5680 Note ① Stokes to BS about WS owners CTD performance unsatisfactory — send copies to CS & FD ② safety drill not done before ship sail H1290/9

BIOLOGICAL OCEANOGRAPHY CRUISE REPORT LF/22/93 14-17 SEPT 1993

PERSONNEL

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P Elliott	SO
S Bloomfield	ASO
J Mc Kinney	ASO

CRUISE OBJECTIVE

To map temperature, salinity and nutrient distributions in the NW Irish Sea and also to assess rates of primary production at selected sites on the sampling grid.

CRUISE NARRATIVE

Tuesday 17 September 1993

The vessel sailed from Belfast at 0730 hrs and encountered a strong force 6-7 north east wind at the mouth of Belfast Lough. It was decided to postpone the sampling programme until the wind speed decreased so the vessel anchored in shelter off Carrickfergus (54 43.18 N/ 05 44.53 W). Time was spent in assembling the new multi spectral light meter and becoming familiar with the operational software and proper deployment of the light sensor. In the afternoon the wind increased and it was decided to return to Belfast to await an improvement in the weather. The vessel docked in Belfast at 1715 hrs.

Wednesday 15 September 1993

The vessel departed Belfast harbour at 0730 hrs in a strong force 6-7 north east wind. As winds were forecasted to moderate the vessel sailed south through the coastal stations 14, 15 and 22 to arrive at station 24 (see attached sampling grid) at 1430 hrs where a sample for primary production studies was taken and processed before the 1500 hrs deadline. The wind had now moderated to a fresh force 4-5 and the survey continued in a southerly direction with the deployment of the rosette water sampler at coastal stations 35, 36, 48 and 59 where work finished for the day. The vessel anchored overnight in Dublin Bay.

Thursday 16 September 1993

Over night the wind moved around to the north and in the presence of a large sea swell any attempt to sample the open sea southerly stations 50, 57, 62 or 61 was abandoned. Instead the vessel sailed north along the coast to station 47 where the rosette water sampler was deployed and a primary production experiment carried out. By this time the wind had moderated to a light breeze which allowed the survey to follow a northerly, open sea cruise track; sampling stations 46, 38, 31, 26 and 22 before finishing on station 15 at 2130 hrs. The vessel drifted overnight in calm seas off the county Down coast.

Friday 17 September 1993

In a light breeze and calm seas sampling commenced on station 14 at 0700 hrs. The survey proceeded to station 6 and then to station 4 for a productivity experiment and continued surface mapping in Belfast Lough where the vessel eventually docked at 1400 hrs. The scientific crew disembarked at 1530 hrs.

PARAMETERS MONITORED

The entire cruise track was surface mapped for nutrients, temperature and salinity at approximately one mile intervals and chlorophyll a at approximately five mile intervals. At each station on the sampling grid the CTD/rosette water sampler was deployed to acquire nutrient, chlorophyll a, temperature and salinity data from the depth profile. Duplicate vertical zooplankton hauls were also taken at each station and underwater light measurements were made using a series of optical filters at stations 4, 24, 38, and 47; additional underwater light measurements were also made at these stations with the new multi spectral light meter. Algal samples were taken at stations 4, 26, 38, 47 & 24 and stored frozen for carbon/nitrogen analysis. The Bowers & Connelly corer was successfully deployed at stations 38 and 24 where sediment samples were acquired and stored for C/N and chlorophyll a analysis and a further sample set aside for benthic assessment.

SUMMARY OF RESULTS

From the acquired nutrient and CTD profile data the coastal survey area and North Channel was found to be generally mixed from surface to bottom with a typical temperature and salinity of 13.1 and 33.81 respectively. However the central open sea stations 38, 31 and 26 showed stratification with typical temperatures of 13.7 ^{o}C down to 80 metres where it fell sharply by 1 degree. Surface mapped values for nutrients were fairly constant throughout the survey area and showed modest increases from the August cruise levels. Surface mapped temperature in the coastal regions showed a mean value of 13.5 ^{o}C which increased to 14.3 ^{o}C in the open sea areas. The salinity values, of which I am dubious, were typically 34.5 and 34.9 for the coastal and open sea regions respectively.

PROBLEMS ENCOUNTERED AND REQUIRING IMMEDIATE ATTENTION

Immediate problems were encountered with the "bin mounted" WS Oceans CTD used for monitoring surface salinity and temperature. Dubious values for salinity were being constantly displayed throughout the cruise; typically 34.95 in open sea areas and 34.5 in coastal areas.

Although the GOP CTD software had no problems in recording salinity, temperature and fluorescence whilst profiling, in most cases the programme had to be re-booted to allow bottle closure.

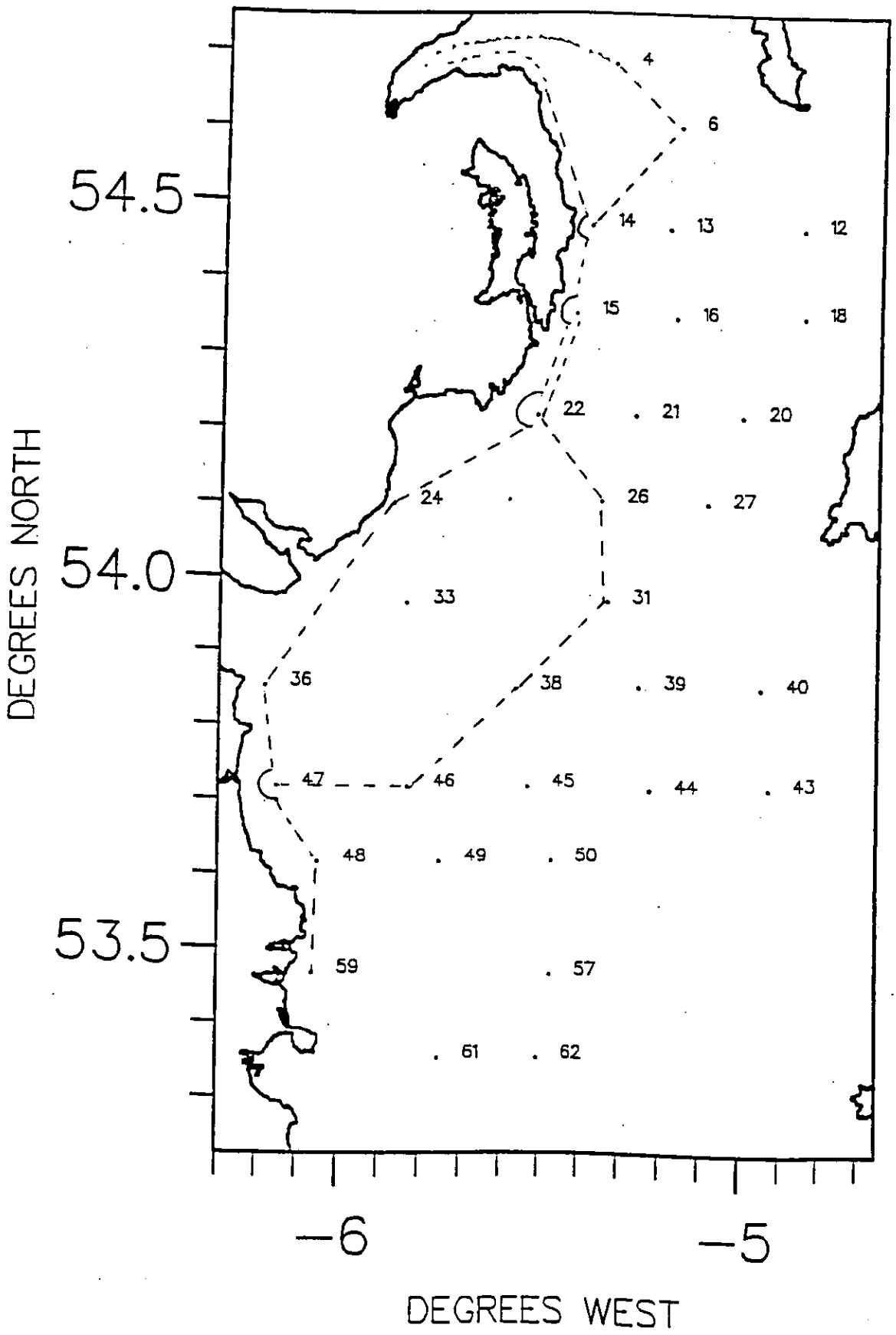
Problems with reversing thermometer No. 10665 not reading properly. Possibly a break in the mercury thread.

ACKNOWLEDGEMENTS

The ships's master, officers, engineers, catering staff and crew are thanked for their cooperation during this cruise.

B STEWART

19 September 1993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53.5
DEGREES NORTH
-6
-5
DEGREES WEST

Biological Oceanography Cruise (LF2293)

Date 13 – 17 Sept 1993

	Station	Position		Activity
Day 1	4	5441	0520	CTD, Zoop, Secchi, Light, PProd, C/N
	6	5436	0510	" " "
	16	5421	0510	" " " , Light, PProd, C/N
	21	5413	0516	" " "
	26	5406	0521	" " " C/N
	31	5358	0520	" " "
	33	5352	0550	" " "
	34	5358	0605	" " "
Day 2	36	5351	0611	CTD, Zoop, Secchi
	47	5343	0609	" " " , Light, PProd, C/N, C
	46	5343	0550	" " "
	38	5351	0534	" " " , Light, PProd, C/N, C
	39	5351	0515	" " "
	44	5343	0514	" " "
	43	5343	0456	" " "
	50	5337	0522	" " " C/N
	49	5337	0545	" " "
	48	5337	0603	" " "
Day 3	59	5328	0603	CTD, Zoop, Secchi
	61	5321	0545	" " "
	62	5321	0530	" " " , Light, PProd, C/N
	57	5328	0528	" " " — — C/N
	45	5343	0532	" " " , Light, PProd, C/N, C
Day 4	24	5406	0552	CTD, Zoop, Secchi, Light, PProd, C/N
	22	5413	0531	" " "
	15	5421	0525	" " "
	14	5422	0523	" " "

Stations 4, 16, 24, 38, 47, 62, 45 — For primary production studies these stations must be sampled between 1000 and 1500 hrs.