marinescotland DATA

Scottish Government Riaghaltas na h-Alba gov.scot

part of Scotland's environment

Scottish Marine and Freshwater Science Reports (/group/scottish-marine-and-freshwater-science-reports)

Formal report series, containing results of research and monitoring carried out by Marine Scotland Science

License

UK Open Government Licence (OGL)

Other Access

The information on this page (the dataset metadata) is also available in these formats.

JSON

RDF

via the DKAN API (https://dkan.readthedocs.io/en/latest/apis/index.html)

Monitoring the Consequences of the Northwestern North Sea Sandeel Fishery Closure

Scottish Marine and Freshwater Science Volume 1 No 6

By 1997 sandeel abundance on the Wee Bankie was already depressed as a result of fishing activities, and continuation of the fishery up to 1999 caused further declines. As a precautionary measure to safeguard marine top predators, particularly seabirds at internationally important colonies in and around the Firth of Forth, an area off the east coast of Scotland, from Rattray Head to St Abbs, was closed to industrial fishing for sandeels in 2000. High levels of recruitment in 1999 and 2000, combined with a lack of any significant fishing activity in 1999, resulted in an immediate and substantial increase in the biomass of sandeels on the Wee Bankie grounds in 2000; the first year of the sandeel closure. Since 2001, sandeel biomass has steadily declined to levels in 2007 that were similar to those observed in 1997 and 1998 when the sandeel fishery in the area was active. In the absence of sustained recruitment, consumption by marine top predators, along with other causes of natural mortality, have exceeded growth production in the population. Closing the area to fishing has not been sufficient to ensure high abundances of sandeels in the area. Recruitment of young sandeels, at or above long-term average levels, is also necessary, and since this is primarily governed by natural process, this may be beyond the capacity of fisheries management alone to achieve. Variation in the abundance and feeding ecology of gadoid predators in the study area was unrelated to variation in sandeel abundance and so remained unaffected by closure of the fishery. Numbers of guillemots, razorbills, puffins and kittiwakes recorded at sea in the study area all appeared to increase with closure of the fishery, and then subsequently to decline again as local sandeel abundance declined. The increase in auk abundance at sea may well have resulted from an influx of non-breeding birds. Only the breeding performance of kittiwakes at the Isle of May appeared related to variation in local sandeel abundance. Simply closing offshore areas close to top predator colonies may not be sufficient to guarantee the long term prospects of predators at these locations.

doi:
10.7489/1503-1

Citation:
Greenstreet, S., Fraser, H., Amrstrong, E., Gibb, I. 2010. Monitoring the Consequences of the Northwestern North Sea Sandeel Fishery Closure. Scottish Marine and Freshwater Science Vol 1 No 6. Edinburgh: Scottish Government, 31pp.

Data and Resources

Scottish Marine and Freshwater Science Volume 1 No 6

Go to resource

sandeel fisheries monitoring Wee Bankie

Field	Value
Publisher	Scottish Marine and Freshwater Science Reports (/group/scottish-marine-and-freshwater-science-reports)
Modified	2020-01-07
Release Date	2014-10-21
Identifier	128c9966-0b58-459c-bb1b-70cd52fb9754
Spatial / Geographical Coverage Location	Wee Bankie
Temporal Coverage	2010-03-31
License	UK Open Government Licence (OGL)
Author	Greenstreet, S., Fraser, H., Amrstrong, E., Gibb, I.
Data Dictionary	The study area covered most of two ICES statistical rectangles, 41E7 and 41E8, between latitudes 56o 00'N and 56o 30'N and longitudes 003o 00'W and 001o 00'W (Figure 3.1). Fishery-independent acoustic, and demersal trawl surveys were undertaken using the Scottish Fisheries Research Vessels Clupea (up to and including 2007) and Alba na Mara (from 2008 onwards). All acoustic and demersal trawl survey work was carried out between 0300h and 1500h GMT between late May and early July of each year from 1997 to 2009, apart from 2004 when acoustic and demersal trawl survey work was not undertaken. Predatory fish biomass in the study area was assessed using the demersal trawl surveys and applying an identical methodology as for assessing sandeel, herring and sprat local biomass. Numbers of seabird predators using the study area was assessed using a variable width (150m to 300m, depending on weather and sea state conditions) transect to one side of the vessel while the ship was engaged in acoustic survey passage. hide
Contact Name	Marine Scotland Science Enquiries
Contact Email	ms.reception@scotland.gsi.gov.uk (mailto:ms.reception@scotland.gsi.gov.uk)
Public Access Level	Public