Centre for Environment Fisheries & Aquaculture Science

Cefas

RESEARCH VESSEL EXPEDITION REPORT

RV CEFAS ENDEAVOUR
Expedition: C END 02-2018

STAFF:

Name	Role	Name	Role
Paul McIlwaine	Benthic ecologist, SIC	James Pettigrew	Plankton ecologist, plankton lead
Ian Holmes	Fisheries lead scientist, SIC	Anna Downie	Habitat mapper, survey scientist
Steve Shaw	Fisheries scientist, Deck master	Paul Nelson	Oceanographer, water sampling lead
Sara Stones	Sedimentologist, Data manager	Sue Ware	Benthic ecologist, Day lead
Bill Meadows	Hydrographer & Survey engineer	Sam Roslyn	Fisheries scientist, survey scientist
Peter Randall	Fisheries scientist, Night lead	Andrew Bodle	Instrument technician, survey scientist
Axa Molina-Ramirez	Instrument technician, survey scientist	Dave Clare	Benthic ecologist, survey scientist
Dave Brown	Fisheries scientist, survey scientist	Daniel Clarke	Fisheries scientist, survey scientist

DURATION:

14th – 30th Jan 2018 (personnel transfer on the 26th Jan. 2018).

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LOCATION:

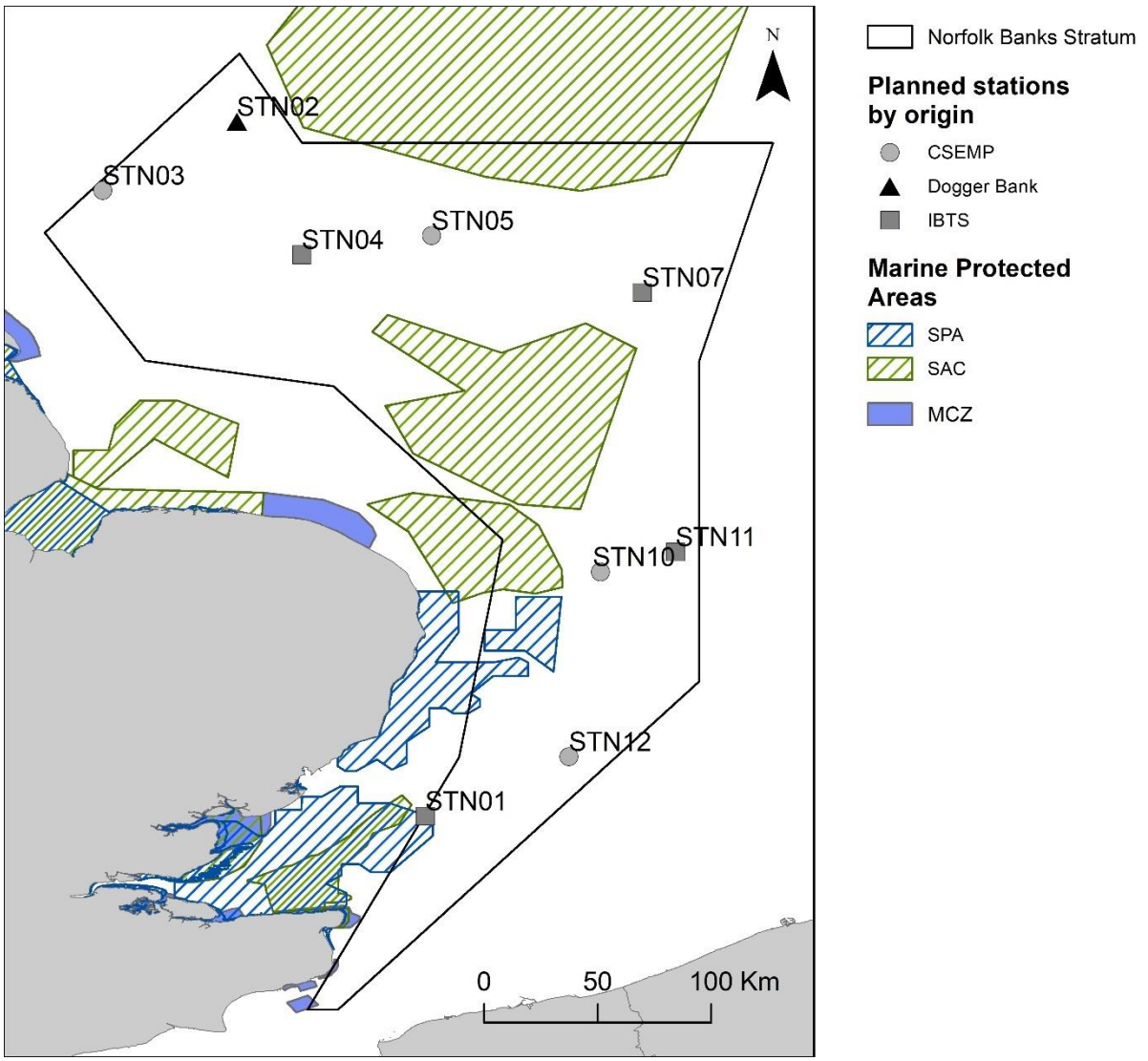

Figure 1 Part one of the expedition comprised ecosystem based monitoring at several (nine) existing time series stations, visited recently during the Cleaner Seas and Environmental Monitoring Program, International Beam Trawl Survey and the North Sea Dogger Bank Strata surveys

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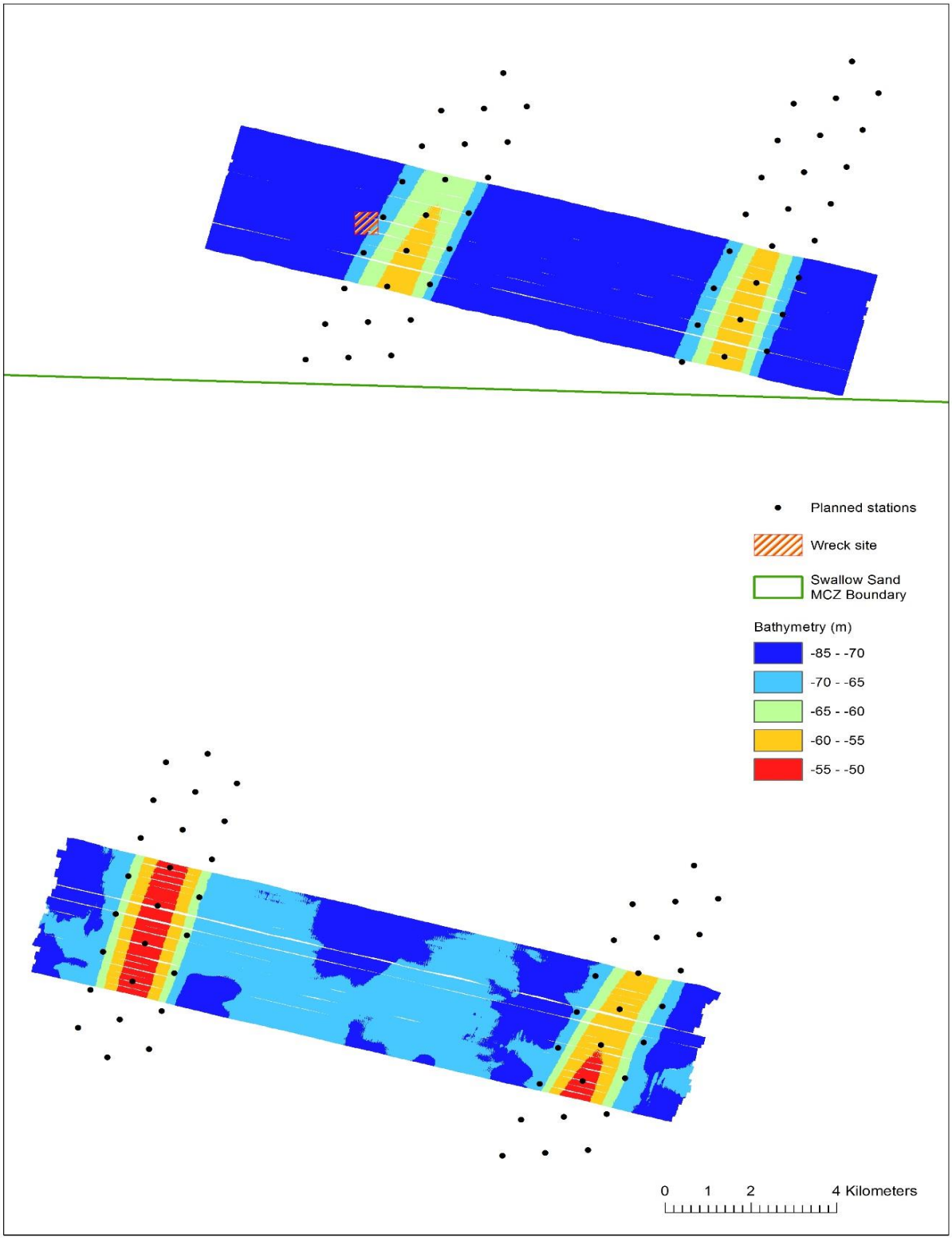

Figure 2 Part two of the expedition concerned sampling to achieve monitoring objectives at the Swallow Sand Marine Conservation Zone

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AIMS:

The RV Cefas Endeavour expedition (Code CEND0218) was concerned with two main objectives; 1) conducting an integrated monitoring survey of the 'UK South offshore' sea area (from the Working Group on Integrated Assessments of the North Sea) AKA 'North Sea Norfolk Banks' stratum (Figure 1) and 2) conducting a characterisation / baseline monitoring survey of part of the Swallow Sand MCZ (Figure 2).

Part 1 of the expedition comprised ecosystem based sampling at several existing 'time series' stations which support the Clean Seas Environmental Monitoring Programme (CSEMP) (sampled biannually) and the North Sea International Bottom Trawl Survey (IBTS) (sampled annually), (Figure 1).

The data and information gathered as part of this pilot survey is intended to inform the effective design of future, coordinated monitoring surveys by providing information relating to:

- The implications of seasonality in data collection (e.g., differences in results between Q1 and Q3 surveys) for marine assessment and monitoring (e.g., in relation to the values of common indicators such as PHI40 (Fock et al., 2014), plankton life form index (Tett, 2014), faunal community/biodiversity metrics);

- Method development for epifaunal community analysis (e.g., is there a requirement to sample epifaunal communities using both the GOV and the 2m beam trawl);

- Improving scientific understanding of the relationships between ecosystem based processes (e.g., benthic-pelagic coupling, foodweb dynamics), thereby improving our predictive forecasting/modelling capability

- Improved 'risk based' monitoring of emerging pressures and threats such as marine litter, microplastics and non-indigenous species.

Part 2 of the expedition concerned monitoring objectives around; the extent and distribution and, structure and functions, and quality and composition of the biological communities associated with the designated features of the Swallow Sand MCZ.

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NARRATIVE:

The RV Cefas Endeavour was mobilised for survey in advance of sailing on the evening high water tide of 14th January 2018. Survey objectives commenced for part 1 of the expedition, in improving weather conditions, with acoustic data acquisition at the first of nine 'time series' stations. Fishing operations were restricted to day light and operations were conducted in accordance with weather and processing requirements in mind. The scheduled personnel transfer was safely conducted on the 26th Jan. 2018, into Grimsby. Part 2 of the expedition comprised a sediment sampling survey at the Swallow Sand MCZ. All target stations were successfully sampled and the vessel was demobilised in the Lowestoft Quay on the morning of the 30th Jan. 2018.

RESULTS:

Gear/Sample type	Number of Samples	Notes	
GOV	Data from 9 stations	Part 1	Quantitative catch information (length cm / mass), CTD data, ageing material and stomach contents collected for commercial and dominant species, full benthic sort (mass per taxa), all notable taxa recorded.
Scientific 'Jennings' 2 m beam trawl	Data from 9 stations	Part 1	Quantitative catch information (invertebrates: mass recorded per individual and fish: length / mass mm). Reference material collected.
Discrete water samples	Data from 9 stations	Part 1	Samples collected for determination of surface chlorophyll and suspended particulate matter and bottom chlorophyll, suspended particulate matter and dissolved O_2
Continuous water samples	Data from 'ferry box'	Part 1 and Part 2	Data for a range of oceanographic parameters collected throughout
Plankton samples	Data from 10 stations	Part 1 and another continuous monitoring programme	Triplicate phytoplankton and various zooplankton collected from 9 stations. Zooplankton sampled with 0.5 and/or 1 m ring nets with 270, 200 and /or 80 micron mesh.

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Sediment samples	109 stations surveyed resulting in 162 infaunal samples and 172 sediment samples	Part 1 and part 2	62 infaunal and 72 sediment samples acquired from nine stations during part 1. 100 samples acquired from all 100 target stations at the Swallow Sand MCZ, part 2.
Acoustic data	Corridors of bathymetry and backscatter data acquired at nine stations	Part 1	MBES data coincident with GOV, 2mBT and sediment stations.

Paul McIlwaine
Scientist In Charge
08/02/2018

SEEN IN DRAFT

Master:
Senior Fishing Mate:

INITIALLED:

DISTRIBUTION:

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