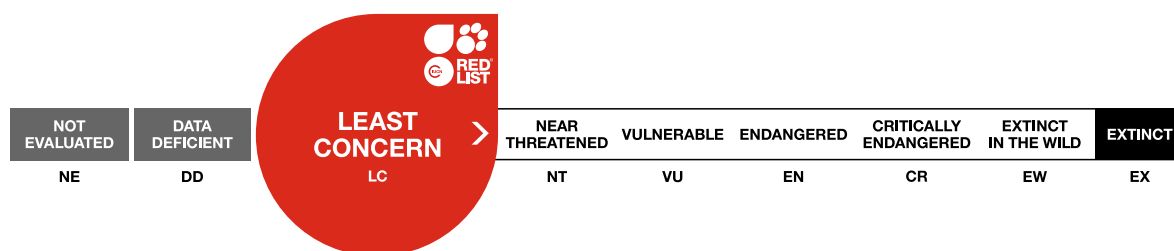


## *Tetrapturus belone*, Mediterranean Shortbill Spearfish

Assessment by: Collette, B.B., Di Natale, A., Graves, J., Pohlot, B. & Schratwieser, J.



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## Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Perciformes	Istiophoridae

**Scientific Name:** *Tetrapturus belone* Rafinesque, 1810

### Synonym(s):

- *Histiophorus belone* (Rafinesque 1810)
- *Makaira belone* (Rafinesque 1810)
- *Scheponopodus prototypus* Canestrini, 1872
- *Skeponopodus typus* Nardo, 1833

### Regional Assessments:

- Mediterranean

### Common Name(s):

- English: Mediterranean Shortbill Spearfish, Mediterranean Spearfish
- French: Aguglia impériale, Auggia imbrale, Marlin de la Méditerranée, Poisson-pique
- Spanish; Castilian: Marlin del Mediterráneo

### Taxonomic Source(s):

Fricke, R., Eschmeyer, W.N. and Van der Laan, R. (eds). 2023. Eschmeyer's Catalog of Fishes: genera, species, references. Updated 06 September 2023. Available at: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (Accessed: 06 September 2023).

### Taxonomic Notes:

Western Atlantic records of *Tetrapturus belone* through the early 1960s are of *T. pfluegeri* (Robins and de Sylva 1963). *Tetrapturus belone* is very close to *T. pfluegeri* (Collette *et al.* 2006, Hanner *et al.* 2011).

Previously, this species was thought to be endemic to the Mediterranean Sea. However, there is an International Game Fish Association record of *T. belone* from Madeira (June 1980), outside the Mediterranean, based on a photograph. This identification is uncertain, however expert opinion (B. Collette, J. Graves, J. Schratwieser pers. comm. 2013) is that the record is likely to refer to *T. belone*.

## Assessment Information

**Red List Category & Criteria:** Least Concern [ver 3.1](#)

**Year Published:** 2023

**Date Assessed:** November 15, 2021

### Justification:

*Tetrapturus belone* is generally known from the Mediterranean Sea. It is common and locally abundant. There is no directed commercial fishery and catches have fluctuated over the last 10 years. This species is therefore assessed as Least Concern. However, this species is taken as bycatch, and targeted by sport

fisheries and a traditional harpoon fishery and should be monitored carefully. More research is also needed on this poorly studied species' biology, ecology and behaviour.

## Previously Published Red List Assessments

2015 – Least Concern (LC)

## Geographic Range

### Range Description:

*Tetrapturus belone* is generally restricted to the Mediterranean Sea (Nakamura 1985; Collette and Graves, 2019). It is abundant around Italy and recently reported from Tunisia (Hattour 2006). There are no confirmed reports from the Black Sea. Catches have been reported from the Aegean Sea (Pennetti pers. comm. 2008), but no adults have been reported in the northern part of the Aegean. However, there is also an International Game Fish Association record from Madeira (June 1980), outside the Mediterranean Sea; identification, based on a photograph, is uncertain, but expert opinion (B. Collette, J. Graves, J. Schratwieser pers. comm. 2013) is that the record is likely to refer to *Tetrapturus belone*, representing a possible range extension for this species.

### Country Occurrence:

**Native, Extant (resident):** Albania; Algeria; Bosnia and Herzegovina; Croatia; Cyprus; Egypt (Egypt (African part), Sinai); France (Corsica, France (mainland)); Gibraltar; Greece (East Aegean Is., Greece (mainland), Kriti); Israel; Italy (Italy (mainland), Sardegna, Sicilia); Lebanon; Libya; Malta; Montenegro; Morocco; Palestine, State of; Portugal (Portugal (mainland)); Slovenia; Spain (Balears, Spain (mainland), Spanish North African Territories); Syrian Arab Republic; Tunisia; Türkiye (Türkiye-in-Asia)

**Native, Presence Uncertain:** Portugal (Madeira)

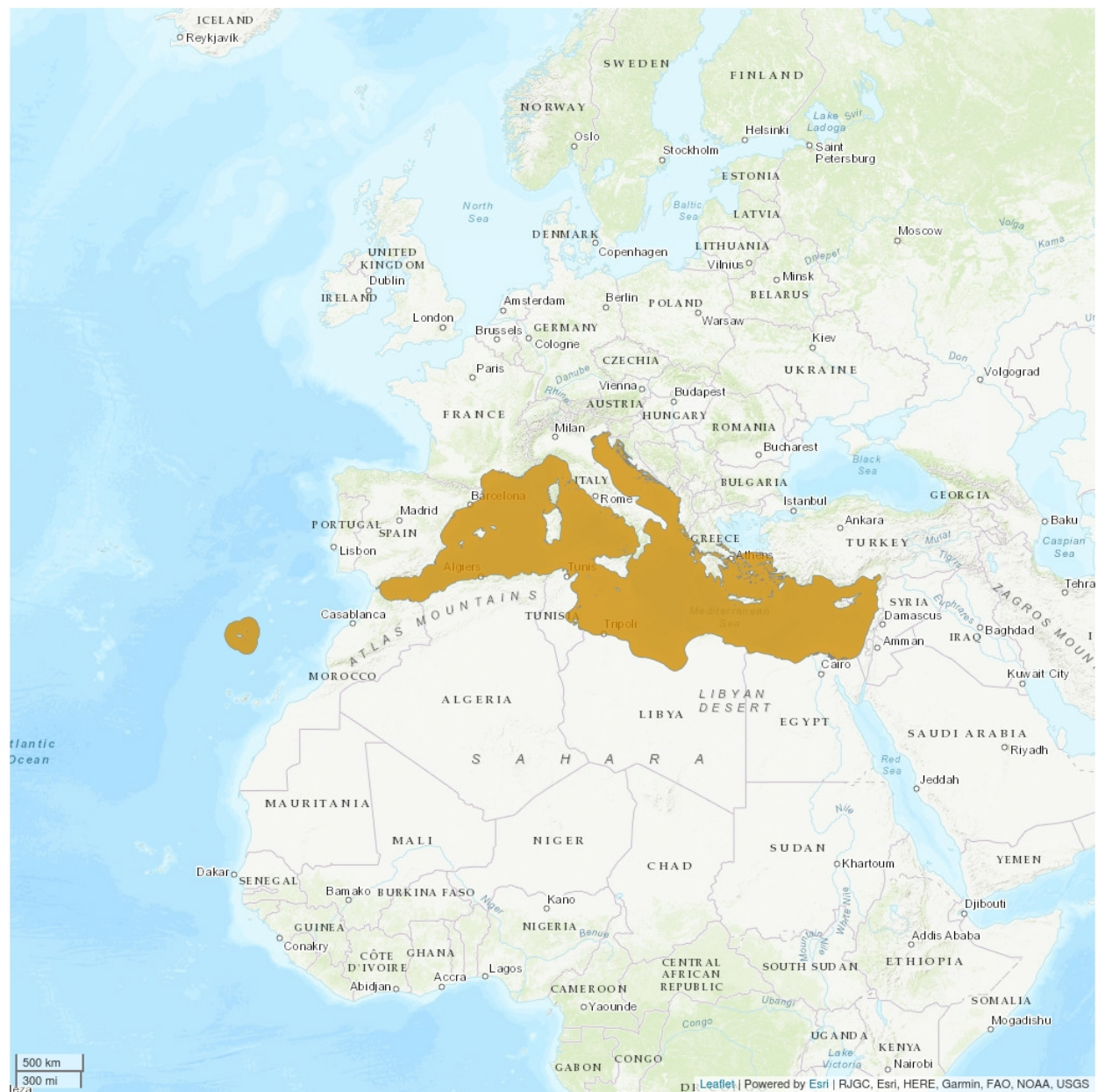
### FAO Marine Fishing Areas:

**Native:** Atlantic - northeast

**Native:** Atlantic - eastern central

**Native:** Mediterranean and Black Sea

# Distribution Map

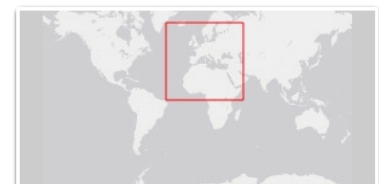
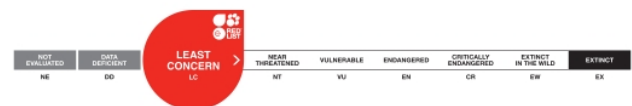


## Legend

■ EXTANT (RESIDENT)

## Compiled by:

IUCN (International Union for Conservation of Nature) 2023



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

## Population

Catches of Mediterranean Spearfish are unofficially known from all Mediterranean states from driftnet and longline fishing. The consolidated STECF review of advice for 2015 remains unchanged from 2014 (STECF-13-27) due to the lack of new information since 2013 (STECF 2015). It is noted that the landings are largely unknown but seem to have increased in the most recent years and are certainly above 100 t, despite only three countries (Italy, Spain and Portugal) reporting their catches to ICCAT. Catches in 2005 and 2006 have shown fluctuation (STECF 2015). Catches in 2013 and 2014 were 45 and 118 t respectively, while catches from 2015 to 2018 ranged between 10 and 23 t. The current (2019) catch is 49 t (ICCAT 2021). Up to 40 fish were caught in the sport fishery over three years in Majorca (Masuti pers.comm. 2008). In Turkey, this species is mostly caught as bycatch and by sport fishing, and in recent years the catches appear to be increasing (M. Bilecenoglu pers. comm. 2008).

The overall trend in the ICCAT catch data over the last 10 years is unclear but catches have generally been lower over the last 5 years. The catch estimates in FAO 2020 between 2009 and 2018 are generally similar to the ICCAT estimates, with the majority of catches attributable to Italy and to a lesser extent Malta, Spain and Cyprus. Mediterranean Spearfish is common and locally abundant throughout much of the Mediterranean Sea.

**Current Population Trend:** Stable

## Habitat and Ecology (see Appendix for additional information)

*Tetrapturus belone* is an epipelagic species and one of the least-studied isthiophorid billfishes, with poorly known biology, ecology and behaviour. It is the most common isthiophorid in the central basin of the Mediterranean Sea and completes its life cycle inside this sea as far as is known (Nakamura 1985; Arostegui et al. 2018). Mediterranean Spearfish undertake limited vertical movements, ranging between 0 and 200 m depths (Romeo et al. 2009), generally above or within the thermocline. They often travel in pairs (Collette and Graves, 2019). A study of the first satellite-tagged Mediterranean spearfish showed that this species spent on average 93% of each 24-hr period within a 29-day deployment during July and August, at above 30m depth. The species also exhibited a diel activity pattern which included vertical movement during the daytime and near-surface residency at night. The preferred thermal niche ranged between 26 and 28°C. However, temperatures as low as 14.2°C were experienced during descents (Arostegui et al. 2018).

Based on stomach contents, the Mediterranean spearfish primarily feeds on epipelagic fishes and cephalopods (Castriota et al., 2008; Romeo et al. 2009; Romeo et al., 2012; Arostegui et al. 2018). In the Strait of Messina, Italy the most important fishes in its diet are needlefishes, herrings, and sauries (Belonidae, Clupeidae and Scomberesocidae) and there is little dietary overlap with Swordfish caught in the same area (Romeo et al. 2009; Collette and Graves, 2019). Based on stable isotope analyses, there is opportunistic consumption of gelatinous zooplankton (Cardona et al. 2012; Arostegui et al. 2018).

Spawning occurs from spring to winter (Potoschi 2000). Maximum size exceeds 2.4 m in body length and 70 kg in weight.

The IGFA All-tackle game fish record for this species is 90 lb., 13 oz. (41.2 kg) for a fish taken off Madeira in June 1980 (IGFA 2021), well outside the usual geographical range of the species (Collette and Graves, 2019). Indeed, information on the distribution of spearfishes in the Eastern Atlantic is poorly known; the record was first considered more likely to be either *T. pfluegeri* or *T. georgii*, neither of which were

known in 1980. However, reevaluation of the photograph accompanying this record suggests that it may in fact refer to *T. belone*.

**Systems:** Marine

## Use and Trade

*Tetrapturus belone* is taken at the surface by harpoons, longlines, driftnets and set nets incidental to fishing for Swordfish, Bluefin Tuna, and Albacore (Nakamura 1985, STECF 2014). It is also targeted in a small, traditional, harpoon fishery from boats known as "passerelle" (Potoschi 2000). It is sold in local markets for fresh consumption, reaching good prices due to the high quality and taste of its meat (Di Natale *et al.* 2005). It is also a very popular sportfish in the Mediterranean (J. Schratwieser pers. comm. 2013).

## Threats (see Appendix for additional information)

*Tetrapturus belone* is of minor commercial importance but is mainly a bycatch of tuna fisheries and is also taken by recreational fishermen. This species is highly exposed to lipophilic xenobiotic contaminants (Fossi *et al.* 2002).

## Conservation Actions

The Mediterranean Spearfish was assessed as Least Concern in a first global assessment conducted in 2010 (Collette *et al.* 2011, Collette and Heessen 2015). It is a highly migratory species mentioned in the Annex I of the 1982 Convention on the Law of the Sea. While they are generally not targeted by commercial fleets, spearfish and billfish catches, including those from the recreational fishery, should be closely monitored. Mediterranean spearfish catches must be reported by all concerned member states, also according to the European Community data collection framework (STECF 2015). Catch and release is commonly encouraged in the recreational fishery. Circle hooks have been recommended as enhancing survival in catch and release recreational fishing for all billfish species (Serafy *et al.* 2009). More research is also needed on the biology and ecology of this species (Collette and Graves, 2019). Arostegui *et al.* (2018) recommend assessing long-term movement patterns for many individuals, identifying additional spawning areas, and determining the species' population structure. According to the authors, novel tag attachment methods and/or tag anchors may also need to be developed for small-bodied laterally compressed spearfishes to minimize injury and potential behavioural effects.

## Credits

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**Authority/Authorities:** IUCN SSC Tuna and Billfish Specialist Group



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## Appendix

### Habitats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Habitat	Season	Suitability	Major Importance?
9. Marine Neritic -> 9.1. Marine Neritic - Pelagic	Resident	Marginal	-
10. Marine Oceanic -> 10.1. Marine Oceanic - Epipelagic (0-200m)	Resident	Suitable	Yes

### Use and Trade

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

End Use	Local	National	International
1. Food - human	Yes	Yes	No
15. Sport hunting/specimen collecting	No	Yes	Yes

### Threats

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Threat	Timing	Scope	Severity
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.1. Intentional use: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Negligible declines
Stresses: 2. Species Stresses -> 2.1. Species mortality			
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.3. Unintentional effects: (subsistence/small scale) [harvest]	Ongoing	Majority (50-90%)	Unknown
Stresses: 2. Species Stresses -> 2.1. Species mortality			
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.4. Unintentional effects: (large scale) [harvest]	Ongoing	Majority (50-90%)	Unknown
Stresses: 2. Species Stresses -> 2.1. Species mortality			

### Research Needed

(<http://www.iucnredlist.org/technical-documents/classification-schemes>)

Research Needed	Notes
1. Research -> 1.2. Population size, distribution & trends	-
1. Research -> 1.3. Life history & ecology	-
1. Research -> 1.4. Harvest, use & livelihoods	-

Research Needed	Notes
3. Monitoring -> 3.1. Population trends	-
3. Monitoring -> 3.2. Harvest level trends	-

## Additional Data Fields

<b>Distribution</b>
Continuing decline in area of occupancy (AOO): No
Extreme fluctuations in area of occupancy (AOO): No
Continuing decline in extent of occurrence (EOO): No
Extreme fluctuations in extent of occurrence (EOO): No
Continuing decline in number of locations: No
Extreme fluctuations in the number of locations: No
Lower depth limit (m): 200
Upper depth limit (m): 0
<b>Population</b>
Population severely fragmented: No
<b>Habitats and Ecology</b>
Continuing decline in area, extent and/or quality of habitat: No
Movement patterns: Full Migrant

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