

Biological Oceanography : Cruise Report 8 to 12 May 1994

Objectives:

To investigate the oceanography of the coastal and central stratified region of the NW Irish Sea.

To undertake primary production experiments (simulated *in situ*) including an assessment of the relative contribution of different size fractions of the phytoplankton to total production.

To assess the distribution of different size classes of zooplankton.

To collect sediment core samples from stations 38 and 47 for C/N and pigment analysis.

Personnel

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Cruise Narrative

RV Lough Foyle departed Belfast 2200 h on Sunday May 8 and returned on Thursday 12 at 1300 h. Details of the work programme are given in Annex I. Owing to strong (force 5-6) south easterly winds and a forecast for easterly gales eight stations were not worked.

Preliminary Results

There was evidence of stratification in the central region of the NW Irish Sea, with surface to bottom differences in temperature of approximately 2°C. In contrast, the water column in the North Channel was vertically mixed. Since the temperature of the water in the North channel was 7.5°C there was a marked south to north temperature gradient in near surface waters. Measurements of *in situ* fluorescence indicated that the spring increase in phytoplankton was well under way in the stratified offshore water. There was no evidence of a spring increase in Dundalk Bay or in the mixed offshore stations.

Acknowledgements

I wish to acknowledge the assistance of the Captain, officers and crew of the RV Lough Foyle in ensuring that the scientific programme was successfully completed. The scientific staff worked well, and I wish to thank them for their hard work.

R.J. Gowen, SIC

ANNEX I

Monday May 9th : (on station 0700)

Station 36 (53.51 06.11)

CTD profile.

Light and Secchi.

Water samples : Nutrients; C/N; size fractionation of chlorophyll and phytoplankton species; suspended solids.

Zooplankton : Two bongo net hauls; size fractionation using pump.

Station 47 (53.43 06.09)

Sediment cores: Chlorophyll and C/N.

CTD profile.

Light and secchi.

Water samples : Nutrients, Chlorophyll size fractionation; suspended solids, Size fractionation of Production and species composition. In situ primary production.

Zooplankton : Two bongo net hauls; size fractionation with pump.

Station 47B (Mooring station)

CTD profile.

Water samples : Nutrients and chlorophyll

Station 36A (53.51 06.00)

CTD profile.

Light and secchi.

Water samples : Nutrients; Standard chlorophyll; suspended solids.

Zooplankton : Two bongo net hauls.

Station 37 (53.51 05.52)

CTD profile.

Light and secchi.

Water samples : Nutrients; Standard chlorophyll; suspended solids.

Zooplankton : Two bongo nets; size fractionation with pump.

Station 33 (53.58 05.45)

CTD profile.

Light and Secchi.

Water samples : Nutrients; C/N; Chlorophyll size fraction; suspended solids.

Zooplankton : Two bongo net hauls; size fractionation using pump.

Station 32 (5358 0535)

CTD profile.

Water samples : Nutrients; C/N; Chlorophyll size fraction; suspended solids

Zooplankton : Two bongo net hauls.

Station 25 (54.06 05.31)

CTD profile.

Water samples : Nutrients; standard chlorophyll; suspended solids.

Zooplankton : Two bongo nets.

Tuesday May 10 (on station 1020h)

Station 22 (54.13 05.31)

CTD profile.

Light and secchi.

Water samples : Nutrients; standard chlorophyll; suspended solids.

Zooplankton : Two bongo nets.

Station 22A (54.11 05.45)

CTD profile.

Light and Secchi.

Water samples : Nutrients; C/N; Chlorophyll size fraction; suspended solids.

Zooplankton : Two bongo net hauls; size fractionation using pump.

Station 24 (54.06 05.52)

CTD profile.

Light and Secchi.

Water samples : Nutrients; C/N; size fractionation of chlorophyll and phytoplankton species composition; Primary production ; suspended solids.

Zooplankton : Two bongo net hauls; size fractionation using pump.

Station 34A (54.02 05.58)

CTD profile.

Light and Secchi.

Water samples : Nutrients; standard chlorophyll; suspended solids.

Zooplankton : Two bongo net hauls.

Station 35 (53.56 06.08)

CTD profile.

Light and secchi.

Water samples : Nutrients; C/N; size fractionation of chlorophyll; suspended solids; phytoplankton species composition.

Zooplankton : Two bongo net hauls; size fractionation using pump.

Station 46A (53.44 06.00)

CTD profile.

Light and secchi.

Water samples : Nutrients and standard chlorophyll; suspended solids.

Zooplankton : Two bongo net hauls.

Station 48 (53.37 06.03)

CTD profile.

Secchi.

Water samples : Nutrients; C/N; Chlorophyll size fraction; suspended solids.

Zooplankton : Two bongo nets; Size fractionation using pump.

Wednesday 11 May (on station 0705)

Station 48A (53.37 05.54)

CTD profile.

Secchi.

Water samples : Nutrients; standard chlorophyll.

Zooplankton : Two bongo nets.

Station 38 (53.51 05.34)

Sediment cores : Chlorophyll and C/N.

CTD profile.

Light and secchi.

Water samples : Nutrients; C/N; Size fractionation of chlorophyll; Primary production size fraction; size fraction of phytoplankton species composition; suspended solids.

Zooplankton : Two bongo nets; Size fractionation using pump.

Station 15A (54.17 05.23)

CTD profile.

Light and Secchi.

Water samples : Nutrients; chlorophyll size fraction; suspended solids.

Zooplankton : Two bongo net hauls; Size fractionation using pump.

Station 15 (54.21 05.25)

CTD profile.

Light and Secchi.

Water samples : Nutrients; chlorophyll size fraction; primary production; suspended solids.

Zooplankton : Two bongo net hauls; Size fractionation using pump.

Station 14 (54.28 05.23)

CTD profile.

Light and Secchi.

Water samples : Nutrients; C/N; Chlorophyll size fraction; suspended solids.

Zooplankton : Two bongo net hauls; size fractionation using pump.

Station 14A (54.34 05.21)

CTD profile.

Light and secchi.

Water samples : Nutrients; standard chlorophyll; suspended solids.

Zooplankton : Two bongo net hauls.

Station 14B (54.37 05.27)

CTD profile.

Light and Secchi.

Water samples : Nutrients; C/N; size fractionation of chlorophyll and phytoplankton species composition; suspended solids.

Zooplankton : Two bongo net hauls; size fractionation using pump.

Station 14C (54.40 05.23)

CTD profile.

Light and secchi.

Water samples : Nutrients; standard chlorophyll; suspended solids.

Zooplankton : Two bongo nets.

Station 4 (54.41 05.20)

CTD profile.

Water samples : Nutrients; standard chlorophyll.

Zooplankton : Two bongo net hauls

Thursday May 12 (on station 0900h)

Station 4 (54.41 05.20)

CTD profile.

Light and secchi.

Water samples : Nutrients; C/N; size fractionation of chlorophyll and phytoplankton species composition; Primary production; suspended solids.

Zooplankton : Size fractionation using pump.