

17. Turbot (*Scophthalmus maximus*)

Irish name: Turbard



Figure 1. Turbot, *Scophthalmus maximus* (Linnaeus, 1758), By I, Luc Viatour, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=6519726>

Background

Turbot is a large left-eyed flatfish found primarily in shallow waters throughout the Mediterranean, the Baltic Sea, the Black Sea, and the North Atlantic (Figure 2). Adults live on sandy, rocky or mixed bottoms; rather common in brackish waters. Feed mainly on other bottom-living fishes (sand-eels, gobies, *etc.*), and also, to a lesser extent, on larger crustaceans and bivalves. Batch spawner with spawning season between May and July; pelagic eggs. May reach 25 kg with females becoming much larger than males. Highly esteemed food fish (Source: [Fishbase](#)).

Turbot displays high fidelity to spawning sites and is relatively sedentary. The principal threat to turbot is over-exploitation. Population declines have been documented throughout this species' range. Across Europe, turbot is a valuable bycatch species that is taken in various fisheries such as those targeting flatfishes like sole and plaice. This species is caught with beam trawls, seines, trammel nets, longlines, gillnets and otter trawls. Turbot is bred in captivity and is thought to be an excellent candidate for aquaculture in Europe (source: IUCN European Red List Assessment, 2013 and references therein).

Rationale for spatial protection in the western Irish Sea

Turbot is nominated for inclusion with particular reference to its listing as Vulnerable by the European IUCN Red List. The latest Global IUCN Red List places turbot in the Least Concern category (Cardinale et al., 2021). Nevertheless, turbot is not subject to stock assessment or individual management in the western Irish Sea and there are no fishing restrictions in place under the Common Fisheries Policy (2015) so the precautionary principle was applied and spatial management is considered.

The western Irish Sea is a significant part of its range. Data on the distribution of this species in the Irish Sea is comprehensive with the exception of shallow areas; catch and positional data are available from the fishery (logbooks and VMS) and the IBTS survey reports CPUE, length, weight, age, sex and maturity from scientific hauls spread across the area in a stratified design.

Turbot are amenable to spatial protection owing to the fact they have high spawning site fidelity, generally do not undertake extensive movements (Cardinale et al. 2021 and references therein). Although larval dispersal is relatively low, Florin et al. (2013) found a high potential for larval export from a marine reserve in Sweden, showing that it may be important for maintaining a viable turbot stock.

Sensitivity assessment

No existing MarESA or FeAST sensitivity assessments were available for turbot. A full literature search (terms below) produced greater than 3000 results, partially due to the use of turbot in aquaculture. It was not possible to review the full set of resulting papers in the time available so the following sensitivity assessment is based on selected papers, the IUCN assessments, and sensitivity assessments for similar flatfish (witch and American plaice).

The highest associated sensitivity scoring for American plaice was in relation to targeted and non-targeted (bycatch) removals by all fishing sub-sectors (medium sensitivity, high confidence). Physical loss or alteration of its habitat were deemed a medium sensitivity (with medium confidence). Due to its close association with certain shallow sediments, resistance to physical loss and change of sediment type were scored as low but, as they are mobile, have pelagic eggs and larvae, and have a long association with fisheries-related abrasion, resilience was scored medium.

Turbot were assessed as not sensitive to waterflow changes but it should be noted that the transport and retention of their eggs and larvae to suitable areas of habitats may rely on the Irish Sea gyre (Dickey-Collas et al. 1996) and large-scale disruption of such features could disrupt settlement of larvae.

Further research needs

Existing data on the shallow water distribution of turbot in the western Irish Sea (e.g. from beach seine or inshore surveys) needs to be combined with the offshore data described below.



Figure 2. Global geographic distribution of Turbot, *Scophthalmus maximus*, from www.aquamap.org.

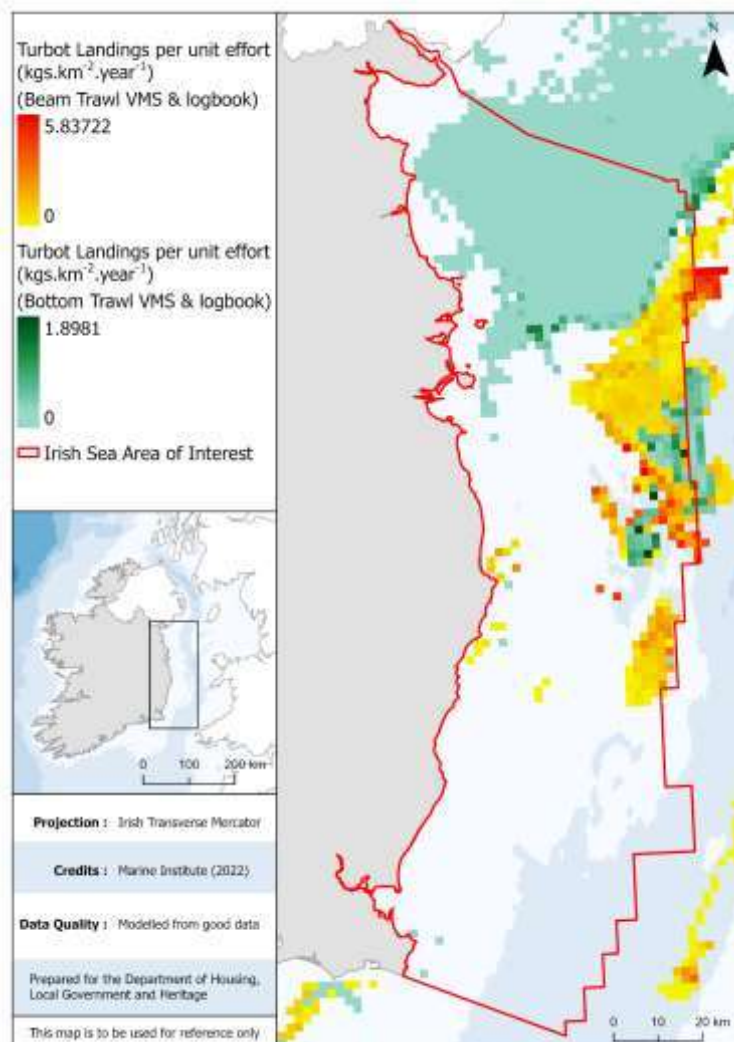


Figure 3. Data available for Turbot, *Scophthalmus maximus*, in the western Irish Sea.

Data sources and quality

Dataset Name	Data Owning Organisation	Dataset Quality	Metadata URL	Comments
ICES international fishing effort and swept area ratios; VMS	International Council for the Exploration of the Seas	Modelled from good data		
International Bottom Trawl Survey (IBTS) Fisheries Database of Trawl Surveys (DATRAS)	International Council for the Exploration of the Seas	Good; observed	IE-IGFS and NIGFS	
Marine Institute VMS and logbook	Supplied to Marine Institute by Irish Naval Service and Sea Fisheries Protection Authority	Modelled from good data		

References

- Cardinale, M., Chanet, B., Martínez Portela, P., Munroe, T.A., Nimmegeers, S., Shlyakhov, V., Turan, C. & Vansteenbrugge, L. (2021) *Scophthalmus maximus*. *The IUCN Red List of Threatened Species* 2021: e.T198731A144939322. <https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T198731A144939322.en>.
- Dickey-Collas M , Gowen RJ Fox CJ (1996) Distribution of Larval and Juvenile Fish in the Western Irish Sea: Relationship to Phytoplankton, Zooplankton Biomass and Recurrent Physical Features. *Marine and Freshwater Research* 47, 169-181.
- Florin AB, Bergström U, Ustup D, Lundström K, Jonsson PR. Effects of a large northern European no-take zone on flatfish populations. (2013) *J Fish Biol.*;83(4):939-62. doi: 10.1111/jfb.12097. Epub 2013 May 31. PMID: 24090556.