

**RESEARCH VESSEL REPORT**

**RV CEFAS ENDEAVOUR**  
**Survey: C END 03 - 2018**

**STAFF:**

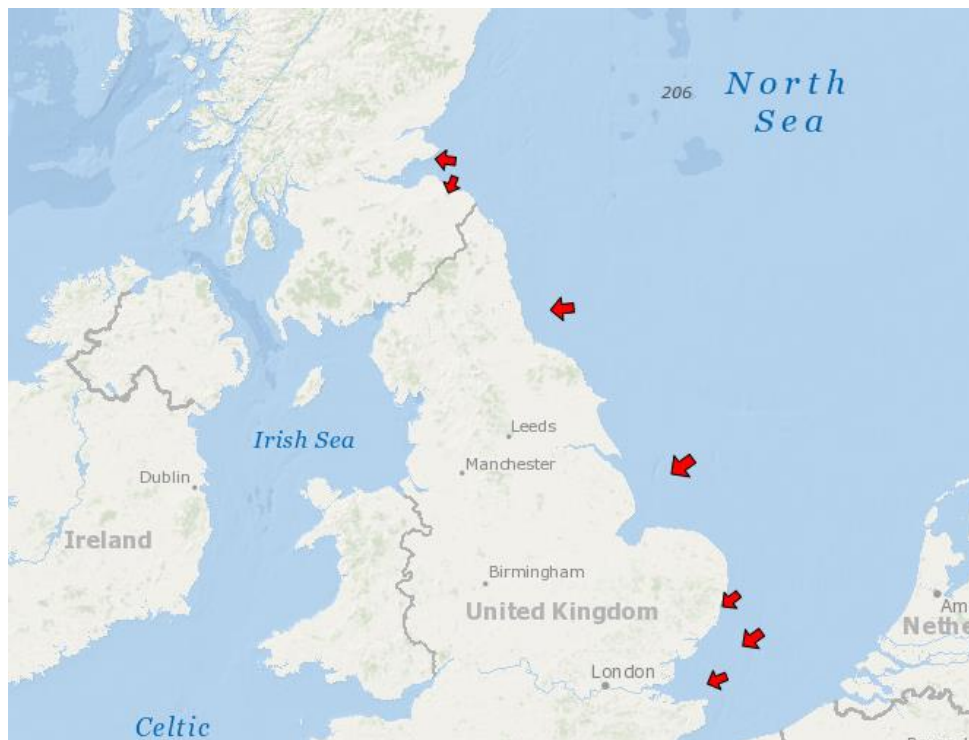
Name	Role	Cabin	Shift
Elisa Capuzzo	SIC	B1	Day
Dave Pearce	2IC / Mooring	C2	Day
Neil Needham	Mooring	C3	Day
Eric Fitton	Mooring/Chem	C6	Day
Sophie Hare	Mooring	C5	Day
Tobias Boehme	FerryBox	C8	Day
Tom Hull	Mooring	C1	Day
Pip Simpson	Student	C7	Day
Carolyn Graves	Mooring/Chem	B2	Day

**DURATION:** 31<sup>st</sup> January to 7<sup>th</sup> February 2018

**MOBILISE:** LOWESTOFT

**DEMOBILISE:** LOWESTOFT

**OPERATION AREAS:** North Sea



*Positions North to South: Firth of Forth, Torness, Tyne/Tees, Dowsing, Southwold, West Gabbard, and South Knock*

#### **AIMS:**

1. Service SmartBuoys at Dowsing, Warp and West Gabbard (SLA25G – 2 day)
2. Service Waverider at Firth of Forth, Tyne/Tees, and South Knock (C6029A – 1.5 days)
3. Service Waverider and guard buoy at Torness (C6029A – 0.5 day)
4. Service noise landers at Dowsing and Warp (SLA20A – 0.5 day)
5. Service South Knock and Southwold guard buoys (C6029A – 1 day)
6. Nutrient mapping (SLA25G – 0.5 day)
7. Collection of zooplankton samples at West Gabbard

#### **Summary:**

The RV Cefas Endeavour sailed at 20:00 on Wednesday 31<sup>st</sup> January 2018 and steamed northward. Water samples for analysis of dissolved inorganic nutrients (nitrate, nitrite, ammonium, phosphate and silicate), salinity and Suspended Particulate Materials (SPM) concentration were collected on the hour from the flow-through of the FerryBox, from 22:00 to 00:00.

On the 1<sup>st</sup> February, a toolbox talk with crew, officer and scientists was carried out at 08:15, followed by a muster drill at 11:30. All day Thursday (1<sup>st</sup> February) and the morning of Friday (2<sup>nd</sup> February) were spent steaming northwards towards the Firth of Forth Waverider. Progress was slow due to worsening weather conditions (north-westerly winds, gale force 8-9, with gusts over 40-50 mph). Hourly water sampling from the FerryBox flow-through was carried out regularly from 06:00 until 20:00 on the 1<sup>st</sup> February, and between 08:00 and 12:00 on the 2<sup>nd</sup> February. Sampling frequency was decreased occasionally to every two hours when vessel speed was reduced to < 2 knots. Hourly sampling was interrupted during the afternoon of the 2<sup>nd</sup> February as maintenance to the FerryBox system (cleaning and software updated) was carried out by Jena engineer.

The Waverider at the Firth of Forth was serviced at 15:49 (recovery) on the 2<sup>nd</sup> February and the new Waverider was deployed at 16:37. Weather conditions were good with 0.5 m sea height and swell less than 1 m. Later in the afternoon the CTD Rosette was tested, following a toolbox talk on the bridge between scientists, crew and officers on the procedure to adopt for deploying the Rosette. Two successful profiles were carried out at 18:00 and 19:15 with collection of samples for validation of sensors on the Rosette and FerryBox.

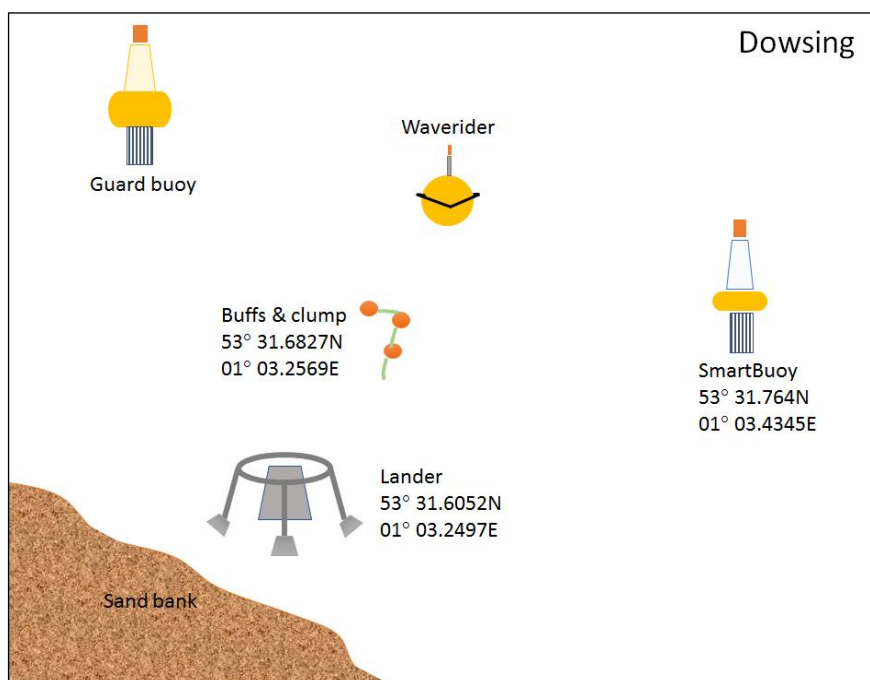
On the following day (Saturday 3<sup>rd</sup> February), during daylight, the Torness Waverider and guard buoy were serviced. The power station at Torness was informed via phone call at 07:00 of the planned activities. A toolbox-talk on the bridge (between crew, officers and scientists) was then carried out at 07:45 before recovering the Waverider and guard buoy. Operations were completed at 09:42 with deployment of the serviced Waverider at the designated location. The Endeavour then sailed southward, towards the Waverider at Tyne/Tees; operations at this site were completed by 18:02, with successful service of the Waverider.

Water sampling for dissolved inorganic nutrients, salinity and SPM, from the FerryBox flow-through, was resumed between 14:30 – 16:30 (every 30 minutes) to cover the stretch of water

not sampled during the steam northwards. A CTD profile and water sampling was also carried out at 19:27 at the NMP (National Monitoring Programme) station, inshore from the Tyne/Tees Waverider. Weather conditions continued to be good with sea height < 1 m.

The SmartBuoy at Dowsing was serviced on the morning of Sunday 4<sup>th</sup> February. A CTD profile was carried out before breakfast at 06:55. The SmartBuoy at Dowsing was recovered at 08:04 and the serviced buoy was deployed shortly afterwards at 08:32. The 'noise lander' was also deployed at this site at 09:42 (see Figure 1 for schematic of the deployment). The Endeavour proceeded southwards to Lowestoft for dropping off Dave Pearce, Tobias Boehme and Tom Hull via small boat at 16:15, then continued her course south towards the Warp SmartBuoy.

The Warp SmartBuoy was serviced on Monday 5<sup>th</sup> February, after a CTD profile (and associated samples collection) was carried out at the site (07:00). Firstly, the SmartBuoy was recovered (07:53), followed by the recovery of the buffs and clamp of the 'noise lander' (08:43) and the lander (09:04). The serviced SmartBuoy was deployed at 10:20 but it was not possible to deploy the 'noise lander' as the battery housing was flooded and no spare parts were available.



**Figure 1 - Dowsing deployment**

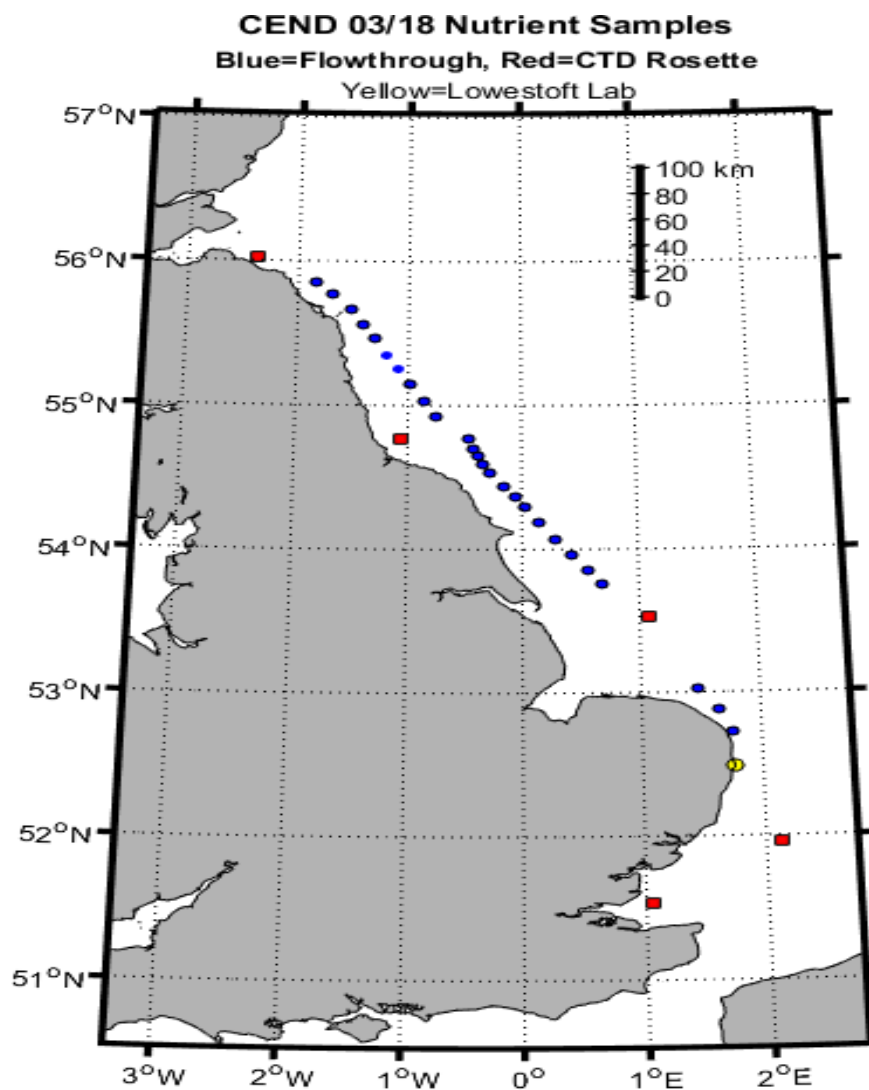
On the same day (5<sup>th</sup> February) the Endeavour proceeded to service the Waverider and guard buoy at South Knock; the Waverider was serviced and deployed at 15:42 with the guard buoy shortly afterwards (16:01). Weather conditions were generally good with < 20 knots of wind and 0.5 m sea height.

The West Gabbard2 SmartBuoy was serviced on the 6<sup>th</sup> February (new buoy deployed at 09:45), and CTD profiles with collection of water samples were carried out before the start of operations and at the end. The RV remained in the West Gabbard2 area for the remaining of the day, to carry out another 2 CTD profiles (at 13:00 and 15:00) and collection of a zooplankton sample (15:28).

The Endeavour proceeded towards the Southwold guard buoy, which was serviced on Wednesday 7<sup>th</sup> February at 08:29. The RV returned to port in Lowestoft on the 14:00 tide, 7<sup>th</sup> February 2018.

A map highlighting locations of water sampling for dissolved inorganic nutrients is given in Figure 2. In addition to the activities described above the following secondary aims were also achieved:

- Testing of automated water sampler connected to the flow-through of the FerryBox (part of Seedcorn DP410);
- Recovery of passive sampler monitoring organic contaminants from the West Gabbard2 SmartBuoy (collaboration with Masaryk University, Czech Republic);
- Deployment of sensors for high frequency measurements of dissolved inorganic nitrogen and phosphate, connected to the flow-through of the FerryBox and mounted on the Warp SmartBuoy (Pip Simpson; NERC / University of Southampton NEXUSS student).



**GEAR:**  
**See Gear List**

Elisa Capuzzo  
Scientist in Charge  
7/2/2018

INITIALLED:

DISTRIBUTION: