

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

Undulate skate *Raja undulata*

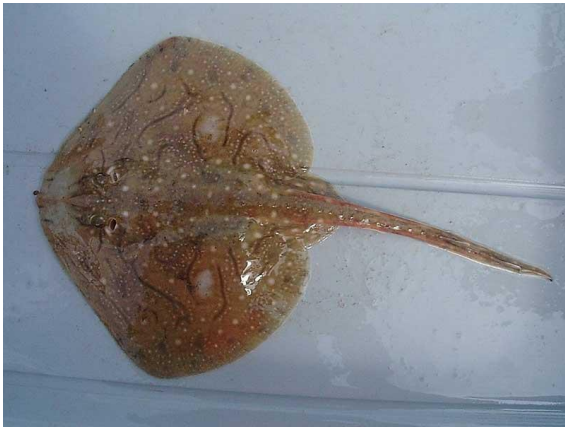


Figure 1: undulate skate (retrieved from “marlin.ac.uk”, n.d.)

Background

The undulate skate is a small cartilaginous fish species in the Class Chondrichthyes. Its known distribution is patchy but can be encountered in discrete areas more frequently in the northeast Atlantic (southwestern Ireland, eastern English Channel and southern Portugal), eastern central Atlantic and the Mediterranean (“IUCNredlist.org”, n.d.). It occurs mostly on sandy and muddy seabed up to a depth of 200 m, but it appears to favour shallower depths (Stehmann and Bürkel 1984, Coelho and Erzini 2006). Coastal lagoons have been suggested as being important nursery areas (Coelho et al. 2002). There are regional differences of size-at-maturity, with estimates for female maturity (50% maturity) coming from Portugal ranging from 76 – 84 cm, and male maturity ranging from 74 – 78 cm (Coelho and Erzini, 2006). Age of maturity for the Algarve population has been estimated at 8.98 years in females and 7.66 years in males (Coelho and Erzini, 2006). It is oviparous and paired eggs are laid on sandy and muddy flats (“fishbase.se”, n.d.). It reproduces yearly, although there are regional differences in breeding, which is thought to be linked to temperature as reproduction appears to be linked to cooler waters (Moura et al. 2007). Maximum observed age is 13 years old (Coelho and Erzini 2002), but it is thought this species can live to be 21-23 years (Coelho et al. 2002). The undulate skate has a very slow growth rate ($k=0.11$) (Coelho and Erzini 2002), natural mortality is estimated to be 0.20-0.219 year⁻¹ (Coelho et al. 2002) and has a long generation time of 14-15 years (Dulvey et al. 2000). There is a dietary shift as the skate grows, from smaller to larger prey (e.g., shrimp to crabs; Moura et al. 2008).

The rationale for spatial protection in the southern Celtic Sea

The undulate skate was nominated for inclusion with reference to its conservation listing under the Irish Red List as Endangered, and under the IUCN red list as Endangered globally and Near Threatened at the European scale. However, IUCN red list assessments were last conducted in 2003 and needs updating ("IUCNredlist.org", n.d.). Accurate stock estimates are difficult to obtain due to the patchy distribution of the undulate skate. There are discrete populations off the coast of the Portuguese west coast (Moura et al. 2007) and Tralee Bay, Ireland ("IUCNredlist.org", n.d.), with this species displaying possible site fidelity and low dispersal capabilities (Ellis et al., 2011; Figueiredo et al., 2020). In addition, Marine Sportfish Tagging Ireland tagged approximately 1000 undulate skate between 1971 and 2008, mostly within Tralee Bay. Of these tagged individuals, 77% were recaptured within 96 km of their tagging location "fisheriesireland.ie", 2024).

Peak catch records of the undulate skate occurred in 1981-1982 (80-100 fish) with catches still occurring regularly, but at a lower level ("IUCNredlist.org", n.d.). For example, in 2001 – 2003 fish catches reached 40 – 60 fish, but less than 20 were recorded in 2005. French fisheries observer data (ObsMer) indicate a low presence of the undulate skate in the Celtic Sea (outside EEZ) (Elliot et al., 2020).

Tralee Bay is voluntary closed to commercial fishing to protect regionally important elasmobranchs, with recreational fishing continuing in the Bay. ICES advised in 2008 that no targeted fishing should take place in the North Sea, English Channel and Celtic Seas. Since 2009 it has been illegal to retain any caught undulate skates in EU waters.

There are no confirmed eggcase reports listed from the Shark Trust in the study area ("sharktrust.org", n.d.; Figure 3), but historical trawl records from 1980 show adults are caught in trawls near to the study area (Minchin & Molloy, 1980).

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

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

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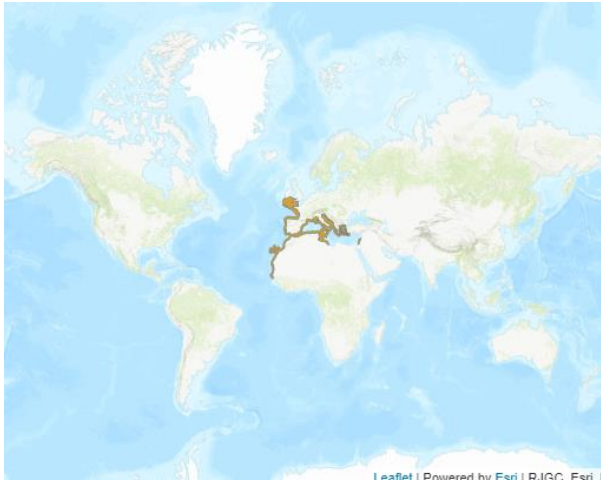


Figure 2: global undulate skate distribution ("iucnredlist.org" n.d.)

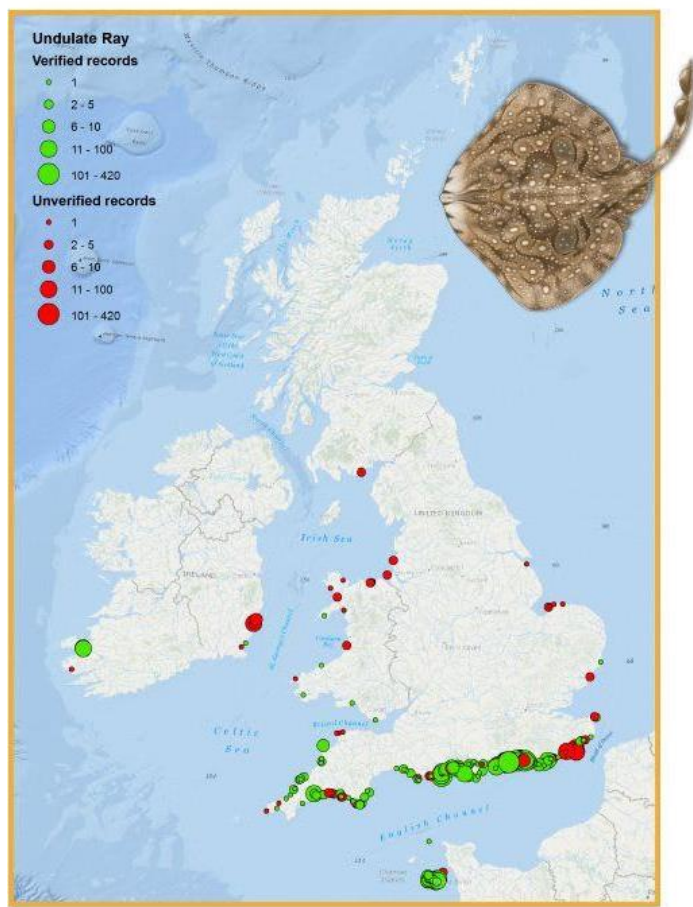


Figure 3; shark trust undulate skate eggcase records

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