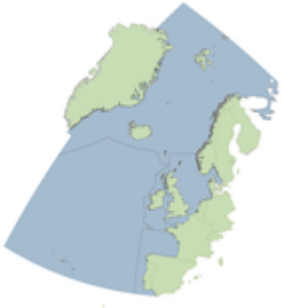
Viewing: Latest Version (1.1.0)

Status Assessment 2021 - Spurdog

Spurdog is a prohibited species for commercial fishing in EU, UK, and Norwegian waters with the exception of bycatch within some approved avoidance programmes (UK/EU waters) and landing of dead bycatch (Norway). The current IUCN listing for this species in European waters is 'Endangered' (Nieto et al. 2015). There are some indications that the status of the Northeast Atlantic stock is improving and recruitment of this species appears to have improved over the last ten years. However, the stock of this species remains at a low level compared to historic levels.

This OSPAR spurdog status assessment was conducted prior to publication of the ICES 2022 advice for spurdog in the Northeast Atlantic and adjacent waters.



OSPAR QSR2023

(/en/ospar-assessments/quality-status-reports/qsr-2023/)

Assessment of status		Distribution	Population size	Stock assessment (ICES 2018)	Demographics, e.g. productivity	Previous OSPAR status assessment	Status
Region	I	?	?		←→[2]	•	Poor[1]
	II	?	↑[1]		←→[2]	•	Poor[1]
	III	?	↑[1]		←→[2]	•	Poor[1]
	IV	?	↑[1]		←→[2]	•	Poor[1]
	V	?	↑[1]		←→[2]	•	Poor[1]

Assessment of key pressures		Fisheries-bycatch	(no targeted fisheries)	Habitat damage and pollution	Threat or impact
Region	I	←→[1]		?	?
	II	←→[1]		?	?
	III	←→[1]		?	?
	IV	←→[1]		?	?
	V	←→[1]		?	?

⊞ Table Legend

⊞ Method of Assessment

Confidence

High

Background Information

Spurdog was nominated for inclusion on the OSPAR List of Threatened and/or Declining Species and Habitats in 2006 and the species has been included since 2008 (OSPAR Agreement 2008-6). It was included due to its sensitivity (i.e. very vulnerable to fisheries because of its very low intrinsic rate of increase and it is very slow to recover from depletion) and its severe decline in all OSPAR Regions. The last OSPAR assessment of this species was carried out in 2010, which concluded that the spurdog stock was seriously depleted by fisheries throughout the OSPAR Maritime Area (OSPAR 2010).

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 spurdog has a near-worldwide distribution in temperate and boreal waters. In the Northeast Atlantic it is found from Iceland and the Barents Sea southwards to the northwest coast of Africa, though the stock is more abundant from the Bay of Biscay northwards (ICES, 2019). Tagging studies suggest a single Northeast Atlantic stock although transatlantic migrations have been recorded

(Holden 1967, ICES 2019). Despite their wide-ranging distribution, both resident and migratory individuals occur in populations that have been studied so far (Burgess 2002, Thorburn et al. 2015, Thorburn et al. 2018).

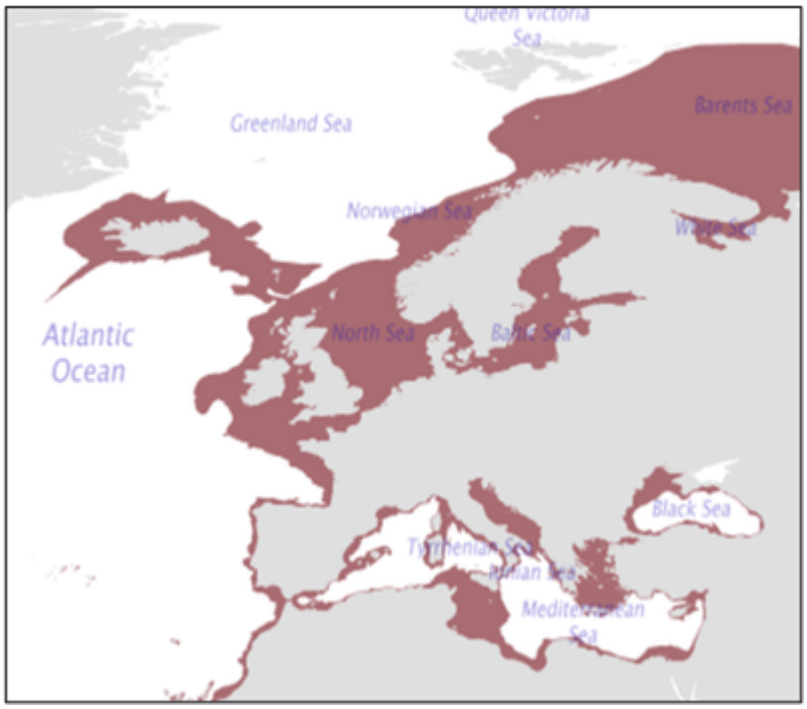


Figure 1: Geographic distribution of spurdog in the Northeast Atlantic and adjacent seas. Source: http://www.fao.org/figis/geoserver/factsheets/species.html?species=DGS-m&prj=4326

Population/Abundance

ICES advises that, when the precautionary approach is applied, there should be no targeted fisheries on this stock in 2021 and 2022 (ICES 2020).

ICES currently carries out a Category 1 assessment for spurdog. In 2019 ICES reported that "*All analyses presented in previous reports of WGEF have indicated that the NE Atlantic stock of spurdog declined over the second half of the 20th century, but now appears to be increasing. The current stock size is thought to be ca. 24% of virgin biomass. Although spurdog are less frequently caught in groundfish surveys than they were 20 years ago, there is some suggestion that spurdog are now being more frequently seen in survey hauls, and survey catch rates are starting to increase*".

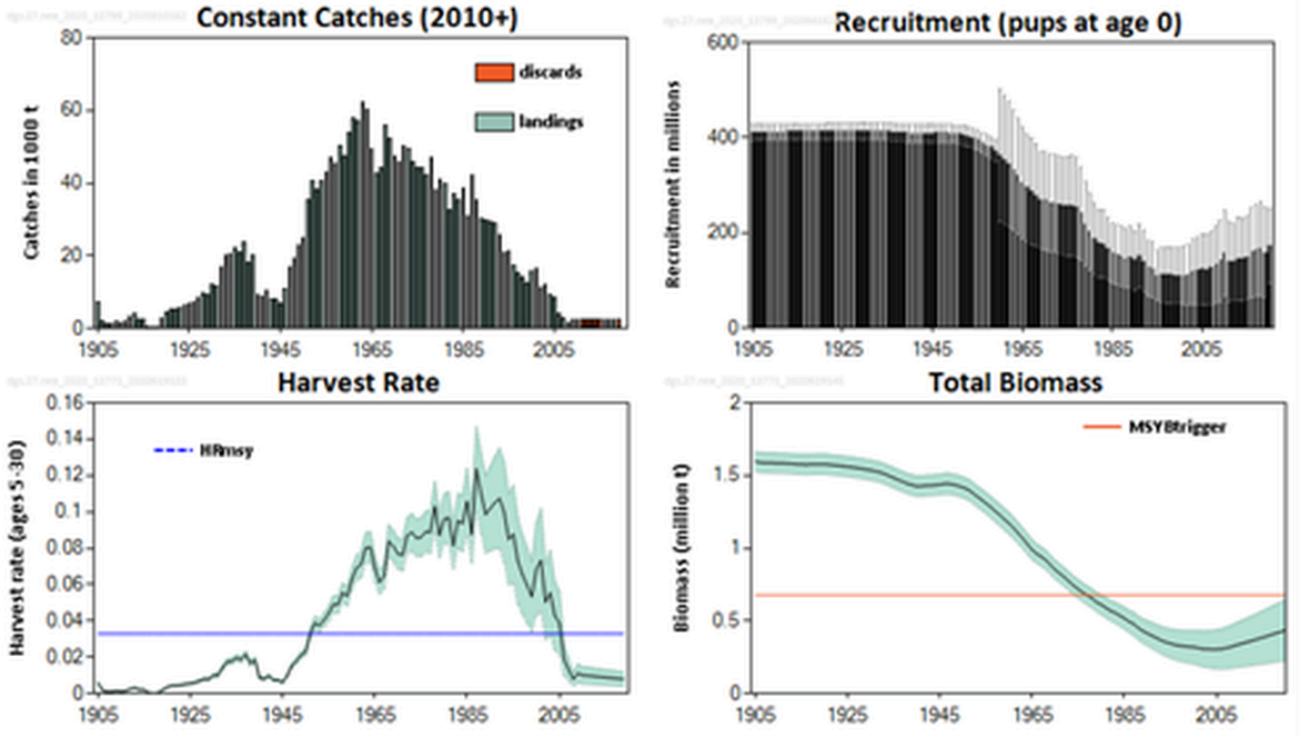


Figure 2: Spurdog in subareas 1–10, 12, and 14. Summary of the stock assessment. Long-term trends in catches (including assumed discards since 2010), mean harvest rate (average ages 5–30), recruitment (number of pups), and total biomass. Shaded areas in the bottom panels reflect estimates of precision (±2 standard deviation) and horizontal lines indicate the associated MSY reference points. The final-year recruitment estimate is provisional, taken from the estimated stock–recruitment relationship (ICES 2020). For original figure see: https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2020/2020/dgs.27.nea.pdf

Condition

The spurdog is relatively long-lived, with a maximum age of at least 40 years (Fahy 1989), and it is also slow-growing and late-maturing. There is sexual dimorphism in body size, with females attaining a larger size. The species is therefore particularly vulnerable to fishing mortality. There is a biennial reproductive period, with gestation lasting from 18 to 25 months (Ford 1921, Gauld 1979, Jones and Ugland 2001). The population size decreased over the 20th century, and there is thought to have been a density-dependent increase in fecundity (Ellis and Keable 2008).

Breeding in this species takes place every other year (Holden and Meadows 1962, Sosinski 1978, Fahy 1989). Fecundity increases with size (Ellis and Keable 2008). The embryonic development starts in November (Ford 1921). The length at birth ranges from 19-31 cm (Ford 1921, Gauld 1979) and pupping occurs from late August to December (Ford 1921, Holden and Meadows 1962, Gauld 1979, Jones and Ugland 2001). Copulation is assumed to occur offshore soon after the females give birth (Holden 1965).

Recent research indicates a steeper increase in younger year-class strength in Norwegian waters than estimated in the current ICES assessments, and, therefore, potential for a much swifter recovery of the spurdog stock (Albert et al. 2019).

Threats and Impacts

Since 2011 targeted fisheries for spurdog have been prohibited in EU (including UK) and Norwegian waters. Bycatch of this species still takes place however, primarily in mixed demersal and gill net fisheries. Discard survival rates are unknown but are likely to be variable.

Damage to the natural habitat of spurdogs from mobile fishing gears or pollution is also likely to occur. The potential impacts on spurdog are associated with habitat loss and degradation. Coastal development, pollution, dredging and bottom trawling affect the habitats on which spurdog and/or their prey are reliant (ASMFC 2008, Fordham et al. 2016).

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

Management measures for spurdog have only been restrictive across the stock area since 2009 and harvest rates have been below the Maximum Sustainable Yield (MSY) level since 2005 (ICES 2019). In 2009, a maximum landing length (100 cm) was introduced in EU waters. This was intended to deter fisheries targeting mature female spurdog. In 2010 the Total Allowable Catch (TAC) was reduced by 90% and further set to zero from 2011. Hence there have been no targeted fisheries in EU waters since the last OSPAR assessment. In Norwegian waters there has been a minimum landing size of 70 cm (introduced in 1964) and also no directed fishing since 2011, although dead bycatch can be landed.

NEAFC has implemented a recommendation for this species (Rec. 8/2021 (2021-2022). This prohibits directed fishing and states that bycatch must be promptly released alive.

Conclusion (including management considerations)

Spurdog is a prohibited species for commercial fishing in EU waters, with the exception of bycatch within approved avoidance programmes. Target fisheries are also prohibited in Norwegian waters, though dead bycatch is landed. The current IUCN listing for this species in European waters is ‘Endangered’ (Nieto et al. 2015). There are some indications that the status of the Northeast Atlantic stock is improving and recruitment of this species appears to have improved over the last ten years. However, the stock of this species is still low compared to historic levels and the threat of bycatch persists.

While there are indications that the stock is improving, the status of the stock relative to historic levels is low, and the life history and behaviour of the species are such that it continues to need protection.

Knowledge Gaps

There are concerns over the availability of robust input data used for the assessment (ICES 2018). For example, reliable catch data since 2010 are not available. Future assessments require updated and validated growth parameters and better estimates of natural mortality (ICES 2018).

There is also a lack of accurate data on the location of pupping and nursery grounds, and their importance to the stock, which preclude spatial management for this species at the present time. In addition, there is a lack of knowledge on effects of pollutants or habitat degradation on this species.

The current assessment model is considered to be suitable for the assessment. However, spurdog has recently undergone an ICES benchmark process (2021) and will be subject to an updated assessment and advice in 2022. Additional surveys have been included to cover the entire spatial component of the stock. Available discard data and updated life history information (e.g. fecundity-at-length, growth parameters and estimates of natural mortality) have been included. In addition, the estimation of reference points has been explored.

Method used

The assessment is based on ICES stock assessments and peer-reviewed literature.

⊞ References

Sheet reference:

BDC2021/Spurdog

OSPAR COMMISSION
(https://www.ospar.org)

- **Data Policy & Conditions of Use (/data-policy/)**