

Rise of the thornback ray in the North Sea

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Thornback ray (*Raja clavata*) is an important species in the North Sea and is taken in fisheries targeting sole (trawl and gillnet), cod (trawl, gillnet and longline), as well as in targeted ray gillnet fisheries (ICES, 2017a). Species-specific landings data for rays and skates are missing up until 2012, mostly because these species are managed by one general TAC (Total Allowable Catch). However, market sampling indicates that thornback ray is one of the most frequently landed skates (ICES, 2017a; ILVO fisheries observer data).

According to ICES, the North Sea stock of thornback ray has steadily declined since the start of the 20th century and its distribution is largely reduced (ICES, 2017a). Data from International Bottom Trawl Surveys (iBTS) shows that over the past 40 years the distribution of thornback ray has been concentrated to the southern-western North Sea, especially in the Greater Thames Estuary and the Wash (Walker & Heessen, 1996; ICES, 2017a). However, in more recent years, scientific surveys such as the International Bottom Trawl Survey iBTS and the Celtic Ground Fish Survey (CGFS) show that the abundance of thornback ray has increased (ICES, 2017a; ICES, 2017b). Beam trawling is another efficient method to catch rays and skates, so ILVO decided to analyse Beam Trawl Survey (BTS) data from the period 2004-2017. For this, we focussed on the Belgian, German and Dutch surveys which cover the entire southern North Sea until the German Bight. Our analysis confirmed the increasing trend in the southern North Sea (ICES area 4c) with the survey index (individuals/km²) for thornback ray in 2017 being a fivefold of the index calculated for 2004. Moreover, thornback ray was caught in areas where it has not been seen for a long time (e.g. the German Bight).

This ILVO study delivers various important new insights on the abundance and distribution of these rays, which could be linked to fishing pressure and a number of environmental factors as well as changes in fish community structure. For example, with the rise of sea surface temperatures, thornback ray might receive a competitive advantage over other species that are less resilient to warmer waters (Sguotti et al., 2016). The outcomes of our study deliver important new insights for stock assessments and fisheries management of rays and skates in the North-East Atlantic.

References

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