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WINTER DISTRIBUTION OF CETACEANS IN THE BLACK SEA AND ADJOINING AREAS IN 2012/2013

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We report the results of vessel and coastal observations conducted from December 2012 to February 2013 in the Black Sea and adjoining areas. Common dolphins formed a single stock in open sea, which was distributed as groups up to 15 animals in each. Harbour porpoises formed small groups in some coastal areas and also were recorded in open sea. Bottlenose dolphins were dispersed as small groups near the Crimean coast. Such a distribution of bottlenose dolphins is an argument for existence of their resident coastal stocks in the northern Black Sea.

Keywords: cetaceans, Black Sea, distribution, seasonality, stock identity, resident group.

INTRODUCTION

Three cetacean species inhabit the Black Sea: common dolphin (*Delphinus delphis* Linnaeus, 1758), harbor porpoise (*Phocoena phocoena* (Linnaeus, 1758)) and bottlenose dolphin (*Tursiops truncatus* (Montagu, 1821)). Winter distribution of the Black Sea cetaceans is the least studied in comparison with other seasons. Aerial and vessel surveys have been conducted in the Black Sea since 1930s [1], and a lot of data were obtained on the cetacean distribution across the Black Sea and its dynamics during the warm season [2–10]. However, few studies focused on winter distribution of cetaceans [11–13], and recent winter research covered local or coastal areas [14–21].

Here we report the results of survey conducted during the winter of 2012/13, which covered a large area in the Black Sea, including its central part, coastal waters of Crimea and Anatolia, Kerch Strait and Bosphorus, some parts of Azov and Marmara Seas.

MATERIALS AND METHODS

Data were collected from vessel and coastal observations from December 2012 to February 2013. The platform for vessel observations was *Volga* motorship (IMO Number 8847260) regularly cruising from Taganrog (Azov Sea, Russia) to ports of the Marmara Sea (Fig. 1). Vessel observations were conducted from December 1, 2012, to February 4, 2013. The observation platform was 8 m high with circular view. Visual observations with 10x binoculars were regularly conducted during the daylight time; occasional sightings were recorded when species could be accurately identified under a ship light. During observations, time was recorded as UTC; location was identified using *FURUNO* GPS

device. Weather conditions were recorded: Beaufort wind force, wind direction estimated in points of the compass, sea state, visibility according to the IMO tables, sea temperature. Observations were conducted at the Beaufort wind force less than 4 points, visibility at least 2 n.m., with no precipitation. The most of sightings were recorded at the distance of less than 1 n.m.

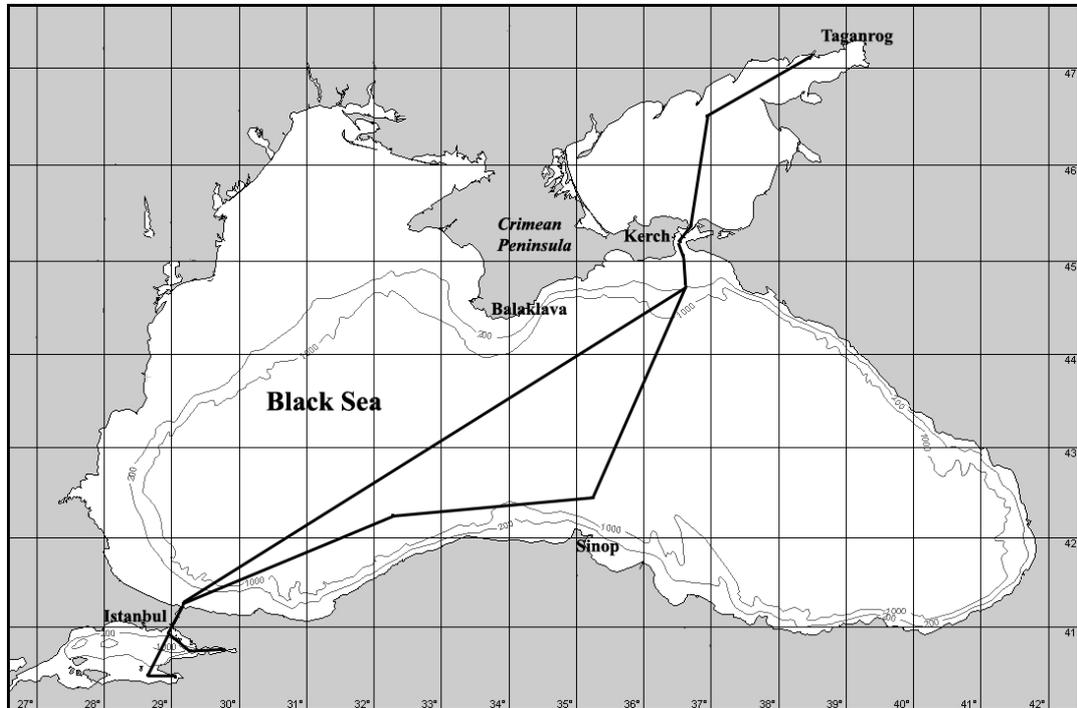


Fig. 1. *Volga* vessel routes during 2012/2013 observations.

Coastal observations were conducted in January and February 2013 in Balaklava. The observation platform was at the east entrance to the Balaklava Bay, 21 m high; 10x binoculars were used. Also coastal observations combined with monitoring of strandings were conducted in Sevastopol, Kacha, near Nikolaevka and Novofyodorovka and near Morskoye (Crimea, Ukraine). Weather conditions were recorded; observations were conducted at the Beaufort wind force less than 3 points, visibility at least 1.5 n.m., with no precipitation.

Species, minimum group size and aspects of behaviour were recorded during vessel and coastal observations. Species, sex, body length and stomach contents were identified for stranded specimens.

RESULTS AND DISCUSSION

All three cetacean species were recorded: the map is presented at the Fig. 2.

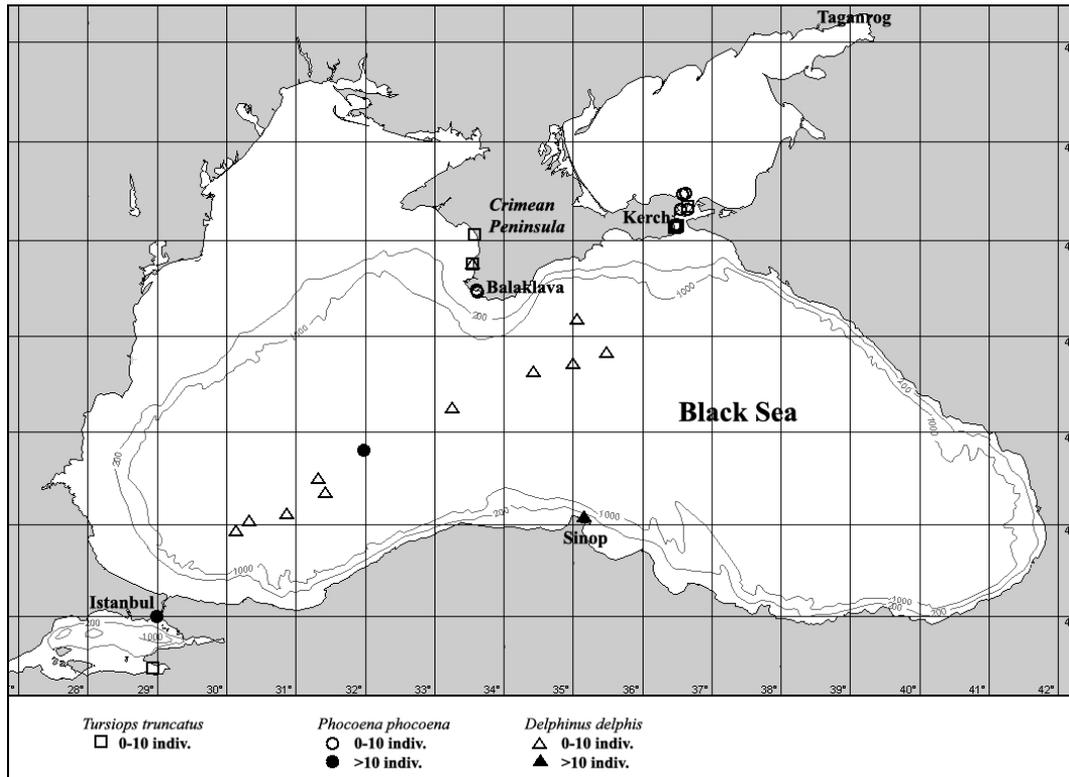


Fig. 2. Cetacean records in December 2012 – February 2013.

26 cetacean groups were recorded: of them, 11 (42%) were common dolphins, 10 (39%) were harbour porpoises and 5 (19%) were bottlenose dolphins. Minimum total number of observed specimens was 126; of them, 63 (50%) were common dolphins, 56 (44%) were harbour porpoises and 8 (6%) were bottlenose dolphins.

Common dolphins were recorded in the Black Sea throughout the vessel route in the open sea. Group size varied from 5 to 15 specimens. Also a single animal was recorded, which followed the vessel for a long time. Mean group size was 5.7 animals as a minimum estimate. However, in many cases, the groups gradually changed one another near the vessel, so the group estimates and identifications of groups themselves were hindered. As a result, the minimum counts reported here were likely to be underestimated, and true abundance of common dolphins could be substantially higher. 91% of groups were recorded in areas where depths exceeded 1,000 m but a group of 10 to 15 dolphins at 6–8 miles from Sinop (100 m deep area). Common dolphins often demonstrated play behavior: they were riding on waves, lifting themselves out of the water and following the vessel for a long time.

In addition, small groups were observed in January 2013 in coastal waters near Balaklava in south-west Crimea, in the area between the capes of Fiolent and Aya (Yu. Musienko, pers. comm.).

A carcass of a stranded calf (age estimated as 0.5 years) was found on February 10, 2013, south to Kacha at the Kalamita Gulf coast in west Crimea.

Harbour porpoises were recorded as dense groups of 2 to 15 specimens. Mean group size was 5.6 (minimum estimate). The most of registrations were in coastal waters. However, a group of 10 to 15 porpoises was recorded in open sea (Fig. 2). Another group of the same size was recorded south to Bosphorus. Smaller groups were recorded in the Kerch Strait and near Balaklava. The northernmost sightings were north to Chroni Cape (the Sea of Azov) on December 1 and December 29, 2012. In middle and south parts of the Kerch Strait, porpoises were recorded in all winter months. Also groups of porpoises were observed in January 2013 in coastal waters near Balaklava.

Bottlenose dolphins were rarely recorded. Most animals were observed in the Kerch Strait; also a single dolphin was observed in Gemlik Bay in the Marmara Sea. In total, 8 dolphins were seen in 5 groups (mean group size was 0.6). Also small groups were observed in January and February 2013 in coastal waters near Balaklava (Yu. Musienko, pers. comm.).

Strandings of bottlenose dolphins were recorded from the west Crimean coast. A young animal was found on January 2, 2013, near Novofyodorovka. Another young dolphin was found on February 10, 2013, near Kacha.

Thus, common dolphins dominated in open sea across the Black Sea. Harbour porpoises formed aggregations in coastal waters of Kerch Strait and Bosphorus and also occurred in open sea. Bottlenose dolphins mainly occurred in coastal waters of Crimea and were rarely seen.

Data on winter cetacean distribution reported here generally concur with those obtained decades ago. Tarasevich [11] considered common dolphins to be evenly distributed at all open sea area in winter. Yakushev [12] reported small groups of all three species in coastal waters of Crimea and Caucasus. Results of the aerial survey conducted in November 1984 in the north-east and east Black Sea were very similar to those reported here: common dolphins dominated in open sea, while all three species occurred in coastal waters, and harbour porpoises concentrated in three coastal areas (south to the Kerch Strait, near Sochi and near Adjara coast) [13, 8, 10]. Surprisingly, large aggregations of bottlenose dolphins were not observed during our study. A possible explanation is that bottlenose dolphins could mainly concentrate in coastal waters of Crimea and north Caucasus other than the study areas, near Yalta, Novorossiysk or Sochi. Also bottlenose dolphins possibly did not aggregate in large groups due to extremely warm winter that resulted in dispersion of distribution of prey fish species. In contrast to common dolphins and harbour porpoises, no migrating groups of bottlenose dolphins were observed. It concurs with other recent observations in coastal waters of Crimea and Caucasus [15–21]: all-year-round presence of bottlenose dolphins near south Crimean and north Caucasian Black Sea coast suggests the existence of small inshore resident stocks locally moving in winter, the hypothesis stated by Bel'kovich [22]. Summarizing all available data, the following wintering areas of bottlenose dolphins are tentatively identified in the northern Black Sea: Kalamita Gulf, waters of south Crimea, waters of south-east Crimea, Kerch Strait and adjoining waters, waters of Novorossiysk coast, waters of Sochi.

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CONCLUSIONS

1. During the 2012/13 winter season, common dolphins dominated in open sea; they formed a single stock, which was distributed as groups up to 15 animals in each.
2. Harbour porpoises formed small groups in some coastal areas and also were recorded in open sea. Within the studied area, they tended to the Kerch Strait, Bosphorus and Balaklava.
3. Bottlenose dolphins did not form large wintering aggregations and dispersed as small groups near the Crimean coast. Such a distribution indirectly supports the hypothesis of coastal resident stocks in northern Black Sea. Based on previous studies and reports, we tentatively identify the following wintering areas of bottlenose dolphins in the northern Black Sea: Kalamita Gulf, waters of south Crimea, waters of south-east Crimea, Kerch Strait and adjoining waters, waters of Novorossiysk coast, waters of Sochi.

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Гладилина Е.В. Зимнее распределение китообразных в Черном море и окружающих водах в 2012/2013 годах / Е.В. Гладилина, Ю.Н. Ляшенко, П.Е. Гольдин // Ученые записки Таврического национального университета им. В.И. Вернадского. Серия «Биология, химия». – 2013. – Т. 26 (65), № 1. – С.37-42.

Представлены результаты судовых и береговых наблюдений в зимний период с декабря 2012 по февраль 2013 года в водах Черного моря и прилегающих акваторий. Для обыкновенного дельфина (белобочки) характерно наличие в открытом море единого скопления, распределенного в виде групп до 15 особей. Морские свиньи в зимнее время держатся небольшими группами в отдельных участках акватории в прибрежных районах, а также встречаются в открытом море. Афалины рассредоточены малыми группами вблизи крымского побережья. Такой характер распределения афалин свидетельствует в пользу гипотезы об оседлости их прибрежных стад в северной части Черного моря.

Ключевые слова: китообразные, Черное море, распределение, сезонность, популяция, оседлость.

Гладіліна О.В. Зимовий розподіл китоподібних у Чорному морі та прилеглих водах в 2012/2013 році / О.В. Гладіліна, Ю.М. Ляшенко, П.Є. Гольдін // Вчені записки Таврійського національного університету ім. В.І. Вернадського. Серія „Біологія, хімія”. – 2013. – Т. 26 (65), № 1. – С. 37-42.

Надано результати судових і берегових спостережень у зимовий період з грудня 2012 по лютий 2013 року в водах Чорного моря та прилеглих акваторіях. Звичайні дельфіни (білобочки) трапляються у відкритому морі як єдине скупчення, розподілене у вигляді груп до 15 особин. Морські свині в зимовий час тримаються невеликими групами в окремих ділянках акваторії в прибережних районах, а також зустрічаються у відкритому морі. Афаліни розосереджені малими групами поблизу кримського узбережжя. Такий характер розподілу афалін свідчить на користь гіпотези щодо осілости їх прибережних стад в північній частині Чорного моря.

Ключові слова: китоподібні, Чорне море, розподіл, сезонність, популяція, осілость.

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