LOIS LOIS

LOIS RACS(C) Core Programme
Sea Vigil SV 32
Cruise Report
29th July-2nd August 1996
Tidal Reaches Programme

Personnel:

Duncan Plummer (PML/LOIS Hull)	Senior Scientist
Bek Bellerby (PML)	
Mike Chester (U of Sheffield)	
Steve Mitchell (U of Birmingham)	
Mark Williams (U of Plymouth)	
Adrian Punt (U of Plymouth)	
Alan Tappin (U of Southampton)	
Ruth Parker (U of Southampton)	
Brian Dickie (U of Southampton)	
Alan Lawlor (IFE Windermere)	
Reg Uncles (PML)	
John Stephens (PML)	

Monday 29th: Axial Survey of Trent

(Bek Bellerby, Alan Tappin, Steve Mitchell, Adrian Punt and Alan Lawlor)

The scientific party assembled on board from 1000. All equipment was commissioned and calibrated prior to leaving Hull Marina at 1532. The underway survey started at station 16 (1546), with the surface waters monitored using the *Sea Vigil* instrumentation for nutrients (TON, phosphate, silicate and ammonium), conductivity, temperature, turbidity, pH, Do, fluor *etc*, recorded with position and time. At 1700 the survey passed into the Trent and continued upstream to station 50 at Gainsbrough (1936). During the passage along the Trent collection of discrete samples for later determination of suspended sediment, metals and related parameters was undertaken. The vessel was along side at Beckenham Wharf at 1945 where the collected samples were unloaded ready to be transported back to the LOIS laboratory for preliminary processing. A number of replacement reagents for the nutrient analyser were taken onboard.

SV32A

Tidal Cycle in Trent

(Bek Bellerby, Alan Tappin, Steve Mitchell and Adrian Punt)

Between 1945 and 2025, when the *Sea Vigil* departed from Gainsbrough, the analysers were recalibrated, and all instruments set up ready for the tide cycle work. At 2215 the vessel tied up along side Derrythorpe Mooring Dolphin. The tide cycle started at 2300. The surface waters were monitored using the *Sea Vigil* instrumentation for nutrients (TON, phosphate, silicate and ammonium), conductivity, temperature, turbidity, pH, Do, fluor, recorded time *etc*. During this work discrete samples were collected for later determination of suspended sediment characteristics, metals and related parameters. The samples were collected throughout the experiment at differing times and depths.

SV32B

Tuesday 30th: Tidal Cycle in Trent (continued)

During the tidal cycle work the aegir passed at 0506 signifying the end of the Ebb flow. The work was completed at 1130 and the vessel departed Derrythorpe at 1145. The vessel went along side the Railway Berth at Keadby to allow scientists to disembark and for the small samples to be unloaded. This operation was completed by 1230. The samples were transported back to the LOIS laboratory in Hull for preliminary processing. The *Sea Vigil* was along side at Keadby until 1800 when it made passage to Goole arriving at Ocean Lock at 2015. At 2020 the vessel was fast along side No 1 Berth in the Barge Dock and until 2200 equipment was loaded and commissioned for work the following day.

The remaining samples were unloaded and transported back to back to the LOIS laboratory in Hull for cold storage prior to preliminary processing.

Wednesday 31st: Tidal Cycle in Ouse

(Bek Bellerby, Reg Uncles, John Stephens, Adrian Punt and Mike Chester)

The scientific party mustered onboard at 0545 and by 0625 the *Sea Vigil* was clear of the locks at Goole Docks and bound upstream. At 0730 the vessel was fast at Long Drax Jetty and the tide cycle work commenced at 0830. In addition to the measurements made during the work in the Trent current speed and direction was to be recorded at a range of depths. At 1130 the vessel *Alco* moored upstream of the *Sea Vigil* and as this deflected the flow away the monitoring ceased. A decision was made to restart the work on the evening tide after departure of the *Alco*. As a result the scientific party departed the vessel (at 1145).

SV32C

(Bek Bellerby, Reg Uncles, John Stephens, Adrian Punt, Mike Chester and Duncan Plummer)

At 1830 the scientific party reassembled onboard. After passage of the bore at 1924 monitoring was initiated at 1945. Problems with the crane became apparent at 1950. Due to a clutch failure in the generator hydraulic power was lost. This left the overside instruments at a set depth with no mechanism to move them either up nor down. It was decided to continue monitoring current speed and direction at this one depth at 2030. Efforts to rectify the problem with the winch were finally suspended at 0200.

Thursday 1st: Tidal Cycle in Ouse (continued)

The bore passed at 0729, signifying the end of the Ebb flow, and monitoring ceased at 0745. At 0815 personnel switched over after completion of the tidal cycle and prior to the axial survey work.

Axial Survey of Ouse

(Bek Bellerby, Adrian Punt, Alan Lawlor, Mike Chester and Duncan Plummer)

The *Sea Vigil* departed the berth at Long Drax at 0830. A knock on effect of delaying the tidecycle experiment (by a tide) was that the axial survey of the Ouse and Humber started at Barnby Barrage (station 1) and not further upstream at Selby (station 40) as originally planned. The survey commenced at 0850 (station 1) and continued downstream passing the apex and into the Humber at 1100, and finished at (station 16) Hull at 1209. The surface waters were monitored using the *Sea Vigil* instrumentation for nutrients (TON, phosphate, silicate and ammonium), conductivity, temperature, turbidity, pH, Do, fluor *etc*, recorded with position and time. During the passage along the Ouse collection of discrete samples for later determination of suspended sediment, metals and related parameters was undertaken. The vessel was along side Admiral Steps at 1230 and entered Hull Marina at 1715. All equipment was unloaded and the scientific party had departed by 1830.

Friday 2nd:

Contingency day

Notes:

The work undertaken during the week was part of the fieldwork in support of the tidal reaches project. Please contact the individual scientists for more detailed information on the samples collected and parameters monitored. Sampling was synchronised when practicable and scientifically justifiable.

During the week we were contacted by the CASSI project. The planned locations of the vessel throughout the work were passed on. This then enabled the aircraft to overfly the vessel during its own programme and subsequently obtain calibration information.

The week was not without its problems notably during the tide cycle work in the Ouse. Firstly the operation had to be put back a tide due to a large vessel mooring close to, and hence effecting the flow past, the *Sea Vigil*. This was followed by a problem with the crane as outlined above. All other aspects of the planned programme were successful.

We thank Peter Sarjeant, Ulric Wilson and Tony Boulton of the Environment Agency *Sea Vigil* for their help throughout the programme. Their flexibility was appreciated particularly as the programme was altered throughout the week and their input and advice contributed to the success of the work.

Duncan Plummer 20th August 1996

LOIS	LOIS-RACS(C) Core Programme Trent-Ouse-HUMBER Station Grid			
Station No	**E'ing-N'ing**	**Station Name**	**River**	
50	E 480 753, N 390 281	Gainsbrough-Beckingham Warf	Trent	TC
49	E 478 637, N 392 962	Walkerith	Trent	
48	E 480 717, N 397 898	Wildsworth	Trent	
47	E 483 747, N 403 627	Kelfield	Trent	
46	E 483 683, N 405 811	Butterwick	Trent	TC
45	E 483 903, N 409 820	Althorpe	Trent	TC
44	E 483 779, N 412 353	Keadby	Trent	
43	E 485 687, N 414 522	Flixbourgh	Trent	
42	E 486 350, N 418 450	Burton Stather	Trent	
41	E 486 472, N 422 008	Flats Light	Trent	
	Lat-Long			
40	53 46 88 N 01 03 01 W	Cochranes Selby	Ouse	
39	53 45 74 N 01 01 69 W	Marrow Bone Reach	Ouse	
38	53 45 06 N 00 59 46 W	Newhay Barn	Ouse	
1	53 44 97 N 00 58 28 W	Barnby Barrage (Derwent Conf.)	Ouse	
2	53 43 98 N 00 56 60 W	Longfield Drain	Ouse	
3	53 43.61 N 00 54.41 W	Aire Confluence	Ouse	
4	53 43.51 N 00 51.39 W	Howden Dyke Island	Ouse	
5	53 42.78 N 00 50.40 W	Goole Rail Bridge	Ouse	
6	53 41.35 N 00 51.42 W	Earnshaw Clough	Ouse	
7	53 42.22 N 00 48.90 W	Hall Staith	Ouse	
8	53 41.73 N 00 46.05 W	Whitgift (Tide Guage)	Ouse	
9	53 42.20 N 00 43.05 W	Blacktoft Jetty	Ouse	
	Lat-Long			
10	53 42.20 N 00 40.23 W	Walker Dyke	Humber	
11	53 43.20 N 00 37.00 W	Whitton Ness	Humber	
12	53 42.22 N 00 39.92 W	Oyster Ness	Humber	
13	53 42.60 N 00 30.67 W	North Ferriby	Humber	
14	53 42.80 N 00 27.44 W	Hessle	Humber	
15	53 42.50 N 00 24.25 W	Barton & Barrow	Humber	
16	53 43.57 N 00 21.60 W	No 26A Light float	Humber	Hull
17	53 44.22 N 00 18.30 W	No 24 Lightfloat	Humber	Hull
18	53 43.55 N 00 15.32 W	Salt End	Humber	
19	53 41.68 N 00 14.10 W	Paull Sands	Humber	
20	53 40.13 N 00 12.57 W	No 15A N. Killinghome	Humber	
21	53 38.60 N 00 10.80 W	No 11A S. Killingholme	Humber	SB
22	53 37.53 N 00 08.56 W	No 10A Stallingborough Haven	Humber	SB
23	53 36.58 N 00 05.50 W	Diffuser-Burcom	Humber	SB
24	53 35.60 N 00 02.30 W	Grimsby Road	Humber	SB
25	53 34.95 N 00 00.20 E	No 4B South Shoal	Humber	SB
26	53 34.50 N 00 03.47 E	No 4 Bull Channel	Humber	
27	53 33.06 N 00 03.20 E	Haile Channel	Humber	SB
28	53 32.25 N 00 02.52 E	Haile Sand Fort	Humber	HM
29	53 33.36 N 00 04.82 E	Bull Sand	Humber	HM
30	53 33.43 N 00 07.58 E	Binks	Humber	HM
31	53 35.20 N 00 05.55 E	No 51 Trinity	Humber	NB
32	53 36.45 N 00 02.29 E	No 55 Hawke	Humber	NB
33	53 36.94 N 00 00.50 W	No 58 Sunk	Humber	NB
34	53 37.17 N 00 03.47 W	No 62 Hawkins Point	Humber	NB
35	53 37.66 N 00 06.63 W	No 7A	Humber	NB
36	53 38.82 N 00 09.65 W	No 71 Holme Deposit	Humber	NB
37	53 40.28 N 00 11.50 W	No 72 Foul Holme Sands	Humber	NB