

CRUISE REPORT: IRISH SEA AND BELFAST LOUGH

12th – 15th April 2010

RV Prince Madog Cruise

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ABSTRACT

This report details a scientific research cruise undertaken in the Northern Irish Sea in April 2010. The principle aims of the cruise were to: 1) collect 200 live *A. islandica* from Belfast Lough which cover a range of size classes; 2) quantitatively study the abundance of the *A. islandica* population in Belfast Lough and 3) collect *Glycymeris glycymeris* from the Isle of Man area. The Belfast Lough population is to be used in a BBSRC ageing research project, while the animals collected from the Isle of Man are to be used to investigate their reproductive biology.

All *A. islandica* were obtained with a custom made ‘Arctica dredge’ and quantitative sampling was undertaken using a Day Grab. *G. Glycymeris* were obtained using the Anchor dredge.

The numbers of live (undamaged and damaged) and dead *A. Islandica* and live *G. glycymeris* obtained from each tow, grab or dredge at each station are provided in the report.

PERSONNEL

All the scientific crew involved were from the School of Ocean Sciences, Bangor University.

1. Dr Iain Ridgway (PSO)
2. Dr Nick Jones
3. Ms Frances Burrows

SCHEDULE:

- 12th April:** Mobilise 8am – 11am; high tide 9:31 and 21:52. 4 members of SOS embark (IR, NJ, FB) (**3 scientists on board**).
- 12th April:** Leave Menai bridge Pier 12:00; transit to Station C, Belfast Lough.
- 13th April:** Arrive at Station C and Sample; ETA 08:00 hrs. Dredging and grab sampling at C until 13:30 pm.
- 13th April:** Transit to Isle of Man Station, overnight in Port St Mary.
- 14th April:** Sampling in Isle of Man waters, Station 84, dredging for live *Glycymeris*
- 14th April:** Transit to Isle of Man Station 24,
- 14th April:** Sampling in Isle of Man waters, Station 24, dredging for live *Glycymeris*
- 14th April:** transit to Menai Bridge, (~ 70 nautical miles/7hrs).
- 14th April:** Arrive Menai Bridge: (ETA: 18:00 pm) for demobilisation

OBJECTIVES:

1. To collect 200 live *Arctica islandica* (L.) with the *Arctica* dredge covering a range of sizes/ages from the mouth of Belfast Lough (Station C) for later use in an ageing research project.
2. To quantitatively sample the *A. islandica* populations at location C using a day grab.
3. To collect *Glycymeris glycymeris* at Station 84 off the S coast of the Calf of Man, South of the Isle of Man (54.02495 °N -4.80945 °W), using the Anchor Dredge.
4. To collect *Glycymeris glycymeris* at Station 24 off the E coast of the Isle of Man (54.11685 °N -4.4216°W), using the Anchor Dredge.

STATIONS

The dredge was deployed at 1 station identified in the original cruise plan; station C. A further 2 stations (24 and 84) were sampled in the Isle of Man. All stations had been previously studied so no sidescan sonar survey was undertaken prior to dredging.

Station	Location	Latitude			Longitude			No. of <i>A. islandica</i> collected			
								Live undamaged	Live damaged	Dead (single)	Dead paired
C	Belfast Lough	54°	42.10	N	5°	35.25	W	221	70	76	
								No. of <i>G. glycymeris</i> collected			
24	North of IOM	54°	36.50	N	4°	53.32	W	600	-	-	-
84	North of ION	54°	31.69	N	4°	47.86	W	239	-	-	-

Table 1: Station positions and number of specimens collected from each location.

The coordinates, depth, duration of each of the tows and the number and state of *A. islandica* collected is provided in Appendix A and B at the end of the document.

STATION C

The position of Station C was initially identified during Northern Ireland Scallop surveys and a visit by the Madog in 2005 collected 147 live *A. islandica* in 6 tows of the *Arctica dredge*. The site was of specific interest due to the high population density and a large size range previously obtained.

At station C there were 2 objectives; first to collect 200 live specimens and secondly to quantitatively assess the population density and distribution. The first objective was achieved with 10 x 10 minute *Arctica* dredge tows.

221 *Arctica* were collected in 10 x 10 minute dredge tows.

To achieve the second objective we undertake a grab survey, 20 grabs were carried out. The boat was repositioned on a set spot and the drift of the boat provided a random sampling method.

The quantitative assessment of the *A. islandica* populations at station C demonstrated that the population density was around 4.5.m². The coordinates, depth, duration of each of the tows and the number and state of *A. islandica* collected is provided in Appendix A and B at the end of the document.

9 adults were obtained in 20 0.1 m² day grabs (in grab's 3,5,7,8,10,13,15,16,19).

Isle of Man Sampling

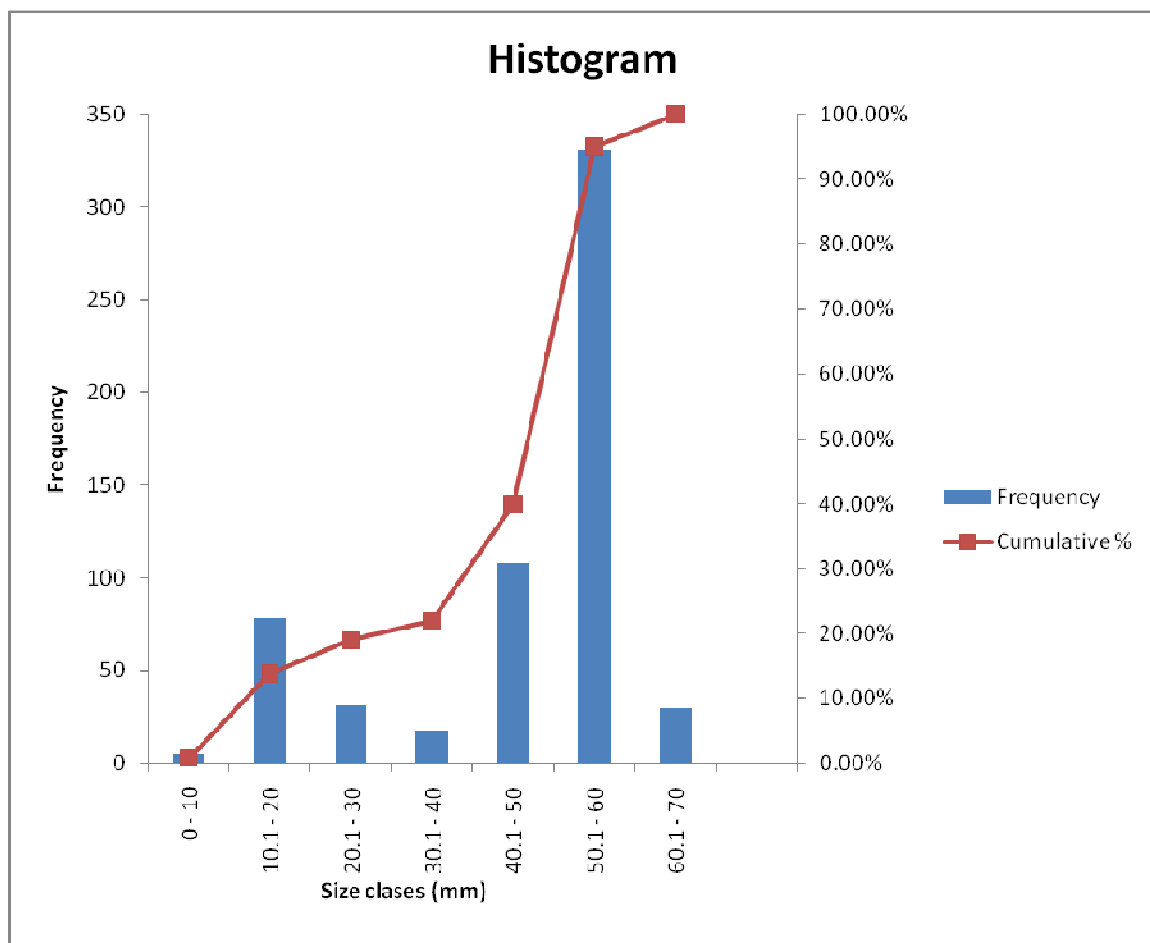
Permission to sample at these locations was provided by DAFF, Isle of Man Government. The locations and densities of *G. glycymeris* populations sampled were provided by Lee Murray (DAFF).

STATION 84

At Station 84 the first 2 anchor dredges failed to deploy properly, both inverted and failed to collect any material. The third came back with 3 box loads of *G. glycymeris*, 600 live animals.

Figure 1 documents the size range of those collected.

Figure 1: Size range of *G. glycymeris* collected from station 84.

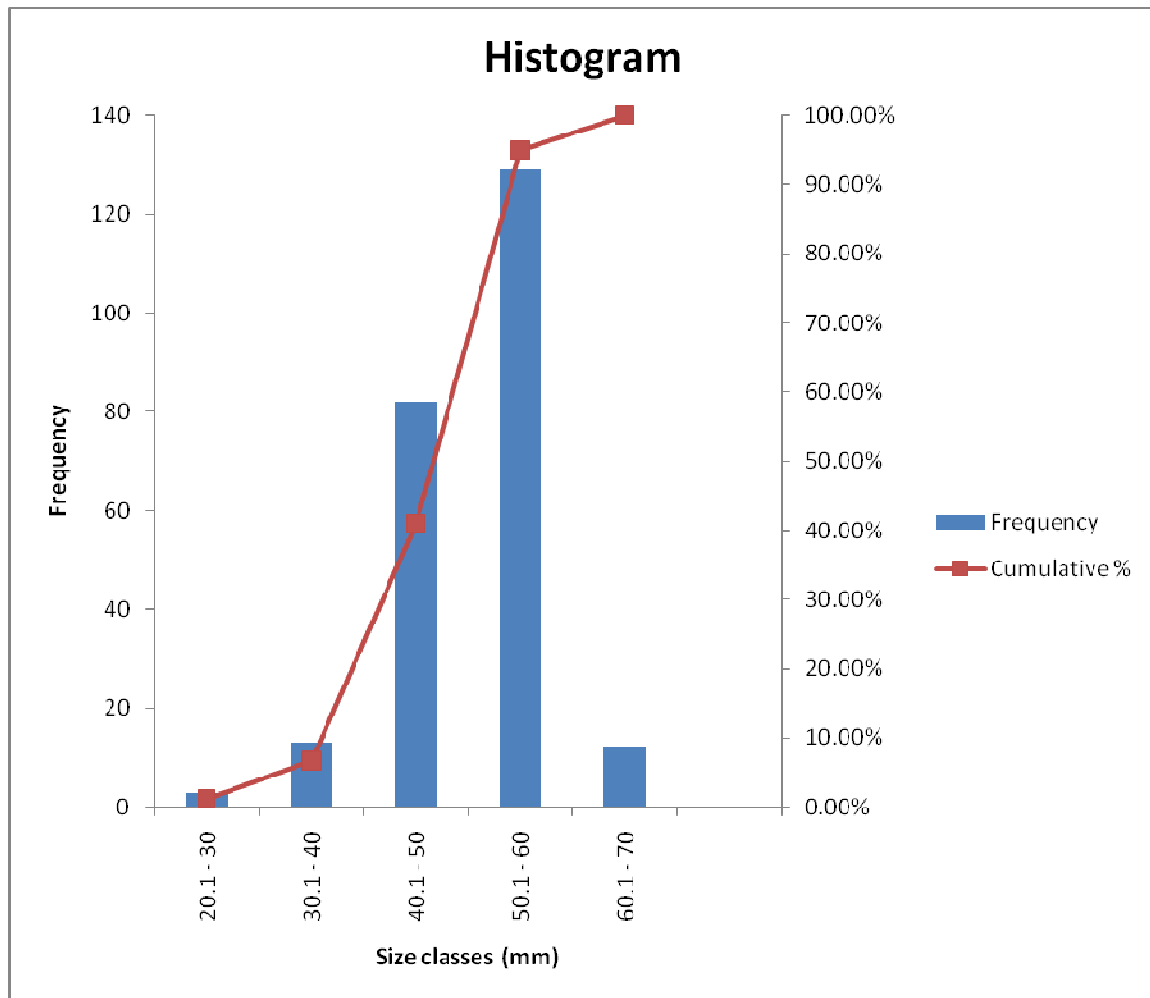


STATION 24

At Station 24 the first 1 anchor dredges was successful and we landed 239 live *G. Glycymeris*.

Figure 2 documents the size range of those collected.

Figure 2: Size range of *G. Glycymeris* collected from station 24.



Appendix A – Position time and Depth of tows and grabs

Two rows are shown for each tow, representing the start and finish of dredging or trawling, from the end of the deployment process to the start of the recovery process.

Station C: Coordinates of the location of the dredges for Live collection

Date	Tow #	B.S.T	Lat.N	Long. W	Remarks
13/04/2010	1	8.10 AM	54° 42.445	005° 36.305	Deploy Arctica dredge
	1	8.20AM	54° 42. 316	005° 35.974	Haul Arctica dredge
	2	8.26AM	54° 42.298	005° 35.807	Deploy Arctica dredge
	2	8.38AM	54° 42. 392	005° 35.502	Haul Arctica dredge
	3	8.44AM	54° 42. 455	005° 35.341	Deploy Arctica dredge
	3	8.54AM	54° 42. 477	005° 35.008	Haul Arctica dredge
	4	9.17AM	54° 42. 520	005° 35.160	Deploy Arctica dredge
	4	9.27AM	54° 42. 488	005° 35.361	Haul Arctica dredge
	5	9.33AM	54° 42. 512	005° 35.597	Deploy Arctica dredge
	5	9.43AM	54° 42. 540	005° 35.962	Haul Arctica dredge
	6	9.59AM	54° 42. 530	005° 36.320	Deploy Arctica dredge
	6	10.11AM	54° 42. 522	005° 36.013	Haul Arctica dredge
	7	10.18AM	54° 42. 536	005° 35.756	Deploy Arctica dredge
	7	10.28AM	54° 42. 521	005° 35.420	Haul Arctica dredge
	8	10.36AM	54° 42. 522	005° 35.180	Deploy Arctica dredge
	8	10.46AM	54° 42. 520	005° 34.898	Haul Arctica dredge
	9	10.53AM	54° 42. 487	005° 34.838	Deploy Arctica dredge
	9	11.05AM	54° 42. 512	005° 35.188	Haul Arctica dredge
	10	11.13AM	54° 42. 519	005° 35.533	Deploy Arctica dredge
	10	11.24AM	54° 42. 529	005° 35.836	Haul Arctica dredge

Station C: 8 Grab Sample locations at Station C undertaken on 13/04/2010

Time	No.	Lat	Long
12.17PM	1	54° 42. 536	005° 35.407
12.19PM	2	54° 42. 566	005° 35.455
12.20PM	3	54° 42. 586	005° 35.494
12.23PM	4	54° 42. 611	005° 35.575
12.25PM	5	54° 42. 623	005° 35.600
12.35PM	6	54° 42. 437	005° 35.568
12.37PM	7	54° 42. 423	005° 35.564
12.38PM	8	54° 42. 414	005° 35.575
12.39PM	9	54° 42.408	005° 35.588
12.41PM	10	54° 42.409	005° 35.600
12.49PM	11	54° 42.486	005° 35.565
12.50PM	12	54° 42.483	005° 35.903
12.51PM	13	54° 42.481	005° 35.948
12.53PM	14	54° 42.484	005° 35.996
12.54PM	15	54° 42.490	005° 36.035
12.58PM	16	54° 42.492	005° 36.269
12.59PM	17	54° 42.490	005° 36.347
13.01PM	18	54° 42.497	005° 36.401
13.02PM	19	54° 42.508	005° 36.445
13.03PM	20	54° 42.523	005° 36.492

STATION 84: coordinates for locations of the anchor dredges used to obtain *G. glycymeris* of the Calf of Man IOM. 14/04/2010.

Time	Location	Lat	Long	Remarks
7.55AM	H	41 54° 01.124	004° 48.401	Deploy anchor dredge
8.01AM	H	42 54° 01.061	004° 48.102	Recover anchor dredge
8.15AM	H	43 54° 01.101	004° 47.616	Deploy anchor dredge
8.25AM	H	44 54° 00.885	004° 47.936	Recover anchor dredge
8.42AM	H	45 54° 01.160	004° 48.583	Deploy anchor dredge
8.47AM	H	46 54° 01.058	004° 48.188	Recover anchor dredge

STATION 24: coordinates for locations of the anchor dredges used to obtain *G. glycymeris* of the East coast of the IOM. 14/04/2010.

Time	Location	Lat	Long	Remarks
10.09AM	L1	47 54° 06.948	004° 25.883	STOP Deploy anchor dredge
10.14AM	L1	48 54° 07.000	004° 25.791	STOP Recover anchor dredge

Appendix B – Numbers of *A. Islandica* and *G. glycymeris* recovered in each dredge.

Station C: *Arctica islandica*

Station	Tow #	Method	Live		
			Damaged	Undamaged	Dead
C	1	Arctica Dredge	18	6	4
C	2	Arctica Dredge	3	21	2
C	3	Arctica Dredge	4	35	6
C	4	Arctica Dredge	2	17	4
C	5	Arctica Dredge	10	45	12
C	6	Arctica Dredge	19	32	8
C	7	Arctica Dredge	11	20	7
C	8	Arctica Dredge	2	6	6
C	9	Arctica Dredge	3	5	12
C	10	Arctica Dredge	4	34	9
		Total	76	221	70

Station 84: *G. glycymeris*

Station	Tow #	Method	Live
84	1	Anchor Dredge	n/a
84	2	Anchor Dredge	n/a
84	3	Anchor Dredge	600
		Total	600

Station 24: *G. glycymeris*

Station	Tow #	Method	Live
24	1	Anchor Dredge	239
		Total	239