

## SIGN ON TO SUPPORT OUR CALL FOR SUSTAINABLE DEEP-SEA CATCH LIMITS FOR SHARKS IN THE EU

--BACKGROUND INFORMATION--

It is widely documented that even very low fishing mortality can cause the overexploitation of deep-sea sharks<sup>1</sup>. Information about life history on deep-sea species is greatly lacking, as the IUCN Shark Specialist Group compiling data on deep-sea chondrichthyans (sharks, rays, and chimaeras) only found suitable information for 13 species (2.2%) globally. The intrinsic population growth rate for deep-sea species falls at the lower end of the productivity scale for elasmobranchs, making these among the lowest observed for any animal species. The resilience of species significantly declines with increasing maximum depth. Moreover, their population doubling times suggests recovery following exploitation will take decades to centuries<sup>2,3</sup>. In the past there has been a valuable targeted fisheries of deep-sea sharks (mainly for the oil in their livers) with annual catches of as much as 11.000 tons<sup>4</sup>. However, the introduction of a TAC for deep-sea sharks appears to have stopped the targeting<sup>5</sup>.

There are several issues with the current deep-sea management of elasmobranchs in deep-sea fisheries:

- Limited knowledge of species-specific biology and limited data on bycatches means that deep-sea elasmobranchs are a challenge for management. However, the potential biological sensitivity of deep-sea elasmobranch populations to overfishing and uncertainty in data and knowledge should invoke precautionary approaches to management and steps to improve scientific data and evidence for future management.
- The Council agreed to set a bycatch TAC of 10 tons in 2016 for three TAC areas to deal with unavoidable bycatch in Portuguese long line fishery for black scabbard fish. This TAC was granted with the explicit objective to facilitate species-specific data gathering on these species. At this time it is not clear 1) how this measure is implemented, or 2) whether it yielded the increased knowledge base on species-specific bycatch in this fishery.
- The ICES WGEF 2017 report lists more than 25 species of sharks and rays and eight species of chimaera as having potential interactions with EU deep-sea fisheries. However the regulation only mentions 14 species (only sharks) and one species group (deep water catsharks). The other species do not appear in other EU management and it is unclear how the EU controls that all harvests of these species are sustainable.
- The timing of scientific advice for deep-sea species is not concurrent with the TAC setting process for deep-sea species. ICES advises only every 4 years on deep sea chondrichthyans while the TAC is set on a biannual basis.

### ICES advice

The International Council for the Exploration of the Sea (ICES) has information and provides species specific advice for three species: Portuguese dogfish (*Centroscymnus coelolepis*), leafscale gulper shark (*Centrophorus squamosus*), and kitefin shark (*Dalatias licha*). These species only get advice once every 4 years, and ICES just advised that this could be changed into once every five years<sup>5</sup>. The advice on deep-sea sharks is produced jointly by the WGDEEP (Working Group on Deep Water Fisheries) and the WGEF (Working Group on Elasmobranch Fishes). Oddly enough the frequency of advice is not aligned to the deep-sea TAC setting process. The latest advice is from 2015 and the next advice is due in 2019. The 2015 advice sheets can be found [here](#). ICES experts state that for all deep-sea sharks, when the precautionary approach is applied, fishing mortality should be minimized and no targeted fisheries should be permitted. Limited information exists on the majority of the deep-sea elasmobranchs, and the stock units for these species are unknown.

The ICES WGEF updates the catch data in their report each year, for which the report can be found [here](#). The WGEF and WGDEEP work together on these stocks; as the WGEF meets after WGDEEP they check and update the WGDEEP information.

### Bycatch TAC

Even though ICES advises to minimise catches, the way the advice is worded allows for measures to deal with unavoidable bycatch. Portugal has long indicated that the Azores deep water longline fishery for black scabbard fish has unavoidable bycatch of deep-sea sharks that are discarded dead. No data is collected on the discarded bycatch so there is only limited understanding of the species composition of this bycatch. In 2016, the EU Council of fisheries ministers introduced three bycatch TACs of 10 tons each to cover unavoidable bycatches. The TAC was granted on a preliminary basis in order to collect scientific information on deep-sea sharks, permitting limited landings of unavoidable by-catches of deep-sea sharks in directed artisanal deep-sea fisheries for black scabbardfish using longlines. This measure applies to (1) Union water of areas V, VI, VII, VIII and IX (DWS/56789-); (2) international waters of X (DWS/10-), and (3) Union waters of CECAF 34.1.1, 34.1.2 and 34.2 (DWS/F3412C).

### Prohibited species

The TAC & quota regulation of the EU has a prohibited species list. It is illegal to target, land, retain on board or tranship species listed in the areas indicated on this list. Deep-sea sharks are included in the prohibited species list for subareas 1 (Barents Sea), 2a (Norwegian sea), 4 (North Sea), and 14 (East Greenland). Deep-sea shark species on the list are Portuguese dogfish (*Centroscymnus coelolepis*), Birdbeak dogfish (*Deania calcea*), Great lanternshark (*Etmopterus princeps*), smooth lanternshark (*Etmopterus pusillus*), leafscale gulper shark (*Centrophorus squamosus*), and kitefin shark (*Dalatias licha*), whilst other species of deep-sea sharks are not. Some species that venture into deeper water for part of the year are also listed (i.e. common skate, Norwegian skate, and spiny dogfish).

In the South East Atlantic Fisheries Organisation (SEAFO) Area there is a prohibition of directed fishing for ghost catshark (*Apristurus manis*), blurred smooth lanternshark (*Etmopterus bigelowi*), shorttail lanternshark (*Etmopterus brachyurus*), great lanternshark (*Etmopterus princeps*), smooth lanternshark (*Etmopterus pusillus*), skates (*Rajidae*), velvet dogfish (*Scymnodon squamulosus*), deep-sea sharks of the *Selachimorpha* super-order, and picked dogfish (*Squalus acanthias*).

There is a zero TAC for *Deania hystricosa* and *Deania profundorum* in International waters of area 12 (North of Azores).

### Species covered by the regulation

For the purposes of the deep-sea Regulation Council Regulation (EU) 2016/72, 'deep-sea sharks' means the species listed in the table below.

Common name	Alpha-3 code	Scientific name
Deep-sea catsharks	API	<i>Apristurus</i> spp.
Friiled shark	HXC	<i>Chlamydoselachus anguineus</i>
Gulper shark	CWO	<i>Centrophorus</i> spp.
Portuguese dogfish	CYO	<i>Centroscymnus coelolepis</i>
Longnose velvet dogfish	CYP	<i>Centroscymnus crepidater</i>
Black dogfish	CFB	<i>Centroscyllium fabricii</i>
Birdbeak dogfish	DCA	<i>Deania calcea</i>
Kitefin shark	SCK	<i>Dalatias licha</i>
Great lanternshark	ETR	<i>Etmopterus princeps</i>
Velvet belly	ETX	<i>Etmopterus spinax</i>
Mouse catshark	GAM	<i>Galeus murinus</i>

<b>Bluntnose sixgill shark</b>	SBL	<i>Hexanchus griseus</i>
<b>Sailfin roughshark (Sharpback shark)</b>	OXN	<i>Oxynotus paradoxus</i>
<b>Knifetooth dogfish</b>	SYR	<i>Scymnodon ringens</i>
<b>Greenland shark</b>	GSK	<i>Somniosus microcephalus</i>

### Skates

Fourteen species of skate (Rajidae) are known from deep water in NE Atlantic:

Arctic skate *Amblyraja hyperborea*, Jensen's skate *Amblyraja jenseni*, Krefft's skate *Malacoraja kreffti*, roughskin skate *Malacoraja spinacidermis*, deep-sea skate *Rajella bathyphila*, pallid skate *Bathyraja pallida*, Richardson's skate *Bathyraja richardsoni*, Bigelow's skate *Rajella bigelowi*, round skate *Rajella fyllae*, Mid-Atlantic skate *Rajella kukujevi*, spinytail skate *Bathyraja spinicauda*, sailray *Rajella lintea*, Norwegian skate *Dipturus nidarosiensis*, blue pygmy skate *Neoraja caerulea* and Iberian pygmy skate *Neoraja iberica*.

Species such as *Dipturus batis* complex and *Leucoraja fullonica* may also be found in deep water, but their main areas of distribution are in shallower waters and they are not considered in this section. One species of electric ray (*Torpedo nobiliana*) may also occur in the deep water of this area.

Eight species of chimera/rabbitfish Chondichthyes; Holocephali), including members of the genera Chimaera, Hariotta and Rhinochimaera are a bycatch of some deep-sea fisheries and are sometimes marketed. The current zero-TACs for deep-sea sharks, whose livers were used to extract squalene, may have led to the increased retention of rabbitfish, particularly common chimaera *monstrosa* in Norway (114 t in 2012, 177 tin 2013) to produce “ratfish oil”. Catches of Chimaeridae are included in the report of the ICES Working Group on Deep-sea Fisheries Resources (WGDEEP).

Deep-water skates are included in EU TACs for “Skates and Rays Rajidae”. The Norwegian skate and the *Dipturus batis* complex are on the prohibited species list for all EU waters.

### References

1. Norse, Elliott A., Sandra D. Brooke, William W L Cheung, Malcolm R. Clark, Ivar Ekeland, Rainer Froese, Kristina M. Gjerde, Richard L. Haedrich, Selina S. Heppell, Telmo Morato, Lance E. Morgan, Daniel Pauly and Rashid S Sumaila. (2012) Sustainability of deep-sea fisheries. *Marine Policy*, 36: 307–320.
2. Devine, J.A., Baker, K.D., Haedric, R.L. (2006) Deep-sea fishes qualify as endangered. *Nature*, 439:29.
3. Kyne, P.M. and Simpfendorfer, C.A.A.. (2007) Collation and Summarization of Available Data on Deepwater Chondrichthyans: biodiversity, Life History and Fisheries. Bellevue, WA: Marine Conservation Biology Institute; 137 p.
4. ICES. 2017. Report of the Working Group on Elasmobranchs (2017), 31 May-7 June 2017, Lisbon, Portugal. ICES CM 2017/ACOM:16. 1018 pp.
5. ICES (2018) EU request on the role of the Total Allowable Catch instrument for fisheries management and conservation of selected deep-water stocks. [https:// doi.org/10.17895/ices.pub.4493](https://doi.org/10.17895/ices.pub.4493)