

Mass winter movements of Yelkouan Shearwaters (*Puffinus yelkouan*) along the Bulgarian Black Sea coast

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Abstract. Large flocks of Yelkouan Shearwaters (*Puffinus yelkouan* Acerbi, 1827) were reported to migrate along the northern Bulgarian Black Sea coast in the winter. On 06.02.2021, a total of 15,488 Yelkouan Shearwaters were counted for one hour after midday at Dobrudzha campsite, Shabla. During February 2021 and 2022, some smaller flocks were also observed. In the past, such big concentrations of Yelkouan Shearwaters in the Black Sea have been reported only during the spring, summer and rarely autumn. The possible explanations for such a winter influx of the species are discussed.

Key words: Yelkouan Shearwater, winter migration, Black Sea

Introduction

The Yelkouan Shearwater (*Puffinus yelkouan* Acerbi, 1827) is a widespread breeding bird species in the Mediterranean basin. Its breeding colonies are situated mostly on islands from France in the west to Turkey in the east (Keller *et al.* 2020). The species has bred in the 20th century also in the Black Sea, including along the Bulgarian coast (Paspaleva - Antonova 1965, Iankov *et al.* 2007). Over the last 30 years, the species has been a regular and sometimes numerous spring and summer visitor in the Black Sea following the fish schools (Nankinov 2001, Nikolov *et al.* 2006). Between April and August 2003, its flocks reached 12,000 ind. (Iankov *et al.* 2007, Nikolov *et al.* 2006). During the 1970s, flocks of up to 13,500 ind. and even 20,000 were recorded in the spring or summer (Simeonov *et al.* 1990, Nankinov 2001). During the period 14–20.07.1971, a total of 37,000 Yelkouan Shearwaters were counted at Cape Kaliakra, NE Bulgaria (Robel 1974).

In the winter, this species has always been much less abundant in the Black Sea, represented by small groups of 5–10 ind., mostly in the NE and E parts of the sea, although in some cases hundreds have been seen – for instance on 14.02.1974 at the Turkish coast of Black Sea between Trabzon and Tirebolu (Nankinov 2001).

The present article is focused on the recent mass influx of Yelkouan Shearwaters in the Black Sea during the winter season. The reasons for this shift in the normal yearly dynamics of the species' movements are discussed.

Materials and Methods

The study was made in three expeditions along the Northern Black Sea coast of Bulgaria between Durankulak (Cosmos campsite) and Cape Kaliakra. Two four-day expeditions were organized in February 2021 and one in 2022. The Yelkouan Shearwaters were spotted and counted from the shore at a distance of approximately 150–700 m. Two Nikon field scopes with 20–60x magnification were used. The direction and distance from the shore were recorded for each observation of the species.

Results

On 06.02.2021, a large flock of Yelkouan Shearwaters (*Puffinus yelkouan*) was observed migrating to the south in the Black Sea at Dobrudzha campsite, Shabla, at coordinates (on the shore) N 43°33'59.98 E 28°35'17.10 (UTM square PJ22). The birds were flying at a distance of 500–600 m offshore, very low above the sea surface, in a succession of flocks consisting of 100 up to 2000 individuals. Between 12:40 and 1:40 p.m. a total of 15,488 Yelkouan Shearwaters were counted. Probably the migration continued after our departure.

On the following day, 07.02.2021, 97 Yelkouan Shearwaters were seen flying to the north offshore between Kamen bryag village and Rusalka resort, at coordinates N 43°25'37.52" E 28°31'54.49" (UTM square PJ20).

On 21.02.2021, another flock consisting of 2550 Yelkouan Shearwaters was seen offshore at Ezerets Lake at coordinates – N43°35'29.93" E28°34'16.11 (UTM PJ22). The flock passed for 10 min. between 9:30 and 9:40 a.m. The birds were flying at 600-700 m offshore in the southern direction.

Migrating Yelkouan Shearwaters were observed also during the following winter – 180 ind. were seen on 05.02.2022, at 9:20–9:40 a.m., at Cape Shabla (coordinates N 43°32'22.66" E 28°36'28.68, UTM square PJ22) hunting fish close to the shore (<200 m). Some of these birds were flying in the northern direction. On the same day, a small flock of 19 ind. was observed flying offshore to the north at Dobrudzha campsite, Shabla.

Discussion

Winter concentrations of thousands of Yelkouan Shearwaters have not been reported in the published sources about the Black Sea until now. Flocks of over 400 Yelkouan Shearwaters have been recorded in the southern parts of the Black Sea during the non-breeding period, including a flock of 432 ind. at Rezovo, southern Bulgarian Black Sea coast (Perez-Ortega & Isfendiyaroglu 2017). Usually, such flocks of thousands of these birds enter the Black Sea during the spring and summer, rarely in autumn (Nankinov 2001, Nikolov *et al.* 2006, Bourgeois & Vidal 2008). Large concentrations of Yelkouan Shearwaters were reported online (see the ebird.org database) only in the winter of 2020/2021. The largest flock was seen at Foros Cape close to Burgas on 06.01.2021 – 6000 ind. (ebird.org – Ivaylo Dimchev). A flock of 60 ind. was recorded on 26.12.2021 offshore at Shabla Tuzla Lake (ebird.org – Dimitar Georgiev). Another concentration of 300 ind. was seen on 03.02.2021 at Cape Kaliakra (ebird.org - Dimitar Dimitrov). These examples consist of birds from the same winter influx discussed here. Normally, the concentrations of Yelkouan Shearwaters following the schools of anchovies (*Engraulis encrasicolus* Linnaeus, 1758) along the eastern shores of Crimea are seen between October and December (Cramp & Simmons eds. 1977). Bigger flocks during winter occur in different parts of Mediterranean Sea – at Sicily – up to 3000 ind., to the north of Corsica – up to 3000 ind., along the Tunisian coast – up to 1100 ind., along the coast of Israel – up to 1000 ind. (Bourgeois & Vidal 2008). As already mentioned, the concentrations reported in the Black Sea during the winter rarely reach a few hundred birds (Nankinov 2001).

In the past, the anchovy fish schools used to overwinter in the northeastern or southeastern parts of the Black Sea (Nankinov 2001; Guraslan et al. 2017; Gücü et al. 2017). Probably because of some changes in food abundance and as a consequence of the global climatic changes, the scheme of the pelagic fish movements has recently altered (Guraslan et al. 2017). Furthermore, the anchovy stocks in the Black Sea have recently increased and part of them started to spend the winter in the northern parts of the sea, south of Crimea (Gücü et al. 2017). Bulgarian waters also present optimal habitats for Yelkouan Shearwaters both during the breeding period and out of it (Perez-Ortega & Isfendiyaroglu 2017). In our opinion, these changes (possibly also affecting some other fish species) can create new feeding conditions for the Yelkouan Shearwaters. This could be one possible explanation of their mass influx in the Black Sea even during the winter.

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