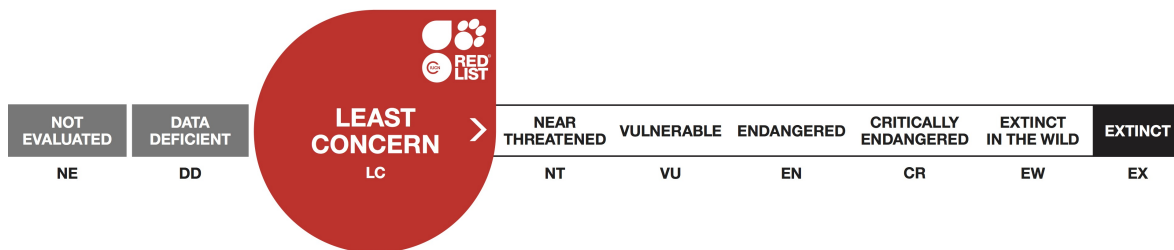


Mullus barbatus, Red Mullet

Assessment by: Carpenter, K.E., Smith-Vaniz, W.F., de Bruyne, G. & de Morais, L.



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Citation: Carpenter, K.E., Smith-Vaniz, W.F., de Bruyne, G. & de Morais, L. 2015. *Mullus barbatus*. *The IUCN Red List of Threatened Species 2015*: e.T198673A42691799.

<http://dx.doi.org/10.2305/IUCN.UK.2015-4.RLTS.T198673A42691799.en>

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Perciformes	Mullidae

Taxon Name: *Mullus barbatus* Linnaeus, 1758

Synonym(s):

- *Mullus ruber* Lacepède, 1801

Regional Assessments:

- [Europe](#)
- [Mediterranean](#)

Common Name(s):

- English: Red Mullet, Blunt-snouted Mullet, Bluntsnouted Mullet, Mullet, Striped Goatfish, Striped Mullet
- French: Rouget Barbet, Rouget de Vase
- Spanish: Salmonete de Fango

Taxonomic Source(s):

Eschmeyer, W.N. (ed.). 2014. Catalog of Fishes. Updated 27 August 2014. Available at: <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>. (Accessed: 27 August 2014).

Taxonomic Notes:

This assessment includes *M. b. barbatus* and *M. b. ponticus*.

Assessment Information

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

Year Published: 2015

Date Assessed: July 14, 2014

Justification:

In the Eastern Atlantic, *Mullus barbatus* is distributed from the British Isles (occasionally Scandinavia) to Dakar, Senegal. It is found in the Canary Islands, Mediterranean and Black Sea. It is also known from the Azores. It is found at depths ranging from 10 to 328 m. *Mullus barbatus* is a commercially important species throughout its range. Most assessed stocks in the Mediterranean are in an overfished state, and overfishing is continuing to occur. Stock assessments are performed regularly by sub-region in the Mediterranean basin, however management units are not currently based on knowledge of population structure. It is also overfished in the Black Sea. This species is commercially important and highly esteemed off the coast of west Africa, however there is little species-specific population information available from this part of the range. In northeastern Atlantic waters, this species is expanding its range northwards in response to warming waters, which has generated several fisheries. *Mullus barbatus*

responded positively to a 14-year trawl-ban in the Gulf of Castellmare (northwestern Sicily, central Mediterranean). Spawning-stock biomass and recruit numbers increased significantly, and females at depths >50 metres during the post-ban period were much larger than those collected before the ban. Species-specific catch statistics are not collected for this species in the CECAF region/northwestern Africa. Population trends are variable throughout the range, and this species appears to be increasing in biomass in some regions. This species is currently listed as Least Concern.

Geographic Range

Range Description:

In the Eastern Atlantic, *M. barbatus* is distributed from the British Isles (occasionally Scandinavia) to Dakar, Senegal. It is reported from the Canary Islands (Dooley *et al.* 1985), Azores and Madeira (Carneiro *et al.* 2014) as well as the Mediterranean and Black seas. It is found at depths ranging from 10 to 328 m.

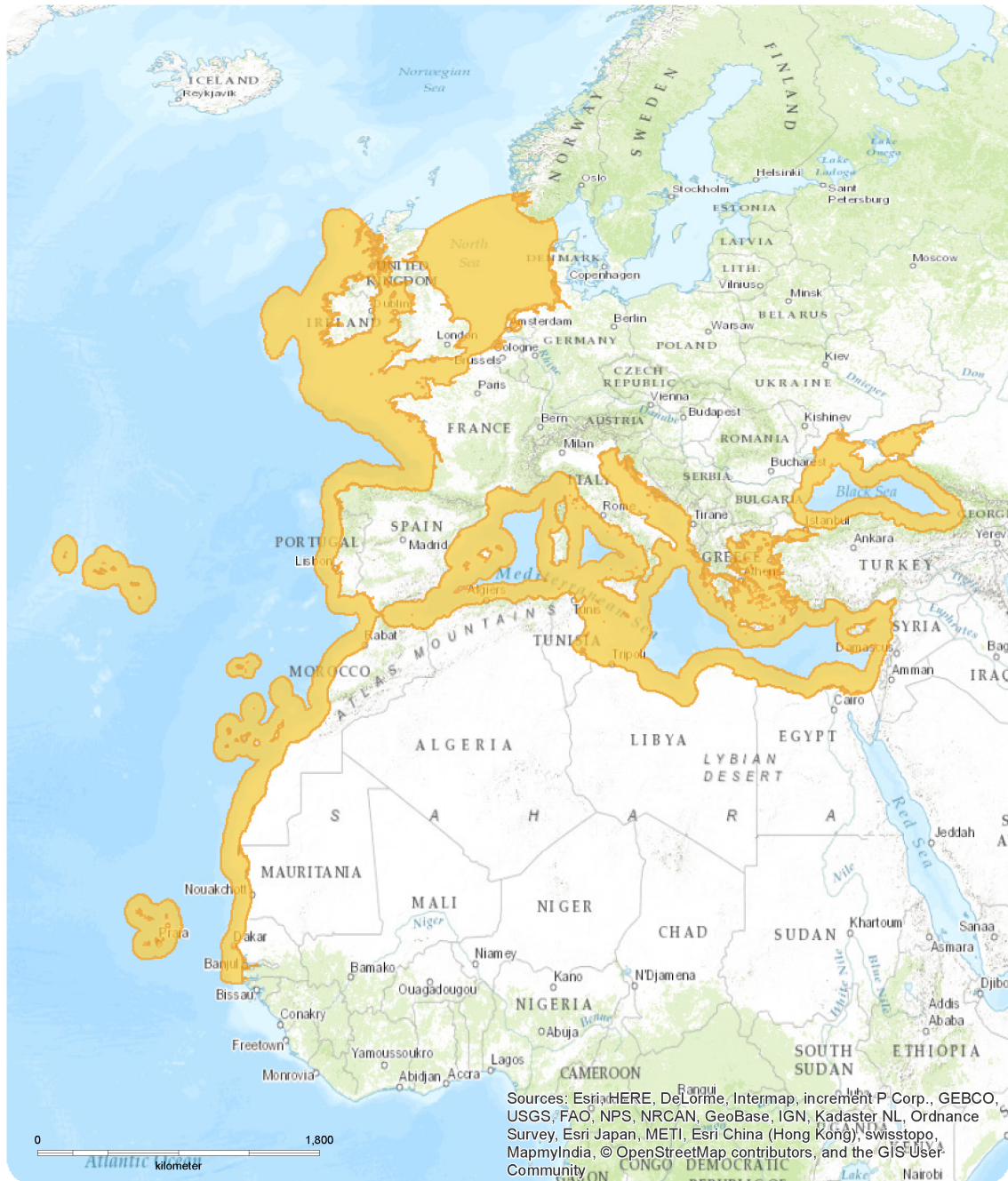
Country Occurrence:

Native: Albania; Algeria; Belgium; Bulgaria; Cape Verde; Croatia; Cyprus; Denmark; Egypt; France; Gambia; Georgia; Germany; Gibraltar; Greece; Guernsey; Ireland; Israel; Italy; Jersey; Lebanon; Libya; Malta; Mauritania; Monaco; Montenegro; Morocco; Netherlands; Norway; Portugal (Azores, Madeira, Portugal (mainland)); Romania; Russian Federation; Senegal; Serbia (Serbia); Slovenia; Spain (Canary Is., Spain (mainland)); Syrian Arab Republic; Tunisia; Turkey; Ukraine; United Kingdom; Western Sahara

FAO Marine Fishing Areas:

Native: Atlantic - northeast, Atlantic - eastern central, Mediterranean and Black Sea -

Distribution Map



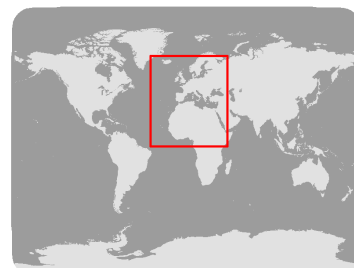
Mullus barbatus

Range

■ Extant (resident)

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NE DD **LC** > NT VU EN CR EW EX
LEAST CONCERN



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



Population

Food and Agriculture Organization (FAO) landing statistics summary

Landing statistics are declared exclusively from the following FAO fishing region: Mediterranean and Black Sea. The overall trend in landings from 1991 to 2001 is one of increasing landings with fluctuations. In 2011, 105 tonnes were declared to FAO. **Population structure**

While early studies of population structure using allozymes revealed a lack of heterogeneity in the Mediterranean (Arculeo *et al.* 1999), microsatellite markers revealed gene flow restriction in the Adriatic Sea, a break which is concordant with that of several other species. Additionally, the extent of gene flow between the gulf of Lions, the Tyrrhenian Sea, the Strait of Sicily, the Ionian Sea, and the Adriatic should be considered too low for the species to be managed as a single stock in the Mediterranean (Maggio *et al.* 2009). **Recent stock assessments in the Mediterranean**

- GSA06: stock is in low abundance and is considered overfished. Catch is based on younger ages (zero and one). Recruitment shows a decreasing trend. Recommendation to reduce F by 70%.
- GSA07: Gulf of Lions: Overfished, intermediate abundance
- GSA09: Overfished, growth overfishing occurring
- GSA15/16: Overfished, however Spawning Stock Biomass (SSB) has been increasing since the 1990s.
- GSA25: Stock at low abundance, in growth overfishing state (GFCM 2012).

Fishery independent data regarding the state this species in GSA 09 (Western Ionian) from the international survey MEDITS reveal high variations in abundance and biomass with a mean abundance of about 50kg/km², apparently with an increasing trend. Data from GSA 22/23 (Aegean Sea and Crete) show fluctuations since 1994, with a peak in 1999 and low values in 2004 to 2006 (Cardinale and Osio 2013). **The Black Sea**

In the 2000s, *M. barbatus* was among the nine species which accounted for 80% of landings in the Black Sea. It is considered overfished in the Black Sea (Ulman *et al.* 2013).

Atlantic Waters

A recent, rapid increase in the catch of *M. barbatus* in the U.K. has been attributed to global warming (H. Heessen pers. comm. 2014).

Current Population Trend: Unknown

Habitat and Ecology (see Appendix for additional information)

Mullus barbatus is a demersal species which is typically found on sandy, muddy and hard substrates. It can also be found in coral. It feeds on benthic and sub-benthic invertebrates. The spawning season is in spring and in summer. This species is sympatric with *M. surmuletus*, however there is partial differentiation in habitat use between these two species, with *M. barbatus* being more abundant in waters between 51 and 200 metres on muddy bottoms, and between 51 and 100 metres on rough bottoms. *Mullus barbatus* has a clear preference for muddy bottoms, which is especially marked in young individuals (Lombarte *et al.* 2000). The chemoreceptor system of *M. barbatus* is well developed, a morphological feature which offers benefits to a species which inhabits waters with a reduced visual field (Lombarte and Aguirre 1997). *Mullus barbatus* is distributed along the shelf of all Mediterranean countries. It can be found at depths over 200 m, but is mainly concentrated at depths of zero to 200 metres. All year classes and nursery and spawning areas are well distributed along the narrow Mediterranean shelves. This species reaches sexual maturity at one year old (STECF 2013). It can reach a

maximum size of 30 cm, but is more commonly seen from 10 to 22 cm (Golani in press).

Systems: Marine

Use and Trade

Mullus barbatus is a commercially important target species which is caught by trawl. Separate catch statistics are not reported for *M. barbatus* (Golani in press). Goatfishes are highly esteemed fish and are considered an important target species in the Eastern Central Atlantic. They are captured primarily by trawling, but also by trammel nets, hook-and-line, and traps and spears (Golani in press). In the Mediterranean, this highly-desirable species is the main target of many demersal fisheries and is considered heavily fished (Tserpes *et al.* 2002). *Mullus barbatus* has been utilized in a number of studies to evaluate the biological effects of chemical pollutants in marine organisms in the Mediterranean, and was chosen as a pilot species for the MED POL II Pilot Program (Mathieu *et al.* 1991, Lionetto *et al.* 2003).

Threats (see Appendix for additional information)

Mullus barbatus is a major target for small scale and semi-industrial fisheries, and is heavily exploited in the Mediterranean and northeast Atlantic (Vogiatzi *et al.* 2012), as well as off the coast of West Africa.

Over-exploitation in the Mediterranean

Mullus barbatus is a targeted species in the Mediterranean which is exploited by industrial trawl fisheries as well as artisanal fleets using small gears such as trammel nets and gillnets. It is also taken as incidental catch in gillnet fisheries targeting Bogue (*Boops boops*), and in multi-species trawl fisheries targeting Picarel (*Spicara smaris*) and Hake (*Merluccius merluccius*). All evaluated stocks of *M. barbatus* in the Mediterranean are considered overfished, and some are showing signs of growth overfishing and very low biomass. Prudence in the management of *M. barbatus* is recommended. Recent micro-satellite data reveal genetic heterogeneity within the Mediterranean, and it has been suggested that this species should not be managed as a single panmictic unit. There is a need for additional research concerning the life history and ecology, spawning and nursery grounds, adult movement patterns, and regional oceanography. Additionally, there is a need to curtail the removal of young, sexually immature individuals in order to avoid growth overfishing of this resource, which has been occurring throughout the Mediterranean (Maggio *et al.* 2009).

Recruitment vulnerability

In the Mediterranean, catches mostly consist of animals less than 15 cm TL which have not yet completed their second year of life (Tserpes *et al.* 2002). High fishing pressure has been implicated as a cause for the dominance of young individuals in catches (Caddy 1993, Farrugio *et al.* 1993). The dominance of young individuals implies an extreme vulnerability to recruitment fluctuations in *Mullus* stocks, which are heavily fished (Farrugio *et al.* 1993). Protection of spawning and nursery areas seems to be crucial for the conservation of *M. barbatus* (Tserpes *et al.* 2002).

Demersal Fisheries in West Africa (from FAO/CECAF working group on the Assessment of Demersal Resources released 2012)

Coastal demersal resources are very sought after in all four of the northern CECAF zone countries (Mauritania, Morocco, Senegal and the Gambia). Many of the commercially important demersal

resources of northwest Africa are heavily exploited. They are exploited by both national artisanal fleets and foreign industrial fleets. Demersal fisheries are typically multi-purpose, and many demersal fisheries resources are bycatch of more specialized fisheries, such as the cephalopod, hake, or shrimp fisheries. High fishing pressure is exerted all on demersal fish species in this region, and there are no species-specific catch statistics for *M. barbatus* in the region.

- **Morocco:** Demersal resources are exploited by Moroccan cephalopod freezer trawlers, coastal fishing vessels, coastal trawlers and longliners, artisanal boats, leased boats and Russian vessels operating under the Morocco-Russia fishing agreement. Demersal resources are explicitly targeted by longlines and some artisanal fishing boats, other vessels catch them as bycatch.
- **Mauritania:** Demersal resources are exploited by foreign and national trawlers targeting, hake, shrimp, pelagics, and demersal fishes.
- **Senegal:** Demersal resources are mainly targeted by artisanal boats (fleet composed of ~12,691 canoes) using fishing lines, but also by national and foreign trawlers operating under fishing agreements
- **Gambia:** Demersal resources are exploited by foreign freezer trawlers and artisanal canoe (FAO/CECAF 2012).

Mercury

There is evidence of endocrine disruption in *M. barbatus* during its reproductive season in highly-polluted cities in the northwestern Mediterranean (Martin-Skilton *et al.* 2006). Due to high concentrations of mercury found in this species, consumption of large quantities of *M. barbatus* in parts of its range has been cited as a public health concern (Storelli *et al.* 2005).

Conservation Actions (see Appendix for additional information)

Mullus barbatus is a relatively well-researched and managed species in the Mediterranean. Stock assessments are performed regularly by sub-region in the Mediterranean basin, however management units are not currently based on knowledge of population structure (Maggio *et al.* 2009). Species-specific catch statistics are not collected for this species in the CECAF region/northwestern Africa. It is found in marine protected areas throughout its range. *Mullus barbatus* responded positively to a 14-year trawl-ban in the gulf of Castellmare (northwestern Sicily, central Mediterranean). Spawning-stock biomass and recruit numbers increased significantly, and females at depths >50 metres during the post-ban period were much larger than those collected before the ban (Fiorentino *et al.* 2008).

Credits

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Reviewer(s): Polidoro, B., Soto, S. & Weller, S.

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Compiler(s):

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External Resources

For [Images and External Links to Additional Information](#), please see the [Red List website](#).

Appendix

Habitats

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

Habitat	Season	Suitability	Major Importance?
11. Marine Deep Benthic -> 11.1. Marine Deep Benthic - Continental Slope/Bathyl Zone (200-4,000m) -> 11.1.1. Hard Substrate	-	Suitable	-

Threats

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

Threat	Timing	Scope	Severity	Impact Score
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.1. Intentional use: (subsistence/small scale)	Ongoing	-	-	-
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.2. Intentional use: (large scale)	Ongoing	-	-	-
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.3. Unintentional effects: (subsistence/small scale)	Ongoing	-	-	-
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.4. Unintentional effects: (large scale)	Ongoing	-	-	-
9. Pollution -> 9.2. Industrial & military effluents -> 9.2.3. Type Unknown/Unrecorded	Ongoing	-	-	-

Conservation Actions in Place

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

Conservation Actions in Place
In-Place Research, Monitoring and Planning
Systematic monitoring scheme: Yes
In-Place Land/Water Protection and Management
Conservation sites identified: Yes, over part of range
Occur in at least one PA: Yes
In-Place Species Management
Harvest management plan: Unknown

Additional Data Fields

Distribution
Lower depth limit (m): 328
Upper depth limit (m): 10
Population
Population severely fragmented: Unknown

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