CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 0HT

2015 RESEARCH VESSEL PROGRAMME

PROGRAMME: RV CEFAS ENDEAVOUR: SURVEY 18

STAFF:

Part A	**Part B**
Fishing:	
S McCully Phillips (SIC)	J Ellis (SIC)
B Hatton (2IC)	B Hatton (2IC)
R Humphreys	R Humphreys
M Eade	D Brown
L Cox	J Silva
A Ribeiro Santos	G Greenhalgh
R Masefield	N Hampton
Plus:	
J Fox	J Fox
G Anastasi	G Anastasi
P Gardiner	K Bradley
W Dawson	
N Pearson	
K St John Glew	

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. Total alkalinity and dissolved in/organic carbon analysis of seawater by filtration at selected stations.

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 smooth-hound (*Mustelus* spp.) for biological studies.

6. Record litter caught in the trawl in support of Defra projects.

7. Retain all dead species of shad and lamprey for study by Cefas scientists.

8. 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.

9. Retain and freeze whole specimens of Mackerel, herring, sardines/pilchards, sprats, sea bass, dogfish, halibut, turbot and blue whiting (where above minimum landing sizes if applicable) for testing tissue samples for contaminants, in support of the EU Marine Strategy Framework Directive, descriptor 9 (relating to levels of contaminants in fish and shellfish for human consumption).

10. To retain empty skate and ray egg cases with corresponding positional information for subsequent identification by the Shark Trust.

11. Collect plankton biodiversity samples from selected stations for pigment and analytical flow cytometry analysis. *If* time and conditions allow, additional profiles to be completed with the ESM2 logger.

12. Collecting, preserving and analysing samples of seawater in order to determine the spatial-temporal variability of Transparent Exopolymer Particles (TEP) and DOM in the North Sea. Incubation experiments will be conducted for TEP detection.

13. Cetacean observations will be recorded where possible and send to the SeaWatch Foundation.

14. Collect data on incidental mortality of crabs caught in the trawl in support of Defra projects.

15. Obtain jellyfish samples from the North Sea to allow baseline isotopic signature to be determined in order to compare these with the isotopic signatures of higher trophic level species. Using these icescape maps it should be possible to geolocate different commercially important and ecologically important species to their feeding origins within UK waters.

PLAN:

RV Cefas Endeavour will sail from Lowestoft at approximately 03:30 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 evening of 24 August for a mid-survey break to allow personnel changes, and if required to have the Scanmar sensors calibrated. The second half of the survey will sail from Aberdeen on the morning of 26 August and the survey will continue and dock in Lowestoft on 6 September.

GEAR:

List distributed separately and marked to relevant individuals for action. Veronique Creach/James Fox for aims 2 & 11, Sophy McCully Phillips/Jim Ellis for aims 3, 5 & 10, Manuel Nicolaus for aim 6, Jeroen Van Der Kooij for Aim 8, Robin Law for aim 9, Naomi Greenwood/Gianfranco Anastasi for aim 12, Robin Masefield for aim 14, and Katie St John Glew/Kirsty Bradley for aim 15.

S McCully Phillips
Scientist in Charge
07 July 2015

DISTRIBUTION:

Basic list +

S McCully Phillips	I Holmes
R Humphreys	B Hatton
M Eade	L Cox
J Silva	G Greenhalgh
A Ribiero Santos	R Masefield
W Dawson	N Hampton
V Creach	J Fox
N Greenwood	J Van Der Kooij
G Anastasi	J Ellis
T Maes	M Nicolaus
K St John Glew	R Law
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Inshore Fisheries and Conservation Authorities (IFCA's): East, North-east, Northumberland, Essex and Kent.

Figure 1: Fishing station of IBTS North Sea Groundfish Survey