

Cetacean studies in Bulgarian waters of the Black sea in 2020, using vantage point surveys and opportunistic sightings



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Abstract

Observations were carried out from a vantage point on Cape Emine, between June and September 2020. The survey covers 28 field days and 224 hours. All of the three species, occurring in the Black sea, were observed: 812 animals in 385 sightings. The highest number of individuals recorded, was in June: 351 animals in 140 sightings. High rates were also observed in July and August. On 29-30.07 and 14.08.2020, observations were carried out, in the waters north and south of the town of Tsarevo, using platforms of opportunity. The sightings data were collected onboard a small fishing vessel. The highest number of individuals observed, was on 30.07.2020: dozens of Black sea short-beaked common dolphins (*Delphinus delphis ponticus*) and Black sea bottlenose dolphins (*Tursiops truncatus ponticus*). Observations and recordings, on the feeding and social behaviour of the cetaceans, were conducted. More than 3,000 high-resolution photographs were obtained, which are suitable for photo-identification of specific individuals. Data and photographs of cetaceans (with exact coordinates) were also collected, onboard a military vessel. Confirming the results of previous studies, the survey indicates, that Cape Emine is the most suitable observation point for all three cetacean species in the Bulgarian Black Sea. Platforms of opportunity are a reliable method of gathering information on the distribution and behavior of cetaceans, whether or not a marine mammal expert is on board.

Introduction

A suitable solution for the study of cetaceans in coastal waters are the vantage point surveys. The conducted field studies in Bulgaria, based on this method, are scarce and are focused mainly on the registration of the presence of the target species. Like the vantage point surveys, the method, using opportunistic platforms, has only recently been present in marine mammal research in Bulgarian waters and its application is still insufficient. The conducted observations aim to obtain valuable and original data on the distribution, ecology and behavior of cetaceans in selected areas in the Bulgarian Black Sea.

Methodology

1) Vantage point survey: observations were carried out from a vantage point on Cape Emine (Fig.1),

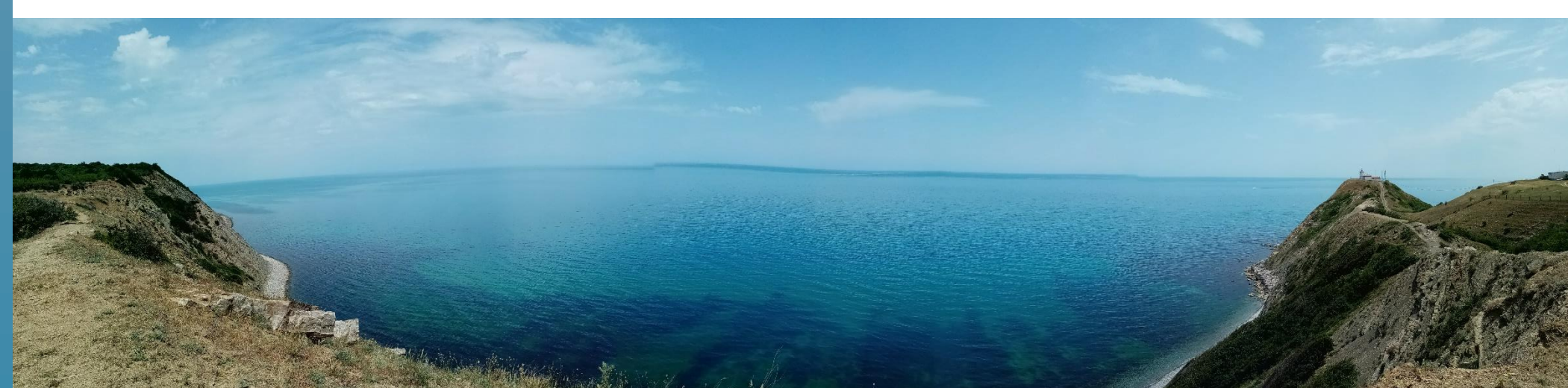


Figure 1. Cape Emine

Every field day, eight-hour observations were conducted (08:00h. – 16:00h.) using optical devices (“Konus Tornado” 7x50 Binocular and “Bresser” 20-60x60 Spotting scope), with wave height up to 0,5-1m. and visibility over 1000m.

2) Platforms of opportunity: observations were carried out, in the waters north and south of the town of Tsarevo (and to the north, from Kavarna to Shabla, along the coast). The sightings data were collected onboard small fishing vessels (Fig.2).



Figure 2. Conducting observations from fishing vessel “PRIYATEL” (Tsarevo, Bulgaria)

Observations and recordings, on the feeding and social behaviour of the cetaceans, were conducted.

Results and discussion

Between June and September 2020, observations were carried out from a vantage point on Cape Emine. The survey covers 28 field days and 224 hours. All of the three species, occurring in the Black sea, were observed: 812 animals in 385 sightings (Fig.3). Almost 60% of all registrations are between 08:00 and 11:00 and no more than 600m. from the shore.

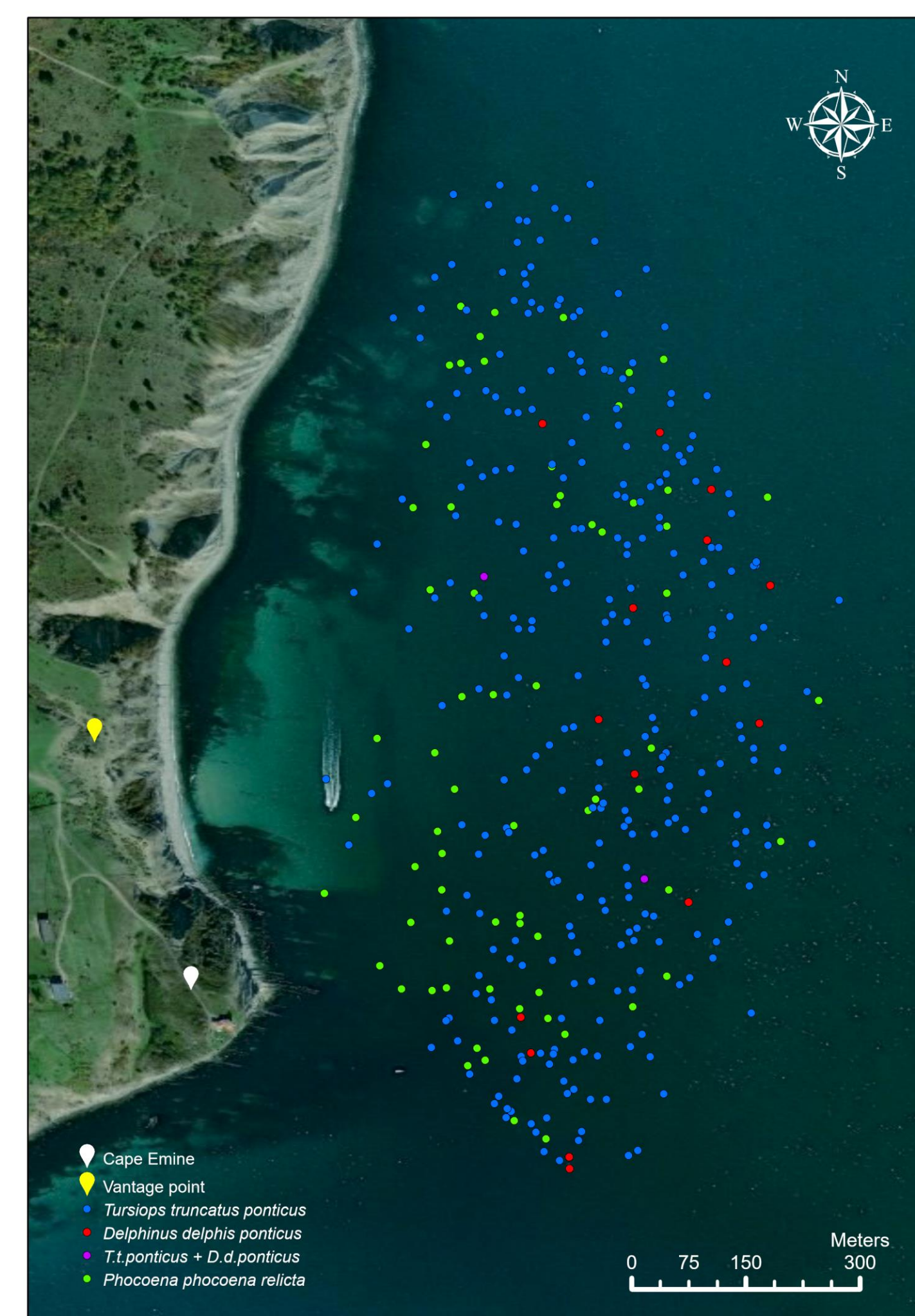


Figure 3. Cetacean sightings (Cape Emine, June-September, 2020)

Among the observed cetaceans, single animals, pairs and groups of three individuals are the most common, but groups of up to 10 individuals have also been registered. The number of registrations of feeding animals, for the entire observation period, is 93, which is over 24% of all registrations. Two clearly defined areas, used by cetaceans for feeding, have been identified (Fig.4).



Figure 4. Feeding hotspots

The highest number of individuals recorded, was in June: 351 animals in 140 sightings. High rates were also observed in July and August (Fig.5). As the summer progresses, there is a slight increase in the number of registrations of the Black Sea harbour porpoise (*Phocoena phocoena relicta*), which may be due to the declining presence of the other two species (Fig.5).

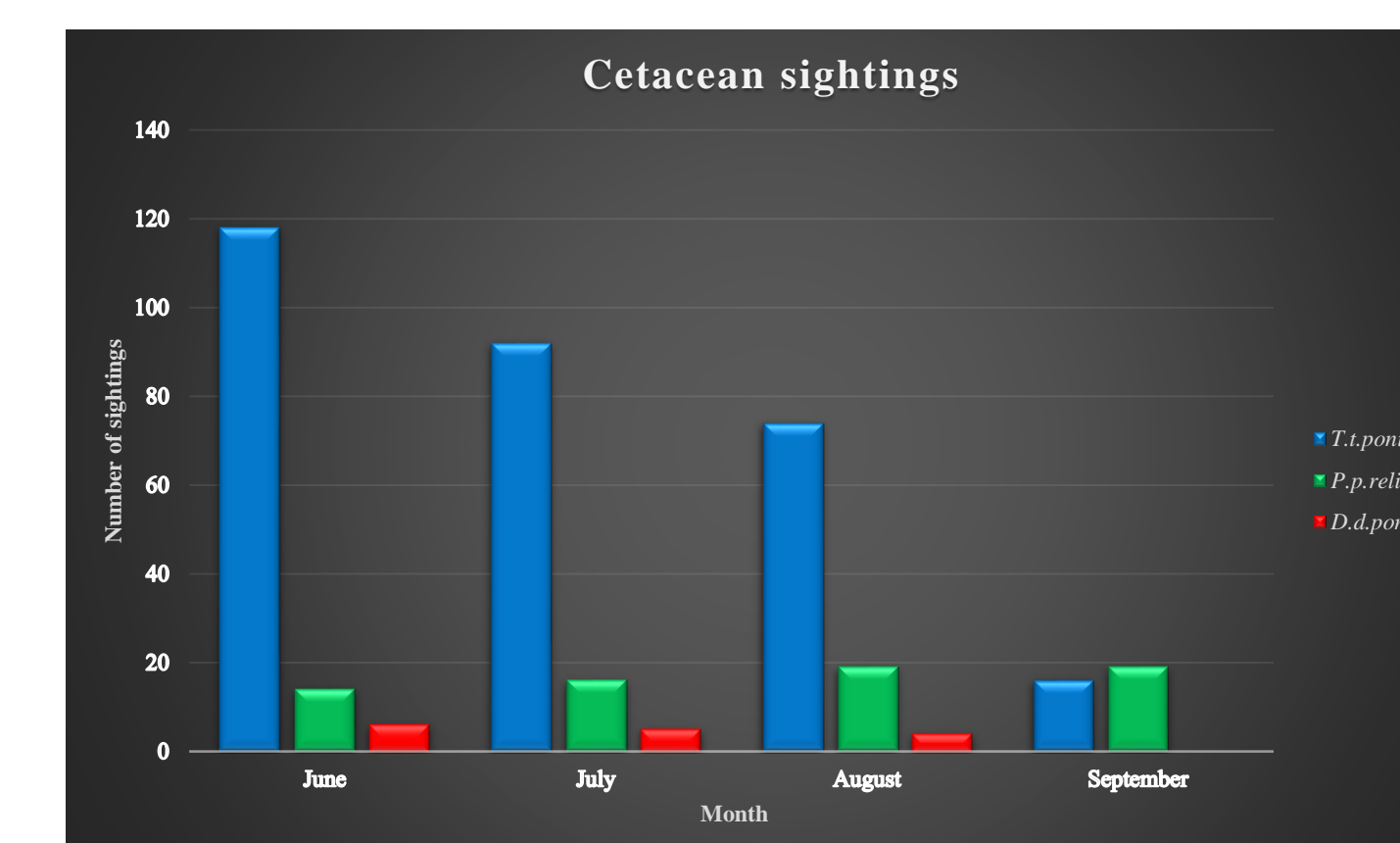


Figure 5. Sightings per month for each species

On 29-30.07 and 14.08.2020, observations were carried out, in the waters north and south of the town of Tsarevo, onboard a small fishing vessel (Fig.6). On 29.07.2020, several harbor porpoises have been observed. The highest number of individuals observed, was on 30.07.2020, 12-13km. to the east of Tsarevo: dozens of Black sea short-beaked common dolphins (*Delphinus delphis ponticus*) and Black sea bottlenose dolphins (*Tursiops truncatus ponticus*). Observations and recordings, on the feeding and social behaviour of the cetaceans, were conducted. It has been observed, that the two species of cetaceans, in large, mixed groups (not only in terms of species but also in terms of age), follow, at some distance, a fishing vessel (trawler) and feed on the stunned fish, that have passed through the net. Subsequently, they approach the ship itself, where the feeding continues (Fig.6). Another recorded behavior, during the observations, is the so-called bow-riding: the swimming on the pressure wave, created in front of

the ship (Fig.6).

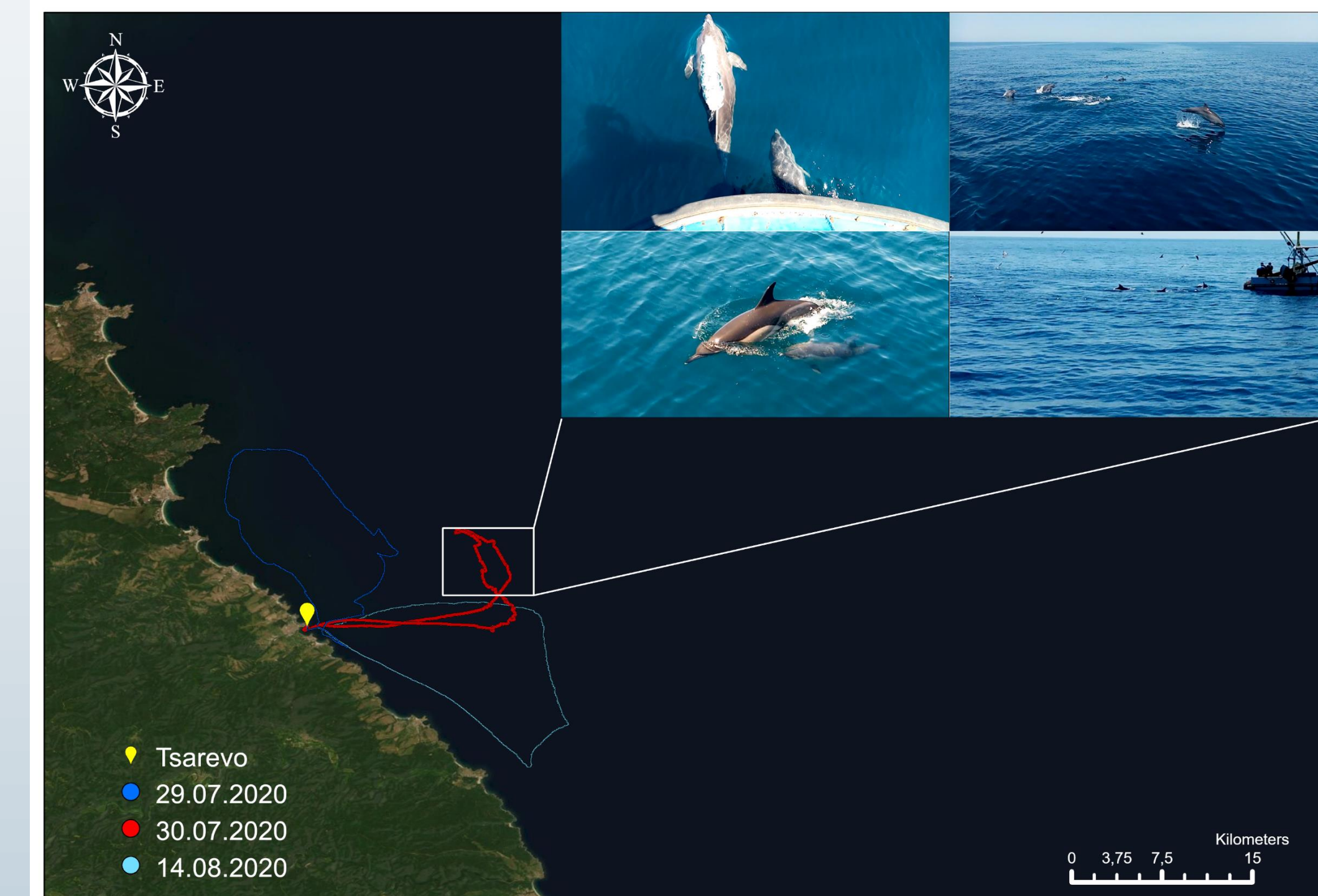


Figure 6. Conducted observations and opportunistic sightings (29.07.2020 – from Tsarevo to Primorsko; 30.07.2020 – ENE of Tsarevo; 14.08.2020- from Tsarevo to Sinemorets)

During the observations made on 07.10.2020 (north of the town of Kavarna), about 20 dolphins (*T.t.ponticus* and *D.d.ponticus*) were spotted feeding in the immediate vicinity of the boat.

More than 3,000 high-resolution photographs were obtained, which are suitable for photo-identification of specific individuals (Fig.7).



Figure 7. Dolphin photo-identification traditionally relies on the dorsal fin

Data and photographs of cetaceans (with exact coordinates) were also collected, onboard a military vessel.

Conclusion

Confirming the results of previous studies, the survey indicates, that Cape Emine is the most suitable observation point for all three cetacean species in the Bulgarian Black Sea. Applied for a longer period of time, vantage point surveys can be used to collect data on circadian and seasonal activity, seasonal dynamics of the number of cetaceans, the impact of various factors on the activity and behavior of cetaceans in specific areas. Platforms of opportunity are a reliable method of gathering information on the distribution and behavior of cetaceans, whether or not a marine mammal expert is on board.

Acknowledgements

We like to thank The Bulgarian National Science Fund (BNSF) for providing financial support.