

Potential feature case report for species conservation prioritization in the southern Celtic Sea

Bigeye thresher shark *Alopias superciliosus*



Figure 1: bigeye thresher shark (PIRO-NOAA Observer Program)

Background

The bigeye thresher shark is a large cartilaginous fish species in the Class Chondrichthyes. The bigeye thresher shark is a coastal and oceanic species distributed within tropical and temperate waters (Compagno, 2001; Ebert et al. 2013). It is found between depths of 0 – 955 m but is often encountered below 100 m (Compagno 2001; Coelho et al. 2015). Size-at-maturity is thought to be 245–300 cm for males and 282–355 cm for females (“IUCNredlist.org”, n.d.). Of all thresher shark species, the bigeye has the lowest rate of annual increase (1.6% under sustainable exploitation; Smith et al. 2008) due to its annual reproductive style which yields 2-4 pups per litter (usually 2 pups). Its estimated age of maturity is 12-13 years for females (Liu et al. 1998). Maximum age is thought to be 28 years with a generation length of 18.5 years (Chen and Yuan 2006). The bigeye thresher shark is encountered around the world in tropical and temperate waters (Ebert et al., 2013). It is thought there is one global population from genetic analyses, however it appears there might be genetic structuring between Northwest Atlantic and the Pacific Ocean sharks (Trejo 2005, Morales et al. 2018). The bigeye thresher shark lacks red muscle endothermy, however has large orbital rete allowing them to warm their eyes (Anderson et al., 2022).

The rationale for spatial protection in the southern Celtic Sea

The bigeye thresher shark was nominated for inclusion with reference to its conservation listing under the Irish Red List as Not Evaluated, and under the IUCN red list as Vulnerable globally and Endangered at the European scale. The bigeye thresher is the most vulnerable of 16 Atlantic elasmobranch species in terms of overfishing from longlines. In 2009, ICCAT banned retention, transshipment, landing, storage, and sale of Bigeye Threshers, with an exception for Mexico.

Additionally, it is listed on Appendix II of the Convention on Migratory Species and Appendix II of the Convention on International Trade in Endangered Species (CITES). The global population of bigeye thresher sharks has been estimated to have declined by 30–49% over the last three generations (55.5 years) due to exploitation (“IUCNredlist.org”, n.d.). Coastal areas are thought to facilitate nursery areas and juvenile distributions (Fernandez-Carvalho et al. 2015; Moreno and Morón, 1992).

The rationale for exclusion from spatial protection in the southern Celtic Sea

A significant part of its range is not within the study area.

Geographical Extent

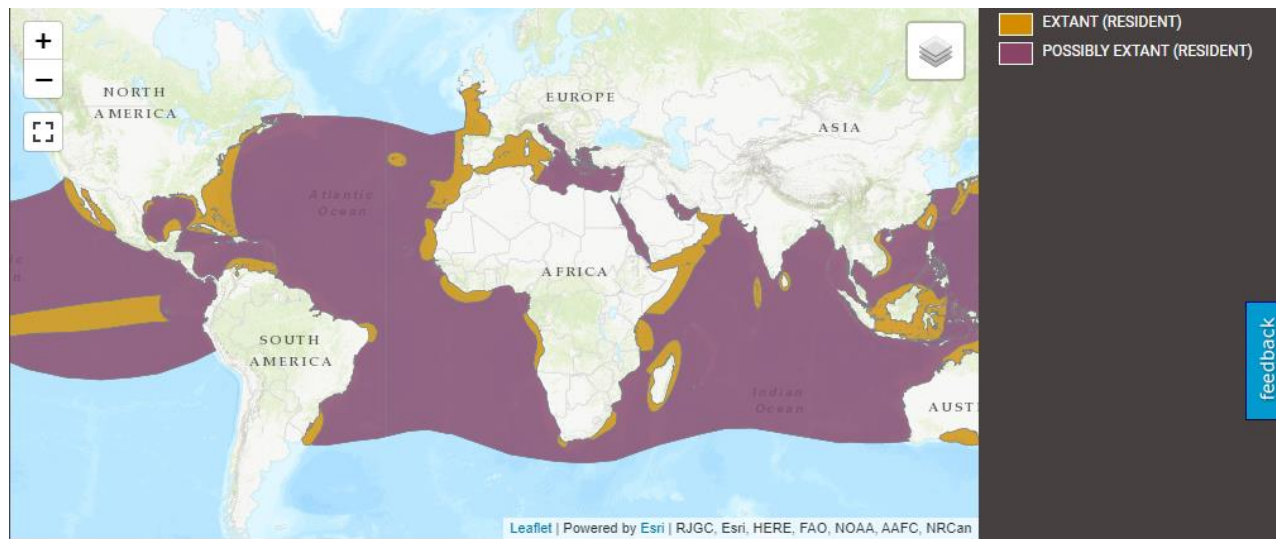


Figure 2: bigeye thresher shark distribution (“iucnredlist.org” n.d.).

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