

CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE

LOWETSOFT LABORATORY, LOWESTOFT, SUFFOLK, NR33 0HT

2013 RESEARCH VESSEL PROGRAMME

PROGRAMME: RV CEFAS ENDEAVOUR: 20/13

STAFF:

Part 1 (11-20th of October)

Jeroen van der Kooij (SIC)
Rob Bush (2IC)
David Righton (2IC)
Elisa Capuzzo
Ken May
Dave Brown
Joana Silva
Mark Etherton
James Pettigrew
Richard Humphreys
Antonio Plirú*
Ian Gardiner (PhD)*
Tom Brereton (Marinelife)
Nigel Symes (Marinelife)

Part 2 (20th – 22nd of Oct)

Jeroen van der Kooij (SIC)
Rob Bush (2IC)
David Righton (2IC)
Elisa Capuzzo
Ken May
Dave Brown
Joana Silva
Mark Etherton
James Pettigrew
Richard Humphreys
David Pearce*
Lavinia Suberg (NOC)*
Sam Ward (NOC)*
Tom Brereton (Marinelife)
Nigel Symes (Marinelife)

Part 3 (22nd-31st of Oct)

Jeroen van der Kooij (SIC)
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Elisa Capuzzo
Ken May
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Mark Etherton
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Richard Humphreys
Joanne Smith*
Paul Bouch*
Jennifer Cooper (PhD)*
Lavinia Suberg (NOC)*
Tom Brereton (Marinelife)
Nigel Symes (Marinelife)

**staff involved in part of the survey*

DURATION: 11th – 31st of October

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

AIMS:

PART 1 and 3

1. To carry out a multidisciplinary pelagic survey of the Western Channel and Celtic Sea waters to estimate the biomass of-, and gain insight into the population structure of the small pelagic fish community (sprat, mackerel, sardine, anchovy, horse mackerel, herring).
 - a. To carry out a 24 hour fisheries acoustic survey using three operating frequencies (38, 120, 200kHz) 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 (Cosmos Fotø 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 (stomach will be extracted and new image analysis methods will be used to semi-quantify contents)
2. To collect plankton samples using 3 different mesh ringnets (80 µm, 270 µm and 1mm mesh) at fixed stations along the acoustic transects at night and at a subset of trawl stations during the day. Samples will be processed onboard:
 - a. Ichthyoplankton (eggs and larvae, 270 µm) of pelagic species will be identified and counted and combined with information from maturity to identify spawning areas.
 - b. Zooplankton will be stored for further analysis back in the lab.
 3. Water column sampling. At fixed stations along the acoustic transect, a Rosette and ESM2 will be deployed to obtain a vertical profile of the water column. Water column profile and water samples will provide information on chlorophyll, oxygen, salinity temperature, nutrients 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 two Marinelife observers from bridge.
 5. Ferrybox Continuous CTD/Thermosalinigraph. Continuously collect oceanographic data on the sea surface during steaming.
 6. Passive sampler: to further test the ability of a new (continuous) passive zooplankton sampler to supplement ringnet plankton nets with high resolution data on the surface. Focus includes sardine spawning, and key zooplankton prey.
 7. To collect water samples for nutrient and TA/DIC analysis in support of a programme on ocean acidification (Naomi Greenwood) to continue autumn time-series in area.
 8. To collect, where possible, and freeze 2 kg samples each of mackerel, herring, sardine, sprat, blue whiting and dogfish for dioxin analysis as part of MSFD (Robin Law)

PART 2:

1. To retrieve two gliders, after a one-month deployment near the Scilly Isles.
2. To conduct an inter-platform calibration exercise of the acoustic information collected on the glider, using a combination of vessel based acoustic equipment, plankton nets and mid-water fishing trawls.

PLAN:

Provisionally all staff will join RV CEFAS Endeavour in Lowestoft at 11:00 of the 11th of October. Following an induction to staff new to the RV, she will sail at the early afternoon tide (13:00). During the steam towards the start of the survey area in the western channel we will undertake at least one shakedown tow with the new 20x40 herring mid-water trawl as well as the plankton nets and rosette/ESM2, in the eastern Channel (ICES division) VIId. Weather permitting at arrival in the western channel, at a suitable location, the three acoustic operating frequencies will be calibrated (off the Isle of Portland). The survey will then commence by running acoustic transects (map below) continuously (24 hours), with most scientific staff working in two 12 hour shifts; ad hoc pelagic trawl operations will be carried out to identify acoustic marks and obtain biological information. Biological samples will be processed between trawls. At fixed stations, plankton and oceanographic data will be collected using frame-mounted ringnets and Rosette respectively. Depending on time available and weather conditions, pelagic fish egg and larvae will be identified, measured (larvae) and quantified

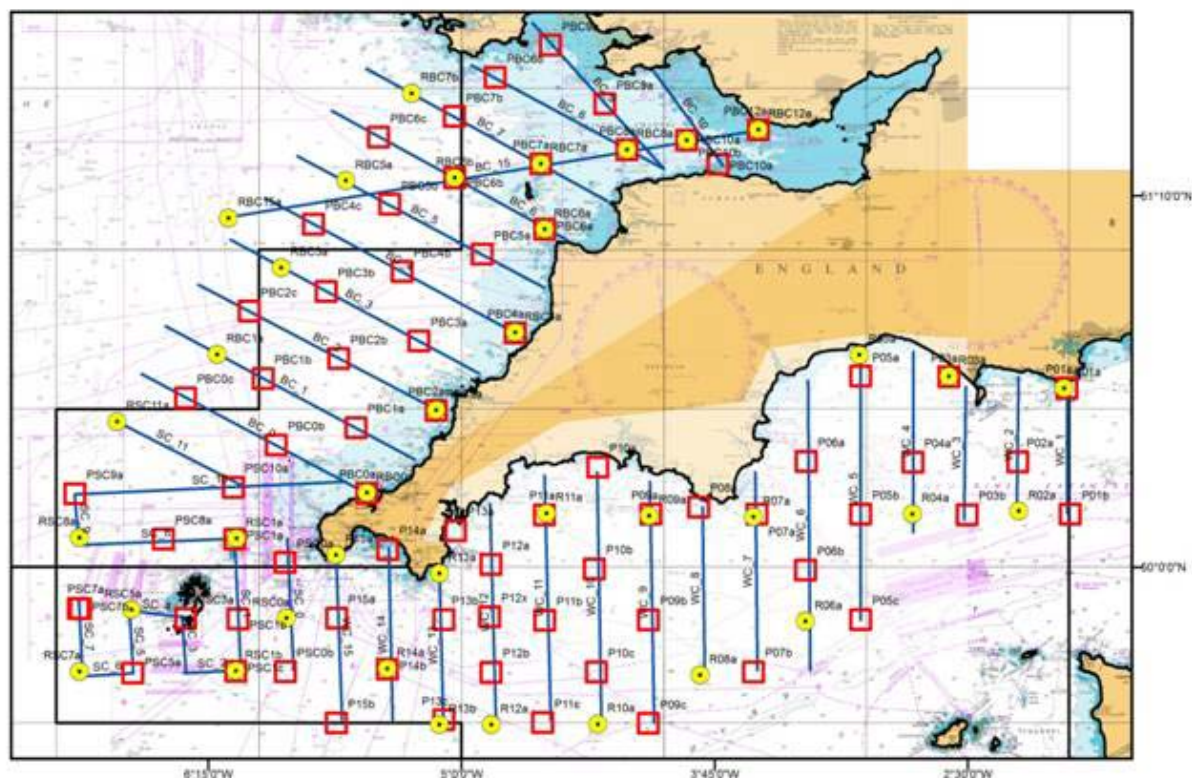
from the plankton samples on board and fish otoliths will be read onboard to determine age of small pelagic species. Marine mammal and bird observations will be made continuously during daylight hours.

On the 20th of October a brief staff change will take place by sea-rider, near Falmouth, with 3 staff coming off and 3 coming back on. For the following two days an inter-platform calibration will be conducted between two gliders and the research vessel (details TBA), using plankton nets, trawl gear and acoustic data. The aim will be to collect data to enable interpretation of acoustic data recorded and stored on one of the gliders (during one month of deployment leading up to this date). During these days the two gliders will also be retrieved after their 1 month deployment. On the 22nd of October, the vessel will head back to Falmouth where, again by searider, 2 staff will come off and 3 will join the vessel. The seagliders will remain on board until the vessel docks at the end of the survey.

After the staff change on the 22nd of October, the RV will sail out to complete the final part (3) of the survey, which will include transects around the Isles of Scilly and the Bristol Channel, according to the same protocol as described above.

Weather and time permitting a transect will be ran between the inner Bristol Channel and the Celtic Deep area to study the effects of fronts on top predators. On completion of the work the ship will return to Lowestoft on the evening tide of the 31st of October (~19:30).

Survey design (acoustic transects in blue, plankton stations red squares and CTD stations represented by yellow circles):



GEAR:

List distributed separately and marked to relevant individuals for action.

Jeroen van der Kooij 25/07/2013

DISTRIBUTION:

Basic list+

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Ken May

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