



Observation of a Large Aggregation of Common Eagle Ray *Myliobatis aquila* (Myliobatidae) Around a Sea-Cage Farm in Gerence Bay, Aegean Coast of Türkiye

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Research Article

Citation: Akyol, O., Takıcak, O., Tarun, H. (2026). Observation of a Large Aggregation of Common Eagle Ray *Myliobatis aquila* (Myliobatidae) Around a Sea-Cage Farm in Gerence Bay, Aegean Coast of Türkiye. *Tethys Env. Sci.* 3(1): 49-53.

DOI: 10.71350/tethysjournal.5

Received: 17 May 2026

Accepted: 25 June 2026

Available Online: 28 June 2026

Publication Date: 29 June 2026

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Abstract

The common eagle ray, *Myliobatis aquila*, is classified as Critically Endangered on a global scale and Vulnerable in Europe and the Mediterranean by the IUCN Red List. On 09 May 2026, more than a hundred specimens of common eagle rays, *Myliobatis aquila*, around a sea-cage fish farm in Gerence Bay, İzmir, Aegean Sea, were observed and photographed. Like many predatory fish, *M. aquila* could also be visiting these sea-cage fish farms to find easy food, hiding, seeking a nursery area, or due to the FAD effect. Schools of *M. aquila* swim for a while in the cold-water current that emerged in this study. *M. aquila* species is still present in the area but needs a conservation plan due to its K-selected life histories and potential for extinction.

Keywords: *Myliobatis aquila*, behaviour, sea-cage farm, cold water current, Aegean Sea.

Introduction

The common eagle ray, *Myliobatis aquila* (Linnaeus, 1758), is an active mid-water swimmer that descends to the bottom (Golani et al., 2006). It feeds on crustaceans and mollusks and often causes damage to clam and oyster farms (Golani et al., 2006). The maximum length of *M. aquila* is 183 cm DW (disc width of a male), and the maximum published weight is 14.5 kg (Froese and Pauly, 2026). The common eagle ray, *M. aquila*, is classified as Critically Endangered (CR) on a global scale by

the IUCN Red List. Nonetheless, its regional conservation status varies, being listed as Critically Endangered (CR) globally, but as Vulnerable (VU) in Europe and the Mediterranean (Jabado et al., 2021). Therefore, it is important to give any information on the occurrence and distribution of this species in regional and global scale.

M. aquila is found in the eastern Atlantic, including the Mediterranean Sea, to Kenya in the Western Indian Ocean. (Jabado et al., 2021). In the Mediterranean Sea, *M. aquila* occurs occasionally in the central Mediterranean Sea and in the Adriatic Sea; however, rare in the western and eastern Mediterranean Sea (CIESM, 2026).

The current population trend is decreasing, and according to the data, the eagle ray population has decreased by more than 80% in the last three generations (36 years) (Jabado et al., 2021). An experimental trawl survey in Izmir Bay (Turkish Aegean Sea) revealed that this species was one of the more prevalent non-commercial species, representing up to 5.9% of total catch weight during the summer months (Gurbet et al., 2013).

Though a school of bull ray, *Aetomylaeus bovinus* has previously been reported in a sea-cage farm in Iskenderun Bay (Akyol et al., 2022), *M. aquila* has never been recorded from the Turkish waters, where there are fish farms. In that recording, bull rays were on the sea surface around the sea-cages (Akyol et al., 2022). In this ichthyological note, a large shoal of eagle rays, following a cold-water current around the cages, was recorded beneath the sea cages in the Aegean Sea.

Material and Methods

On 09 May 2026, more than a hundred specimens of *M. aquila* were observed and photographed around a sea-cage fish farm rearing European sea bass, *Dicentrarchus labrax* (Linnaeus, 1758), and gilthead seabream, *Sparus aurata* (Linnaeus, 1758) during control-diving in Gerence Bay, at a depth of 35 m (38.48831° N - 26.39772° E) (Figure 1).

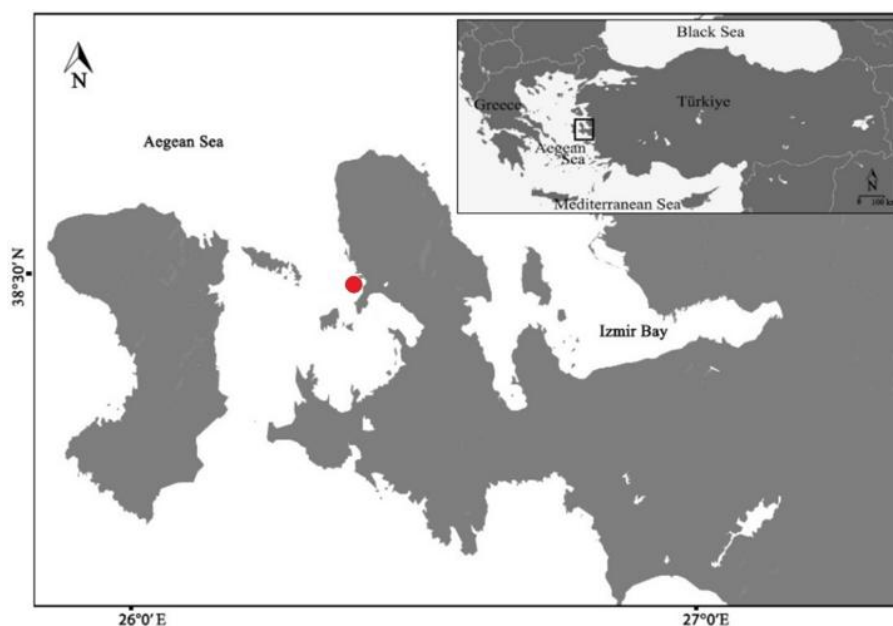


Figure 1. The observation site (red dot) of *Myliobatis aquila* in Gerence Bay, Izmir, Aegean Sea.

A DJI Osmo Action 5 Pro camera was used to record the images of observed specimens. The specimens were carefully examined and identified as *M. aquila* via a combination of main morphological characters, following Golani et al. (2006), CIESM (2026), and Froese and Pauly (2026) as follows: a short, rounded snout; disc with broadly angular corners, head elevated from disk but not very pointed; dorsal fin origin behind pelvic fin tip. Color is golden bronze or dark brown dorsal surface and white ventral surface with one brownish margin (Figure 2). We interviewed the staff diver of the sea-cage fish farm on 15 May 2026.



Figure 2. The school of *Myliobatis aquila*, aggregated around a sea-cage fish farm in Gerence Bay, Izmir, Aegean Sea (Photographs courtesy of K. Sevim).

Results and Discussion

The diver was consulted to gather comprehensive information on the observation of schooling of eagle rays in the area. Eagle rays aggregated around the diver during a dive for the control of the sea-cage. Eagle rays were not feeding on fish. However, they are sometimes caught by hand lines. They are available in various sizes, approximately 40 cm and some being larger. They were following a cold stream current (16-17°C) that runs near the fish farm. They were found scattered in a column of water from 7 m below the surface to the seabed. They stayed in this current system for a month between May and early June. This behaviour repeats every year in the same month. No attacks on the cage nets or divers have been observed. There is no interaction with the diver (K. Sevim, pers. comm.).

One of the similar gatherings was recently recorded at a tuna fish farm by ROV footage captured of the NE coast of Malta, and it has recorded the largest known aggregation to date of *M. aquila*, with over 100 individuals (Agius et al., 2026). According to the authors, such aggregations had previously been reported in the area, and little was known about why they occurred (Agius et al., 2026). On the other hand, in a sea-cage farm for tuna fish (*Thunnus thynnus*) in Gerence Bay (Izmir), a specimen of *Aetomylaeus bovinus* from the same family had been obtained dead in a sea-cage on 27 March 2023 (Kurtay et al., 2023). Additionally, in a sea-cage farm in the Gulf of Iskenderun (SST: 24°C in June), bull rays had been fed on dead fish, and at least twenty-five fish rubbed against each other on the surface and flapped their pectoral fins during 15-20 minutes (Akyol et al., 2022). The

fact that three individuals were pregnant suggests that this may be a kind of reproductive behaviour. Namely, the occurrence of pregnant females among the *A. bovinus* suggests that this aggregation is not only due to ontogenetic shifts linked to the reproductive process of the species, but also seeking out nursery areas (Akyol et al., 2022).

Barash et al. (2018) reported that fish cages are a steady source of food, and therefore, attract sharks; the sandbar sharks, *Carcharhinus plumbeus* (Nardo, 1827), or probably other shark species have regularly been observed around fish farms. Therefore, like many predatory fish, *M. aquila* must also often visit the sea-cage fish farms to find easy food, hiding, seeking a nursery area, or due to the FAD effect (Fish Aggregating Devices). *M. aquila*, which occurs in subtropical and warm temperate coastal waters as a habitat preference (CIESM, 2026), schools swam for an extended period in the cold-water current that emerged in this study. This behaviour has not been reported previously, and the reason for this phenomenon should be revealed through further research.

In conclusion, this ichthyologic note presents the largest aggregation record of *M. aquila* after the record of over 100 individuals from Malta. Bilecenoğlu (2019) stated that *in situ* observation techniques play a vital role in determining the distribution and population trends of the critically endangered rays. Jabado et al. (2021) stated that there are no known conservation measures in place for this species, and fisheries taking the eagle ray are generally unmanaged throughout large parts of the species' range, and it is unlikely that pressure will decrease in the near future. However, the Turkish Ministry of Agriculture and Forestry recently banned the fishing of all species belonging to the Myliobatidae family (Official Gazette No. 30396, April 19, 2018). This is a positive development, and coastal fishermen should be informed in advance about the current conservation law and encouraged to release any individuals that may have been caught back into the wild. Therefore, a management plan for these fish should be developed with the input of local fishermen. Thus, fishermen should be informed about the effective role that they can play in protecting bull rays from potential extinction.

Acknowledgments

The authors wish to thank Mr. Kutluay Sevim, for sharing his observations and giving permission for use of the underwater photographs, and Prof. Dr. Christian Capapé for his confirmation of the species. Also, we wish to thank two anonymous reviewers for improving the earlier version of the manuscript.

Conflict of Interest Statement

The authors declare that they have no conflict of interest.

Author Contributions

All the authors drafted the main manuscript text and reviewed and approved the final version of the manuscript.

Ethical Approval Statement

No ethics committee permissions are required for this study.

Data Availability Statement

The visual data used in the present study are available upon request from the corresponding author.

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