

**Ministry of Food, Agriculture and Fisheries
Danish Institute for Fisheries Research**

Cruisereport

Dana Cruise 05 2003 Dogger Bank

Department HØK
Projectleader
Projectno 3015
Cruisearea Centrale-østlige Nordsø
Cruiseleader Andy Visser

Port of departure Hirtshals - 12-08-2003
Port of arrival Hirtshals - 21-08-2003

Crew

Andy Visser
Mogens Busse
Sigrun Jónasdóttir
Student/lab
Helge Thomsen
Student/Lab
Marja Koski
IT
Katherine Richardson
Tekniker
Alice Christoffersen
Tekniker

Objectives

Cruise Objective
There were two specific objectives to the cruise:

* To observe the subsurface chlorophyll maximum adjacent to the Dogger Bank, sample its phytoplankton composition, and measure its geographic extent, fluorescence characteristics, 1o production and its related subsurface oxygen surplus.

* To sample the zooplankton population associated with the Dogger Bank chlorophyll maximum and measure associated grazing rates and 2o production.

The cruise was undertaken partly under the sponsorship of CONWOY, a SNF funded project. Within this greater context, the cruise contributed to the aims of understanding the variability of the North Sea ecosystem under different climatic (physical) forcing conditions.

Progress

Narrative of the Cruise

The major activity during the cruise was sailing along a fixed transect crossing the Dogger Bank from the North west to the south east. This is the same line sampled in 2003 and close to previous transects sampled in 1997 and 1991 and well as extensive LIFECO surveys in 2000-2003.

stn	dist (nm)	N	E
1	0	56 39,0	3 27,0
2	10	56 30,0	3 35,5
3	20	56 21,0	3 44,0
3*	25	56 16,5	3 48,3
4	30	56 12,0	3 52,5
4*	35	56 7,5	3 56,8
5	40	56 3,0	4 1,0
6	45	55 58,5	4 5,3
7	50	55 54,0	4 9,5
8	55	55 49,5	4 13,8
9	60	55 45,0	4 18,0
10	65	55 40,5	4 22,3
11	70	55 36,0	4 26,5
12	75	55 31,5	4 30,8
13	80	55 27,0	4 35,0

Main instruments used on cruise: CTD & Fastracker plus nets, zooplankton pump and large Niskin bottles and TRIAXUS.

After 4 days of rough weather, we finally had the chance to use TRIAXUS for the first time last night (Saturday). This was its first deployment as an instrument of science. It performed perfectly for 6 hours at which time something went wrong. At the time of writing this, its still unclear what happened, but it seems it failed to take a turn at the top of a cycle, came out of the water and broke the cable. Its emergency functions seemed to work fine - it floated to the surface which is most important, and it was finally located and retrieved with the help of the ship's boat. As we could not identify, yet alone remedy the problem, we had to abandon use of TRIAXUS for the duration of the cruise.

Achievements

The transect was completed 6 times during the cruise using conventional CTD gear, and once using TRIAXUS. In total 240 instrument deployments were completed, including 96 CTD casts, 76 Fastracker, 25 Zooplankton nets, 23 Zooplankton pumps and 19 large volume bottle casts.

Water quality samples were taken:
40 salt

130 nutrient
72 oxygen
90 algae

Primary production incubations were run for stations where the Fastracker was deployed.

Egg production and grazing experiemnts for copepods were run on board.

Comments

At the beginning of the cuise, the fluorometer on the CTD was not working as it should. Apparently a cable had been replaced but it had a different configuration than the old one. This took many hours to figure out, during which time much valuable data was lost.

The paint on the inside of the zooplankton pump is peeling. This means that all the samples gathered with the pump ate contaminated with paint chips. Also, most of the cod ends for the zooplankton nets have had a 500 mu mesh "window" cut into them. This totally defeats the purpose of having a 50 mu zooplankton net in the first place.

The new oxygen sensor on TRIAXUS seems to have a much better response to changing condidtions than that which is on the CTD. To check this, we place both oxygen probes on the CTD for the last transect. It appears that the new sensor is much better, and does not suffer from the hystersis exhibited by the old one.

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