



**Collation of data on distribution of species and habitats in the Irish Sea.
Stage 3 - Consultation.**

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Introduction

The Marine Biological Association (MBA) collated distribution data on a number of species and habitats of national importance in the Irish Sea (see first and second reports). The review of data sources forms part of the Irish Sea Pilot undertaken by the Joint Nature Conservation Committee (JNCC), on behalf of the Department of Environment, Food and Rural Affairs (Defra). The pilot has been set up to test the potential for an ecosystem approach to managing the marine environment at a regional sea scale.

Distribution maps have been prepared for the selected species and habitats (Annex A and B) combining the data collated by the MBA and JNCC. If no information was found no maps have been produced. Annex C briefly lists the sources of information identified by *MarLIN*.

Methods

Maps were printed out in black and white and sent out to a list of people for consultation provided by JNCC with additional people entered by the MBA giving a total of 35 (Annex D). Participants were asked to comment on the accuracy and completeness of the distribution maps by annotating additional points or by highlighting any points thought to be dubious.

Results

Of the 35 people sent information for consultation replies were received from 18. Approximately half of people who responded did not hold any relevant data or could not provide any additional data.

The time allowed for the actual consultation process was relatively short and some people were on holiday during the time so could not respond in time for the allotted deadline.

The Countryside Council for Wales (CCW) sent a copy of their Phase 1 Database and Welsh BAP Atlas (Moore, 2002). Comparing the prepared maps with those in the Atlas generally the points were identical. One additional record was identified and added into Marine Recorder.

Ivor Rees sent in draft maps from the BIOMOR/SWISS project. The maps are incomplete drafts to go into the 3rd volume of the report on the INTERREG SWISS project for the Southern Irish Sea. The information has not been added to Marine Recorder.

Andy Mackie sent copies of BIOMÔR 1 and 2 and Darybyshire *et al.*, 2002. A macrofaunal survey of Welsh sandbanks. CCW report 539. Additional records were identified for *Arctica islandica* and *Sabellaria spinulosa*.

Julia Nunn sent distribution maps of mollusc species taken from her personal database and the Centre for Environmental Data and Recording (CEDaR)/Ulster Museum database. Records were presented as live (post 1969) or live (pre-1970), The pre-1970 records were not included as they also included shell only records. Additional records were identified for eight species.



The consultation process provided comments and additional data points on the following species:

Species	Consultee	Source	Comment
<i>Achaeus cranchii</i>	Geoff Moore	Allen, 1967	Reference checked and an additional record entered into Marine Recorder.
	Ivor Rees	Clarke, 1986	Reference to Allen (1967) and Bruce <i>et al.</i> (1963). Information for these references already in Marine Recorder.
<i>Alcyonium glomeratum</i>	Keith Hiscock	Hiscock (pers comm.)	Check record (Lat/Long) in Menai Staits. Dr Hiscock believes this is a long-standing faulty record from the Marine Science Laboratory record cards. Dr Hiscock will check with Rohan Holt at CCW the validity of the record.
<i>Arctica islandica</i>	Ivor Rees	BIOMÔR/SWISS (In progress)	Maps are incomplete drafts so information has not been added to Marine Recorder. It is recommended that the additional data points are followed up.
	Andy Mackie	BIOMÔR 1 & 2, Darbyshire (2002)	At least 10 additional records.
	Julia Nunn	Julia Nunn database/CEDaR Ulster Musuem	At least 16 additional records. Lat/long not included in maps – follow up then can enter into Marine Recorder.
<i>Atrina fragilis</i>	Julia Nunn	Julia Nunn database/CEDaR Ulster Musuem	Two additional records. Lat/long not included in maps – follow up then can enter into Marine Recorder.
<i>Caryophyllia smithii</i>	Geoff Moore	P.G. Moore (pers. obs)	Record from Little Cumbrae, Firth of Clyde. Entered into Marine Recorder
<i>Echinus esculentus</i>	Ivor Rees	BIOMÔR/SWISS	Maps are incomplete drafts so information has not been added to Marine Recorder. It is recommended that the additional data points are followed up.



Collation of data on distribution of species and habitats in the Irish Sea

Species	Consultee	Source	Comment
<i>Modiolus modiolus</i>	Ivor Rees	BIOMÔR/SWISS	Maps are incomplete drafts so information has not been added to Marine Recorder. It is recommended that the additional data points are followed up.
		Liverpool bay sludge surveys	
	Julia Nunn	Julia Nunn database/CEDaR Ulster Musuem	Many additional records. Lat/long not included in maps – follow up then can enter into Marine Recorder.
<i>Nucella lapillus</i>	Julia Nunn	Julia Nunn database/CEDaR Ulster Musuem	Many additional records. Lat/long not included in maps – follow up then can enter into Marine Recorder.
<i>Okenia elegans</i>	Gabrielle Wyn (CCW)	(Moore, 2002).	Checked Moore (2002), an additional record not included on maps - Black Scar (Jen Jones pers. comm). Record entered into Marine Recorder?
	Julia Nunn	Julia Nunn database/CEDaR Ulster Musuem	Three additional records. Lat/long not included in maps – follow up then can enter into Marine Recorder.
<i>Ostrea edulis</i>	Julia Nunn	Julia Nunn database/CEDaR Ulster Musuem	Many additional records. Lat/long not included in maps – follow up then can enter into Marine Recorder.
<i>Palinurus elephas</i>	Geoff Moore	Allen, 1967	Reference checked. Additional records entered into Marine Recorder.
<i>Patella ulyssiponensis</i>	Julia Nunn	Julia Nunn database/CEDaR Ulster Musuem	Many additional records. Lat/long not included in maps – follow up then can enter into Marine Recorder.
<i>Sabellaria alveolata</i>	Terry Holt	Hartnoll <i>et al.</i> (1998) Holt <i>et al.</i> (2000) Holt <i>et al.</i> (1998).	Checked Holt <i>et al.</i> (1998) no additional information. Requested copies of Holt <i>et al.</i> (2000) and Hartnoll <i>et al.</i> (1998) from Environment Agency (NW region) for follow up.
<i>Sabellaria spinulosa</i>	Andy Mackie	BIOMÔR 1 & 2, Darbyshire (2002)	At least 10 additional records.
<i>Ventrosia ventrosa</i>	Julia Nunn	Julia Nunn database/CEDaR Ulster Musuem	Three recent records for true <i>V. ventrosa</i> – more ‘aggregate’ records which may include <i>Hydrobia acuta</i> . Lat/long not included in maps – follow up then can enter into Marine Recorder.



Discussion

During the process of collating data, drawing maps and actual consultation some important points were raised.

Ownership of data.

The data sources used by JNCC when preparing distribution maps were:

- MNCR records from within the Irish Sea Pilot Study Area
- Records collated by *MarLIN* under contract [F90-01-592]
- Records collated by *MarLIN* for the data access programme
- CCW records
- Records collated by Kate Northern

It is important that the ownership not just the source of all records is identified for the confidence of data providers to be maintained.

In addition it was indicated on the maps points which were taken from Seaward's "Conchological Society Sea Area Atlas of Marine Molluscs", as points were inland or offshore. Points had a box drawn round them and were clearly labelled in the legend.

Colour of map

The cost of printing the distribution maps in colour was high so the decision was taken to send out black and white maps with the option of receiving colour maps by email if required. In the future different shapes, as well as colours, should be used to indicate the various data sources.

Labelling presence/absence data

Terry Holt questioned the *Sabellaria alveolata* map stating that it had not been found on the Isle of Man although it was shown there on the map.

The main reference used to gather distribution information for *S. alveolata* included both presence and absence data. This data was entered into Marine Recorder as it was thought useful to include information on sites where species had been searched for but not found. JNCC were unaware of the inclusion of absence data when the maps were prepared and so the *S. alveolata* and *Ostrea edulis* maps contained presence and absence data.

JNCC were informed of this error and updated maps were sent.

Latitude and longitude

No grid lines were included in the maps making it difficult to annotate additional points accurately or to check points that were included. Subsequent consultation exercises should include grid lines allowing annotation of maps.

Projection of the map

Fitting the maps onto a single A4 page created a distorted north-south effect. The large size of the titles along with logos could be rethought to give a better map projection.

Copyright of data

It is important to label the data correctly as to who is the copyright holder. Consultants were concerned that any data they provided should be labelled correctly. The legend on the map should be



reworded to differentiate between data actually collected by individuals/organisations (fieldwork) and that collated by individuals/organisations (literature review).

Labelling of maps

Keith Hiscock thought that common names of species should be included on maps for non-specialists. The legend text was also thought to be unclear, MNCR (ISP) species records should be reworded i.e. MNCR species records from Irish Sea Pilot study area. James Dargie and Keith Hiscock thought that habitat maps should include the biotope code to allow easy searching of databases.

Species

Ivor Rees commented on the list of species used

Acanthocardia aculaeata – main distinguishing features can lead to confusion, possibilities of misidentification so should not include.

Aeolliidiella sanguinea – how relevant is distribution of sea slug only found a couple of times at Calf of Man to future management of the Irish Sea?

Echinus esulentus – found on all except fine sediment grounds. Recommends seeking records of *Echinus acutus* and *Echinus elegans*, which are open shelf species, a few of which penetrate the Irish Sea.

Ventrosia ventrosa – comments on value of including a species that occurs mainly in enclosed brackish lagoons.

Sabellaria spinulosa – records do not reflect true situation as often not identified to species when rapidly sorting dredge samples at sea.

Scolanthus callimorphus – identification confusion with *Edwardsia* app. So lack of records may not fully reflect distribution.

Recommendations

The consultation exercise has thrown up a number of additional records and interest. The inclusion of Individual additional data points identified and the requested cross-referencing of references were carried out. An updated version of the datasets in Marine Recorder is attached.

- 1) It is recommended that the data from Ivor Rees should be incorporated into the maps. This will entail getting geographical positions for the survey points and entering it into Marine Recorder.
- 2) Cross-reference of the CCW phase one database to find any additional records of species and/or habitats.
- 3) Enter data provided by Julia Nunn once latitude and longitude are provided.
- 4) Cross-reference BIOMÔR and Darbyshire (2002) to find any additional records of species.

No time has been allocated for this in the current contract but *MarLIN* can carry out both exercises if required in the future. We envisage the exercise taking approximately six days.

The contract has provided a good investigation for species distribution data. It has been less successful in identifying the habitats data and a future exercise should address this with reference to biotope codes but also using dominant species.



Annex A – Species

Common name	Latin Name	Map No.
Spiny cockle	<i>Acanthocardia aculeata</i>	1
Crab	<i>Achaeus cranchii</i>	2
Sea Slug	<i>Aeolidiella sanguinea</i>	3
Red sea fingers	<i>Alcyonium glomeratum</i>	4
Bryozoan	<i>Amathia pruvoti</i>	No map
Sea fan anemone	<i>Amphianthus dohrnii</i>	No map
Ocean quahog	<i>Arctica islandica</i>	5
Fan mussel	<i>Atrina fragilis</i>	6
Sea slug	<i>Caloria elegans</i>	7
Cup coral	<i>Caryophyllia inornata</i>	8
Devonshire cup-coral	<i>Caryophyllia smithii</i>	9
Sea slug	<i>Doris sticta</i>	10
Edible sea urchin, Common sea urchin	<i>Echinus esculentus</i>	11
The tall sea pen	<i>Funiculina quadrangularis</i>	No map
Carpet coral/Weymouth carpet coral	<i>Hoplangia durotrix</i>	12
Mud snail	<i>Hydrobia (Ventrosia) ventrosa</i>	13
Sunset cup coral/Sunset star coral	<i>Leptopsammia pruvoti</i>	No map
Horse mussel	<i>Modiolus modiolus</i>	14
Dog whelk	<i>Nucella lapillus</i>	15
Yellow skirt slug	<i>Okenia elegans</i>	16
Worm	<i>Ophelia bicornis</i>	17
Native oyster/Flat oyster	<i>Ostrea edulis</i>	18
European spiny lobster	<i>Palinurus elephas</i>	19
Yellow cluster anemone	<i>Parazoanthus axinellae</i>	20
Limpet	<i>Patella ulyssiponensis aspera</i>	21
Amphipod	<i>Pectenogammarus planicrurus</i>	22
Colonial sea squirt	<i>Polysyncraton lacazei</i>	23
Honeycomb worm	<i>Sabellaria alveolata</i>	24
Ross worm	<i>Sabellaria spinulosa</i>	25
Worm anemone	<i>Scolanthus callimorphus</i>	26
Serpulid tube worm	<i>Serpula vermicularis</i>	27
Bristle worm	<i>Sternaspis scutata</i>	28
Lagoon sea slug	<i>Tenellia adpersa (Tenella adpersa)</i>	29
Sea slug	<i>Trapania maculata</i>	30



Annex B - Habitats

Habitats	Map No.
<i>Ampharete falcata</i> turf with <i>Parvicardeum ovaleum</i> cohesive muddy very fine sand near margins of deep stratified seas	No map
Cirratulids and <i>Cerastoderma edule</i> in littoral mixed sediment	No map
<i>Flustra foliacea</i> and <i>Haliclona oculata</i> with a rich faunal turf on tide-swept circalittoral mixed substrata	31
<i>Laminaria saccharina</i> , <i>Chorda filum</i> and dense red seaweeds on shallow unsheltered infralittoral boulders or cobbles	32
<i>Limaria hians</i> beds in tide-swept sublittoral muddy mixed sediment	33
<i>Modiolus modiolus</i> beds on circalittoral mixed sediment	No map
<i>Modiolus modiolus</i> beds with <i>Chlamys varia</i> , sponges, hydroids and bryozoans on slightly tide-swept very sheltered circalittoral mixed substrata	34
<i>Pectenogammarus planicrurus</i> in midshore well-sorted gravel or coarse sand	35
<i>Sabellaria alveolata</i> reefs on sand-abraded eulittoral rock	36
<i>Sabellaria spinulosa</i> encrusted circalittoral rock	37
<i>Styela gelatinosa</i> and other solitary ascidians on very sheltered deep circalittoral muddy sediment	38
<i>Suberites</i> sp. with a mixed turf of crisiids and <i>Bugula</i> sp. on heavily silted, moderately wave exposed, shallow circalittoral rock	39
<i>Zostera noltii</i> beds in littoral muddy sands	40

Not all records on the JNCC Marine database have biotope labels attached to them. For example records that appear on the *Modiolus modiolus* species distribution map do not appear on the *Modiolus* biotope map as they are not labelled *Modiolus* biotopes, although many of the records will be *Modiolus* beds records.

Maps have also been produced for *Sabellaria spinulosa* biotopes (map 41) and *Modiolus modiolus* biotopes (map 42) from the information held on the JNCC Marine database.



Annex C – Sources identified

Latin Name	Sources identified by <i>MarLIN</i>
<i>Acanthocardia aculeata</i>	No sources within Irish Sea Pilot area found. Tebble (1976) describes it as “..not common in British Waters, occurring only in the south-west.”
<i>Achaeus cranchii</i>	Isle of Man (Bruce, 1963).
<i>Aeolidiella sanguinea</i>	Record from Isle of Man (Dr Bill Sanderson, 1991)
<i>Alcyonium glomeratum</i>	Records found within Irish Sea Pilot area are from Skomer Island, Pembrokeshire (Dr Bill Sanderson, 1987-1990).
<i>Amathia pruvoti</i>	Nothing found on this species.
<i>Amphianthus dohrnii</i>	No sources identified within the Irish Sea pilot area. Manuel (1988) describes it as “Formerly common in the English channel and around southern Ireland...appears to have become rare...”
<i>Arctica islandica</i>	One record in Strangford Lough (Roberts 1975). <i>MarLIN</i> has previously accessed <i>Arctica islandica</i> data for the Irish Sea from the CEFAS 4m beam trawl data.
<i>Atrina fragilis</i>	Firth of Clyde (Allen, 1962), non-confirmed record from Clyde Basin (Woodward, 1985 – entered as metadata only).
<i>Caloria elegans</i>	Record from Cardigan Bay (Dr Bill Sanderson, 1995)
<i>Caryophyllia inornata</i>	Records found within Irish Sea Pilot area are from Skomer, Pembrokeshire (Dr Bill Sanderson, 1991).
<i>Caryophyllia smithii</i>	Records from Isle of Man (Bruce <i>et al.</i> , 1963; Moore, 1937), Skomer (Rostron, 1988; Dr Bill Sanderson) and Strangford Lough (Williams, 1954).
<i>Doris sticta</i>	Referred to Picton & Morrow (1994) for distribution by Dr Bill Sanderson – found around Skomer – no actual records of surveys found in literature.
<i>Echinus esculentus</i>	Isle of Man (Bruce <i>et al.</i> , 1963), Skomer (Bishop, 1989; Bishop & Earll, 1984), Firth of Clyde (Comley & Ansell, 1988), Loch Fyne (Davies, 1989)
<i>Funiculina quadrangularis</i>	Only absence records reported. Chris Lumb’s suggested lead of Scottish Natural Heritage ROV records to be followed up. <i>Funiculina quadrangularis</i> is not known from the Clyde (Davies, 1989) “In extensive studies of deep mud habitats in the Irish Sea (particularly the Firth of Clyde), <i>Funiculina quadrangularis</i> has not been found (Dr R.J.A. Atkinson, pers. comm.)”.
<i>Hoplangia durotrix</i>	Only one record from within Irish Sea Pilot area; Skomer (Dr Bill Sanderson, 1989).
<i>Hydrobia (Ventrosia) ventrosa</i>	Record from one location: Anglesey (Barnes, 1987).
<i>Leptopsammia pruvoti</i>	No records within Irish Sea Pilot area found (record from Lundy from Dr Bill Sanderson).



Latin Name	Sources identified by <i>MarLIN</i>
<i>Modiolus modiolus</i>	Records from four locations within Irish Sea Pilot area. Isle of Man (Answar <i>et al</i> 1990; Jasmin & Brand, 1989; Jones, 1951; Kileen, 1995).North Wales (Wilson, 1958), Strangford Lough (Magorrian & Service, 1998; Roberts, 1975; Brown & Seed, 1977; Erwin, 1977) Firth of Clyde (Comely,1978).
<i>Nucella lapillus</i>	Records from 19 locations within Irish Sea Pilot area. Anglesey (Spence <i>et al.</i> , 1987;Seaward, 1993, 1990, 1982), Antrim(Seaward, 1993, 1990, 1982), Arran (Smith, 1984), Belfast (Seaward, 1993, 1990, 1982), Bristol Channel (Seaward, 1993, 1990, 1982), Cardigan Bay (Seaward, 1993, 1990, 1982; Spence <i>et al.</i> , 1987, 1990; Hayter, 1988) Clyde & Argyll (Seaward, 1993, 1990, 1982), Cumbria (Hayter, 1988; Spence <i>et al.</i> , 1987) Dublin (Seaward, 1993, 1990, 1982), Isle of Cumbrae (Spence <i>et al.</i> , 1987), Isle of Man (Seaward, 1993, 1990, 1982; Bruce, 1963; Moore, 1937), Lancashire, (Spence <i>et al.</i> , 1990, 1987) Liverpool Bay, (Seaward, 1993, 1990, 1982), Loch Fyne (Davies, 1989) Menai Straits (Spence <i>et al.</i> , 1987; Lumb, 1983), Nymphe Bay (Seaward, 1993, 1990, 1982), Pembrokeshire (Crothers, 1974; Spence <i>et al.</i> , 1990, 1987; Hayter, 1988) North Ayrshire (Spence <i>et al.</i> , 1987), Solway (Seaward, 1993, 1990, 1982), South Ayrshire (Spence <i>et al.</i> ,1990, 1987)
<i>Okenia elegans</i>	Records from Antrim (Seaward, 1993, 1990, 1982), Bristol Channel (Seaward, 1993, 1990, 1982), Skomer and St Brides Bay, Pembrokeshire (Dr Bill Sanderson).
<i>Ophelia bicornis</i>	Found in the Exe Estuary, this site is the most northerly for the species and only within UK (Harris, 1991).
<i>Ostrea edulis</i>	Surprisingly few uncultivated records. Records accessed for Strangford Loch (Kennedy & Roberts, 1999).
<i>Palinurus elephas</i>	Recorded in South Wales (Hunter <i>et al.</i> ,1996; records from Dr Bill Sanderson). Any records with Sea Fisheries Committee to be followed up.
<i>Parazoanthus axinellae</i>	Records from Skomer, Pembrokeshire (Dr Bill Sanderson, 1989-90).
<i>Patella ulyssiponensis aspera</i>	Records from 11 locations within Irish Sea Pilot area. Anglesey (Seaward, 1993, 1990, 1982), Antrim (Seaward, 1993, 1990, 1982), Belfast (Seaward, 1993, 1990, 1982), Bristol Channel (Seaward, 1993, 1990, 1982), Cardigan Bay (Seaward, 1993, 1990, 1982), Clyde (Seaward, 1993, 1990, 1982; Allen, 1962), Dublin (Seaward, 1993, 1990, 1982), Isle of Man (Seaward, 1993, 1990, 1982; Bruce <i>et al.</i> , 1963), Menai Bridge (Oliver <i>et al</i> , 1986), Nymphe Bay (Seaward, 1993, 1990, 1982), Solway (Seaward, 1993, 1990, 1982)
<i>Pectenogammarus planicrurus</i>	Aberystwyth, west Wales (Bell & Fish, 1996; Morgan, 1970) Isle of Man (Bruce, 1963; Jones, 1948) County Dublin (Duhig, 1960; Duhig & Humphries, 1955 – entered as metadata only).



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Latin Name	Sources identified by <i>MarLIN</i>
<i>Polysyncraton lacazei</i>	Two references to work on this species. Specimens collected from the northwest Mediterranean, nothing found on British and Irish distribution of this species.
<i>Sabellaria alveolata</i>	Presence/Absence data from Cunningham <i>et al.</i> (1984), Grave & Whittaker (1997).
<i>Sabellaria spinulosa</i>	Records from Isle of Man (Bruce <i>et al.</i> , 1963; Moore, 1937) and Skomer (Rostron, 1988).
<i>Scolanthus callimorphus</i>	No sources found for distribution of species within Irish Sea Pilot area. Manuel (1981) comments on the limited distribution of the species in Weymouth, Naples, Brittany, Roskeeda Bay - County Galway.
<i>Serpula vermicularis</i>	Loch Creran is the only known location of <i>Serpula vermicularis</i> reefs in Scotland (Moore <i>et al.</i> , 1998). Davies (1989) has 3 locations in Loch Fyne where individual specimens occur. Roberts (1975) has a record in Strangford Lough.
<i>Sternaspis scutata</i>	No records within Irish Sea Pilot area all records from Portland (Dr Bill Sanderson).
<i>Tenellia adspersa</i> (<i>Tenella adspersa</i>)	Records from Bristol channel (Seaward, 1993, 1990, 1982), Liverpool Bay (Seaward 1993, 1990, 1982).
<i>Trapania maculata</i>	A rare Mediterranean dorid nudibranch. 1 st recorded in UK from Portland in May 1974. 1 location within Irish Sea Pilot area: Cardigan Bay (Seaward, 1990).



Annex D – Consultation List

Organisation	Name	Responded
British Geological Survey	Ceri James	Yes
British Oceanographic Data Centre	Andy Tabor	
British Oceanographic Data Centre	Lesley Rickards	
Countryside Council for Wales	Mandy McMath	
Countryside Council for Wales	James Dargie	Yes (also Gabrielle Wyn)
Countryside Council for Wales	Rohan Holt	
Crown Estates	Frank Parish	Yes
Crown Estates	Carolyn Heeps	
Dept. Agriculture & Rural Development for Northern Ireland	Richard Briggs	
Dept. Agriculture & Rural Development for Northern Ireland	Matt Service	Yes
English Nature	Angela Moffat	
Environment Agency, National Centre for Environmental Data & Surveillance	Tim Sawyer	
Environmental Heritage Service	Joe Breen	
Fisheries Research Service	Derek Moore	
Zoology Department	Jim Wilson	
Port Erin Marine Laboratory	Terry Holt	Yes
Marine Biological Association	Keith Hiscock	Yes
Marine Conservation Society	Chris Wood	Yes
Marine Institute	Francis O'Brien	
National Marine Aquarium	Doug Herdson	Yes
National Museums & Galleries of Wales	Andy Mackie	Yes
Queen's University	Sam Vize	
Scottish Natural Heritage	Sandy Downie	Yes
Scottish Natural Heritage	Dave Donnan	
Scottish Natural Heritage	John Baxter	
Sea Mammals Research Unit	Callan Duck	Yes
Shark Trust	Sarah Fowler	Yes
Sir Alister Hardy Foundation for Ocean Science	Chris Reid	Yes
UK Offshore Operators Association	Alex Duff	
University of Wales, Bangor	Ivor Rees	Yes
Ulster Musuem	Bernard Picton	
Ulster Musuem	Julia Nunn	Yes
Scottish Association of Marine Science	Robin Harvey	Yes
University Marine Biological Station	Geoff Moore	Yes



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