

**CENTRE FOR ENVIRONMENT, FISHERIES  
AND AQUACULTURE SCIENCE**

**LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 0HT**

**2016 RESEARCH VESSEL PROGRAMME**

**PROGRAMME: RV CEFAS ENDEAVOUR: SURVEY 18**

**STAFF:**

**Part A**

**Fishing:**

B Hatton (SIC)

I Holmes (2IC)

R Humphreys

M Eade

L Cox

P Jones

E Capuzzo

J Ellis

**Part B**

B Hatton (SIC)

I Holmes (2IC)

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R Masefield

S Barnett

N Hampton

W Dawson (tbc)

**Plus:**

R Wright (University of East Anglia)

O Lambert (University of East Anglia)

S Painter (National Oceanography Centre)

S Miller (Sea Watch Foundation)

N Trifonova (Brunel University London)

O Lambert (University of East Anglia)

S Painter (N.O.C.)

**DURATION:** 8 August – 6 September

**LOCATION:** North Sea

**PRIMARY AIMS:**

1. To carry out a groundfish survey of the North Sea (Figure 1) as part of the ICES coordinated IBTS, using a hybrid GOV trawl in order to obtain information on:
  - a) Distribution, size composition and abundance of all fish species caught.
  - b) Age – length distribution of selected species.
  - c) Distribution of fish in relation to their environment.
  - d) Distribution of macrobenthos and anthropogenic debris.
  - e) Surface and bottom temperature and salinity data using ESM2 profiler/mini-CTD logger and Niskin Bottle.
  - f) Length weight & maturity information using individual fish measurements, in support of the EU Data Regulation.
  
2. Carry out water sampling for Caesium/Tritium for an internal Cefas contract (SLA21).

## SECONDARY AIMS:

3. Tag and release specimens of starry smooth-hound *Mustelus asterias*, greater-spotted dogfish *Scyliorhinus stellaris*, spurdog *Squalus acanthias*, tope *Galeorhinus galeus*, common skate *Dipturus batis* species-complex, and blonde ray *Raja brachyura*, in support of the ICES Working Group for Elasmobranch Fishes work to inform on stock units for demersal elasmobranchs.
4. To freeze any unusual fish species for subsequent identification / verification in the laboratory, including specimens of eelpout (*Zoarces*, *Lycodes* and *Lycenchelys*), sea scorpions (Cottidae, sub-area IVa only), *Sebastes* spp., and any unusual fish species, which may also be used in otolith research.
5. To freeze samples of dead smooth-hound (*Mustelus* spp.) for biological studies.
6. Retain all dead species of shad and lamprey for study by Cefas scientists.
7. Collect fisheries acoustic continuously data at four operating frequencies (38 kHz, 120 kHz, 200 kHz and 333kHz), using the Simrad EK60 split beam sounder. The data will contribute to the existing 15 year time series of acoustic data in the North Sea and will be used as part of the Defra funded project Poseidon (MF1112) to monitor changes in mackerel distribution and abundance.
8. To retain empty skate and ray egg cases with corresponding positional information for subsequent identification by the Shark Trust.
9. Cetacean observations will be recorded where possible and sent to the Sea Watch Foundation.
10. Collect data on incidental mortality of edible crabs caught in the trawl in support of Defra projects.
11. Identification, count, measure and weight all jellyfish caught in GOV trawl will allow the continuation of the North Sea August Jellyfish dataset started in 2012; As the dataset grows from year to year, this should allow the evaluation of changes in jellyfish community and biomass with time.
12. To collect maturity and life history information for lesser-spotted dogfish *Scyliorhinus canicula* from the southern and northern North Sea.
13. To collect and filter on board water samples for determination of chlorophyll and suspended particulate materials, and to carry out PAR profiles with the ESM2; data collected will be used for calibrating SmartBuoy, Ferrybox and ocean colour space-borne data (for the EU FP7 project HIGHROC, C5878).
14. To collect and freeze samples of whole predatory fish for investigation into feeding relationships with jellyfish.

15. Water sampling and analysis using fluorescence techniques and additional chlorophyll, salinity, nutrient and dissolved organic carbon analyses to investigate terrestrial organic matter transfer to the North Sea. (LOCATE – N.O.C.)
16. Collecting samples to measure carbon dioxide, methane and nitrous oxide in surface waters across the North Sea, with a view to developing and refining these techniques for future use.

**PLAN:**

RV Cefas Endeavour will sail from Lowestoft at approximately 00:45 on 8 August and fish the stations detailed in Figure 1. Cefas Endeavour will proceed to stations in the southernmost North Sea and start the IBTS survey. The survey will then continue northwards until docking in Aberdeen on the morning of 22 August for a mid-survey staff change-over, and if required, to have the Scanmar sensors calibrated. The second half of the survey will sail from Aberdeen on the early morning of 24 August and the survey will continue and dock in Lowestoft on 6 September.

**GEAR:**

List distributed separately and marked to relevant individuals for action. Manuel Nicolaus/Thomas Maes for aim 1d, Trevor Bailey for aim 2, Sophy McCully Phillips/Jim Ellis for aims 3, 5, 8, & 12, Jeroen Van Der Kooij for aim 7, Robin Masfield for aim 10, Stuart Painter for aim 16, Oliver Lambert for aim 17 and Rebecca Wright for aims 11 & 14.

B Hatton  
Scientist in Charge  
26 May 2016

Figure 1: Fishing station of IBTS North Sea Groundfish Survey

