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**Report of the
Trinational Doggerbank Survey 2016,
cruise WH 396 of the FRV Walther Herwig III
July 04 - 15, 2016**

Scientist in charge: Dr. Heino O. Fock

Summary

An international team comprising scientists from UK (2), The Netherlands (1) and Germany (6) took part in a fisheries survey in the Doggerbank area in the North Sea covering the trinational Doggerbank Natura 2000 MPA as well as a small section of the Danish EEZ. 34 hauls were sampled during WH396. 20 hauls were sampled in the UK part of the Doggerbank, 9 hauls in the Dutch, 4 in the German part and 1 in the Danish sector, respectively. 41 CTD casts were deployed, 7 extra stations and 34 casts in combination with the hauls. The video test was run in the German sector. Small fish sampling by means of dredge sampling and beam trawls was not undertaken due to time constraints.

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TI - Verwaltung Hamburg
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TI - Institut für Ostseefischerei Rostock
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Aim

Cruise WH396 pursued three objectives:

- To collect fish samples on the Dogger Bank in addition to the IBTS sampling based on IBTS methodology and in accordance to the high-resolution scheme applied during the German DOGS survey May 2006 in support of evaluating the state of the Dogger Bank Natura 2000 MPA, here: creating base-line data before management measures are implemented.
- To conduct comparative studies on the performances of 3 m-, 2 m- beam trawls and 1 m dredges in sampling small sized bottom fishes.
- To conduct nighttime video sampling along transects in order to evaluate the efficacy of proposed management measures, here: designated closures of bottom fisheries.

Cruise narrative

The scientific staff consisted of 9 scientist, 2 from UK (CEAFS and JNCC), RWS from The Netherlands (1), and 6 scientist from the Thünen Institute. The cruise started on July 5 with one day delay in Bremerhaven/Germany. Weather conditions were good during the cruise, so that the complete trawling program according to the first objective could be fulfilled (Fig. 1 as plan overview and as realized working stations).

The delay caused a shortage of the program, so that the experimental comparative studies on the performance of beam trawls and dredges to catch small fishes was skipped. Technical problems further reduced worktime at the end of the cruise, so that only a short test run for the video device was undertaken.

Trawl sampling according to first objective was undertaken according to following country and Natura category split (table 1).

Table1 Sampling design by country (within / outside refer to zoning scheme inside the MPA proper incl. Danish part indicating fisheries closures (within) and unrestricted areas (outside)).

N2000 area category	Germany	Denmark	UK	The Netherlands
Within	3		9	3
Outside	1	1	11	6

Sampling / Results

CTD casts

41 stations with CTD casts were sampled, accompanied by bottle samples to calibrate salinity. Extra stations were placed into areas which firstly due to projected wind farming will likely be unavailable to trawling operations in the future and secondly outside the MPA proper to obtain a better description of bank hydrography. Fig 2 shows a clear gradient in bottom temperature observed during the cruise, partly reflecting the gradient in summit depth of the bank, i.e. the southern part is more shallow than the northeastern section.

IBTS-standard hauls

Sampling at 34 stations (see Table 1) was carried according to the International Bottom Trawl Survey standard protocol in order to obtain full comparability with Q3-IBTS sampling in the area.

Catch composition varied between stations (Fig. 3). The southern part was characterized by a higher proportion of mackerel (*Scomber scombrus*) and sprat (*Sprattus sprattus*). Other dominating species were dab (*Limanda limanda*) and grey gurnard (*Eutrigla gurnardus*).

Video sampling

Technical problems caused a reduction of the video program. A short test run was done on the Weisse Bank to check functionality of equipment (Fig. 1 lower panel).

Dissemination within the Doggerbank Monitoring Group (DBMG)

The Doggerbank Monitoring Group as subgroup assigned to the Doggerbank Steering Group as well as cruise participants from JNCC, CEFAS and RWS will evaluate the results of this survey in combination with IBTS 2016 results, evaluate potential indicators and give recommendations concerning future survey design and survey frequency.

A workshop will be held in January 2017 in Hamburg to achieve these goals.

Acknowledgements

The Thünen Institute is grateful to all who have contributed to this successful cruise: fisheries departments and authorities in The Netherlands, UK; Denmark and Germany as well as crew and management of the FRV Walther Herwig III for their excellent support during the cruise.

Cruise participants

Name and affiliation

	Name	Function	Institution
1	Heino Fock	Cruise leader	TI_SF, Hamburg
2	Katharina Baumhoefener	Scientist	TI_SF, Hamburg
3	Hanna Heidemann	Scientist	TI_SF, Hamburg
4	Joel Cuperus	Scientist	RWS , NL
5	Suzanne Ware	Scientist	CEFAS, UK
6	Tammy Noble-Jones	Scientist	JNCC, UK
7	Felix Müller	Scientist	TI_SF, Hamburg
8	Finn Werner	Scientist	TI_SF, Hamburg
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RWS

JNCC

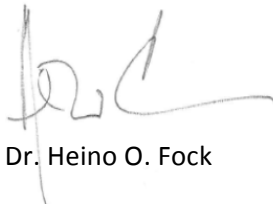
CEFAS

Thünen-Institute of Sea Fisheries

Rijkswaterstaat

Joint Nature Conservation Committee

Centre for Environment, Fisheries and Aquaculture Science



Dr. Heino O. Fock

Figures

Fig. 1: WH396 station plot – plan overview (top panel) and after completion of survey activities on July 13, 2016 (lower panel)

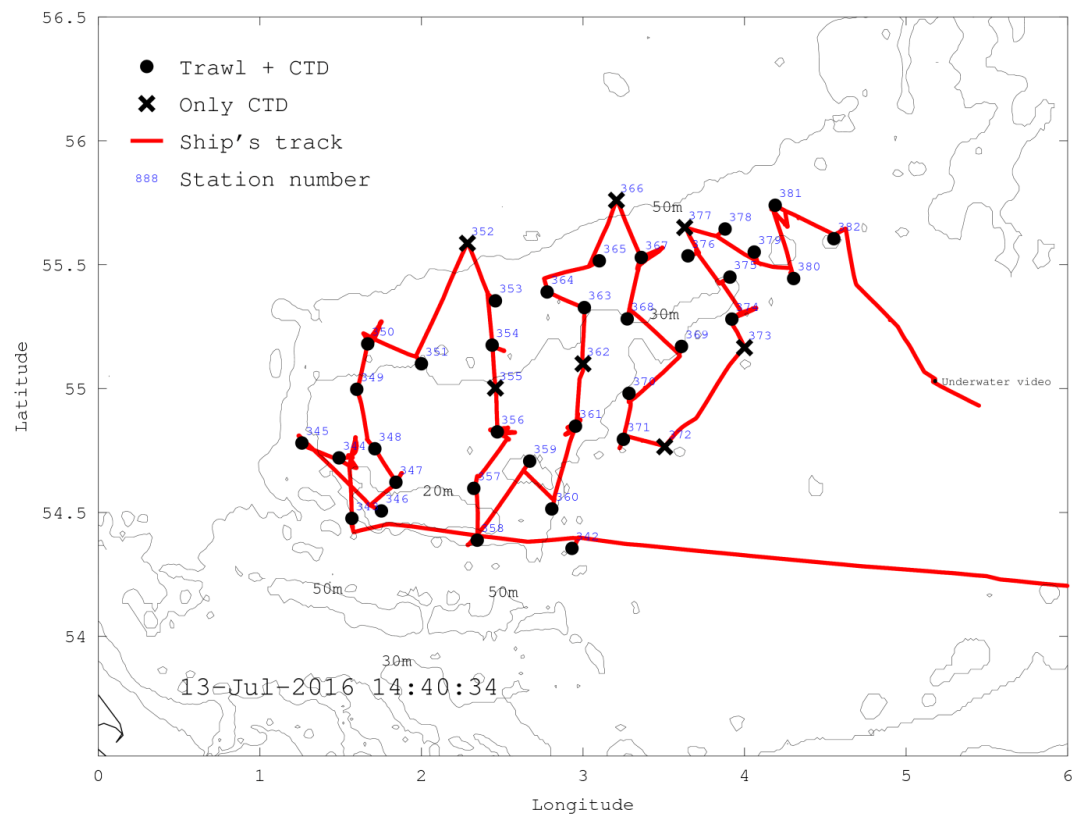
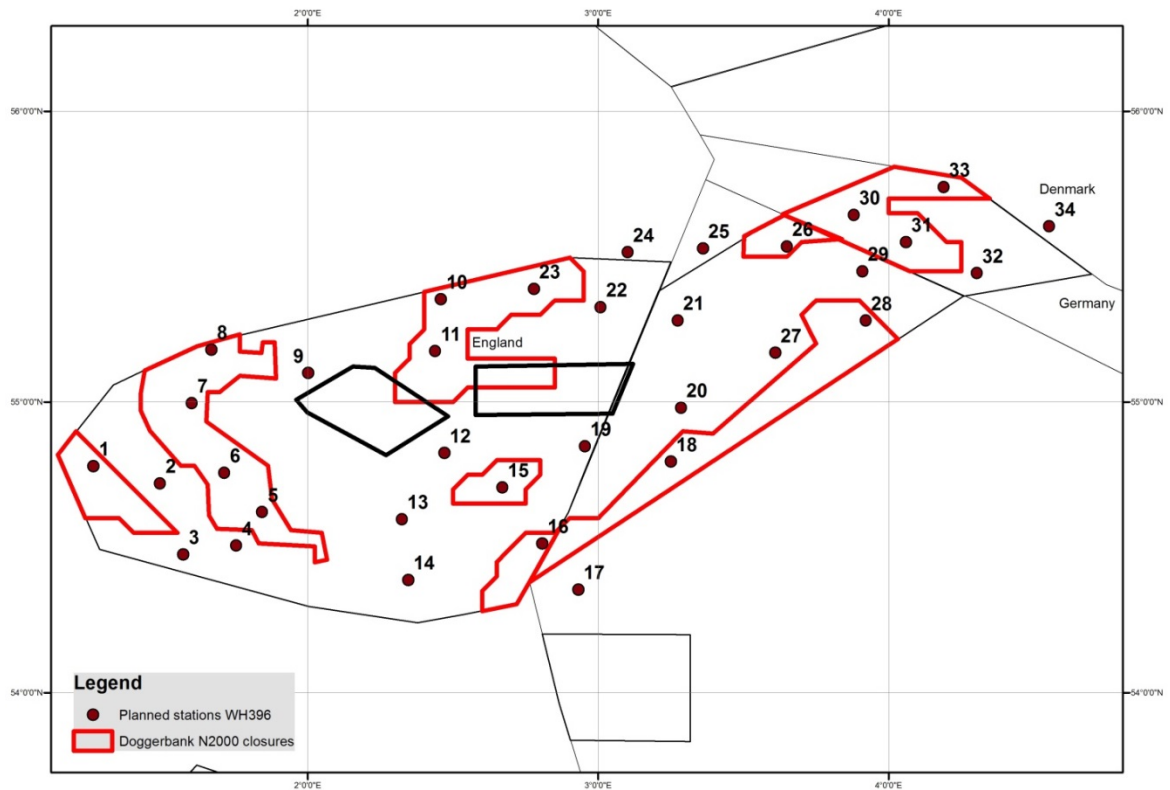


Fig. 2: WH396 bottom temperature

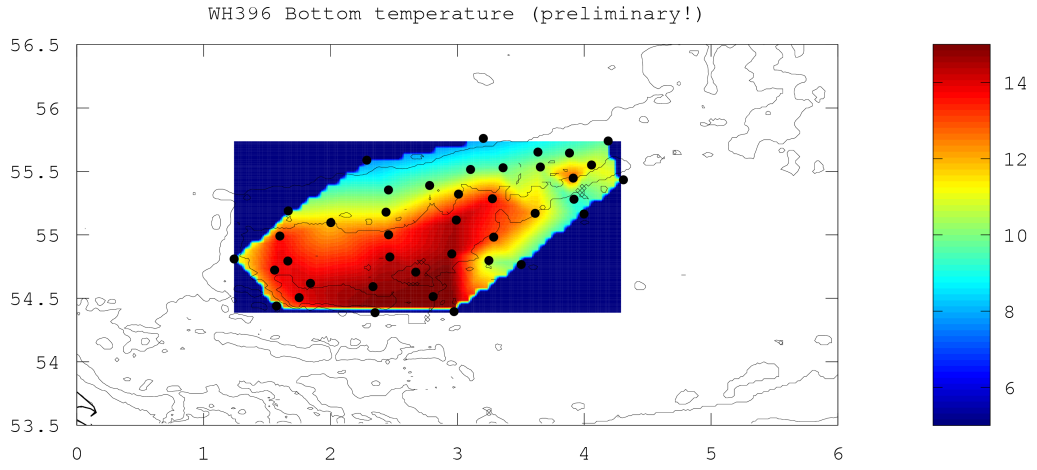


Figure 3 : Biomass per haul by main fish species.

Empty bars indicate extra CTD-casts without trawling. Unit kg/30 haul. Other includes jellyfish, which partly explains the high values.

