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

Shortfin mako shark *Isurus oxyrinchus*

Figure 1: Shortfin mako shark (NOAA Fisheries)

Background

The shortfin mako shark is a large cartilaginous fish species in the Class Chondrichthyes. It is a coastal and oceanic species distributed within tropical and temperate and waters (Ebert et al. 2013) found between depths of 0 - 888 m (Abascal et al. 2011, Ebert et al. 2013, Weigmann 2016) and rarely occurring in waters < 16°C (Compagno 2002). There is a suspected nursery ground in the eastern north Atlantic (Buencuerpo et al. 1998 and Tudela et al. 2005). It is regionally endothermic, meaning it can warm certain tissues within its body, which may facilitate an active, migratory lifestyle (Carey et al. 1981). Maximum total length is thought to be 400 cm (Compagno, 2001) and size-at-maturity is thought to be 166–204 cm for males and 265–312 cm for females (Pratt and Casey 1983, Stevens 1983, Cliff et al. 1990, Francis and Duffy 2005, Varghese et al. 2017). The shortfin mako shark is a viviparous species reproducing every three years (Mollet and Cailliet 2002). Each litter produces 4-25 pups (commonly 10 – 18; Garrick 1967, Compagno 2001). Female age of maturity is variable from 18-21 years with maximum age thought to be 28-32 years with a generation length of 24-25 years ("IUCNredlist.org", n.d.). Apart from in the south Pacific, the shortfin mako is estimated to be declining in all other oceanic regions (CITES, 2002).

The rationale for spatial protection in the southern Celtic Sea

The shortfin mako 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 Unknown at the European scale. It is estimated that there is a 90% chance of the stock being overfished in the North Atlantic due to fisheries pressures and a lack of global limits on landings ("IUCNredlist.org", n.d.; CITES, 2002). Catch data show most catches are of juveniles, meaning management now will result in declining stock into the future (CITES, 2022) as the stock would not rebuild by 2070 (ICCAT, 2019). 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). However as of 2017, EU countries such as Spain, land the shortfin mako without limits on catch ("IUCNredlist.org", n.d.).

There is evidence of young of the year in the Mediterranean, which use coastal areas, however, it is the larger individuals which are found further north (Cattano et al., 2023; LaFreniere et al., 2023; Nosal et al., 2019). Three out of four Irish records of the shortfin mako were caught on rod and line are from Kinsale, Co. Cork, with one further unconfirmed report in August 1990 also from Kinsale (Henderson et al., 2015). Shortfin mako sharks tagged in the Northeast Atlanic show some indications of site fidelity (in temperate waters) (Santos et al., 2021).

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

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

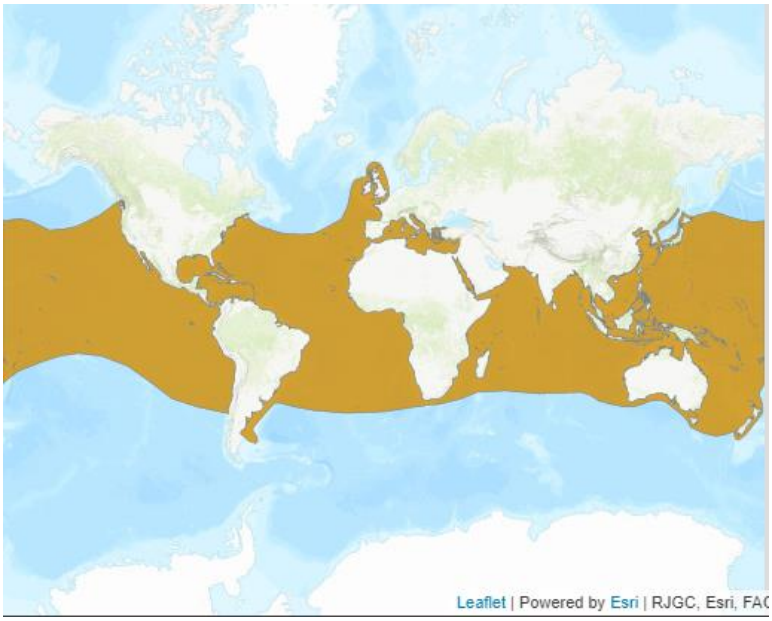

Figure 2: global shortfin mako shark distribution ("iucnredlist.org", n.d.).

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