Centre for Environment, Fisheries and Aquaculture Sciences,
Lowestoft Laboratory, Pakefield Rd, Suffolk NR33 0HT, England

1998 Research Vessel Report

Programme: RV Corystes : Cruise 4

STAFF

	1	2	3	4	5
		*	*	*	
J Rees (SIC)	1	1	1	1	1
N D Pearson	1	1			
B Meadows	1	1	1	1	1
D Limpenny	1	1	1	1	1
J Read	1	1			
D Mills	1				
M Rawlinson (WS Oceans)	1				
Ali Reeve	1				
M Webb (UC)	1	1			
P Marriot (ELAC)	1	1			
S Boyd		1	1	1	1
S Campbell		1	1		
M Kirby		1	1	1	1
J Greenhauf (Submetrix)				1	1

Table 1

(* = change over)

DURATION: 1 - 6 April

LOCALITY: Harwich, Thames and Cross Sands.

AIMS (all under project code A0908 unless stated):

1. To recover two Minipods at Threshold and the New dredge disposal site at Harwich and obtain sediment samples at those sites.

2. To deploy two U shaped mooring and two single point moorings in the Thames estuary as part of the Smart Biophysical Moorings campaign (A1108).

3. To trial two SWATH bathymetry systems on the Cross sands area (ELAC and Submetrix)

4. To trial two digital sidescan systems for identification of biotopes.

NARRATIVE: [note all times in GMT]

RV Corystes sailed on the 1030 tide of the 1st, and sailed to Harwich and recovered the Minipod and 2 guard buoys from the proposed new dredged material disposal site. A second Minipod and guard buoy were recovered from Harwich Threshold before sailing south to deploy the first current meter mooring at the outer Thames site. The second current meter mooring was deployed at the inner Thames site along with the first SMART water sampling mooring late on the first (a Toroid buoy had to be replaced as the light did not operate). Corystes then sailed North to the outer Thames site overnight to deploy the second SMART mooring early on the second.

The first of the Minipods was laid later on the 2nd at Cross Sands before heading inshore to change over staff. The two remaining Minipods were deployed later that evening along with the furthest offshore current meter mooring.

A bathymetric survey with the ELAC system was completed overnight on five survey lines. During the morning of the 3rd 14 mini Hamon Grab samples were collected for particle size and benthos to help calibrate the sidescan and swath bathymetry information. Another staff changeover followed in the late afternoon. A short sidescan survey using the Klein 2000 was completed before poor weather stopped operations. High winds continued over the morning of the 4th before Corystes returned to Lowestoft later in the afternoon.

A second bathymetric system was completed along 5 survey lines during the 5th using the Submetrix system. During the evening two further sidescan lines were completed using the Klein system along with the remaining 6 Hamon Grabs.

On the 6th the EdgeTech sidescan sonar system was tested on 3 survey lines before returning to Lowestoft.

RV Corystes docked at 1600 in Lowestoft on the 6th.

RESULTS:

1. Two Minipods were recovered from Threshold and the new dredge disposal site at Harwich. Sediment samples were collected for calibration of the OBS sensors later in a turbidity tank.

2. Two U shaped current meter moorings and two single point moorings were deployed in the Thames estuary as part of the Smart Biophysical Moorings campaign (A1108).

3. Two SWATH bathymetry systems were trialled on the Cross sands area (ELAC and Submetrix). A full report of the processed data will be available in due course. See table below for an initial comparison of results.

4. Two digital sidescan systems were trialled for identification of biotopes in the Cross Sands area. A full report of the processed data will be available in due course.

Table 2 - Comparison of Acoustic Systems

System	ELAC Bottom Chart	Klein 2000	Submetrix ISIS 1000	EdgeTech DigiFish DF1000
Type of Instrument	Multi Beam Focused Swath bathymetry	Dual Frequency Digital Sidescan	Interferemetric Swath Sonar	Dual Frequency Digital Sidescan
Advantages	Wide footprint ~100 m). Good in marginal weather.	Good Images out to 140 m on 100 kHz	Coarse sidescan information Beams concentrated close to ship but shadow directly below vessel (1000 beams). Good in marginal weather.	Fused acoustic beams (500 kHz to 60m then 100 kHz to 140 m allow high resolution at close range with full coverage to 150 m.
Disadvantages	Beam pattern concentrated under ship, limited resolution; coarse backscatter data	No Bathy Poor 500 kHz performance but better than analogue sidescan	Swath (both with bathy and sidescan only 60 m)	No Bathy

Jon Rees SIC
6/4/98

SEEN IN DRAFT: **Master**
Senior Fishing Mate

J.M. Rees
6/4/98.

Distribution:

Basic List + (names on staff list)
Harwich Port Authority (Ian Webster)
Paul Leonard (CSG)
Chris Vivian
Hubert Rees
Steve Malcolm
Robin Gay (ESFC)

Some examples of the excellent imagery are shown below. See table below for an initial comparison of results

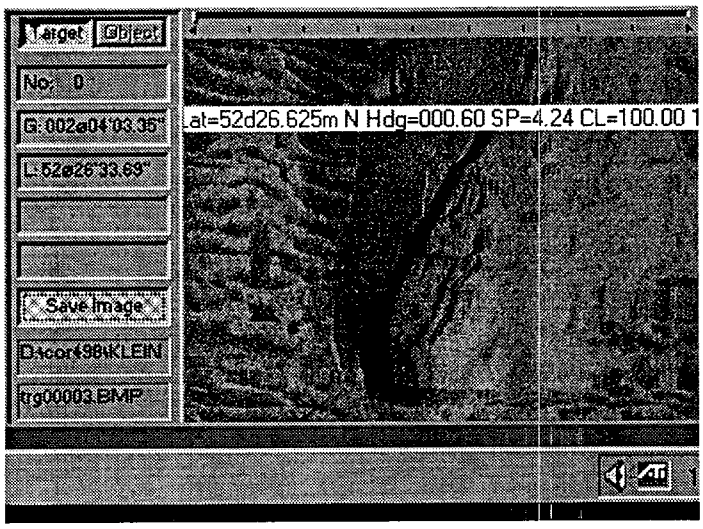

Figure 1 Klein Sidescan Image of wreck on Line D

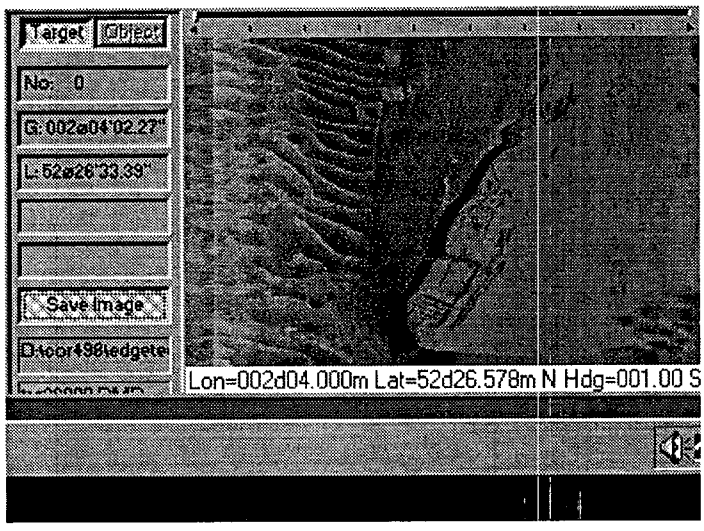

Figure 2 - EdgeTech Image of wreck on Line D