A perspective on Ocean Observation

Over a century of integrated observation

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Chair Science Committee

International Council for the Exploration of the Sea

Short excursion: what is ICES?

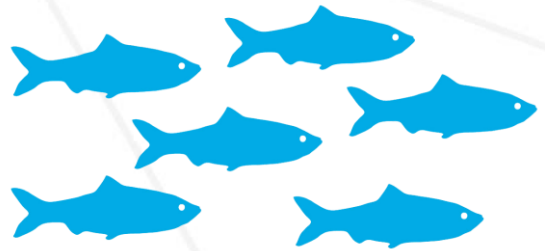
ICES is an intergovernmental organization with 20 member countries:

Belgium, Canada, Denmark, Estonia, Finland, France, Germany, Iceland, Ireland, Latvia, Lithuania, the Netherlands, Norway, Poland, Portugal, Russian Federation, Spain, Sweden, United Kingdom, and United States of America.

Through strategic partnerships our work in the Atlantic Ocean, and specifically the North Atlantic, extends into the Arctic, the Mediterranean, the Black Sea, and the North Pacific.

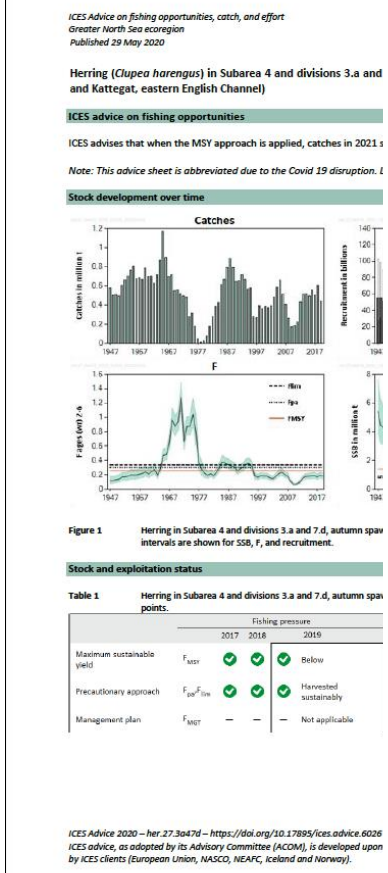
What are we already doing in relation to ocean observation?

- Development of **sampling methods** and **protocols**
  - Series of ICES Survey Protocols (SISP)
- Joint **planning** of surveys
  - survey planning groups
- Quality assurance and control through **data governance**
  - Data governance groups
- **Using data** in assessment and science groups
  - Stock assessment groups, integrated ecosystem assessment groups
- Developing **technology** for data collection and analysis
  - Gear technology, machine learning, omics, acoustic and image technologies…



Use of Ocean Observation

- Fish stock advice
- Ecosystem Overviews
- Fisheries Overviews
- Special requests
  - Vulnerable marine ecosystems
  - Bycatch
  - Fishing impacts



ICES Advice on fishing opportunities, catch, and effort
Greater North Sea ecoregion
Published 29 May 2020

Herring (*Clupea harengus*) in Subarea 4 and divisions 3.a and and Kattegat, eastern English Channel)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, catches in 2021 s

Note: This advice sheet is abbreviated due to the Covid 19 disruption.

Stock development over time

Catches

F

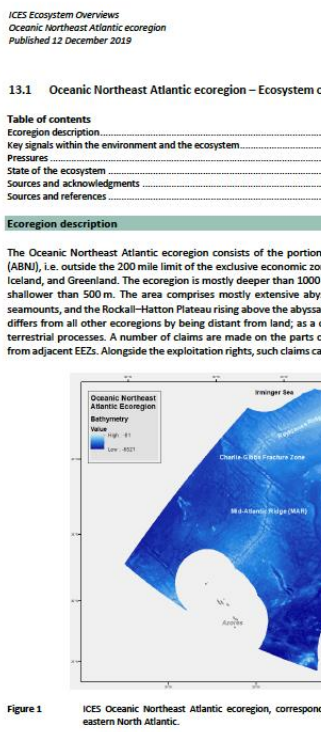
Figure 1 Herring in Subarea 4 and divisions 3.a and 7.d, autumn spaw intervals are shown for SSB, F, and recruitment.

Stock and exploitation status

Table 1 Herring in Subarea 4 and divisions 3.a and 7.d, autumn spa points.

		Fishing pressure			
		2017	2018	2019	
Maximum sustainable yield	F_{MSY}	✓	✓	✓	Below
Precautionary approach	F_{pa}, F_{lim}	✓	✓	✓	Harvested sustainably
Management plan	F_{MGT}	–	–	–	Not applicable

ICES Advice 2020 – her.27.3a47d – https://doi.org/10.17895/ices.advice.6026
ICES advice, as adopted by its Advisory Committee (ACOM), is developed upon by ICES clients (European Union, NASCO, NEAFC, Iceland and Norway).



ICES Ecosystem Overviews
Oceanic Northeast Atlantic ecoregion
Published 12 December 2019

13.1 Oceanic Northeast Atlantic ecoregion – Ecosystem c

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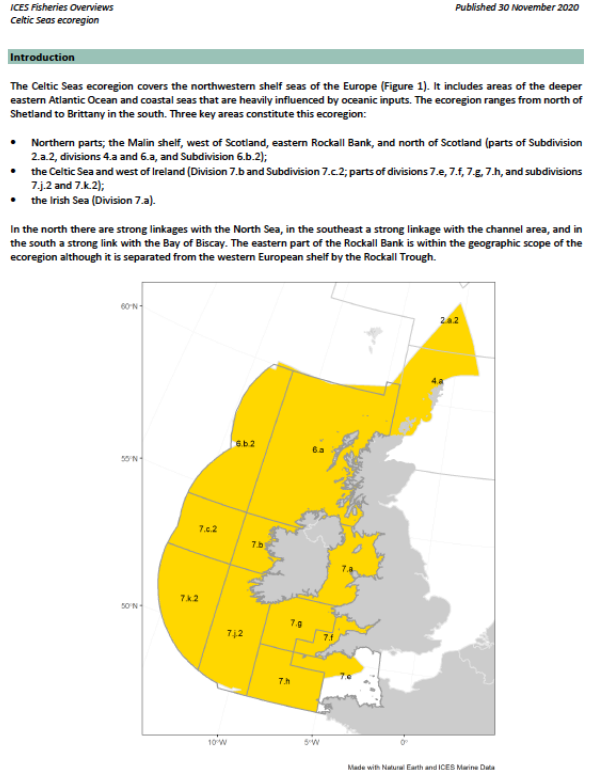
Ecoregion description

The Oceanic Northeast Atlantic ecoregion consists of the portion (ABNJ), i.e. outside the 200 mile limit of the exclusive economic zo Iceland, and Greenland. The ecoregion is mostly deeper than 1000 shallower than 500 m. The area comprises mostly extensive aby seamounts, and the Rockall–Hatton Plateau rising above the abyssa differs from all other ecoregions by being distant from land; as a terrestrial processes. A number of claims are made on the parts from adjacent EEZs. Alongside the exploitation rights, such claims ca

Figure 1 ICES Oceanic Northeast Atlantic ecoregion, correspon eastern North Atlantic.

ICES Advice 2019 – https://doi.org/10.17895/ices.advice.5754



ICES Fisheries Overviews
Celtic Seas ecoregion

Published 30 November 2020

Introduction

The Celtic Seas ecoregion covers the northwestern shelf seas of the Europe (Figure 1). It includes areas of the deeper eastern Atlantic Ocean and coastal seas that are heavily influenced by oceanic inputs. The ecoregion ranges from north of Shetland to Brittany in the south. Three key areas constitute this ecoregion:

- Northern parts; the Malin shelf, west of Scotland, eastern Rockall Bank, and north of Scotland (parts of Subdivision 2.a.2, divisions 4.a and 6.a, and Subdivision 6.b.2);
- the Celtic Sea and west of Ireland (Division 7.b and Subdivision 7.c.2; parts of divisions 7.e, 7.f, 7.g, 7.h, and subdivisions 7.j.2 and 7.k.2);
- the Irish Sea (Division 7.a).

In the north there are strong linkages with the North Sea, in the southeast a strong linkage with the channel area, and in the south a strong link with the Bay of Biscay. The eastern part of the Rockall Bank is within the geographic scope of the ecoregion although it is separated from the western European shelf by the Rockall Trough.

Figure 1 The Celtic Seas ecoregion (highlighted in yellow) and ICES statistical areas.

ICES Advice 2020 2

Some thoughts on the initiative

- Clearly defined **objectives**
- **Coordination** and **planning**
- **Increasing automation** and (near) real-time data captures
  - Developing sensors and platforms
  - Define standards and common approaches
- Big data, machine learning and other **technologies**
- Using already existing **standards**
- Support of **existing structures**

Thank you very much!

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Science for sustainable seas