

**CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 OHT
2005 RESEARCH VESSEL PROGRAMME**

REPORT: RV CORYSTES: CRUISE 1

STAFF:

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H Bates	S Bolam
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DURATION: 29 June – 07 July

LOCATION: Bristol Channel

AIMS:

- 1) To carry out a benthic and trawl survey of sandy biotopes in the Bristol Channel, in support of project AE1148, and to collect data and samples for studies supporting the development of EcoQOs for benthic communities, including (a) examining the distribution, size composition, abundance and diversity of meiofauna, infauna, epibenthos and fish on sandy biotopes, and (b) examining issues pertaining to relative catchability and sample replication.
- 2) To collect biological samples of shrimp and other benthic fauna for the analysis of heavy metal levels (L. Newton, University of West of England)

NARRATIVE:

CORYSTES sailed from Swansea at 13:00 on 29 June and steamed to the outer Bristol Channel, arriving on site at 19:00. Sampling with the NIOZ corer was carried out that evening. Further sampling for fish, epibenthos and infauna was undertaken on the morning of 30 June, with replicate samples of 4m-beam trawl (three samples), Agassiz trawl (five samples) and 2m-steel beam trawl (five samples) and Day grab (5 samples) taken at the main station in this area (prime station 503, Outer Bristol Channel). Later that afternoon and during the following day, sampling was undertaken on a grid of stations surrounding the prime station. These stations were selected to examine spatial heterogeneity, and were sampled with Day grab (five samples) and 2m steel beam trawl (one sample). This grid comprised stations 2nm NW, NE, SE and SW of the central prime station (stations A-D respectively), and further stations approximately 6nm NW, NE, SE and SW of the prime station (stations E-H respectively).

CORYSTES arrived at the second study area in inner Carmarthen Bay on the morning of 02 July, with sampling on a grid of seven stations south of the main station (prime station 101) completed by 17:00 hours. Replicate sampling with 4m-beam trawl and Day grab at the main station was completed that evening, though the presence of static gear (whelk pots) restricted the length of the 4m-beam trawl

tow. Sampling started at 05:15 on 03 July and the remaining replicate samples (Agassiz trawl, 2m-beam trawl and NIOZ corer) collected by 14:00 hours.

CORYSTES then sailed to the final sampling station (prime station 138, Outer Carmarthen Bay) and replicate Day grab and 4m-beam trawl samples collected. Sampling on 04 July commenced at 05:00, with replicate samples collected with Agassiz trawl and 2m-beam trawl. Weather conditions were not suitable for coring at this point, and sampling on the surrounding grid of stations was undertaken that day. The grid of eight surrounding stations was finished by 19:00 on 05 July.

CORYSTES remained on station on 06 July, though the sea state and winds prevented the safe deployment of the corer, and CORYSTES steamed towards Swansea that evening, docking at 10:30 on 07 July.

RESULTS:

Benthic and trawl survey of sandy biotopes

Intensive sampling was undertaken at three core stations (Figure 1), with additional sampling undertaken at grids surrounding the prime stations (Figure 2).

NIOZ Corer: Sixteen samples were collected with the NIOZ corer, with samples taken for subsequent analysis of meiofauna, macrofauna and PSA. Weather conditions did not allow the use of the NIOZ corer at prime station 138.

Day Grab: 135 samples (5 samples for 27 stations) were collected with the Day Grab for subsequent analysis of meiofauna, macrofauna and PSA.

Agassiz trawl: Fifteen valid tows were made with the Agassiz trawl, five at each prime station. This gear generally yielded smaller catches in comparison with the 2m-beam trawl. Catches were processed at sea, with data on the abundance and biomass distribution of all non-colonial fauna, and the biomass of colonial species recorded. Catches were comprised primarily of macro-epibenthic echinoderms (e.g. *Ophiura ophiura*, *Astropecten irregularis*) crustaceans (*Pagurus* spp., *Crangon* spp., *Liocarcinus holsatus*) and mollusc (*Buccinum*, *Philine*, *Polinices*). The length distributions of fish were also recorded.

2m-Beam trawl: Forty valid tows were made with the steel 2m-beam trawl. The catch composition of invertebrates was broadly similar to that of the Agassiz trawl, though hauls often yielded a greater volume, and fish were more abundant in 2m-beam trawl samples. Once again, catches were processed at sea, with data on the abundance and biomass distribution of all non-colonial fauna, and the biomass of colonial species recorded. The length distributions of fish were also recorded.

4m-Beam trawl: Nine valid tows were made with the 4m-beam trawl, three at each prime station. All catches were processed at sea, with data on the abundance and biomass distribution of all non-colonial fauna, and the biomass of colonial species recorded. The length distributions of fish were also recorded. Five smooth-hounds *Mustelus* spp. were tagged and released.

A taxonomic list of epifauna and fish recorded in the various trawl nets is given in Table 1.

Collection of biological samples

Samples of various crustacean species were collected from various sites for the analysis of contaminants.

Sunfish and cetacean sightings

A sunfish *Mola mola* was observed at 51° 13.29'N, 05° 12.73'W, and was swimming at the surface of the starboard side of the vessel whilst CORYSTES was at prime station 503 (14:15, 30 June). Many common dolphin (*Delphinus delphis*) were observed in the area during the cruise. Sightings of cetaceans are summarised in Table 2.

We thank the officers and crew for their hard work during the course of the survey.

J Ellis
07 August 2005

SEEN IN DRAFT

S. McBride (Master)
J. Lynch (Senior Fishing Mate)

INITIALLED:

SI Rogers

DISTRIBUTION:

Basic list
Staff on Cruise
Stuart Rogers
South Wales SFC
Natural History Museum, London

Andy Mackie, National Museum and
Galleries of Wales, Cardiff
Doug Herdson, National Marine
Aquarium

Figure 1: Primary sampling stations in the outer Bristol Channel (503), Inner Carmarthen Bay (101) and outer Carmarthen Bay (138) sampled with NIOZ corer, Day grab, Agassiz trawl, 2m-beam trawl and 4m-beam trawl

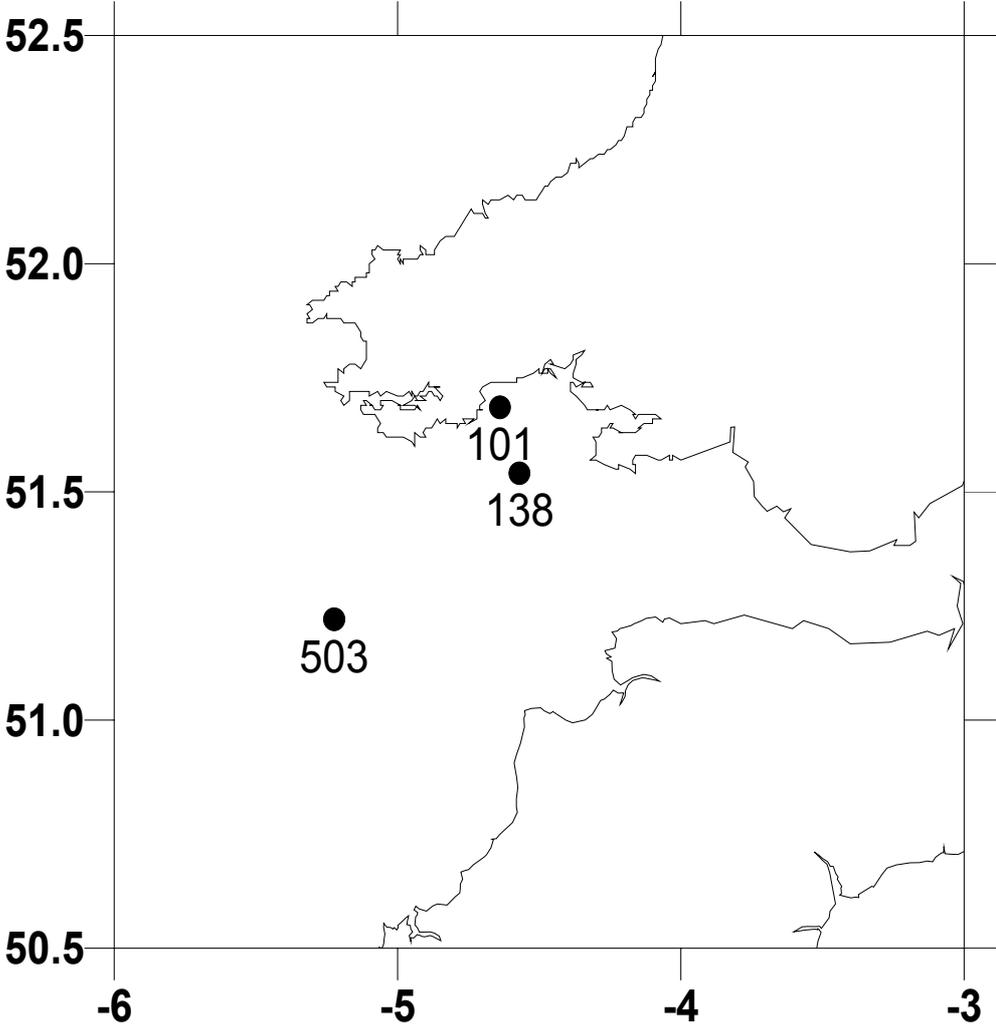
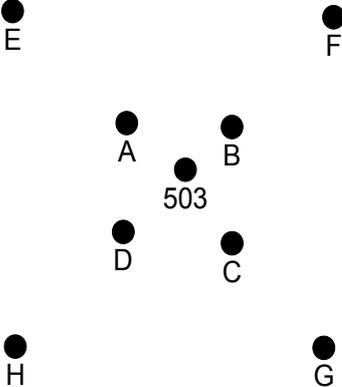
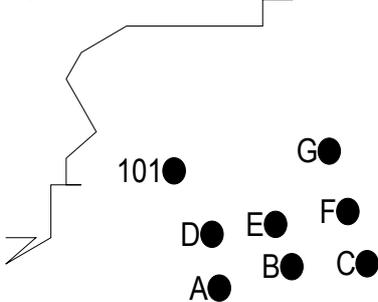


Figure 2: Sampling grids conducted around the primary survey stations in (a) the outer Bristol Channel (503), (b) inner Carmarthen Bay (101) and (c) outer Carmarthen Bay (138), sampled with Day grab and 2m-beam trawl.

(a) Outer Bristol Channel (503)



(b) Inner Carmarthen Bay (101)



(c) Outer Carmarthen Bay (138)

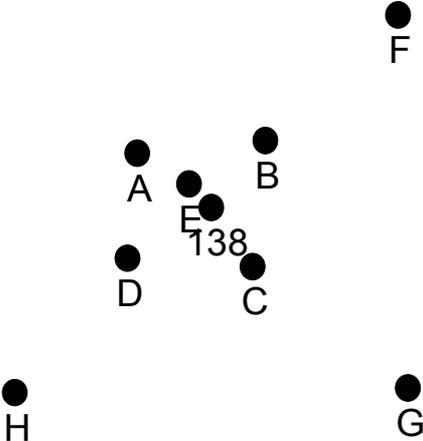


Table 1: Preliminary list of species recorded during the survey, and not including species preserved for subsequent identification in the laboratory.

Higher taxon	Family	Species
Porifera	Suberitidae	<i>Suberites</i> sp.
Hydrozoa	Hydractiniidae	<i>Hydractinia echinata</i>
	Sertulariidae	<i>Hydrallmania falcata</i>
	Plumulariidae	<i>Nemertesia ramosa</i>
		<i>Nemertesia antennina</i>
Anthozoa	Alcyonidae	<i>Alcyonium digitatum</i>
	Virgulariidae	<i>Virgularia mirabilis</i>
	Epizoanthidae	<i>Epizoanthus papillosus</i>
	Metridiidae	<i>Metridium senile</i>
	Hormathiidae	<i>Adamsia carciniopados</i>
Polychaeta	Aphroditidae	<i>Aphrodita aculeata</i>
	Eunicidae	<i>Hyalinoecia tubicola</i>
	Nephtyidae	<i>Nephtys</i> spp.
	Nereidae	<i>Neanthes fucata</i>
Isopoda	Idoteidae	<i>Idotea linearis</i>
Decapoda	Processidae	<i>Processa canaliculata</i>
		<i>Pandalus</i> sp.
		Pandalidae
	<i>Crangon crangon</i>	
	<i>Pontophilus spinosus</i>	
	<i>Upogebia</i> spp.	
	Paguridae	<i>Anapagurus laevis</i>
		<i>Pagurus bernhardus</i>
		<i>Pagurus prideaux</i>
		<i>Galathea</i> sp.
		<i>Pisidia longicornis</i>
		<i>Ebalia tuberosa</i>
		<i>Ebalia tumefacta</i>
		<i>Hyas coarctatus</i>
		<i>Inachus dorsettensis</i>
		<i>Macropodia rostrata</i>
	<i>Macropodia tenuirostris</i>	
	<i>Macropodia linaresi</i>	
	<i>Maja squinado</i>	
	Corystidae	<i>Corystes cassivelaunus</i>
<i>Atelecyclus rotundatus</i>		
<i>Cancer pagurus</i>		
<i>Liocarcinus holsatus</i>		
<i>Liocarcinus pusillus</i>		
Portunidae	<i>Necora puber</i>	
	<i>Goneplax rhomboides</i>	
	<i>Turritella communis</i>	
Gastropoda	Turritellidae	<i>Turritella communis</i>
	Aporrhaidae	<i>Aporrhais pespelecani</i>

	Calypteridae	<i>Crepidula fornicata</i>
	Naticidae	<i>Polinices fusca</i>
		<i>Polinices catena</i>
		<i>Polinices polianus</i>
	Buccinidae	<i>Buccinum undatum</i>
Opisthobranchia	Nassariidae	<i>Hinia reticulata</i>
	Acteonidae	<i>Acteon tornatilis</i>
	Scaphandridae	<i>Scaphander lignarius</i>
	Philinidae	<i>Philine aperta</i>
Bivalvia	Arminidae	<i>Armina loveni</i>
	Nuculidae	<i>Nucula sulcata</i>
	Mytilidae	<i>Mytilus edulis</i>
	Pectinidae	<i>Aequipecten opercularis</i>
	Cardiidae	<i>Acanthocardia echinata</i>
	Veneridae	<i>Chamelea gallina</i>
		<i>Dosinia</i> spp.
		<i>Timoclea ovata</i>
	Mactridae	<i>Mactra stultorum</i>
		<i>Spisula solida</i>
	Tellinidae	<i>Fabulina fibula</i>
	Scrobiculariidae	<i>Abra alba</i>
		<i>Abra prismatica</i>
	Psammobiidae	<i>Gari fervensis</i>
	Solenidae	<i>Phaxas pellucidus</i>
	Solecurtidae	<i>Pharus legumen</i>
Cephalopoda	Corbulidae	<i>Corbula gibba</i>
	Sepiidae	<i>Sepia officinalis</i>
	Sepiolidae	<i>Sepiola atlantica</i>
	Loliginidae	<i>Alloteuthis subulata</i>
		<i>Loligo</i> sp.
Bryozoa	Octopodidae	<i>Eledone cirrhosa</i>
	Flustridae	<i>Flustra foliacea</i>
	Bugulidae	<i>Bugula</i> sp.
	Cellaridae	<i>Cellaria</i> sp.
	Alcyoniidae	<i>Alcyonidium diaphanum</i>
		<i>Alcyonidium parasiticum</i>
Echinodermata	Astropectinidae	<i>Astropecten irregularis</i>
	Luidiidae	<i>Luidia sarsi</i>
	Asteriidae	<i>Asterias rubens</i>
	Ophiolepidae	<i>Ophiura albida</i>
		<i>Ophiura ophiura</i>
	Ophiotrichidae	<i>Ophiothrix fragilis</i>
	Amphiuridae	<i>Amphiura</i> spp.
	Echinidae	<i>Psammechinus miliaris</i>
	Spatangidae	<i>Echinocardium</i> spp.
		<i>Spatangus purpureus</i>
Elasmobranchii	Holothutoidea	<i>Thyone</i> spp.
	Scyliorhinidae	<i>Scyliorhinus canicula</i>
	Triakidae	<i>Mustelus asterias</i>
		<i>Mustelus mustelus</i>
	Rajidae	<i>Raja clavata</i>
		<i>Raja microocellata</i>

Teleostei	Gadidae	<i>Gadus morhua</i> <i>Merlangius merlangus</i> <i>Melanogrammus aeglefinus</i> <i>Trisopterus luscus</i> <i>Trisopterus minutus</i>
	Merluccidae	<i>Merluccius merluccius</i>
	Lophiidae	<i>Lophius piscatorius</i>
	Zeidae	<i>Zeus faber</i>
	Syngnathidae	<i>Syngnathus acus</i>
	Triglidae	<i>Aspitrigla cuculus</i> <i>Eutrigla gurnardus</i> <i>Trigla lucerna</i>
	Agonidae	<i>Agonus cataphractus</i>
	Percichthyidae	<i>Dicentrarchus labrax</i>
	Mullidae	<i>Mullus surmuletus</i>
	Trachinidae	<i>Echiichthys vipera</i>
	Ammodytidae	<i>Ammodytes</i> spp.
	Callionymidae	<i>Callionymus lyra</i> <i>Callionymus reticulatus</i>
	Gobiidae	<i>Gobius niger</i> <i>Pomatoschistus</i> sp.
	Scophthalmidae	<i>Psetta maximus</i> <i>Scophthalmus rhombus</i>
	Bothidae	<i>Arnoglossus laterna</i>
	Pleuronectidae	<i>Limanda limanda</i> <i>Pleuronectes platessa</i>
	Soleidae	<i>Buglossidium luteum</i> <i>Microchirus variegatus</i> <i>Pegusa lascaris</i> <i>Solea solea</i>

Table 2: Cetacean sightings (all times are BST)

Date	Observation
29 June	Large numbers of common dolphin (>20) and two pilot whales were observed between 17:45 and 18:15 between positions 51° 15.32'N, 05° 03.50'W and 51° 13.38'N, 05° 10.82'W
30 June	Two common dolphins were observed at 51° 13.52'N, 05° 12.80'W at 12:20; 5-6 common dolphins were observed at 51° 13.34'N, 05° 13.22'W at 13:30; and more than 10 common dolphins were observed at 51° 17.03'N, 05° 08.38'W at 20:30.
01 July	12-20 common dolphins were observed at 51° 08.9 'N, 05° 17.9 'W at 17:15; and 5-10 common dolphins were observed at 51° 11.44'N, 05° 11.58'W at 19:30.
03 July	About 25 common dolphins were observed at 51° 32.50'N, 04° 34.20'W at 15:00; and about 20 common dolphins were observed at 51° 32.13'N, 04° 35.58'W at 16:10.
04 July	Four common dolphins were observed at 51° 32.14'N, 04° 35.58'W at 09:45.