

RESEARCH VESSEL SURVEY REPORT

**RV CEFAS ENDEAVOUR
Survey: C END 16 - 2019**

STAFF:

Name	Role	Name	Role
Dave Pearce	SIC	Pip Simpson	Water Sampling
Marc Whybrow	2IC	Rui Vieira	Water Sampling
Naomi Greenwood	Water Sampling Lead - Nights		
Oliver Twigge	Moorings Lead		
Danja Hoehn	Moorings		
Eleanor Haigh	Water Sampling Lead - Days		
Chiara Borsellino	Water Sampling		

DURATION: 5th November to 7th November 2019

LOCATION: North Sea

AIMS:

1. Service Noise Landers at Dowsing and Warp (SLA20A)
2. Service SmartBuoys at West Gabbard and Warp (SLA25SD)
3. Collection of zooplankton sample at West Gabbard
4. Wash CTD and underway water sampling
5. Underway nutrient sampling using FerryBox water sampler
6. Underway water samples for UEA

NARRATIVE:

Tuesday 5th November 2019

The RV Cefas Endeavour sailed at 00:44hrs, with the pilot disembarking at 01:15hrs. We then started to head south towards the Warp survey area.

During the transit we collected several Underway water samples. 01:20hrs - 52° 27.47 N - 01° 46.82E, 02:20hrs - 52° 13.01N - 01° 45.63E, 03:30hrs - 52° 00.02N - 01° 46.09E, 04:30hrs - 51° 50.58N - 01° 38.09E, 05:30hrs - 51° 42.98N - 01° 22.20E, all taking Salinity, Chlorophyll, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM.

We arrived at the Warp survey area and deployed the pre CTD Rosette at 07:15hrs - 51° 31.6844N - 01° 2.8976E, CTD recovered back on deck at 07:20hrs. Collecting bottom Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM and from the surface Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM.

Lined up onto the SmartBuoy and hooked in at 08:08hrs – 51° 32.0363N – 01° 2.9768E, depth 17 meters and recovered on deck at 08:12hrs, clump weight hooked at 08:14hrs, depth 17 meters and recovered on deck at 08:17hrs.

Moved into position to recover the Noise Lander, clump/Buffs hooked in at 08:37hrs – 51° 32.0328N – 01° 2.8251E, depth 16 meters and recovered on deck at 08:49hrs. Lander hooked and on deck at 09:18hrs – 51° 31.9667N – 01° 2.8763E, depth 18 meters.

Moved back into position and deployed the Warp Lander at 09:39hrs – 51° 31.9357N – 01° 2.8049E, depth 18 meters. Clump weight release at 09:54hrs – 51° 31.9960N – 01° 2.7556E, depth 18 meters.

Moved into position and deployed the Warp SmartBuoy at 10:24hrs – 51° 32.0024N – 01° 2.8980E, depth 18 meters. Clump weight released at 10:25hrs – 51° 32.0025N – 01° 2.8981E, depth 18 meters.

Post Warp CTD Rosette deployed at 10:35hrs – 51° 32.0022N – 01° 3.0500E, depth 17 meters, back on deck at 10:47hrs. Collecting bottom Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM and from the surface Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM.

Warp survey area completed, and we made are way towards the West Gabbard survey area.

During the transit to West Gabbard, underway water samples were collected. 12:35hrs - 51° 46.19N - 01° 29.06E, 13:30hrs – 51° 49.51N - 01° 44.25E, all taking Salinity, Chlorophyll, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM.

During the transit we undertook an abandoned ship drill at 11:30hrs.

Arrived at the West Gabbard survey site and deployed the CTD Rosette for the Pre SmartBuoy water sample. Deployed at 15:28hrs - 51° 57.0654N - 02° 6.8677E, depth 40 meters. Recovered on deck 15:38hrs. Collecting bottom Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM and from the surface Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM.

Moved into position and hooked into the SmartBuoy at 16:00hrs – 51° 57.2037N – 02° 6.6335E, depth 41 meters, recovered back on deck at 16:02hrs. Clump weight hooked at 16:05hrs – 51° 57.2052N – 02° 6.6411, depth 41 meters and recovered back on deck at 16:08hrs.

SmartBuoy deployed at 16:35hrs – 51° 57.2614N – 02° 6.6576E, depth 41 meters, clump weight released at 16:35hrs – 51° 57.2640N – 02° 6.6589E, depth 41 meters.

Post West Gabbard CTD Rosette deployed at 16:46hrs – 51° 57.5940N – 02° 7.1150E, depth 42 meter and recovered on deck at 16:56hrs. Collecting bottom Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM and from the surface Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM.

West Gabbard Zooplankton sample ring net deployed at 17:40hrs - 51° 58.0421N - 02° 7.1309E, depth 42 meters, recovered on deck at 17:43hrs.

West Gabbard survey area complete.

Over night we transited towards the Wash water sample survey area. During the transit we collected 8 underway water samples. 20:00hrs – 52° 20.30N - 01° 59.377E, 21:56hrs - 52° 37.77N - 01° 52.41E, 00:05hrs - 52° 54.49N - 01° 30.02E, 01:01hrs - 52° 58.55N - 01° 16.95E, 02:01hrs - 53° 03.81N - 01° 03.42E, 03:01hrs - 53° 10.85N - 0° 50.51E, 04:00hrs - 53° 11.98N - 0° 38.34E, 05:03hrs - 53° 02.52N - 0° 29.53E. all taking Salinity, Chlorophyll, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM.

Wednesday 6th November

Arrived at the inner Wash water station and we deployed the CTD Rosette at 05:53hrs - 52° 56.563N - 0° 20.323E, depth 17 meters. We moved slightly to the north and deployed it again at 07:08hrs - 53° 03.762N - 0° 28.867E, depth 32 meters. Then we headed to the outer Wash station and deployed the CTD at 08:21hrs – 53° 8.3697N - 00° 33.2658E, depth 27 meters. Collecting bottom Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM and from the surface Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM.

We then started our transit towards the Dowsing survey area, on route we collected underway water samples.

10:01hrs - 53° 20.448N - 0° 45.314E, collecting Salinity, Chlorophyll, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM.

Arrived at the Dowsing and deployed the CTD Rosette at 12:11hrs – 53° 31.4131N – 01° 3.990E, depth 22 meters, recovered on deck at 12:19hrs collecting bottom Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM and from the surface Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM.

We then moved into position when the buffs where slighted to recover the Lander, hooked the buffs/clump weight at 12:57hrs – 53° 31.7024N – 01° 3.3710E, depth 22 meters, Lander hooked at 13:19hrs - 53° 31.6883N - 01° 3.2410E depth 23 meters, on deck at 13:22hrs.

We repositioned and deployed the serviced Lander at 13:51hrs – 53° 31.7345N – 01° 3.1897E, depth 23 meters. Clump weight released at 14:07hrs – 53° 31.7649N – 01° 3.2962E, depth 23 meters. Buffs released at 14:13hrs.

Dowsing survey area complete.

With the extra time we decided to head back to West Gabbard to take extra water samples and use it as a training opportunity on CTD Rosette deployments, we also took the inshore route so we could pick up two extra water samples off Great Yarmouth.

During the transit we collected 1 underway water samples.

16:35hrs – 53° 8.412N – 01° 29.412E, collecting Salinity, Chlorophyll, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM.

Arrived to the first Off Great Yarmouth water station at 19:17hrs – 52° 36.00N – 01° 46.70E and the second at 19:39hrs – 53° 34.266N – 01° 46.100E, collecting Salinity, Chlorophyll, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM. Once completed we were underway at best speed toward the West Gabbard survey area.

We collected 3 extra CTD Rosette water samples. 23:19hrs - 51° 57.115N - 02° 7.305E, depth 41 meters, recovered on deck at 23:34hrs. 00:33hrs – 51° 57.083N – 02° 7.252E, depth 41 meters, recovered on deck at 00:46hrs. 01:24hrs – 51° 57.047N – 02° 07.256E, depth 41 meters, recovered on deck at 01:40hrs, collecting bottom Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM and from the surface Salinity, Chlorophyll x3, Nutrients, Suspended Particulate Matter, TA/DIC and CDOM.

Thursday 7th November

Completed survey and we made our way back towards Lowestoft. Pilot was onboard at 04:55hrs and we were alongside and fast at 05:30hrs.

Marc Whybrow
Second in Charge
7th November 2019

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