CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE

LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK, NR33 0HT

2016 RESEARCH VESSEL PROGRAMME

PROGRAMME: RV CEFAS ENDEAVOUR: C END 22 - 2016

STAFF:

1. Jeroen van der Kooij (SIC)
2. Elisa Capuzzo (2IC)
3. Joana Silva (2IC)
4. Marc Whybrow
5. Richard Humphreys
6. Matt Eade
7. Paul Bouch
8. James Pettigrew
9. Sophie Pitois
10. Tom Hull
11. Julian Tilbury (Plymouth University)
12. Mike Bailey (Observer)
13. Sean Minns (Observer)
14. Peter Howlett (Observer)

DURATION: 3rd –19th of October

LOCATION: Western Channel and Celtic Sea (ICES areas VIIe, f, g)

AIMS:

1. To carry out the fifth and final of five annual multidisciplinary pelagic surveys of the Western Channel and Celtic Sea waters as part of project Poseidon, to estimate the biomass of-, and gain insight into the population of the small pelagic fish community (sprat, sardine, mackerel, anchovy, horse mackerel, herring).

    a. To carry out a fisheries acoustic survey during daylight only using four operating frequencies (38, 120, 200 and 333 kHz) to investigate:
        - distribution of small pelagic species
        - abundance of small pelagic species
        - distribution of the pelagic species in relation to their environment

    b. To trawl for small pelagic species using a 20x40m herring (mid-water) trawl (taking the Cosmos Fotø and Engels 800 as back up) in order to obtain information on:
        - Species- and size composition of acoustic marks
        - Age-composition and distribution, from all small pelagic species
        - Length weight and maturity information on pelagic species
        - Stomach contents (see also 11)

2. To collect plankton samples using 2 different mesh ringnets (80 μm, and 270 μm mesh) at fixed stations along the acoustic transects (marked in red in below map) at night by vertical haul. Samples will be processed onboard:
    a. Ichtyoplankton (eggs and larvae, 270 μm) of pelagic species will be identified, counted and (in case of clupeids) measured onboard and combined with information from maturity to identify spawning areas.
    b. Zooplankton samples (from ringnet with 80 μm mesh) will be stored for further analysis back in the lab.
3. Water column sampling. At fixed stations along the acoustic transect, marked in yellow on below map, an ESM2 will be deployed to obtain a vertical profile of the water column. Water column profiles and water samples will provide information on chlorophyll concentration, dissolved oxygen concentration, salinity, temperature, inorganic nutrients concentration and the relevant QAQC samples for calibration of the equipment. Water samples will be collected and fixed on board for analysis post-hoc.
4. Seabirds and Marine Mammals. Locations, species, numbers and activities observed will be recorded continuously during daylight hours by three Marinelife observers from bridge.
5. Additional high resolution ESAS observations will be conducted on critically endangered Balearic shearwaters and other seabirds as part of a collaborative Defra funded project between MarineLife, Natural England and Cefas.
6. Ferrybox Continuous CTD/Thermo-salinigraph/pCO2. Continuously collect oceanographic data at the sea surface (4 m depth) during steaming.
7. To conduct further experiments with the online flow-cytometer to obtain continuous data on phytoplankton functional groups in collaboration with project JERICO NEXT.
8. To collect discrete samples of phytoplankton and micro-zooplankton at predetermined 18 primary stations for further analysis back to the lab (species composition, abundance, biomass and size distribution).
9. To test an automatic continuous zooplankton camera in collaboration with PML (Julian Tilbury).
10. To collect juvenile mackerel for AZTI (Paula Alvarez) in support of genetic study.
11. To collect jellyfish for PhD student Katie St John Glew in support of isotope study

PLAN:

Provisionally all staff will join RV CEFAS Endeavour at the afternoon of the 2nd of October in Portland. Following an induction for staff new to the RV (18:00 BST), she will sail at 6:00 in the morning of the 3rd of October.

If weather permits the first day will be used to calibrate the four acoustic frequencies (off Portland head) and to conduct shake-down tows with the 20x40 herring mid-water trawl, the Rosette/CTD and zooplankton nets. After set-up of the rosette, Tom Hull will be dropped off in Portland by sea-rider whilst the other equipment will be calibrated/tested.

The survey proper will then commence; acoustic transects (map below), and marine mammal and bird observations will be conducted during daylight only, as will the ad hoc pelagic trawl operations to identify acoustic marks and obtain biological information. Biological samples will be processed between trawls. At night, plankton and oceanographic data will be collected using frame-mounted ringnets and Rosette (or Niskin bottles) respectively at fixed primary stations. Ichtyoplankton, including pelagic fish egg and larvae, and gelatinous organisms will be identified, staged (eggs), measured (larvae) and quantified from the plankton samples on board and fish otoliths will be read onboard to determine the age of small pelagic species.

The RV will aim to complete the final part of the survey which will include transects in the Bristol Channel, according to the same protocol as described above. This year transects around the Isles of Scilly will be ignored due to time constraints. Weather and time permitting a transect will be ran between the inner Bristol Channel and the Celtic Deep area to study the effects of frontal systems on top predators. On completion of the work the ship will disembark in Swansea in the late afternoon of the 19th of October.

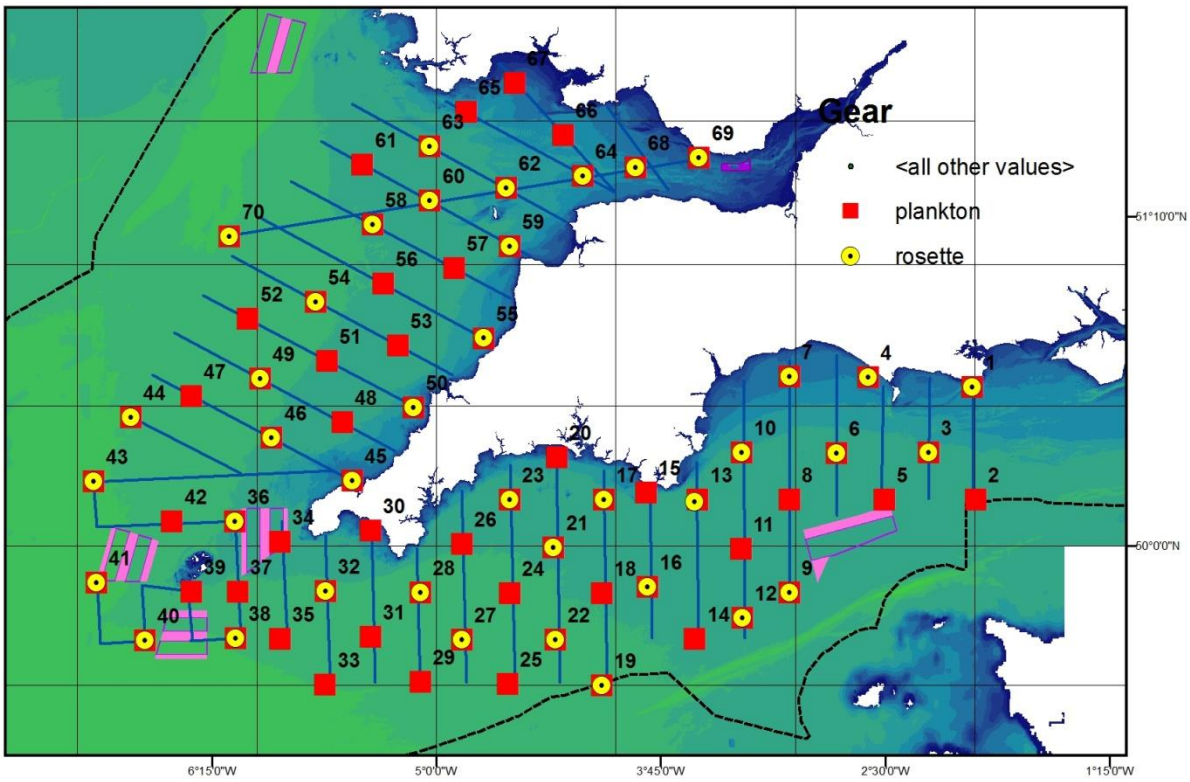

Figure 1: Survey design (acoustic transects in blue, plankton stations red squares and CTD stations represented by yellow circles). Please note that trawl positions are not known as yet:

GEAR:

List distributed separately and marked to relevant individuals for action.

Jeroen van der Kooij 26/09/2016

DISTRIBUTION:
Basic list+
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