

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

2015 RESEARCH VESSEL PROGRAMME

PROGRAMME: Cefas Endeavour: Survey CEND0615

STAFF:

See cabin list

DURATION: 25th March to 31st March 2015 (SW England to Lowestoft Port)

LOCATION:

Primary: West of Lundy Island (part three of survey operations for this piece of work) Figure 1.

Secondary: NW of the Isles of Scilly, 'iVMS Area 1'

AIMS:

Primary:

The Infaunal Quality Index (IQI) was developed to assess the ecological status of the macrobenthic invertebrate infaunal assemblages of sediment habitats in UK coastal and transitional water bodies for the Water Framework Directive (WFD).

The IQI is a multimetric index that expresses the ecological health of benthic macroinvertebrate (infauna) assemblages in accordance with the normative definitions (Annex V, the basis upon which ecological status is defined) of the WFD as an Ecological Quality Ratio (EQR). The multimetric was developed to reflect how the structure and functioning of benthic macroinvertebrate assemblages change over anthropogenic pressure gradients. A subset of WFD compliant metrics were selected that would, when used in combination, encompass a high amount of information on how macroinvertebrate assemblages change within the marine environment. The selected metrics were taxa number, the AZTI Marine Biotic Index (AMBI, a measure of sensitivity to disturbance) and Simpson's evenness (a measure of the distribution of individuals across the different taxa). To fulfil the requirements of the WFD, the IQIv.IV incorporates each metric as a ratio of the observed value to that expected under reference conditions (Infaunal quality index: Water Framework Directive classification scheme for marine benthic invertebrates Report: SC080016).

This survey is the last of three planned visits to the West of Lundy IQI survey area to collect time series (pre and post impact with a 4 m beam trawl) data. MBES data, seabed sediments and 4 m beam trawl catch data have been collected previously and will be collected once more during CEND0615.

The main aim of this study is to assess if the IQI could be employed in the offshore environment to assess the effects of fishing impacts on benthic infaunal communities found in coarse/mixed sediments. A further aim of this study to assess if the type of benthic grab used during sampling affects the performance of the IQI.

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Primary objectives (IQI survey):

Collect multibeam echo sounder (MBES) data from six previously visited survey boxes W of Lundy.

Collect 10 x 0.1 m² mini Hamon grab and 5 x 0.1 m² Day grab stations in each survey box (Revisit stations from previous survey).

Collect seabed imagery from up to three stations within each box using a towed camera sledge.

Carry out paired 4 m beam trawling in a sub section of each of the three treatment boxes to assess recovery from previous impact and process catch data.

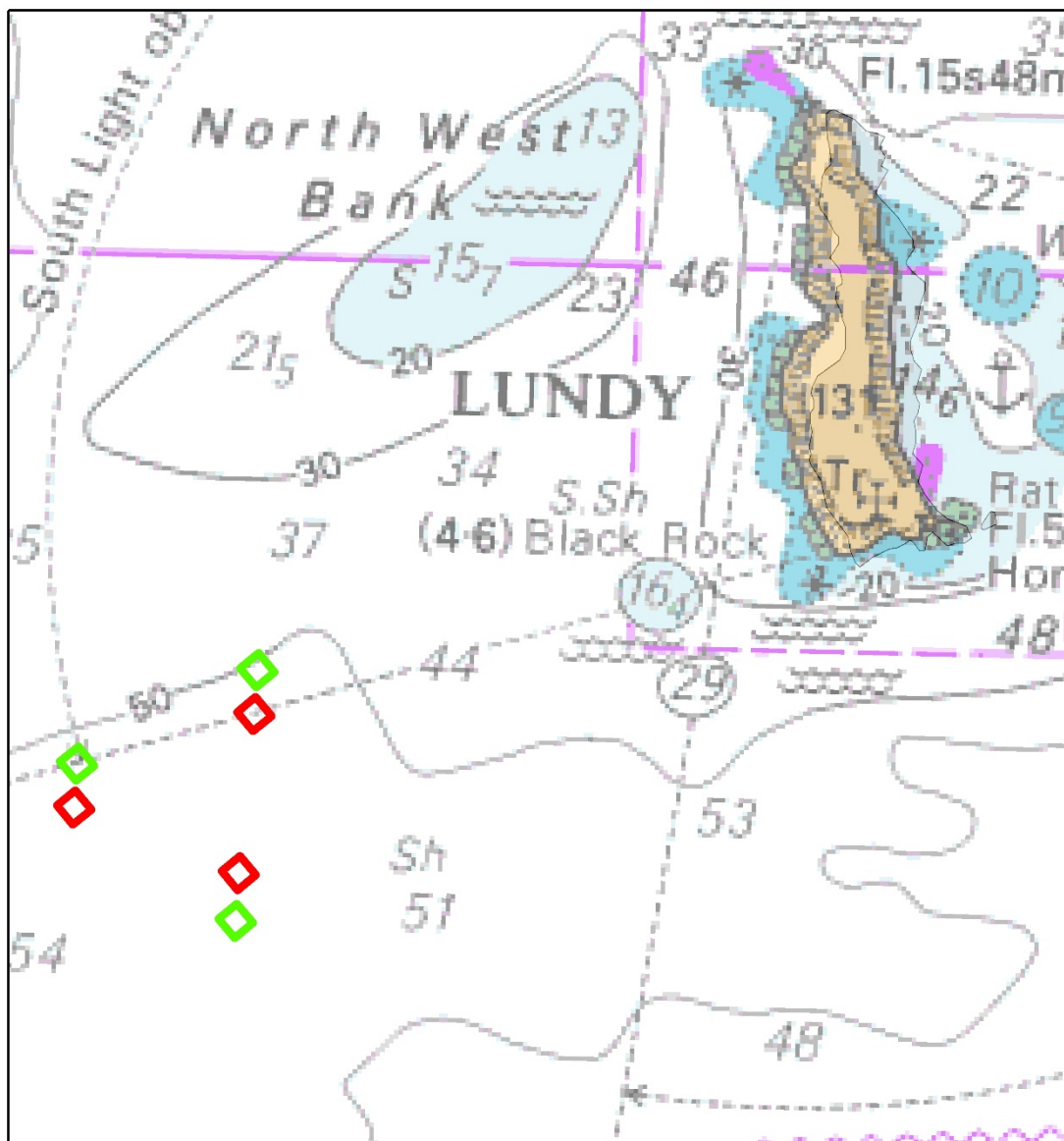
Repeat sediment sampling at those stations that fall within this newly trawled area.

Secondary:

Two areas within the 6 nm boundary of the Isles of Scilly, under the jurisdiction of the Isles of Scilly Inshore Fisheries Conservation Authority and within the Isles of Scilly Special Area of Conservation, have been imposed with a 'Fishing Gear Permit' byelaw under Section 155 and 156 of the Marine and Coastal Access Act 2009. One of the conditions of this byelaw is that all vessels successful in obtaining a permit to fish must include an inshore Vessel Monitoring System (iVMS). The iVMS areas are known as iVMS Area 1 and iVMS Area 2. Cefas have acquired MBES data from both iVMS areas and ground truthed Area 2 using seabed imagery and sediment sampling techniques as part of a dual purpose study into the effect of this management scenario and to gain more information on the reef features of the SAC.

Secondary objectives:

Collect seabed imagery (using the drop frame camera) and benthic sediments (using a 0.1 m² mini Hamon grab) from iVMS area 1, NE of the Isles of Scilly.



- IQI_Treatment_Box_250m
- IQI_Control_Box_250m

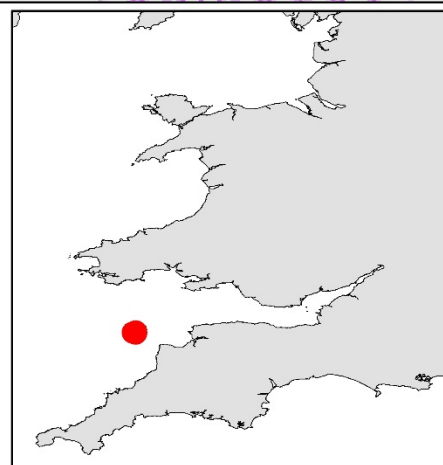


Figure 1 Primary survey area

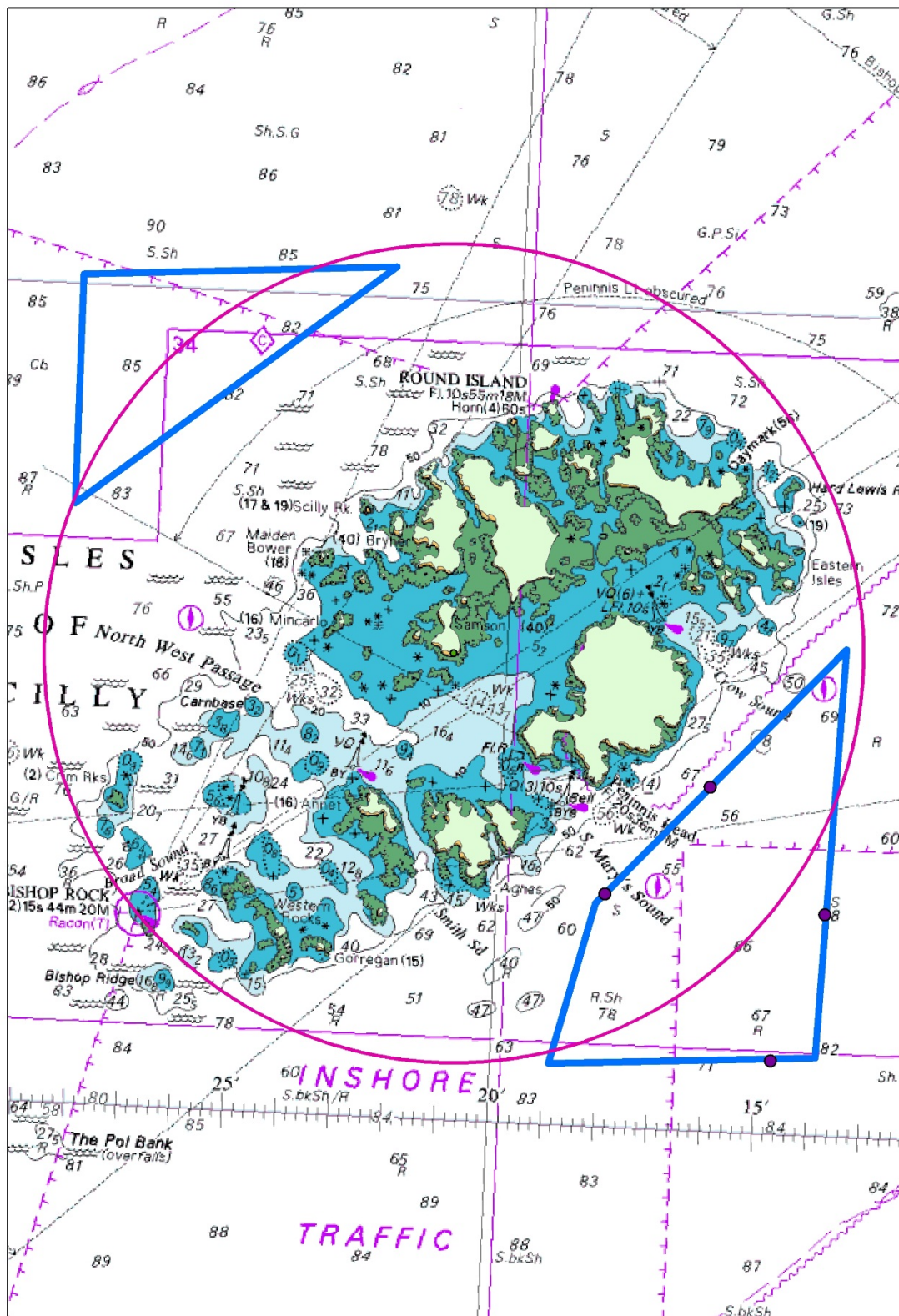


Figure 2 Inshore Vessel Monitoring System Areas. This survey programme will potentially collect data from Area 1, NW of the Isles of Scilly.

PLAN:

Two personnel for inductions prior to sailing. Induction to take place provisionally at 10:30 25th March 2015 prior to sailing.

Depart Portland/Swansea/Falmouth (TBC) following equipment mob, safety inductions and vessel familiarisation on the 25th March 2015. To arrive at the Lundy survey site and commence MBES survey of all 6 survey boxes. Collect benthic sediment samples and seabed imagery then conduct 4 m beam trawls within three boxes. Collect benthic sediments post impact. Estimated 2.5 - 3 days.

Transit to the secondary site NW of the Isles of Scilly and collect seabed imagery using the drop down camera system.

Whether or not the secondary objectives are attempted the RV will return to its home berth in Lowestoft Port on the evening tide (HW 19:16).

GEAR: MBES, camera sledge, drop camera, mini Hamon grab, Day grab, Shipek grab

NOTES: A draft 'Plan of Action (POA)' detailing the planned works to achieve the primary aims will be forwarded to all on this distribution list. This PoA includes the aims of the entire three part survey and is a working document which may change to reflect what was achieved on the first two parts of the survey.

Paul McIlwaine
Scientist In Charge
19/02/2015

INITIALLED: Paul McIlwaine

DISTRIBUTION: P&O, MIST, SIC, Shift leads.