



**LOIS RACS(C) Core Programme
Sea Vigil SV 23
Cruise Report
17th-21st July 1995**

Personnel:

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Saturday 15th: 1100-1200 during a meeting onboard *Sea Vigil* the programme for Monday was altered from a single tidal cycle experiment to the survey of the Ouse reported below.

Sunday 16th: Between 1500 and 1700 scientific equipment was loaded on board the vessel and commissioned for the work on Monday and Tuesday.

Monday 17th: The scientific party was on board at 0645 and the *Sea Vigil* departed Hull Marina at 0730. Due to equipment problems it was decided to sample on the way back downstream. The first station, Selby Reach, was sampled at 1135. A total of five stations were sampled in the Ouse. The stations were at Selby Reach, Barlow Reach, Landrick Reach, Rusholme Reach and Booth Ferry Reach. At each site instruments were deployed and profiling was undertaken.

Measurements were made of conductivity, temperature, turbidity and depth with concomitant recordings of current velocities. Particle size was determined *in situ*. Discrete samples were collected for particle characterisation, gravimetric analysis and later determination of trace metal concentrations. The surface waters were monitored using the NRAs system.

The final site was left at 1320 and at 1600 the *Sea Vigil* tied up along side Admiral Steps. At 1620 the scientist departed. From 2030 to 2100 the *Sea Vigil* departed from the steps and locked into Hull Marina.

Tuesday 18th: The scientific party was onboard at 0730 and passage was made from Hull Marina at 0815. At 0930 *Sea Vigil* anchored at Whitton, 53 42.82 N 0037.80 W. Instruments were deployed at 1004 profiling was undertaken at 30 minute intervals until 2245.

Measurements were made of conductivity, temperature, turbidity and depth with concomitant recordings of current velocities. Particle size was determined *in situ*. Discrete samples were collected for particle characterisation, gravimetric analysis and later determination of trace metal concentrations. The surface waters were monitored using the NRAs system.

At 2300 the anchor was recovered and passage made to Hull. *Sea Vigil* entered Hull Marina at 0045. The vessel was along side at 0100 and operations ceased at 0115.

Wednesday 19th: The party mustered at 0715 and the *Sea Vigil* locked out of Hull Marina at 1015. While in the Marina equipment used on Monday and Tuesday was unloaded and that for Wednesday

and Thursday was brought on board. During a short meeting it was decided to do the CASI work, and hence the downstream survey, today.

The downstream survey started at station 17 (1127) and continued seawards to station 28 (1358). The survey then went out of the estuary into the plume region and included stations VP1-VP10. During this time the UOR was deployed (1418-1850) and profiles to determine optical properties were carried out at the VP stations. The survey continued to station 30 (1917) and ended at station 17 (2132). Stations sampled 17-28, VP1-VP10, 30-37, 19-17.

The survey measured nutrients (nitrate, nitrite, phosphate, silicate, ammonium and urea), conductivity, temperature, turbidity, pH and DO. Discrete samples were collected for gravimetric, C/N, chlorophyll and DOC analysis. In addition samples were collected for phytoplankton enumeration and identification. Large volume samples were collected at stations 24, 26, 28, 32, 34, VP2, VP5, VP7, VP9 and VP10 for later incubation experiment.. The *Sea Vigil* locked into the marina at 2145 and was along side the wall at 2205. After unloading the equipment from the U of Plymouth (CASI) the vessel returned to its berth. The party departed at 2215.

Thursday 20th: The party mustered on board at 0830 and *Sea Vigil* departed Hull Marina at 1010. The upstream survey commenced at station 16 (Hull at 1030) and continued to station 40 (Selby at 1423) and returned downstream and ended at station 16 (1814). Stations sampled 16-1, 38-40, 40-38, 1-16.

The survey measured nutrients (nitrate, nitrite, phosphate, silicate, ammonium and urea), conductivity, temperature, turbidity, pH and DO. Discrete samples were collected for gravimetric, C/N, chlorophyll and DOC analysis. In addition samples were collected for phytoplankton enumeration and identification. Large volume samples were collected at stations 16, 12, 8, 4 and 1 for later incubation experiment. Samples were collected at all stations during the passage upstream for later determination of trace metals.

The *Sea Vigil* tied up along side Admiral Steps at 1830, all samples and equipment was unloaded. At 1915 the vessel left the Steps bound for Grimsby. The *Sea Vigil* entered Grimsby Fish Docks at 2145 and was made fast at the berth at 2215.

Friday 21st: The *Sea Vigil* untied at 0300 and locked out of Grimsby Fish Dock at 0440. The scientific party boarded at 0515 at the Pilot Steps and passage was made to the chosen site, 2 miles east of Spurn (53 34.12 N 00 10.94 E). The bed rig was deployed at 0630 profiling was undertaken until 1228. The rig measured conductivity, temperature, turbidity and depth with concomitant recordings of current velocities. The surface waters were monitored using the NRAs system.

The *Sea Vigil* entered Grimsby Fish Dock at 1345 and the scientific party was away at 1400.

Notes: This was the nineteenth LOIS RACS(C) Core Programme survey of the Humber and Ouse.

For some participants the work in the Ouse was combined with a survey of the Trent. This work, including particle characterisation and trace metal measurements, was in the low salinity region of the Humber water system.

The week included the forth collection of samples for determination of production parameters. The sampling was extended into the Humber plume area.

Surveys of nutrient species and standard parameters were conducted over the full length of the estuary from Selby to Spurn Head. Included in this was the second DOC survey.

Measurements of heat, salt, suspended matter with concomitant measurements of current speed and direction were made at; five stations in the Ouse; and at Whitton and Spurn in the Humber.

A full programme of CASI and related optical measurements were made on Wednesday. The success of the week was due in large part to the flexibility of Peter Sarjeant and Tim Rhodes (NRA), and all of the scientists. For example the decision on the order for the work from Wednesday to Friday was made onboard at 0800 on Wednesday. Thus we are particularly grateful those who came to the meeting and found that they were not involved that day.

Duncan Plummer

16th August 1995