

UPDATED DISTRIBUTION OF WAHOO (*ACANTHOCYBIUM SOLANDRI*) IN THE MEDITERRANEAN SEA

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SUMMARY

The occurrence of the wahoo (Acanthocybium solandri) in the Mediterranean Sea is known since the XIX century, but its records within the area remain occasional and casual. Apparently, its occurrence has increased in the last two decades, possibly also thanks to the increasingly warmer temperatures in the area, but also thanks to the citizen science opportunities provided by the ever-expanding social information networks. This short paper provides a review of the latest information on the Mediterranean distribution of the Wahoo, with the aim to increase the SCRS and ICCAT awareness of this species in the Mediterranean Sea.

RÉSUMÉ

La présence du thazard-bâtard (Acanthocybium solandri) en Méditerranée est connue depuis le XIXe siècle, mais ses observations dans la zone restent occasionnelles et sporadiques. Apparemment, sa présence a augmenté au cours des deux dernières décennies, peut-être aussi en raison des températures de plus en plus chaudes dans la région, mais aussi grâce aux opportunités de science citoyenne offertes par les réseaux d'information sociale en constante expansion. Ce bref document passe en revue les dernières informations sur la distribution méditerranéenne du thazard-bâtard, dans le but d'accroître la sensibilisation du SCRS et de l'ICCAT sur cette espèce en Méditerranée.

RESUMEN

La presencia del peto (Acanthocybium solandri) en el mar Mediterráneo se conoce desde el siglo XIX, pero sus capturas en la zona siguen siendo ocasionales y esporádicas. Aparentemente, su presencia ha aumentado en las dos últimas décadas, posiblemente también gracias a las temperaturas cada vez más cálidas de la región, pero también gracias a las oportunidades de ciencia ciudadana que ofrecen las redes sociales de información en constante expansión. Este breve documento proporciona una revisión de la información más reciente sobre la distribución mediterránea del peto, con el objetivo de aumentar la sensibilización del SCRS y de ICCAT sobre esta especie en el mar Mediterráneo.

KEYWORDS

Wahoo, Acanthocybium solandri, fisheries, distribution, climate change, global warming, Mediterranean Sea.

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1. Introduction

The wahoo, *Acanthocybium solandri* (Cuvier, 1832), is an oceanodromous species, distributed in tropical and subtropical waters throughout most of the Atlantic Ocean, the Pacific Ocean and the Indian Ocean, including the Caribbean, the Gulf of Mexico and the Mediterranean Sea (Collette and Nauen, 1983). With respect to the ICCAT Convention area, in the Atlantic Ocean, the wahoo is most widely distributed between latitudes 45°N and 45°S from Nova Scotia, Canada, to southern Brazil/Uruguay (west side) and Namibia/South Africa (east side). The largest probability of occurrence is observed for the tropical region of the Atlantic Ocean (Travassos *et al.*, 2021). With respect to the Mediterranean Sea, the wahoo is considered a vagrant species (Di Natale *et al.*, 2009), and has never been reported to date in the Black Sea.

ICCAT (which is the RFMO responsible for the management of all tunas and tuna-like species in the Atlantic Ocean and the adjacent seas), has a long series of catch statistics for the wahoo, but reported catches of the species are limited to the Atlantic Ocean. The peak of wahoo catch was reached in 2016, with 17,320 tons, while 4,073 tons are reported in 2023 (ICCAT, 2025, Task 1 data catalogue for small tunas). No catches were reported to ICCAT from the Mediterranean Sea.

The conservation status of wahoo is globally assessed by the IUCN as “Least Concern (LC)” (Collette *et al.*, 2023) and the same status is attributed to the species for the Mediterranean Sea (Di Natale and Kada, 2011).

2. The historical presence of wahoo in the Mediterranean Sea

Documenting the historical presence of a species within a geographical area is not always an easy exercise, particularly when this is not an abundant or common species.

Checking the historical literature on fish from the Mediterranean Sea, there are several references to fish belonging to the genus *Cybia*, *Cybiam*, *Cybiorum* or *Cybium*. Among the oldest of these mentions, the same genus is reported by Diphilus (IV century b.C.), Plautus (IV century b.C.), Athênaios (III century b.C.), by the Aploctetus (II century b.C.), Varro (first century b.C.), Martialis (first century A.D.), Plinius (first century A.D.), but it is very difficult to attribute these references to a single defined species, even if it was reported that those fish were fished in coastal waters in the Greek area.

The very first book on Mediterranean ichthyology, published by Salviani (1557), having a detailed text and the first fish images engraved on metal instead of woodcuts, does not include any image of any *Scomberomorus* or *Acanthocybium*, but there is an extended discussion about the occurrence of fish species recorded under the genera *Cybium*, *Cybiam* or *Cybiorum* in ancient literature on tuna species.

The same uncertainty can be detected in Aldrovandi (1638), a book having less detailed images engraved on wood, containing again an extensive discussion on the fish of genus *Cybia* in the Mediterranean Sea, but without any image of that fish.

It is interesting to note that the famous book on fish by Rondelet (1558), mostly related to the North-western part of the Mediterranean Sea and the French Atlantic coast, never mentioned the genus *Cybia* (or any other version of the name) and this anomaly can possibly be explained by the conclusions of current study.

In the case of the wahoo, it is certain that the first scientifically documented occurrence of the species in the Mediterranean can be traced to an individual collected in the tuna trap of Solanto near Palermo (southern Tyrrhenian Sea, Sicily, Italy). This specimen was initially described as a new species, namely *Cybium verany*, by Doderlein (1872) (**Figure 1**), but later ascertained to be *A. solandri* Cuv. (Doderlein 1881; Tortonese 1949). The specimen is preserved at the Museo di Zoologia of the University of Palermo (catalogue number P 363) (Di Palma 1979; Sarà and Sarà 1990).

The genus *Cybium*, officially described by Cuvier (1829) and currently accepted as *Scomberomorus* Lacepède (1801) (Actinopterygii: Scombriformes: Scombridae), for a couple of centuries included several fish species (e.g. Poey, 1879) namely (according to the current accepted nomenclature) *Scomberomorus cavalla*, *Scomberomorus commerson*, *Scomberomorus guttatus*, *Scomberomorus koreanus*, *Scomberomorus lineolatus*, *Scomberomorus maculatus*, *Scomberomorus nipponius*, *Scomberomorus regalis*, *Scomberomorus semifasciatus*, *Scomberomorus sinensis*, *Scomberomorus tritor*, *Acanthocybium solandri*, *Lepidocybium flavobrunneum* and *Orcynopsis unicolor*. Among these species, only *Scomberomorus commerson*, *Acanthocybium solandri* and *Orcynopsis unicolor* have been reported for the Mediterranean Sea⁵ (Gerovasileiou *et al.*, 2020; Salah *et al.*, 2023, Deidun *et al.*, 2025), all in the central and eastern Mediterranean areas.

⁵ The papers here mentioned are just the most recent ones concerning the three species.

3. The recent presence of *Acanthocybium solandri* in the Mediterranean Sea

Deidun *et al.* (2025) recently provided two records of wahoo caught in Malta in 2024 and an updated map of the distribution of *Acanthocybium solandri* in the Mediterranean Sea on the basis of literature published on the species at the time of writing.

After that recent paper, there was the opportunity to retrieve and document additional individuals, one from an unknown location in Libya (Elbaraasi *et al.*, 2019), one from Alexandria in Egypt (Farrag *et al.*, 2025) (**Figure 2**) and four from Misrata (Libya) (**Figure 3**), sold on the local market on 15 November 2024. The information on these four fish was provided by a local fishmonger, but without any further supporting detail concerning the weight or the length of those individuals. The most recent individual was caught 12 nm NE from Malta, on 9 June 2025, and then sold by a fishmonger in Zabbar (Malta), while the present paper was under revision (**Figure 4** and **Figure 5**).

Figure 6 shows the locations and dates concerning the known distribution of wahoo in the Mediterranean Sea, according to **Table 1**, with all known records so far being restricted to the central and eastern areas of the basin.

4. Conclusions

Apart from the existing published studies documenting specific reports of this species for the Mediterranean Sea, the presence of the wahoo in same area has been known for at least several decades (Collette and Nauen, 1983; Collette and Graven, 2019; Anonymous, 2009; Di Natale *et al.*, 2009; Collette *et al.*, 2023; Froese and Pauli, 2025).

Deidun *et al.* (2025) confirmed the hypothesis made by Romeo *et al.* (2005) and by Psomadakis *et al.* (2012) that the wahoo possibly entered the Mediterranean Sea from the Atlantic Ocean (Strait of Gibraltar) and not the Suez Canal.

The ancient references concerning fish of the genus *Cybia*, *Cybiam*, *Cybiorum* or *Cybium*, referred to earlier on this study, suggest that some individuals of one of the potential species concerned (*Scomberomorus commerson*, *Acanthocybium solandri* and *Orcynopsis unicolor*) were noticed in the Mediterranean Sea even in ancient times, apparently exclusively in the eastern and central areas of the basin. Of course, these ancient references do not support the definitive identification of the species, and also one has to note that the Suez Canal was not operational till the year 1869.

Looking at the current distribution of the species (central and eastern Mediterranean Sea) and taking into account the preference of the wahoo for warm tropical and sub-tropical waters, we can speculate that, after entering the Mediterranean, the wahoo does not persist in the western Mediterranean Sea because of the colder seawater temperatures in the area, preferring the warmer temperatures of other Mediterranean areas (see **Figure 7** and **Figure 8**), at least until 2024. This pattern is very similar to that of the narrow-barred Spanish mackerel (*Scomberomorus commerson*) (Salah *et al.*, 2023).

The recent increase in the number of Mediterranean records for *Acanthocybium solandri* can possibly be correlated with three potential factors: 1) the higher attention by researchers, 2) the increasing use of social media by fishers and fishmongers and, 3) the increasingly higher temperatures recorded in the Mediterranean Sea since 2003.

It may be possible that the wahoo may expand its presence in the Mediterranean in the very near future, following the same trajectory as other species, such as the narrow-barred Spanish mackerel (*Scomberomorus commerson*), a species that can potentially be confused with the wahoo (see Deidun *et al.*, 2025, for the details). It is unclear whether the wahoo can successfully spawn in the Mediterranean Sea.

Therefore, we invite all SCRS scientists to be mindful of this species and to report information to ICCAT.

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Table 1. Complete list of wahoo (*Acanthocybium solandri*, Cuvier, 1832) reported so far in the Mediterranean Sea.

Date	Country	Locality	Total length	Weight	Fishing gear	References
1872	Italy	off Solanto, Palermo, Sicily	144		tuna trap	Doderlein, 1872
summer 1990	Italy	Strait of Messina, Sicily		>15*	harpoon	Costa, 1991
summer 1990	Italy	Strait of Messina, Sicily		>15	harpoon	Costa, 1991
summer 1998	Italy	Strait of Messina, Sicily		~15	harpoon	Romeo <i>et al.</i> , 2005
summer 1998	Italy	Strait of Messina, Sicily		~15	harpoon	Romeo <i>et al.</i> , 2005
June 2004	Italy	Strait of Messina, Sicily	142.5	13.502	harpoon	Romeo <i>et al.</i> , 2005
2019	Libya	unknown			unknown	Elbaraasi <i>et al.</i> , 2019
January 2024	Lebanon	Al-Arida			purse seine for mackerels and small tunas	Fatfat <i>et al.</i> , 2024
January 2024	Lebanon	Al-Arida	90	4.0	Tuna net	Fatfat <i>et al.</i> , 2024
June 2024	Turkey	Üçadalar, Antalya Bay			rod & reel (sport fishing)	Gökoğlu <i>et al.</i> , 2024
2024	Turkey	Iskenderun Bay			speargun	Gökoğlu <i>et al.</i> , 2024
October 2024	Malta	off Malta	57.8	1.227	FAD + boat seine net (kannizzati)	Deidun <i>et al.</i> , 2025
November 2024	Malta	off Malta	61.2	1.043	FAD + boat seine net (kannizzati)	Deidun <i>et al.</i> , 2025
April 2024	Egypt	Alexandria	70	2.365	rod & reel (sport fishing)	Farrag <i>et al.</i> , 2025
November 2024	Libya	Misrata			unknown, possibly line	this paper
November 2024	Libya	Misrata			unknown, possibly line	this paper
November 2024	Libya	Misrata			unknown, possibly line	this paper
November 2024	Libya	Misrata			unknown, possibly line	this paper
9 June 2025	Malta	12 nm NE from Malta		3	purse-seine	this paper

* this fish was a female individual.

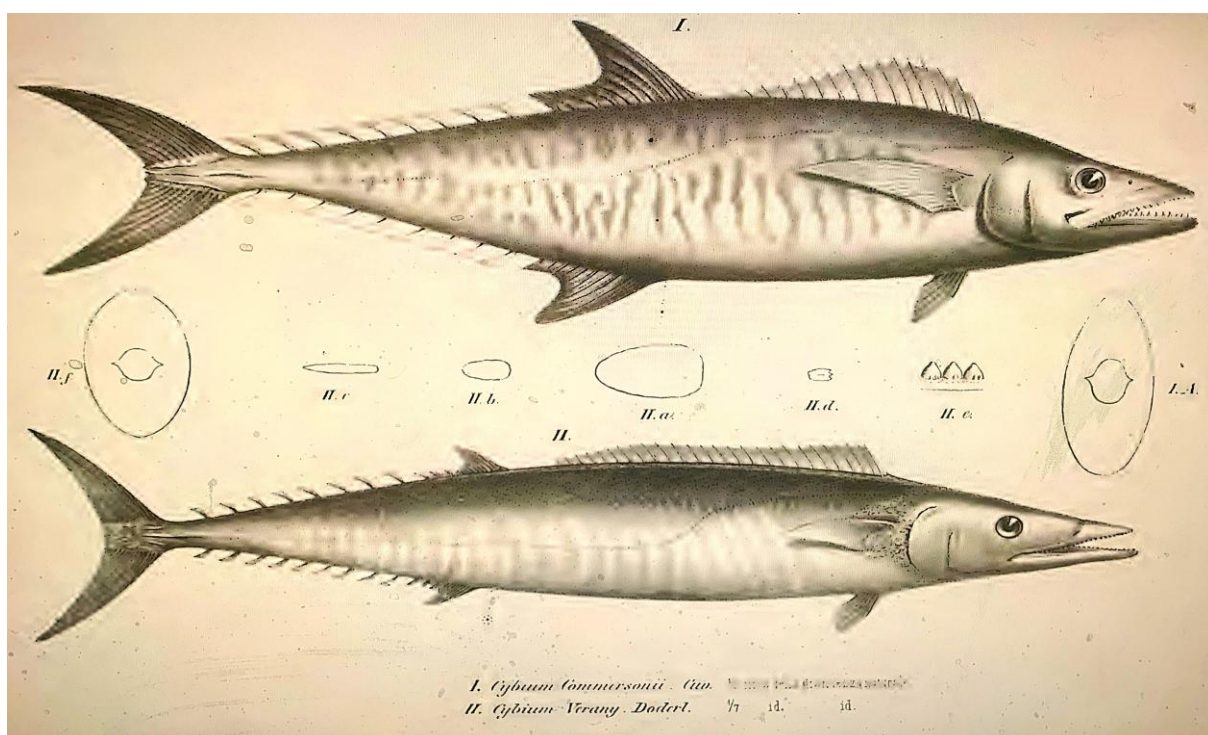


Figure 1. The plate showing *Scomberomorus commerson* (as *Cybium commersonii* Cuv.) above, and *Acanthocybium solandri* (as *Cybium verany* Doderl.) below, reproduced from Doderlein (1872). Doderlein obtained the drawing of *S.commerson* from Rüppell (1828).



Figure 2. The wahoo (*Acanthocybium solandri*, Cuvier, 1832), fished in Alexandria (Egypt) in April 2024 (photo by Abd Allah Al Ghandour in Farrag *et al.*, 2025).



Figure 3. Four individuals of wahoo (*Acanthocybium solandri*, Cuvier, 1832), caught in Misrata (Libya) on 15 November 2024 and sold on the local fish market.



Figures 4 and 5. An individual of wahoo (*Acanthocybium solandri*, Cuvier, 1832), caught by a purse seine at 12 nm NE from Malta on 9 June 2025 and sold on the local fish market.

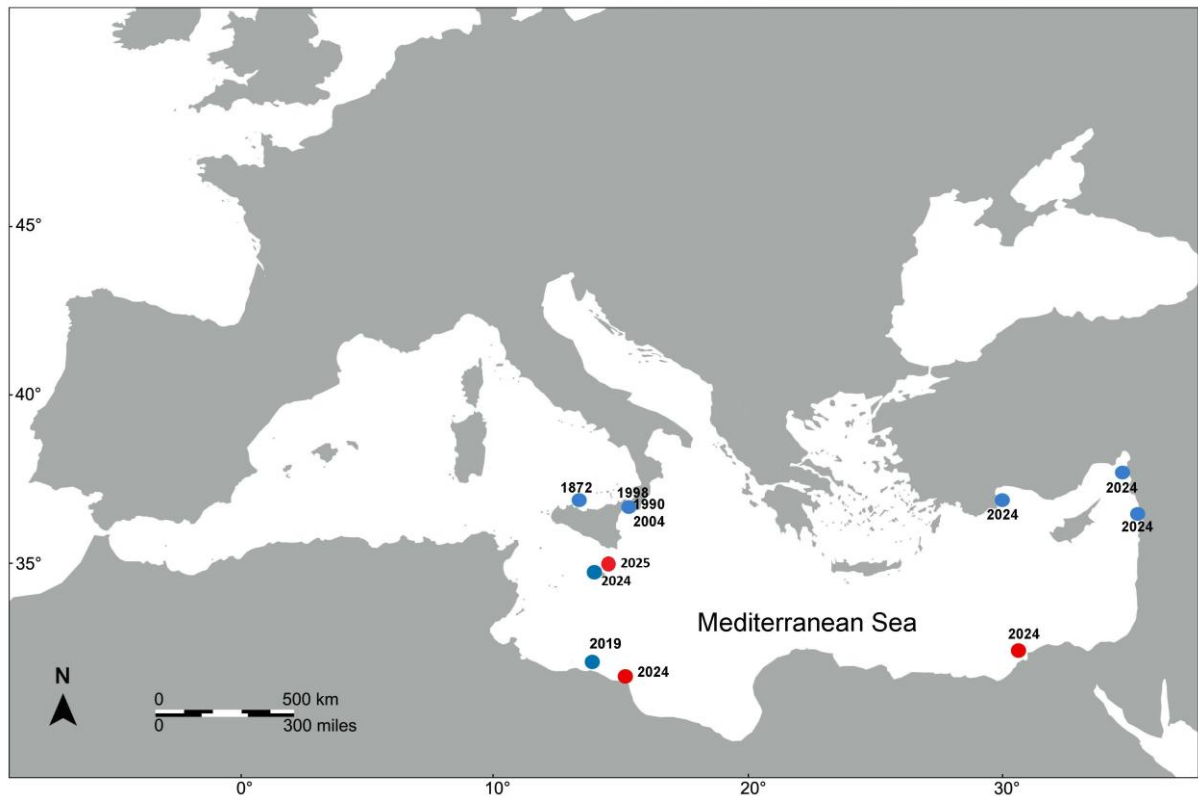


Figure 6. Locations of records of *Acanthocybium solandri* in the Mediterranean Sea. [blue circle, previous records: off Solanto, Palermo, Sicily, Italy, 1872 (Doderlein 1872); Strait of Messina, Italy, 1990 (Costa 2012), 1998 and 2004 (Romeo *et al.* 2005); western Libya (Elbaraasi *et al.* 2019); Antalya and Iskenderun, Turkey, 2024 (Gökoğlu *et al.* 2024); Al-Arida, Lebanon, 2024 (Fatfat *et al.* 2024); Malta (Deidun *et al.*, 2025); red circle, most recent records: Alexandria, Egypt, 2024 (Farrag *et al.*, 2025); Misrata, Libya, 2024 and Malta, 2025 (present paper)].

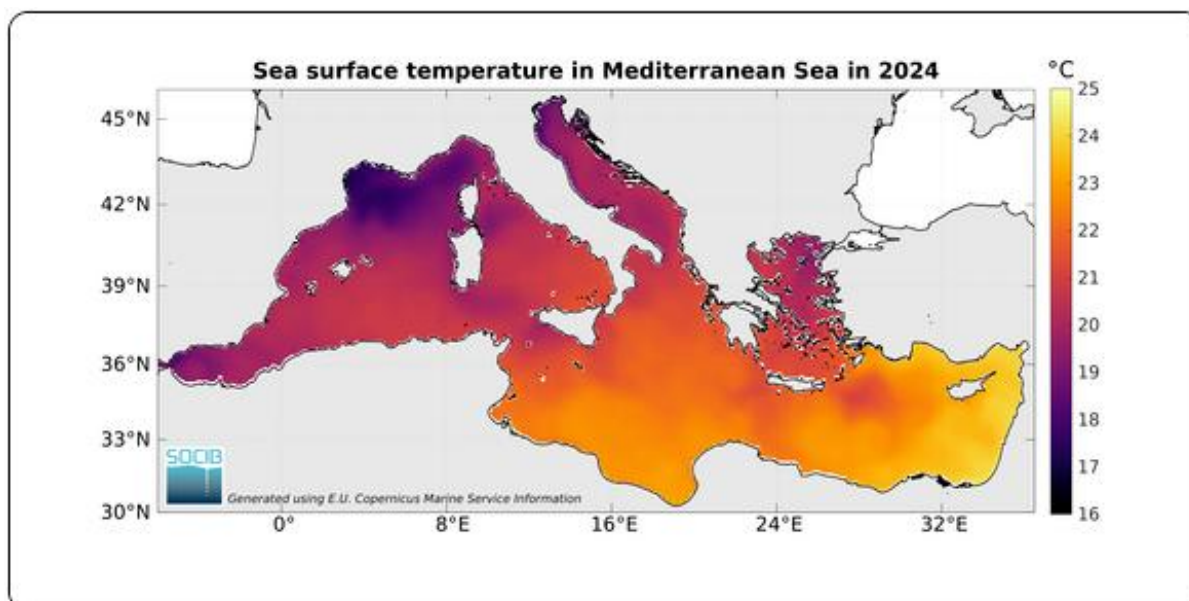


Figure 7. Average sea surface temperature (SST) in the Mediterranean Sea in 2024. The colder part is the western Mediterranean (source: SOCIB https://apps.socib.es/subregmed-indicators/ocean_temperature.htm).

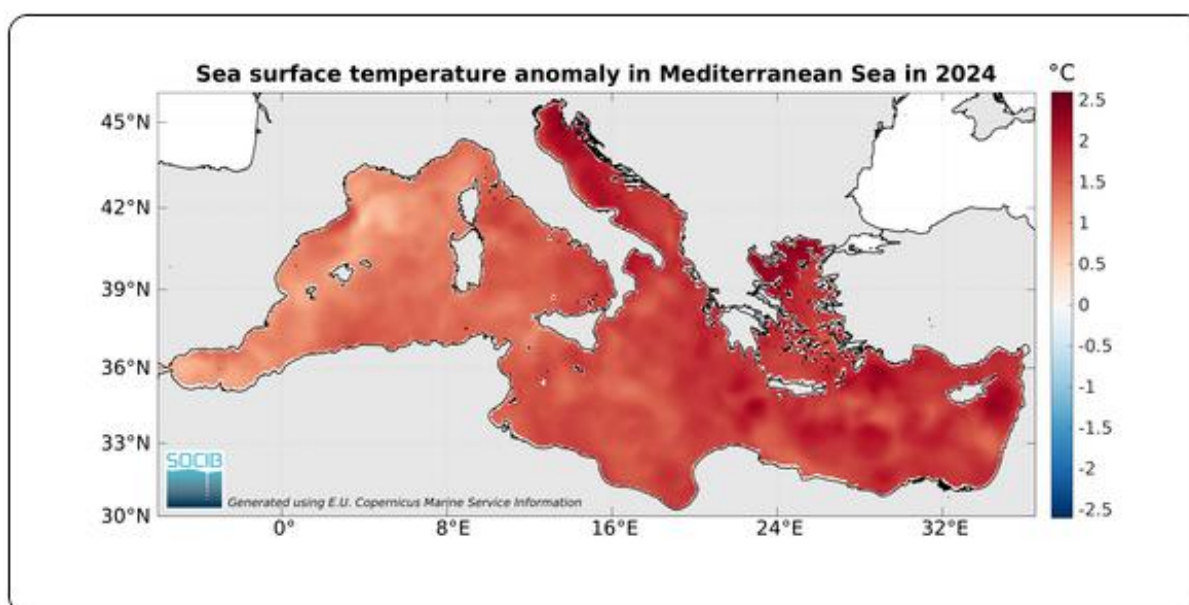


Figure 8. Sea surface temperature (SST) anomaly in the Mediterranean Sea in 2024. The lower anomalies are in the western Mediterranean, confirming the usual low temperature in the area (source: SOCIB https://apps.socib.es/subregmed-indicators/ocean_temperature.htm).