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Status Assessment 2021 - Portuguese dogfish

Several fisheries regulations of potential benefit to the status of Portuguese dogfish have been adopted in the Northeast Atlantic, both within and beyond EU waters. All of the pressures identified in the last assessment of the Portuguese dogfish are considered to have declined. However, abundance and biomass index estimates for this species are highly variable and uncertain, and the data derived from discard sampling is not adequate to provide robust estimates of the quantities of Portuguese dogfish that are caught (ICES 2019a). Therefore, available data are insufficient to fully evaluate the current status of the species, which is known to exhibit life-history traits that make the recovery process slow.

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Assessment of status		Distribution	Population size	Demographics, e.g. productivity	Previous OSPAR status assessment	Status	
Region	I	$\longleftrightarrow^2$	$\longleftrightarrow^2$	Low	●	Poor	$\longleftrightarrow^2$
	II				●	NA	
	III	$\longleftrightarrow^2$	$\longleftrightarrow^2$	Low	●	Poor	$\longleftrightarrow^2$
	IV	$\longleftrightarrow^2$	$\longleftrightarrow^2$	Low	●	Poor	$\longleftrightarrow^2$
	V	$\longleftrightarrow^2$	$\longleftrightarrow^2$	Low	●	Poor	$\longleftrightarrow^2$

Assessment of key pressures		Fisheries: targeted and bycatch	Ghost fishing	Threat or impact
Region	I	↓[1]	?/ ↓[2]	?
	II			NA
	III	↓[1]	?/ ↓[2]	?
	IV	↓[1]	?/ ↓[2]	?
	V	↓[1]	?/ ↓[2]	?

⊞ Table Legend

⊞ Method of Assessment

Confidence

Medium

Background Information

The Portuguese dogfish was nominated for inclusion in the OSPAR List of Threatened and/or Declining Species in 2006 according to the sensitivity and decline criteria (OSPAR 2010). Following a decline in abundance in some ICES areas, the 2010 European fisheries regulations implemented a zero Total Allowable Catch (TAC) for a list of deep-water sharks, including this species. However, a limited TAC for deep-water shark bycatch in longline fisheries targeting black scabbardfish has been permitted from 2017 to 2020. Discards from deep-water fisheries remain likely to occur, but these have not been quantified for all areas.

The status of this species is based on ICES advice to fisheries managers for fishing opportunities. This advice has been integrated into an assessment for conservation purposes.

Geographical Range and Distribution

The Portuguese dogfish has a wide but patchy distribution in the Atlantic, stretching from Iceland to South Africa. Its range includes the western Mediterranean Sea and part of the Northwest Atlantic from the Grand Banks to Delaware Bay. The species occurs in waters from 600m to 1900m deep (ICES 2020). It also occurs in waters overlying the Mid-Atlantic Ridge north of the Azores and south of Iceland, but not over the Hecate or Faraday Seamounts (Hareide and Thomsen 1997).

Population/Abundance

ICES advises that, when the precautionary approach is applied, there should be zero catches of this species in each of the years 2020–2023. Landings of deep-water sharks (primarily leafscale gulper shark and Portuguese dogfish) peaked in 2001–2004 but declined thereafter in response to restrictive management measures (ICES 2019b).

ICES provided advice on this species for the first time in 2005. The advice stated that *"The rates of exploitation and stock sizes of deepwater sharks cannot be quantified. However, based on the CPUE information, the stocks of Portuguese dogfish and Leafscale Gulper shark are considered to be depleted and likely to be below any candidate limit reference point. Given their very poor state, ICES recommends a zero catch of deepwater sharks"* (ICES 2005). The basis of this advice was that these species were depleted according to substantial declines in Catch per Unit Effort (CPUE) series in subareas 6, 7 and 12 (ICES 2005). No new information has since become available to alter the ICES advice first adopted in 2005, that the species is depleted in the Northeast Atlantic.

Figure 1: Geographic distribution of the Portuguese dogfish Centroscymnus coelolepis.
Source: https://www.iucnredlist.org/species/41747/10552910

Condition

The Portuguese dogfish is a deep-water species whose biology and stock structure is not well understood across its distributional range. The length range reported for the North East Atlantic ranges from for males in waters is 31 cm to 114 cm and for females 37 cm to 130 cm (Clarke 2000,

Moura et al., 2014). Size at maturity occurs at 86 cm and 102 cm for males and females, respectively. Fecundity is in the range 8–21 pups (Clarke et al. 2001). Age, growth and longevity are unknown.

Threats and Impacts

This species is subject to bycatch in deep-water fisheries. Landings have been prohibited since 2010 except for a limited bycatch-related Total Allowable Catch (TAC) in the deep-water longline fisheries targeting black scabbardfish. Fishing pressure has strongly decreased in the last 15 years, given the EU management measures adopted such as Regulation (EU) 2016/2336 (EU 2016) which prohibits the use of static nets or bottom trawling at depths ≥600m and ≥800m, respectively. Ghost fishing is no longer considered a major threat to Portuguese dogfish given the regulations in place that prohibit the use of static nets at depths greater than 600m. However, although it is considered unlikely that lost nets keep fishing over decades, it is unknown for how long any lost nets could have an impact on deep-water shark populations.

Measures that address key pressures from human activities or conserve the species/habitat

In the EU, a zero TAC for a list of deep-water sharks, including Portuguese dogfish, was adopted in 2010 (noting the recent provision for some bycatch; see below). Outside these TAC areas, Portuguese dogfish has, since 2015, been included in the EU prohibited species list for EU waters of Division 2.a and Subarea 4 and in all waters of subareas 1 and 14.

Given the potential negative impact on deep-water species, gill nets, entangling nets and trammel nets were banned for fisheries at depths >600m. In order to mitigate the potential damaging impacts of bottom trawling, fishing with bottom trawls was permitted only at depths ≤800 m. In the Azores, bottom trawls have been prohibited in most of the EEZ since 2005 (Council Regulation (EC) No 1568/2005 of 20 September 2005; Regulation (EU) 2019/1241 of the European Parliament and of the Council of 20 June 2019; Portaria nº 114/2014, of 28 May of 2014).

In the NEAFC Regulatory Area the species is designated as Category 2, which means that directed fisheries are not authorised and that bycatches should be minimised (NEAFC 2016).

Conclusion (including management considerations)

Several fisheries regulations of potential benefit to the status of Portuguese dogfish have been adopted in the Northeast Atlantic, both within and beyond EU waters. All of the pressures identified in the last assessment of the Portuguese dogfish are considered to have declined. However, abundance and biomass index estimates for this species are highly variable and uncertain, and the data derived from discard sampling is not adequate to provide robust estimates of the quantities of

Portuguese dogfish that are caught (ICES 2019a). Therefore, available data are insufficient to fully evaluate the current status of the species, which is known to exhibit life-history traits that make the recovery process slow.

Incidental bycatch of Portuguese dogfish continues to take place in some deep-water fisheries targeting other species. Spatio-temporal management could be considered to further minimise bycatch (e.g. avoidance of some fishing grounds or times of the year where there is a spatial overlap between the target species of the fisheries and deep-water shark species) (ICES 2020). However, the information available is not adequate to frame such measures at present. Among the other possible bycatch mitigation measures for this species in deep-water fisheries, the development of gear-based technical measures for improving selectivity such as electromagnetic exclusion devices, acoustic or light-based deterrents could be considered.

Knowledge Gaps

For the Northeast Atlantic, the current knowledge on deep-water shark species distribution and stock structure are highly deficient. Life-history and biological information are only available for some areas and that information should be updated.

A major scientific investment is required to gain a full understanding of the spatial and temporal population dynamics that would enable estimates of sustainable exploitation levels or the development of conservation-oriented measures. This would include:

i)   increased and rigorous monitoring of deep-water shark populations;

ii)   development of specific studies to assess the distribution patterns of species and to estimate the spatial overlap with fisheries;

iii)   evaluation of the effect on the bycatch of deep water sharks of modifications in deep water fishing operations (ICES 2019a).

Method used

The assessment is based on ICES stock assessments, peer reviewed literature, and expert opinion.

⊞ References

Sheet reference:

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