Thünen-Institut für Seefischerei

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Report

H/S Dana - Cruise 01/2020. IBTS Q1 2020

09.01. – 09.02.2020

Scientist in charge: Dr. M. H. F. Kloppmann

Objectives:

The International Bottom Trawl Survey (IBTS) is an internationally coordinated ICES program. The survey aims to provide ICES assessment and science groups with consistent and standardized data for examining spatial and temporal changes in (a) the distribution and relative abundance of fish and fish assemblages; and (b) of the biological parameters of commercial fish species for stock assessment purposes.
The main objectives are to:

- To determine the distribution and relative abundance of pre-recruits of the main commercial species with a view of deriving recruitment indices;
- To monitor changes in the stocks of commercial fish species independently of commercial fisheries data;
- To monitor the distribution and relative abundance of all fish species and selected invertebrates;
- To collect data for the determination of biological parameters for selected species;
- To collect hydrographical and environmental information;
- To determine the abundance and distribution of late herring larvae.

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Methods:

- Trawl hauls in allocated ICES statistical rectangles by means of the ICES standard bottom trawl GOV during daytime, one haul per rectangle
- Plankton hauls with a standardized 2 m midwater ring trawl (MIK) to a maximum depth of 100 m during nighttime, two hauls per rectangle.
- One CTD cast per each rectangle with a Seabird SBE 911 for hydrographical data
- Water bottle samples per each rectangle for microzooplankton sampling, and conductivity sensor calibration

Itinerary:

09.01.2020 (16:00) Embarkation of cruise participants in Esbjerg, Denmark
09.01.2020 (22:00) Depart Esbjerg, Denmark
10.01.2020 (07:30) Start sampling in southeastern North Sea
13.01.2020 (22:00) Dock and shelter in Esbjerg, Denmark, from a passing storm
15.01.2020 (14:00) Depart Esbjerg, Denmark
16.01.2020 (09:00) Resume sampling in southeastern and eastern North Sea
24.01.2020 (06:00) Dock and shelter in Hirtshals, Denmark, for crew exchange
24.01.2020 (18:00) Depart Hirtshals, Denmark
25.01.2020 (06:00) Resume sampling in central and northeastern North Sea, and Skagerrak
07.02.2020 (14:30) Finish sampling, start journey to home port
08.02.2020 (09:00) Dock Hirtshals
09.02.2020 (08:15) Disembarkation of cruise participants, end of cruise.

Results:

As in 2019, the German IBTS Q1 participation was again carried out on the chartered Danish RV Dana because major repair works were scheduled for January/February 2020 to be carried out on the German FRV Walther Herwig III. Due to obligations with the same survey, RV DANA was only available in January and early February, which is why the German IBTS was again scheduled earlier than under normal circumstances (end January to end February). The planned survey area (Figure 1) stretched between the northern German Bight and the northern and northwestern North Sea and covered territorial waters of Germany, Denmark, Norway and the United Kingdom. However, at the start of the survey, the British permit hadn't yet been issued to RV Dana, which operates under the Danish flag. While the notification had been delivered in time to the respective authorities, it hadn't been processed by the British FCO. Though negotiations to receive the permit started immediately between Danish and British foreign offices, the permit was ultimately denied by British authorities. Consequently, a number of rectangles had to be swapped between Germany and The Netherlands, Norway and Denmark, respectively, which extended the German survey area into the German Bight and into Skagerrak while avoiding UK territorial waters (Figure 2).

Standardized total catches of the GOV hauls were between 19 and 2289 kg per 30 min trawling time, on average about 224.8 kg, which is considerably more than last year. However, it has to be considered that the German survey was again not carried out in its standard area of the northern North Sea where catches tend to be of a differing species composition – more large gadoids compared to mostly clupeids, which were caught during this survey, particularly in the eastern and central North Sea.

Except for cod and herring, all recruitment indices of the major target species haddock, whiting, Norway pout, sprat and mackerel were higher than the long-term average (Table 1). The recruitment index for North Sea herring (1-ringers, the 2018 year-class) was one of the lowest in the time series.

The MIK herring larvae (0-ringer) index of 62.4 indicated at a slightly higher recruitment situation in herring for the 2019 year-class when compared to the very low 2018 year-class. Herring larvae appeared in moderate to high quantities in both, the western and eastern parts

of the North Sea. In the southeastern and eastern part of the North Sea, the potential nurseries, abundance of large herring larvae was much higher than last year.

Water temperatures were between < 5.6 and > 8.9 °C and in most cases > 7.5 °C. Coldest temperatures were observed in the coastal areas of the German Bight and in the northern Skagerrak. Everywhere else, temperatures were much higher. While the surveyed area as well as survey time again differed from that which would be normally surveyed, those temperatures indicated at considerably higher winter temperatures in the North Sea. The water column was always thermally well mixed.

For further details and results of the complete survey with participations from France, the Netherlands, Denmark, Scotland, Sweden, Norway, and Germany, please refer to the CSR (cruise summary report) site of BSH http://seadata.bsh.de/csr/retrieve/sdn2_index.html as well as to the respective North Sea chapter of this year's IBTSWG report.

Tab.1: IBT-Survey: Comparison of pre-recruit abundance indices (n/h) of 2019 (final), 2020 (preliminary) with the long term mean, 1980 – 2019 (catches of all participating nations):

	final 2019	**prelim. 2020**	**1980- 2018**
cod	2.2	**3.8**	7
haddock	153.11	**1975**	492
whiting	273.6	**598**	447
Norway pout	1158	**6555**	2928
herring	1542	**746**	1977
sprat	3414	**3593**	1364
mackerel	88.5	**671**	107

source: IBTSWG, DATRAS March/April 2020

Participants

Dr. Matthias Kloppmann (scientist in charge)	Thuenen Insitute of Sea Fisheries (TI-SF)
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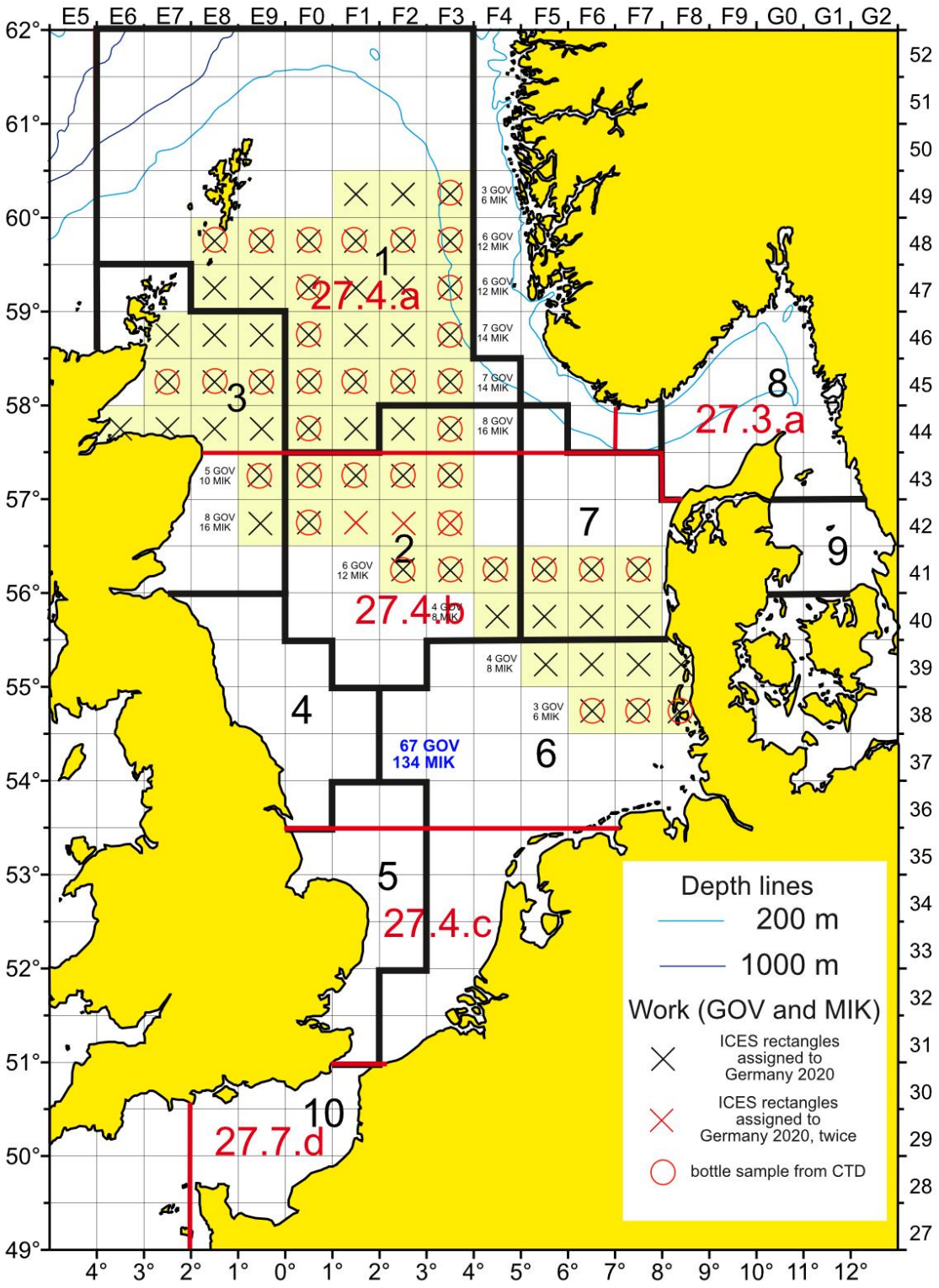

Fig. 1: Original Survey Plan for the cruise Dana 01/2020.

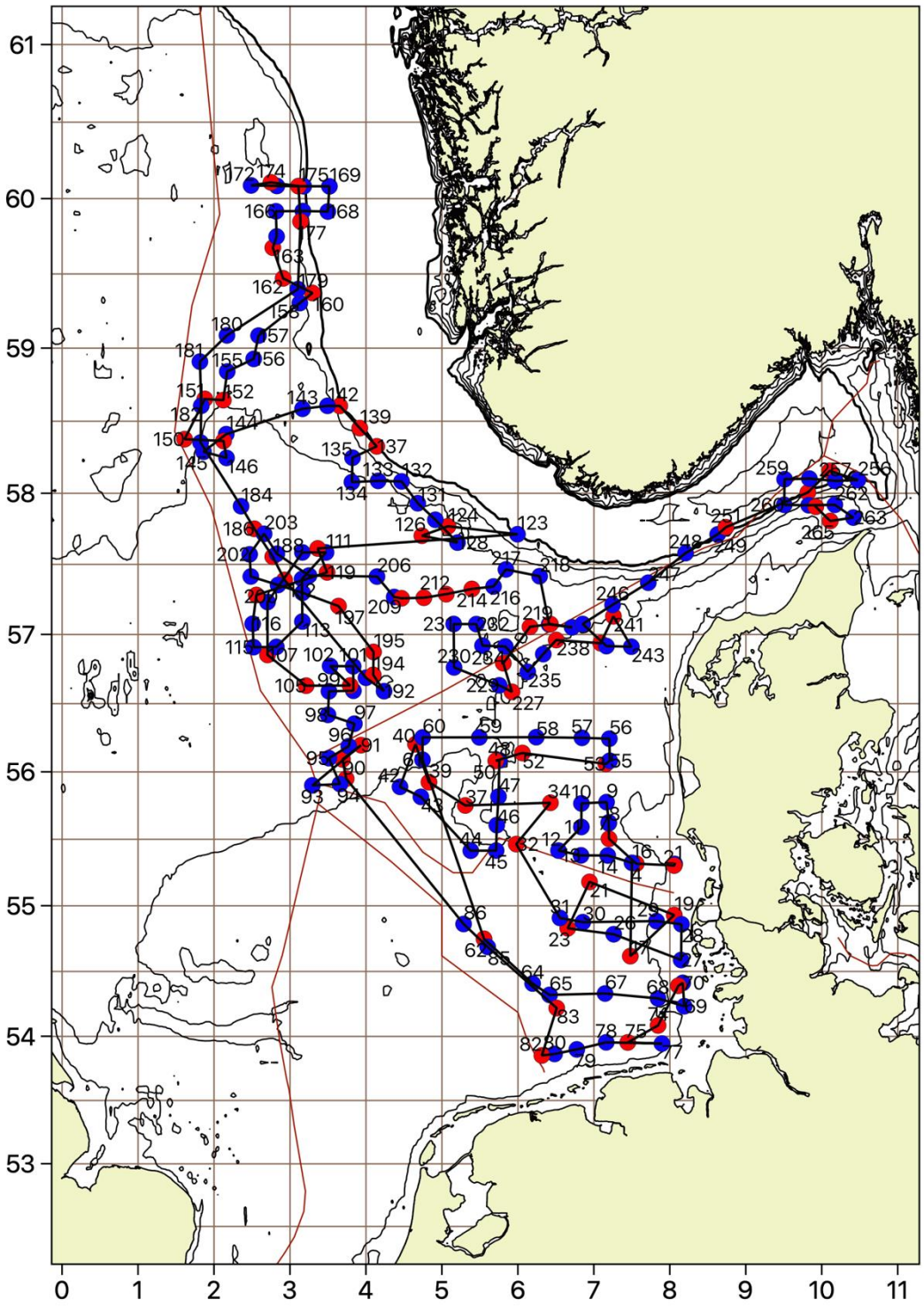

Fig. 2: The track of RV DANA cruise 01-2020 with all GOV-hauls, CTD- and MIK-stations. Red dots: combined CTD and GOV-trawl stations, blue dots: MIK stations. The black line indicates the traveled routes between stations. Brown lines indicate the boundaries of the territorial waters of The Netherlands, United Kingdom, Norway, Denmark and Germany.