N, 52 in S of littoral.

CONCLUSIONS

Signing the Bucharest Convention, and ratifying the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area, Romania has agreed to undertake co-ordinate measures for achieving and maintaining an enhanced conservation status of the cetaceans from the Black Sea Romanian waters.

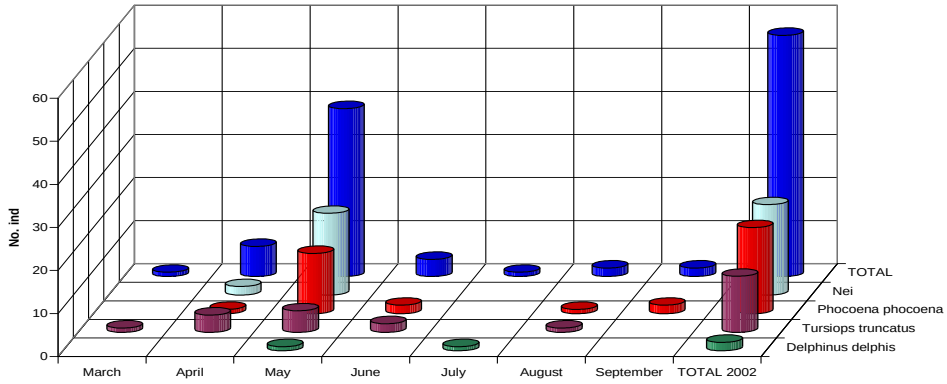

Fig. 11 - Frequency of strandings in 2002

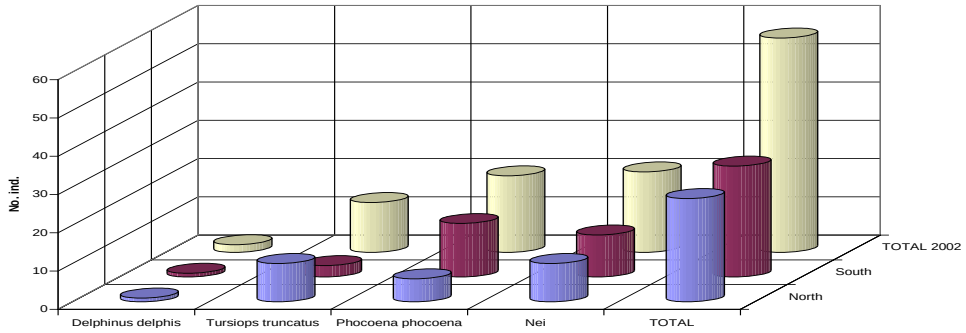

Fig. 12 - Spatial frequency of strandings in 2002

Present data show the results of actions developed within the project "Conservation of the dolphins from the Black Sea Romanian waters", co-financed by the European Community LIFE-NATURE Programme.

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