Natural England Commissioned Report NECR351

Shell Flat and Lune Deep SAC 2017 Survey Report

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Foreword

Natural England commission a range of reports from external contractors to provide evidence and advice to assist us in delivering our duties. The views in this report are those of the authors and do not necessarily represent those of Natural England.

Background

Following designation, Natural England started a baseline monitoring programme across all marine protected areas.

This report was commissioned as part of an inshore benthic marine survey of the Shell Flat and Lune Deep SAC.

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Further information
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Shell Flat and Lune Deep SAC 2017 Survey Report

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Authors: Ben Green and Nina Godsell

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B. Green and N. Godsell	21/05/2019	Cefas comments addressed by T. Noble-James (Cefas), N. Godsell (EA) and K. Pryor (EA).	0.3
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Shell Flat and Lune Deep SAC 2017 Survey Report

Project Code: MB0129

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S. Camp	Environment Agency Marine Monitoring Team Leader
B. Green	Natural England and Environment Agency Technical Specialist
C. Miller	Natural England and Environment Agency Technical Specialist
J. Murray	Cefas Marine Monitoring and Ecology Team Leader
S. Ware	Cefas Monitoring Group Manager & MPA Programme Lead

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1. Introduction

The Shell Flat Special Area of Conservation (SAC) was formally submitted by the UK government to the European Commission (EC) on the 20th August 2010. Lune Deep SAC was submitted the following year on the 14th September, after new evidence led Natural England to propose a revised boundary. The joint site now forms part of the Natura 2000 network of protected sites. SACs exist alongside other Marine Protected Areas (MPAs), including Special Protection Areas (SPAs), Marine Conservation Zones (MCZs), Sites of Special Scientific Interest (SSSIs) and Ramsar sites to conserve marine biodiversity, with a particular focus on the most valuable and threatened species and habitats of European and national importance.

The Shell Flat and Lune Deep site changed status from Site of Community Importance (SCI) to Special Area of Conservation (SAC) on 29th September 2017. As the site was still a SCI at the time of preparation of elements of this report the site is referred to in this report as both SAC and SCI throughout this report.

In summer 2017, Natural England commissioned a survey of the reef and subtidal sediment subfeatures within the Shell Flat and Lune Deep SAC (EU code UK0030376). The survey was conducted as part of the SAC monitoring programme, designed to assess the condition of the protected features over time. The intent was to gather data on the distribution, extent and range of communities associated with the subfeatures of the designated subtidal Annex I habitats: 'Sandbanks which are slightly covered by seawater all the time' (hereon referred to as 'Subtidal Sandbanks') and 'Reefs'. Reef subfeatures were not the primary focus of the survey due to the sampling method selected, however, incidental records of associated communities would add value to the data collected.

This Survey Report details the sampling conducted by the Environment Agency (EA) within the Shell Flat and Lune Deep SAC to gather evidence to help inform the condition monitoring of the sediment and reef subfeatures. The data will be used to report on condition of the designated features by Natural England.

The survey was timed to occur shortly after reports of an oil spill in the area were received by the Pollution Response in Emergencies Marine Impact Assessment and Monitoring (PREMIAM) group. The spill emanated from the offshore Douglas Field oil platform complex located 23 km from the UK mainland in Liverpool Bay (Eni U.K., 2016). By rescheduling the survey to early August, the data collected could also be used for post-impact environmental monitoring following the spill.

1.1 Survey Aim and Objectives

Overall Survey Aim

To undertake a survey of the Annex 1 subfeatures listed below to obtain new evidence which can be used by Natural England, alongside all other relevant information, to detect change over time and ascribe condition to inform future monitoring and management measures.

Annex 1 Features

- Subtidal Sandbanks (Subfeatures: 'A5.2 Subtidal sand', 'A5.3 Subtidal mud' and 'A5.4 Subtidal Mixed Sediments').
- Reefs (Subfeatures: 'A4 Circalittoral rock' and 'SF_SH_4 Subtidal stony reef').

Objective 1

Collect data to investigate the structure and distribution of biological communities within the sediment subfeatures of the SAC.

The data acquired will:

- Provide T1 data for a monitoring time series.
- Provide information for condition assessment of the sediment subfeatures.
- Improve understanding of the bivalve communities available as a bird food resource for the overlying Special Protection Area (SPA).

Objective 2

Collect data to support the post-impact monitoring of the July 2017 Douglas Field oil spill incident.

- The data acquired will provide information to assess the short and long-term impact of tar balls and residual hydrocarbons on the infauna communities of the area.

1.2 Site Description

The Shell Flat and Lune Deep SAC is located between 3 and 20 km off the Lancashire Coast, at the mouth of Morecambe Bay (Figure 1). The site is characterised by a deep water channel (Lune Deep) and a large sandbank feature (Shell Flat) surrounded by shallower areas to the north and south.

The depth of the seabed within the site ranges from 6 m along the Shell Flat sandbank to 44 m in Lune Deep. The Shell Flat and Lune Deep SAC overlaps with the Liverpool Bay Special Protection Area (SPA) and is an important feature within this SPA, as it supports 50,000+ wintering Common Scoter *Melanitta nigra* that feed on the submerged sandbank (Kaiser *et al.,* 2006). This makes Shell Flat the most important site in the UK for this species. Lune Deep is adjacent to the Morecambe Bay Special Area of Conservation, and the southern boundary of the Shell Flat SAC abuts the

Fylde Marine Conservation Zone. The inshore areas of the SAC also overlap with several coastal Water Framework Directive water bodies.

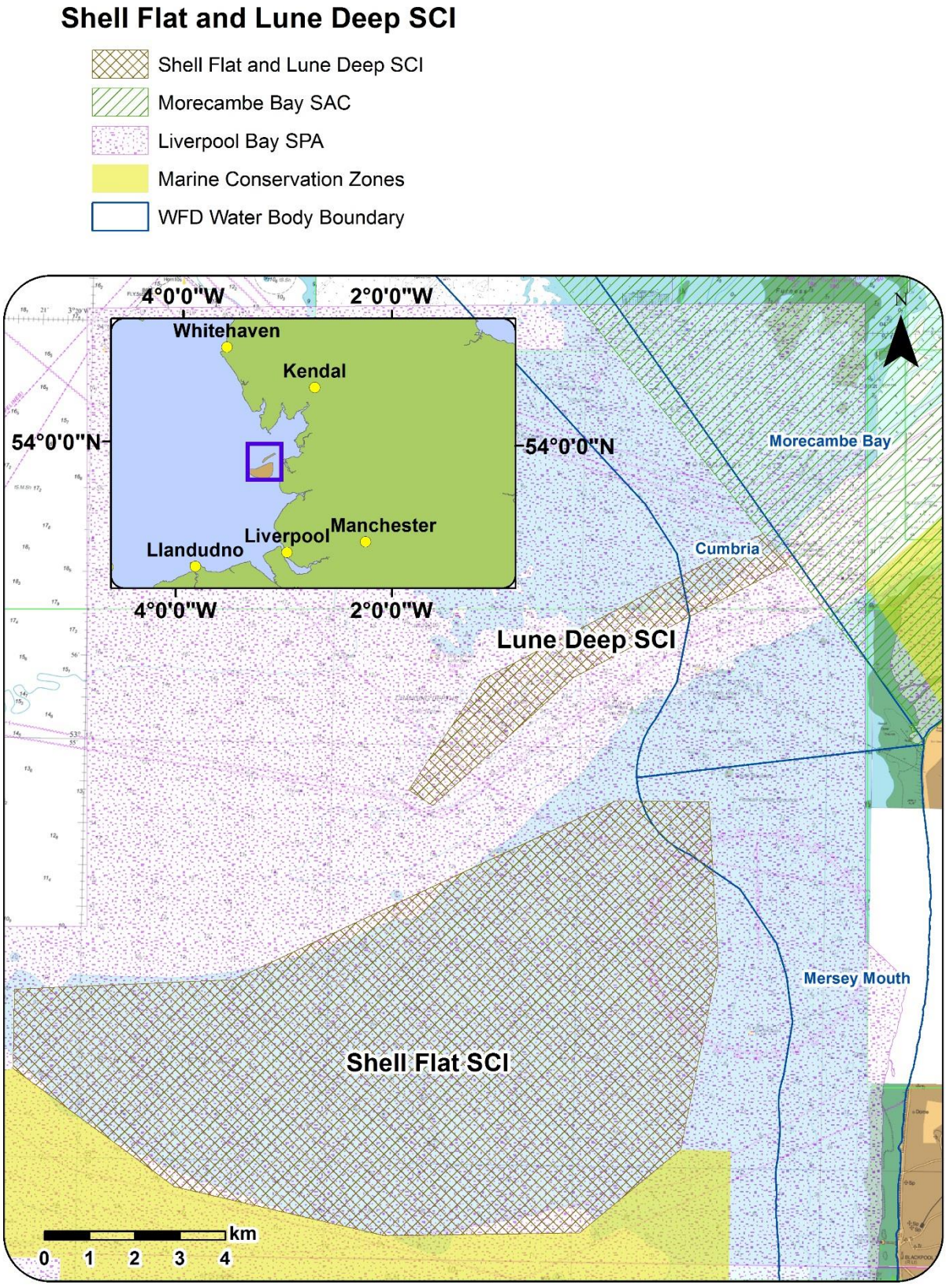

Figure 1. Location of the Shell Flat and Lune Deep Site of Community Importance (SCI) in the context of other MPAs off the northwest coast of England.

1.3 Geological and Biological Context

Shell Flat is an example of a banner bank, which are generally only a few kilometres in length with an elongated pear-shaped form, located in water depths less than 20 metres. It is considered an excellent example of sandbank habitat. The other sandbank features in the Irish Sea are either associated with estuaries or headlands. The area of Annex I sandbank habitat within the site is 89 km^2, equivalent to 0.52% of the UK total resource (Natural England, 2012). The bank extends beyond the site boundaries; its total extent is approximately 97 km^2 (Envision Mapping Ltd., 2015).

The reef habitat present in the Lune Deep represents a good example of boulder and bedrock reef. This unique enclosed deep hole provides a contrasting habitat to the surrounding muddy communities of the Eastern Irish Mudbelt. The northern flanks of the Lune Deep are composed of exposed bedrock with a rugged seabed physiography. In contrast, the southern flank consists of a smooth seabed, which is a sink for muddy sands (Natural England, 2012).

Historical survey data in the Shell Flat area found that biological communities are characterised by large numbers of individuals representing just a few species. Species present are typical of sandy substrates and include bivalve molluscs such *as Nucula nitidosa, Pharus legumen, Abra alba* and *Fabulina fabula*, as well as the bristle worms *Magelona johnstoni*, *Glycera alba* and *Magelona filiformis* (Envision Mapping Ltd., 2015). Detailed site information can be found in the Shell Flat and Lune Deep SAC conservation advice (Natural England, 2012). The designated subtidal Annex 1 features and subfeatures within the Shell Flat and Lune Deep SAC are shown in Table 1.

Table 1. Subtidal Annex I habitat features designated for protection within The Shell Flat and Lune Deep SAC (Natural England, 2012).

Subfeature	Annex I – Feature	
	H1110 Sandbanks which are slightly covered by sea water all the time (Subtidal Sandbanks)	H1170 Reefs
A5.2 Subtidal sand	✓	
A5.3 Subtidal mud	✓	
A5.4 Subtidal mixed sediments	✓	
A4 Circalittoral rock		✓
SF_SH_4 Subtidal stony reef		✓
Conservation Objective	Maintain	Maintain

1.4 Existing data and information utilised to inform survey planning

Shell Flat was previously sampled for infauna, sediment (for Particle Size Analysis, PSA) and sediment contaminants in 2012 (Environment Agency benthic monitoring survey), and surveyed using a multibeam echosounder in 2013, from which a habitat map was created. Although not a designated subfeature of the site, the sedimentary habitat within the Lune Deep was also sampled for infauna and PSA in 2010 (five to six grab samples collected by Natural England).

1.5 Shell Flat and Lune Deep SAC Survey Team

The Shell Flat and Lune Deep SAC was surveyed between the 8th and the 10th August 2017. The survey team comprised of a collaboration of marine monitoring specialists from the Environment Agency, Natural England and Cefas. The Coastal survey vessel *Mersey Guardian* staffed and operated by Briggs Marine (Figure 2, Annex 7.1) was used to conduct the survey work reported here.

Figure 2. Coastal survey vessel *Mersey Guardian* operated by Briggs Marine.

2. Survey Design and Methods

2.1 Survey Design and Planning Phase

The survey plan consisted of subtidal sampling at a total of 60 stations using sediment grabs (Figure 3). Twenty-eight stations surveyed in 2012 within the SAC boundary were resampled plus twelve new stations in areas not previously targeted, thus enabling direct temporal comparisons with the 2012 dataset and assessment of any impacts due to the July 2017 Douglas Field oil spill incident. A further twenty stations were targeted that included 12 outside the site to the east and north of the boundary, and five along the Lune Deep, replicating the sampling undertaken in 2010. This was designed to sample the infauna communities within the area potentially affected by the oil spill.

Ten stations (eight within the SAC boundary and two outside) were selected for sediment contaminants (polycyclic aromatic hydrocarbons, total hydrocarbons and total organic carbon) sampling. Infauna samples collected in 2012 were sieved through a 0.5 mm mesh. In order to compare the 2017 results to the 2012 dataset and those collected from adjacent Marine Protected Areas (MPAs), the 2017 samples were sieved through a 0.5 mm mesh in the field and then split in the laboratory to generate 0.5 mm and 1.0 mm fraction data.

Marine specialists from the Environment Agency and Natural England reviewed the plan. The following hazards were identified from the UK Hydrographic Office Admiralty charts: underwater cables, shallow water depths, wrecks and underwater obstructions. Sampling stations were relocated to avoid these hazards as far as possible. A ‘Notification of an exempt activity form’ was submitted to the Marine Management Organisation prior to the survey being carried out.

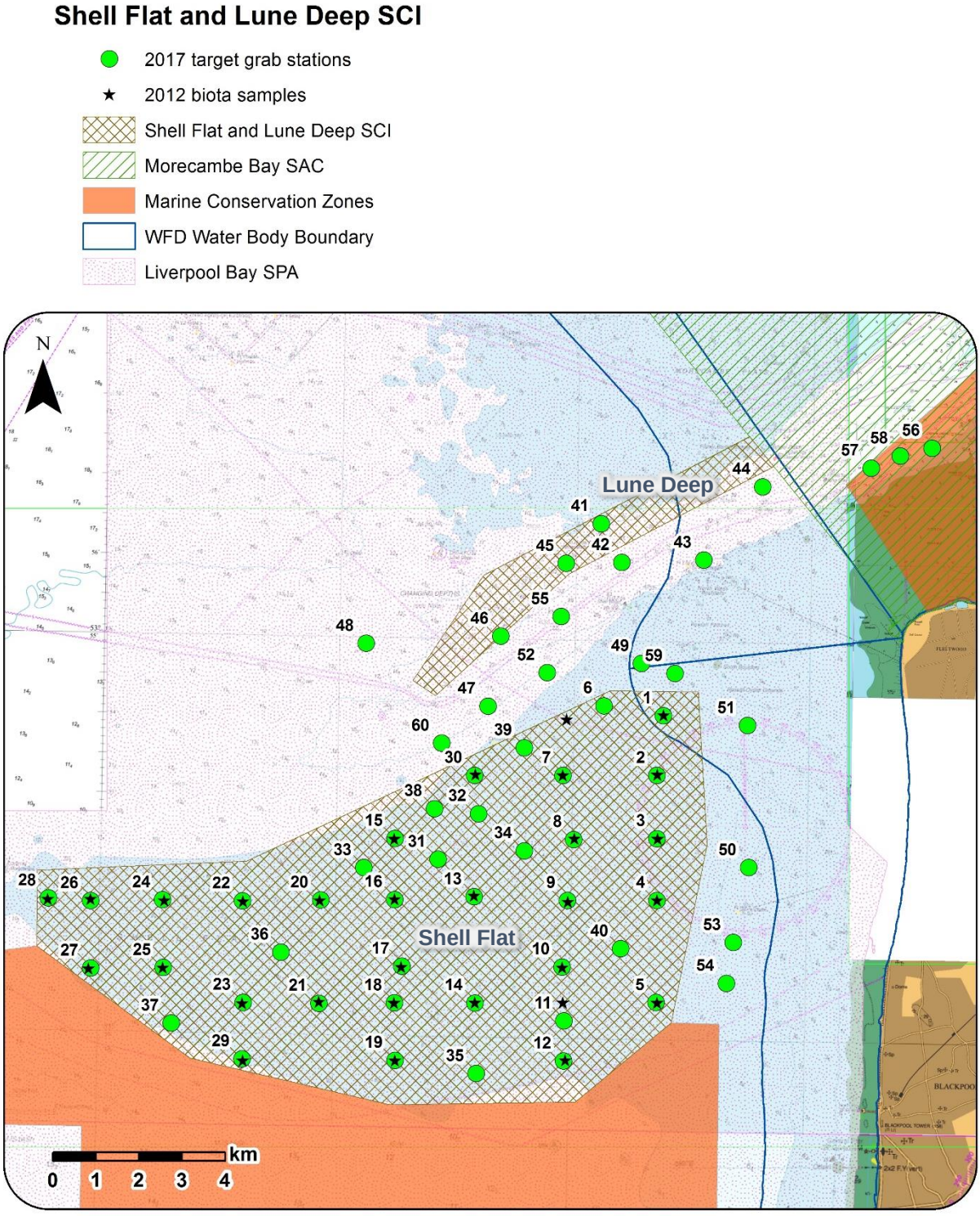

Figure 3. Shell Flat and Lune Deep SCI summer 2017 condition assessment survey plan.

2.2 Sample Collection Methodology

2.2.1. Biological Community Condition Monitoring

A Mini-Hamon Grab (Figure 4), with a sampling area of 0.1 m^2, was deployed from the stern gantry of the vessel to collect sediment from the seabed, as described by Ware and Kenny (2011). Sampling positions were recorded (fixed) using HYDROpro data acquisition software when the gear contacted the seabed, with the mid-point of the vessel's stern gantry being used as the default offset for position fixing (see Annex 7.2 for further details).

Once recovered, the sample was emptied into a suitable container, photographed, and the sample volume measured. A minimum of three attempts was made at each station to obtain a valid grab sample before the station was abandoned. A sample volume of 5 litres was required to qualify as a valid sample. Samples of < 5 litres were ordinarily discarded. However, when it was difficult to obtain a valid sample, a sample with < 5 litres of material was retained at the discretion of the lead scientist, if it was deemed representative across all attempts made at that station. For valid samples, a small scoop was used to remove a sub-sample (approx. 0.5 litre) of sediment for Particle Size Analysis (PSA). The remaining sample was washed over a 0.5 mm sieve to retain the faunal fraction (Figure 4), photographed and preserved with a buffered 4% formaldehyde solution for transfer ashore to a specialist laboratory for analysis.

If the volume of sediment collected was insufficient for faunal analysis in each grab attempt made at a particular station, a photograph was taken and, if possible, material removed for PSA. If an insufficient volume of suitable material was retrieved following all three attempts for any of the analyses, the station was abandoned.

Figure 4. Mini-Hamon Grab (left), and equipment for sieving benthic fauna samples (right).

2.2.2. Contaminants Sampling

A Day Grab (Figure 5), with a sampling area of 0.1 m^2 was deployed from the stern gantry of the survey vessel to recover sediment from the seabed for contaminant analyses, following the methodology detailed in the Environment Agency operational instruction 10_01 (2007). Surface scrapes (i.e. the recently deposited sediment) were removed from each grab to a maximum depth of 1 cm (avoiding the anoxic layer). A metal scoop was used to collect material for organic contaminant analyses and a small corer for the associated particle size samples. The remaining material was then discarded. Between stations, the Day Grab and scoops were rinsed with a solvent to prevent cross-contamination of samples as detailed in the Pollution Response in Emergencies Marine Impact Assessment and Monitoring (PREMIAM) guidelines (Law et al., 2011).

Figure 5. Day Grab in operation.

3. Survey Narrative

All times are in Coordinated Universal Time (UTC).

The Shell Flat and Lune Deep SCI condition assessment survey was carried out between the 8th and 10th August 2017. Environment Agency monitoring staff mobilised to the survey vessel *Mersey Guardian* berthed in Fleetwood Marina on Tuesday the 8th. During the morning, survey equipment was loaded and assembled in preparation for departure. Following a safety briefing delivered by Briggs Marine crew, the vessel departed the marina at 10:30 hrs and steamed out to the SCI survey area, arriving on station at 12:00 hrs. With a force 4 to 5 northerly wind and a slight sea state the team commenced sediment grabbing. Throughout the day 35 stations were sampled with the 0.1 m^2 Mini-Hamon Grab. At 30 stations sufficient material was collected for both faunal and particle size analyses. Three stations (SFLD14, SFLD 17 and SFLD 30) yielded only sufficient material for Particle Size Analysis (PSA) and two stations (SFLD 50 and SFLD 53), following three attempts, were abandoned as the grabs were empty. Survey operations were halted at 21:00 hrs and the vessel transited back to Fleetwood Marina coming alongside at 22:15 hrs.

On Wednesday 9th August, a marine specialist from Natural England joined the survey team. Weather conditions had worsened overnight due to a change in wind direction and increase in strength (north westerly force 6) generating a moderate sea state. The vessel transited out to the site arriving on station at 11:30 hrs. Sampling was conducted at four stations during the following half hour. Infauna and PSA samples were collected from three of the four stations. The substratum recovered at station SFLD 58 consisted of cobbles and a small quantity of sand, therefore provided insufficient material for any of the required analyses; however, several cobbles were retained for epifauna analysis. At 12:00 hrs the team decided to abandon survey operations, due to the sea conditions, and the vessel returned to port.

Cefas scientists arrived on the morning of Thursday 10th to join the vessel for the contaminants sampling phase of the survey. With more favourable conditions at sea, the *Mersey Guardian* departed Fleetwood Marina at 11:30 hrs. Mini-Hamon Grab sampling commenced at SFLD 43 at 12:20 hrs. Only two stations (SFLD 45 and 51) failed to yield any infauna and PSA samples from the 21 attempted. As seen on Tuesday, the grab came up empty following all three deployments. With Mini-Hamon Grab operations completed, the crew switched to the Day Grab at 17:30 hrs. Based on sediment observations recorded at each of the 60 stations, seven of the ten proposed contaminants sampling locations were relocated to target muddier habitat. Samples for contaminants and associated PSA were collected from nine of the ten stations attempted. SFLD 57 was abandoned due to insufficient mud content in the sediment recovered. The survey was completed at 23:00 hrs and the vessel returned to Fleetwood, tying up alongside at 23:45 hrs.

Between the 8th and 10th August 2017, the Shell Flat and Lune Deep SCI condition monitoring survey took three 'on-task' days to complete. A detailed progress report for each survey day can be found in Annex 7.3.

4. Sample Acquisition

4.1 Sediment Samples

Viable grab samples to address Objectives 1 and 2 were successfully recovered from across the survey area (Table 2). Samples for both infaunal and particle size analyses were collected from 53 stations using the Mini-Hamon Grab (Figure 6). At three stations, the quantity of sediment collected was only sufficient for Particle Size Analysis. Four stations (SFLD45, 50, 51 and 53) selected for groundtruthing yielded only discards. Contaminants samples were collected at nine stations using a Day Grab. Definitive classification of habitat features present was not possible prior to the results of the more detailed sample analyses carried out in the laboratory being available.

Table 2. Summary of samples acquired during the Shell Flat to Lune Deep SCI 2017 survey.

Gear	Sample	Number
Mini-Hamon Grab (0.1 m^2)	Infauna and PSA	52
	PSA only	3
	Epifauna (cobbles) only	1
Day Grab (0.1 m^2)	Contaminants	9

4.2 Evidence of anthropogenic impacts

Following the Douglas Field oil spill incident in late July, the survey team looked for evidence of contamination across the survey area. No oil residue or tar balls were observed in the grab samples.

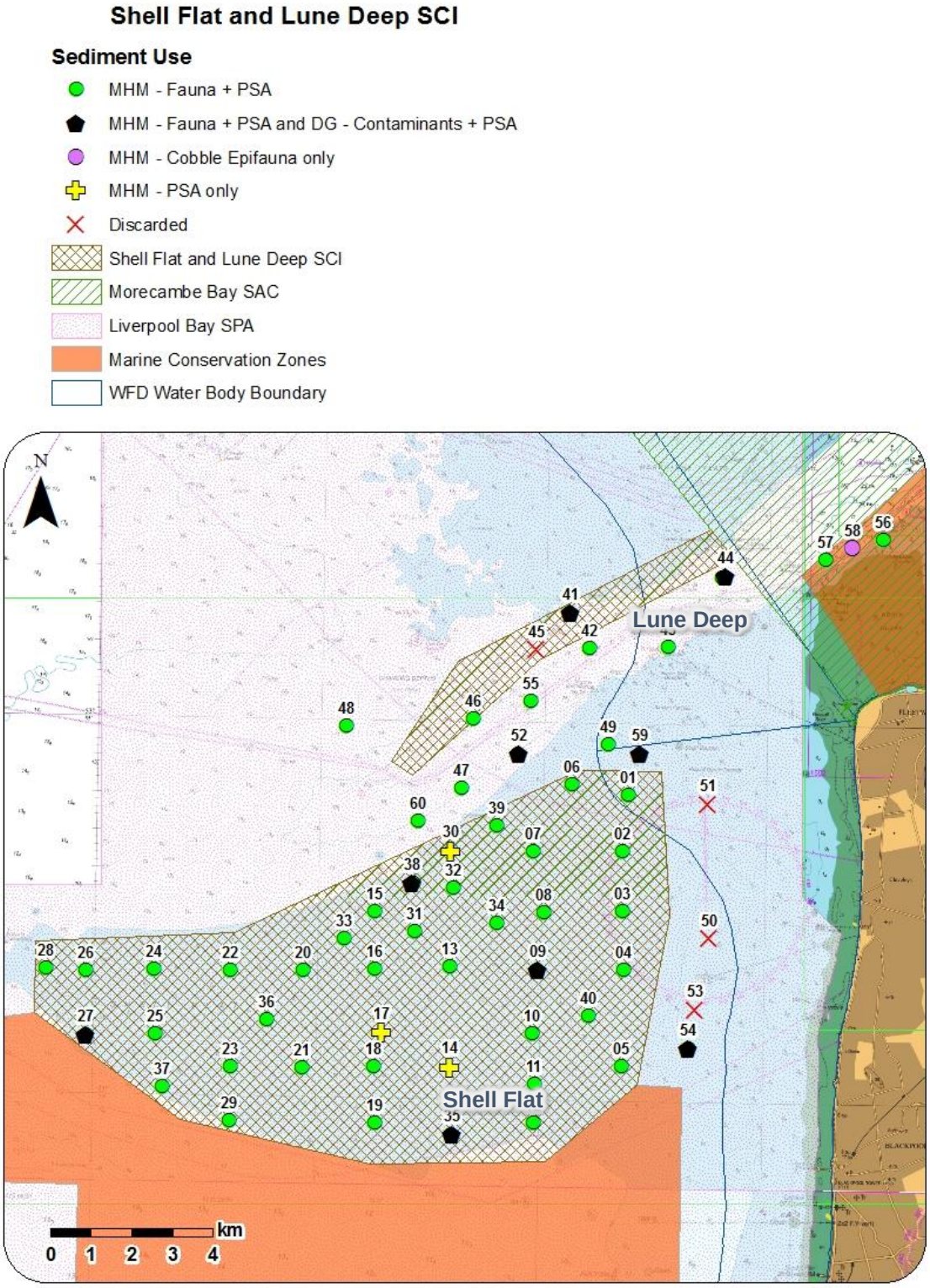

Figure 6. Shell Flat and Lune Deep Site of Community Importance (SCI) summer 2017 condition assessment survey results. Fauna, Particle Size Analysis (PSA) and contaminants samples were collected using a 0.1 m2 Mini-Hamon Grab (MHM) and a 0.1 m2 Day Grab (DG).

5. References

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6. General List of Abbreviations

BSH	Broadscale Habitat
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CHP	Civil Hydrography Programme
CS	Camera Sledge
CSV	Coastal Survey Vessel
DC	Drop Video Camera
Defra	Department for Environment, Food and Rural Affairs
DG	Day Grab
EA	Environment Agency
ECMAS	Estuarine and Coastal Monitoring & Assessment Service
ENG	Ecological Network Guidance
FOCI	Features Of Conservation Importance
IFCA	Inshore Fisheries and Conservation Authority
MCZ	Marine Conservation Zone
MESH	Mapping European Seabed Habitats
MHM	Mini-Hamon Grab
mSNCI	marine Sites of Nature Conservation Importance
PREMIAM	Pollution Response in Emergencies Marine Impact Assessment and Monitoring
PSA	Particle Size Analysis
REC	Regional Environmental Characterisation
rMCZ	recommended Marine Conservation Zone
RSG	Regional Stakeholder Group
SAC	Candidate Special Area of Conservation
SAD	Site Assessment Document
SCI	Site of Community Importance
SNCB	Statutory Nature Conservation Body
SOP	Standard Operating Procedure
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
UTC	Coordinated Universal Time

7. Annexes

7.1 Coastal Survey Vessel General Information

Briggs Marine and Environmental Services Ltd.
Seaforth House, Seaforth Place, Burntisland, Fife, KY3 9AX.
Tel: +44(0)1592 872939
Email: marketing@briggsmarine.com
Website: www.briggsmarine.com

Mersey Guardian

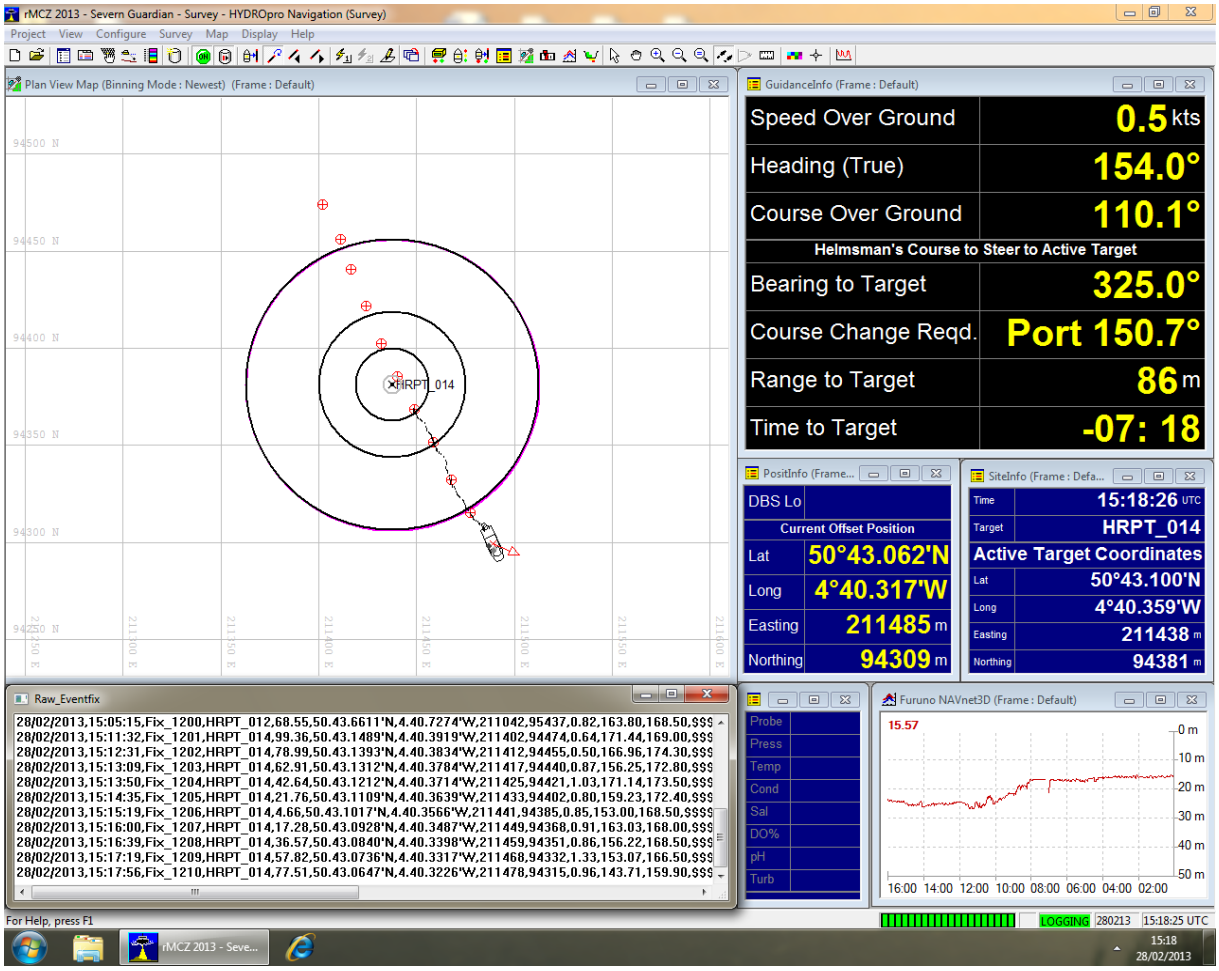
General Information
Length: 18.3 m
Beam: 6.3 m
Draft (baseline): 1.15 m
Draft (skegs): 2.2 m
Displacement (light ship): 22 T
Displacement (full load): 30 T
Service Speed: 16 knots
Maximum Speed: 18 knots

Main Equipment
Main Engines: 2 x Volvo D9-MH 261 bkW @ 2200 rpm. Twin Disc MGX-5075 integral vee-drive
Crew: 7
Scientific Officers: Up to 10
Accommodation: 3 x twin cabins and mess
Data network to share information around vessel
Wet lab/bench for processing water, sediment and ecology samples
Fridge/freezer for sample storage
Dry lab space for two computers and data processing
Large aft deck working area

7.2 Survey Equipment

Navigation and Positioning

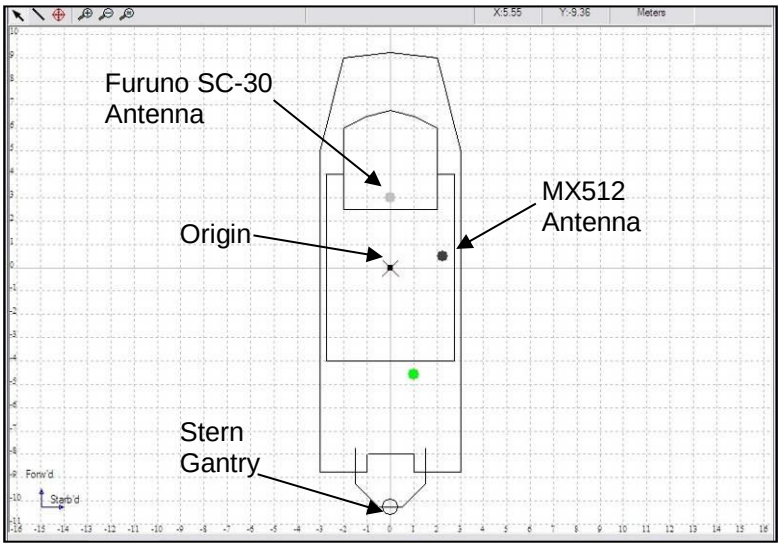
Trimble® HYDRO*pro*™ software is utilised for real-time navigation and survey data acquisition.



Trimble® HYDRO*pro*™ software screen grab displaying real-time navigation and survey data acquisition.

Navigational and survey equipment offsets on the Coastal survey vessel *Mersey Guardian* (Environment Agency Estuarine and Coastal Monitoring & Assessment Service).

NMEA Device	Make/Model	Offset Name	Offset (m) X (Starb'd)	Y (Forw'd)	Z (Up) +ve
Gyrocompass	Simrad Robertson RGC50	n/a	-	-	-
Navigation Echosounder	Furuno DFF1, 525ST- MSD transducer	n/a	-	-	-
Survey Echosounder	Kongsberg EA400	n/a	-	-	-
Origin	n/a	Origin	0.0	0.0	0.0
Navigation GPS (Secondary)	Furuno SC-30 DGPS	Furuno SC-30 Antenna	0.0	3.0	0.0
Survey GPS (Primary)	SIMRAD MX512 DGPS	MX512 Antenna	2.25	0.5	0.0
n/a	n/a	Sediment Grab (Stern Gantry)	0.0	-10.25	0.0



Trimble® HYDROpro™ vessel editor screen showing survey equipment offsets from the origin (Environment Agency Estuarine and Coastal Monitoring & Assessment Service).

7.3 Daily Progress Reports

Vessel: Mersey Guardian	Project: Shell Flat and Lune Deep SCI Condition Assessment Survey
Daily Progress Report No.1	Location: Fleetwood Haven Marina, FY7 6PP
Date: 08/08/17	

Safety

	Today	To Date
Accidents/Incidents	0	0
Near Misses	0	0
Safety Drills/Induction	2	2
Additional comments:		
Safety induction for new staff and a Toolbox talk for MHM grabbing		

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
07:00	10:30	Mobilisation	Mobilised survey staff to vessel, set up for survey
10:30	12:00	Transit	Transited from Fleetwood to first site
12:00	21:00	Survey Operations	Mini-Hamon Grab survey operations
21:00	22:15	Transit	Transited from last site to Fleetwood

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind			North 4 or 5		
Sea state			Smooth/Light		
Swell			0.2m slight		
Visibility			Good		

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob	3:30	3:30	Mobilised survey equipment
Offshore Calibrations			
Total Operation (Camera) Survey (TOSu)			
Total Operation (Grab) Sampling (TOSa)	9:00	9:00	36 stations surveyed
Equipment/Downtime			
Ship/Plant Downtime			
Waiting On Weather			
Transit	02:45	02:45	
Standby Port			
Demob			
Other			
Total:			

Overall Progress Groundtruthing Samples

Action	Sites Total	Sites Complete	Remaining Sites
Mini-Hamon Grab	60	36	24
Day Grab	10	0	10

Weather forecast for the next 24 hours

N or NW 4 or 5, occasionally 6 at first becoming variable 3 or 4 later. Slight or moderate, becoming smooth or slight. Fair. Good

Planned operation for the next 24 hours (00:00 to 24:00 on 13th June 2017)

Safety inductions for new survey staff, complete the rest of MHM surveying

Agreed Changes to Scope/Survey operation priorities

No changes required

Comments

Vessel: Mersey Guardian	Project: Shell Flat and Lune Deep SCI Condition Assessment Survey
Daily Progress Report No.2	Location: Fleetwood Haven Marina, FY7 6PP
Date: 09/08/17	

Safety

	Today	To Date
Accidents/Incidents	0	0
Near Misses	0	0
Safety Drills/Induction	1	3
Additional comments:		
Safety induction for new staff and a Toolbox talk for MHM grabbing		

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
09:00	11:00	Mobilisation	Mobilised survey staff to vessel, set up for survey
11:00	11:30	Transit	Transited from Fleetwood to first site
11:30	12:00	Survey Operations	Mini-Hamon Grab survey operations
12:00	12:45	Transit	Transited from last site to Fleetwood
12:45	13:00	Demob	Demobbed vessel

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind			North backing northwest 4 or 5, occasionally 6 until later.		
Sea state			Slight or moderate, becoming slight later		
Swell			0.3		
Visibility			Good, occasionally moderate		

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob	02:00	05:30	Mobilised of survey equipment
Offshore Calibrations			
Total Operation (Camera) Survey (TOSu)			
Total Operation (Grab) Sampling (TOSa)	00:30	9:30	40 stations surveyed
Equipment/Downtime			
Ship/Plant Downtime			
Waiting On Weather			
Transit	01:15	04:00	
Standby Port			
Demob	00:15	00:15	
Other			
Total:			

Overall Progress Groundtruthing Samples

Action	Sites Total	Sites Complete	Remaining Sites
Mini-Hamon Grab	60	40	20
Day Grab	10	0	10

Weather forecast for the next 24 hours

N or NW 4 or 5, occasionally 6 at first becoming variable 3 or 4 later. Slight or moderate, becoming smooth or slight. Fair. Good

Planned operation for the next 24 hours (00:00 to 24:00 on 10th Aug 2017)

Safety inductions for new survey staff, complete the rest of MHM & DG surveying

Agreed Changes to Scope/Survey operation priorities

No changes required

Comments

Survey aborted due to wind and sea state

Vessel: Mersey Guardian	Project: Shell Flat and Lune Deep SCI Condition Assessment Survey
Daily Progress Report No.3	Location: Fleetwood Haven Marina, FY7 6PP
Date: 10/08/17	

Safety

	Today	To Date
Accidents/Incidents	0	0
Near Misses	0	0
Safety Drills/Induction	1	4
Additional comments:		
Safety induction for new staff and a Toolbox talk for MHM and Day grabbing		

Summary of operations 0000-2400

Time UTC (start)	Time UTC (end)	Type	Comments
10:00	11:30	Mobilisation	Mobilised survey staff to vessel, set up for survey
11:30	12:15	Transit	Transited from Fleetwood to first site
12:15	23:00	Survey Operations	Mini-Hamon/Day Grab survey operations
23:00	23:30	Transit	Transited from last site to Fleetwood
23:30	00:00	Demob	Demob vessel

Weather

Weather/sea state conditions	0000-0600	0600-1200	1200-1800	1800-2400	Remarks
Wind			North backing northwest 3 or 4, occasionally 6 later.		
Sea state			Smooth or Slight		
Swell			0.2		
Visibility			Good, occasionally moderate		

Overall Progress

Type	Today (hh:mm)	Accum (hh:mm)	Remarks
Mob	02:30	08:00	Mobilised of survey equipment
Offshore Calibrations			
Total Operation (Camera) Survey (TOSu)			
Total Operation (Grab) Sampling (TOSa)	10:45	20:15	59 stations surveyed
Equipment/Downtime			
Ship/Plant Downtime			
Waiting On Weather			
Transit	01:15	05:15	
Standby Port			
Demob	00:30	00:45	
Other			
Total:			

Overall Progress Groundtruthing Samples

Action	Sites Total	Sites Complete	Remaining Sites	Remarks
Mini-Hamon Grab	60	60	0	
Day Grab	10	9	1	Unable to obtain last contaminant sample due to rocky sea bed.

Weather forecast for the next 24 hours

N/A

Planned operation for the next 24 hours (00:00 to 24:00 on 11th Aug 2017)

End of survey

Agreed Changes to Scope/Survey operation priorities

No changes required

Comments

7.4 Grab Survey Metadata

Date	Time UTC	Station Code	WGS84 Latitude DD.DDDDD	WGS84 Longitude DD.DDDDD	Cefas STN number	Hpro fix no.	Water depth (m)	Sediment depth (cm)	Sediment use
Sampling gear = Day Grab, sieve mesh = 0.5 mm									
08/08/2017	12:03:33	SFLD28A	53.86076	-3.35141	1	3905	18.22	2.6	Biota and PSA
08/08/2017	12:07:16	SFLD28B	53.86073	-3.35158	1	3906	18.12	2.2	
08/08/2017	12:11:58	SFLD28C	53.86082	-3.35154	1	3907	18.03	1.5	
08/08/2017	12:20:48	SFLD26A	53.86050	-3.33646	2	3908	17.45	1.0	
08/08/2017	12:23:56	SFLD26B	53.86037	-3.33651	2	3909	17.16	1.9	Biota and PSA
08/08/2017	12:26:41	SFLD26C	53.86035	-3.33665	2	3910	17.26	1.2	
08/08/2017	12:35:24	SFLD27A	53.84608	-3.33614	3	3911	17.93	3.6	Biota and PSA
08/08/2017	12:47:09	SFLD37A	53.83507	-3.30745	4	3912	17.64	2.3	Biota and PSA
08/08/2017	12:50:14	SFLD37B	53.83517	-3.30734	4	3913	17.55	2.0	
08/08/2017	12:52:35	SFLD37C	53.83512	-3.30726	4	3914	17.64	1.8	
08/08/2017	13:01:46	SFLD25A	53.84669	-3.31040	5	3915	15.53	1.8	Biota and PSA
08/08/2017	13:04:43	SFLD25B	53.84669	-3.31068	5	3916	15.63	1.4	
08/08/2017	13:07:04	SFLD25C	53.84676	-3.31055	5	3917	15.43	1.2	
08/08/2017	13:17:02	SFLD23A	53.83976	-3.28189	6	3918	14.86	1.7	Biota and PSA
08/08/2017	13:20:00	SFLD23B	53.83974	-3.28225	6	3919	14.76		grab misfired
08/08/2017	13:22:20	SFLD23B	53.83973	-3.28196	6	3920	14.76	1.2	
08/08/2017	13:24:40	SFLD23C	53.83970	-3.28184	6	3921	14.67	1.2	
08/08/2017	13:32:02	SFLD29A	53.82772	-3.28232	7	3922	17.16		grab misfired
08/08/2017	13:35:16	SFLD29A	53.82799	-3.28203	7	3923	16.97	2.7	
08/08/2017	13:38:07	SFLD29B	53.82787	-3.28208	7	3924	16.97	3.6	Biota and PSA
08/08/2017	13:40:46	SFLD29C	53.82788	-3.28223	7	3925	16.87	2.4	
08/08/2017	13:55:04	SFLD19A	53.82799	-3.22784	8	3926	13.80	1.4	Biota and PSA

Date	Time UTC	Station Code	WGS84 Latitude DD.DDDDD	WGS84 Longitude DD.DDDDD	Cefas STN number	Hpro fix no.	Water depth (m)	Sediment depth (cm)	Sediment use
08/08/2017	13:57:39	SFLD19B	53.82816	-3.22820	8	3927	13.99	1.3	
08/08/2017	14:00:22	SFLD19C	53.82816	-3.22810	8	3928	13.80	1.3	
08/08/2017	14:09:59	SFLD35A	53.82568	-3.19909	9	3929	13.51	3.0	Biota and PSA
08/08/2017	14:20:28	SFLD12A	53.82871	-3.16851	10	3930	12.55	2.5	
08/08/2017	14:23:26	SFLD12B	53.82868	-3.16855	10	3931	12.27	2.8	
08/08/2017	14:26:21	SFLD12C	53.82860	-3.16854	10	3932	12.27	3.1	Biota and PSA
08/08/2017	14:33:22	SFLD11A	53.83720	-3.16875	11	3933	10.73	2.2	
08/08/2017	14:36:02	SFLD11B	53.83697	-3.16853	11	3934	10.54	2.4	Biota and PSA
08/08/2017	14:38:56	SFLD11C	53.83704	-3.16851	11	3935	10.44	2.0	
08/08/2017	14:48:54	SFLD5A	53.84128	-3.13605	12	3936	10.15	2.8	
08/08/2017	14:52:03	SFLD5B	53.84119	-3.13628	12	3937	10.25	3.2	Biota and PSA
08/08/2017	15:01:13	SFLD54A	53.84544	-3.11110	13	3938	13.32	6.0	Biota and PSA
08/08/2017	15:07:30	SFLD53A	53.85400	-3.10909	14	3939	12.36		
08/08/2017	15:09:24	SFLD53B	53.85384	-3.10921	14	3940	12.41		
08/08/2017	15:11:55	SFLD53C	53.85407	-3.10916	14	3941	12.17		
08/08/2017	15:21:19	SFLD50A	53.86972	-3.10383	15	3942	11.31		
08/08/2017	15:22:59	SFLD50B	53.86958	-3.10390	15	3943	11.40		
08/08/2017	15:24:52	SFLD50C	53.86972	-3.10378	15	3944	11.38		
08/08/2017	15:35:03	SFLD4A	53.86260	-3.13642	16	3945	7.66	1.0	
08/08/2017	15:36:59	SFLD4B	53.86251	-3.13636	16	3946	7.47	1.3	
08/08/2017	15:39:37	SFLD4C	53.86258	-3.13607	16	3947	7.66	1.6	Biota and PSA
08/08/2017	15:47:04	SFLD40A	53.85230	-3.14882	17	3948	7.85	2.0	Biota and PSA
08/08/2017	15:49:28	SFLD40B	53.85215	-3.14902	17	3949	7.66	1.8	
08/08/2017	15:51:30	SFLD40C	53.85235	-3.14882	17	3950	7.66	1.7	
08/08/2017	15:58:31	SFLD10A	53.84822	-3.16962	18	3951	7.75	0.9	
08/08/2017	16:00:39	SFLD10B	53.84833	-3.16935	18	3952	7.75	0.8	

Date	Time UTC	Station Code	WGS84 Latitude DD.DDDDD	WGS84 Longitude DD.DDDDD	Cefas STN number	Hpro fix no.	Water depth (m)	Sediment depth (cm)	Sediment use
08/08/2017	16:02:53	SFLD10C	53.84824	-3.16947	18	3953	7.75	1.0	Biota and PSA
08/08/2017	16:10:29	SFLD9A	53.86229	-3.16807	19	3954	7.66	1.7	Biota and PSA
08/08/2017	16:12:39	SFLD9B	53.86200	-3.16806	19	3955	7.27	1.4	
08/08/2017	16:15:04	SFLD9C	53.86225	-3.16777	19	3956	7.27	1.0	
08/08/2017	16:24:31	SFLD13A	53.86268	-3.20090	20	3957	8.14	1.2	Biota and PSA
08/08/2017	16:26:44	SFLD13B	53.86271	-3.20115	20	3958	8.04	0.7	
08/08/2017	16:28:45	SFLD13C	53.86258	-3.20087	20	3959	7.95	0.9	
08/08/2017	17:31:26	SFLD16A	53.86175	-3.22897	21	3960	7.95	1.4	Biota and PSA
08/08/2017	17:33:51	SFLD16B	53.86176	-3.22914	21	3961	7.95	1.0	
08/08/2017	17:35:59	SFLD16C	53.86179	-3.22907	21	3962	7.85	0.9	
08/08/2017	17:43:30	SFLD20A	53.86137	-3.25511	22	3963	8.91	0.9	
08/08/2017	17:46:08	SFLD20B	53.86130	-3.25526	22	3964	8.81	0.7	
08/08/2017	17:48:20	SFLD20C	53.86139	-3.25541	22	3965	9.39	1.2	Biota and PSA
08/08/2017	17:55:45	SFLD22A	53.86087	-3.28301	23	3966	9.87	1.3	
08/08/2017	17:59:56	SFLD22B	53.86100	-3.28282	23	3967	9.77	1.5	Biota and PSA
08/08/2017	18:02:12	SFLD22C	53.86095	-3.28299	23	3968	9.87	1.2	
08/08/2017	18:09:47	SFLD24A	53.86082	-3.31145	24	3969	10.73	0.9	
08/08/2017	18:12:34	SFLD24B	53.86093	-3.31113	24	3970	10.92	1.0	Biota and PSA
08/08/2017	18:14:56	SFLD24C	53.86084	-3.31125	24	3971	10.54	0.9	
08/08/2017	18:27:01	SFLD36A	53.85023	-3.26886	25	3973	8.33	1.0	Biota and PSA
08/08/2017	18:29:47	SFLD36B	53.85035	-3.26918	25	3974	8.52	0.6	
08/08/2017	18:32:16	SFLD36C	53.85031	-3.26881	25	3975	8.62	0.8	
08/08/2017	18:38:26	SFLD21A	53.83996	-3.25514	26	3976	8.71		grab misfired
08/08/2017	18:39:09	SFLD21A	53.83979	-3.25526	26	3977	8.62	1.4	Biota and PSA
08/08/2017	18:42:00	SFLD21B	53.83992	-3.25530	26	3978	8.62	0.9	
08/08/2017	18:44:23	SFLD21C	53.83980	-3.25492	26	3979	8.52		grab misfired

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08/08/2017	18:44:49	SFLD21C	53.83973	-3.25481	26	3980	8.71	0.8	
08/08/2017	18:52:20	SFLD18A	53.84012	-3.22826	27	3981	7.95	0.9	
08/08/2017	18:54:38	SFLD18B	53.84011	-3.22851	27	3982	8.14	0.8	
08/08/2017	18:56:36	SFLD18C	53.84029	-3.22839	27	3983	8.14	1.4	Biota and PSA
08/08/2017	19:04:14	SFLD14A	53.84041	-3.20006	28	3984	7.95	0.5	
08/08/2017	19:07:10	SFLD14B	53.84057	-3.20016	28	3985	7.85	0.5	
08/08/2017	19:09:25	SFLD14C	53.84044	-3.19987	28	3986	7.66	0.7	PSA only
08/08/2017	19:17:29	SFLD17A	53.84786	-3.22622	29	3987	8.23	0.7	
08/08/2017	19:19:42	SFLD17B	53.84786	-3.22586	29	3988	8.14	0.9	PSA only
08/08/2017	19:21:59	SFLD17C	53.84786	-3.22610	29	3989	8.62		Empty
08/08/2017	19:32:56	SFLD33A	53.86843	-3.24015	30	3990	10.15	2.1	Biota and PSA
08/08/2017	19:35:29	SFLD33B	53.86827	-3.24006	30	3991	10.25	1.2	
08/08/2017	19:38:19	SFLD33C	53.86835	-3.24026	30	3992	10.35	1.4	
08/08/2017	19:44:57	SFLD15A	53.87459	-3.22920	31	3993	10.92	2.7	Biota and PSA
08/08/2017	19:47:37	SFLD15B	53.87458	-3.22932	31	3994	11.02	1.8	
08/08/2017	19:49:52	SFLD15C	53.87471	-3.22932	31	3995	11.21	1.6	
08/08/2017	19:55:52	SFLD38A	53.88092	-3.21545	32	3996	11.40	1.1	
08/08/2017	19:58:51	SFLD38B	53.88088	-3.21548	32	3997	11.40	1.3	
08/08/2017	20:01:06	SFLD38C	53.88099	-3.21505	32	3998	11.40	1.9	Biota and PSA
08/08/2017	20:07:58	SFLD30A	53.88807	-3.20103	33	3999	11.59	0.9	PSA only
08/08/2017	20:11:51	SFLD30B	53.88808	-3.20157	33	4000	12.07	0.7	
08/08/2017	20:14:09	SFLD30C	53.88808	-3.20139	33	4001	11.98	0.6	
08/08/2017	20:20:25	SFLD39A	53.89405	-3.18389	34	4002	11.21	1.2	
08/08/2017	20:22:43	SFLD39B	53.89398	-3.18391	34	4003	11.02	1.5	Biota and PSA
08/08/2017	20:24:51	SFLD39C	53.89403	-3.18403	34	4004	11.11	1.0	
08/08/2017	20:33:44	SFLD6A	53.90304	-3.15605	35	4005	10.44	1.3	

Date	Time UTC	Station Code	WGS84 Latitude DD.DDDDD	WGS84 Longitude DD.DDDDD	Cefas STN number	Hpro fix no.	Water depth (m)	Sediment depth (cm)	Sediment use
08/08/2017	20:36:19	SFLD6B	53.90315	-3.15614	35	4006	11.02	1.8	Biota and PSA
08/08/2017	20:38:26	SFLD6C	53.90323	-3.15603	35	4007	10.73	1.1	
08/08/2017	20:44:20	SFLD49A	53.91208	-3.14281	36	4008	11.40	1.4	Resampled on 10/8/17
08/08/2017	20:46:35	SFLD49B	53.91213	-3.14287	36	4009	11.69	1.1	Resampled on 10/8/17
08/08/2017	20:49:14	SFLD49C	53.91222	-3.14311	36	4010	11.59	1.6	Resampled on 10/8/17
09/08/2017	11:26:08	SFLD56A	53.95812	-3.04128	37	4011	16.01	6.0	Biota and PSA
09/08/2017	11:34:02	SFLD58A	53.95633	-3.05257	38	4012	26.95	2.8	
09/08/2017	11:37:23	SFLD58B	53.95636	-3.05269	38	4013	26.76	3.5	Biota Only
09/08/2017	11:40:15	SFLD58C	53.95633	-3.05261	38	4014	27.05	2.8	
09/08/2017	11:46:20	SFLD57A	53.95359	-3.06293	39	4015	40.59	6.0	Biota and PSA
09/08/2017	11:58:54	SFLD44A	53.94941	-3.10134	40	4016	46.35	3.0	Biota and PSA
10/08/2017	12:17:31	SFLD43A	53.93393	-3.12128	41	4017	46.83	5.5	Biota and PSA
10/08/2017	12:29:06	SFLD42A	53.93346	-3.15053	42	4018	43.47	5.5	Biota and PSA
10/08/2017	12:37:04	SFLD41A	53.94120	-3.15859	43	4019	23.02		rock obstructed grab jaws
10/08/2017	12:39:49	SFLD41A	53.94105	-3.15827	43	4020	26.95	6.0	Biota and PSA
10/08/2017	12:47:55	SFLD45A	53.93284	-3.17010	44	4021	49.51		empty
10/08/2017	12:52:23	SFLD45B	53.93309	-3.17017	44	4022	48.27		empty
10/08/2017	12:55:57	SFLD45C	53.93278	-3.17023	44	4023	49.03		empty
10/08/2017	13:04:51	SFLD55A	53.92154	-3.17198	45	4024	33.48	5.5	Biota and PSA
10/08/2017	13:15:57	SFLD46A	53.91737	-3.19367	46	4025	46.92	5.5	Biota and PSA
10/08/2017	13:32:44	SFLD48A	53.91538	-3.24102	47	4026	22.06	3.5	Biota and PSA
10/08/2017	14:08:03	SFLD49A	53.91228	-3.14306	48	4027	14.19	3.5	Biota and PSA
10/08/2017	14:14:23	SFLD59A	53.91001	-3.13106	49	4028	13.42	3.0	Biota and PSA
10/08/2017	14:26:06	SFLD51A	53.89937	-3.10534	50	4029	10.35		empty

Date	Time UTC	Station Code	WGS84 Latitude DD.DDDDD	WGS84 Longitude DD.DDDDD	Cefas STN number	Hpro fix no.	Water depth (m)	Sediment depth (cm)	Sediment use
10/08/2017	14:28:24	SFLD51A	53.89945	-3.10529	50	4030	10.54		empty
10/08/2017	14:30:04	SFLD51A	53.89934	-3.10523	50	4031	10.44		empty
10/08/2017	14:38:18	SFLD01A	53.90115	-3.13496	51	4032	12.36	2.2	Biota and PSA
10/08/2017	14:40:48	SFLD01B	53.90119	-3.13491	51	4033	12.27	1.7	
10/08/2017	14:43:16	SFLD01C	53.90123	-3.13502	51	4034	12.17	1.2	
10/08/2017	14:49:24	SFLD02A	53.88873	-3.13701	52	4035	11.21	2.8	Biota and PSA
10/08/2017	14:52:06	SFLD02B	53.88864	-3.13701	52	4036	11.21	2.0	
10/08/2017	14:54:06	SFLD02C	53.88875	-3.13688	52	4037	11.40	1.5	
10/08/2017	15:01:17	SFLD03A	53.87560	-3.13651	53	4038	10.54	1.2	
10/08/2017	15:03:28	SFLD03B	53.87552	-3.13658	53	4039	10.44	1.5	Biota and PSA
10/08/2017	15:05:12	SFLD03C	53.87553	-3.13672	53	4040	10.63	1.0	
10/08/2017	15:13:13	SFLD08A	53.87500	-3.16617	54	4041	10.83	1.5	Biota and PSA
10/08/2017	15:15:15	SFLD08B	53.87497	-3.16600	54	4042	10.83	1.0	
10/08/2017	15:16:51	SFLD08C	53.87498	-3.16601	54	4043	10.54	1.2	
10/08/2017	15:22:30	SFLD34A	53.87238	-3.18368	55	4044	11.11	1.8	
10/08/2017	15:25:02	SFLD34B	53.87253	-3.18344	55	4045	10.83	1.5	Biota and PSA
10/08/2017	15:26:53	SFLD34C	53.87245	-3.18347	55	4046	10.73	1.5	
10/08/2017	15:35:29	SFLD31A	53.87038	-3.21402	56	4047	11.69	1.0	Biota and PSA
10/08/2017	15:37:27	SFLD31B	53.87030	-3.21378	56	4048	11.50	0.8	
10/08/2017	15:39:18	SFLD31C	53.87030	-3.21409	56	4049	11.21	0.8	
10/08/2017	15:46:04	SFLD32A	53.88005	-3.19990	57	4050	11.31	1.9	
10/08/2017	15:48:24	SFLD32B	53.87995	-3.19990	57	4051	11.31	1.5	
10/08/2017	15:50:10	SFLD32C	53.88008	-3.20004	57	4052	11.31	2.5	Biota and PSA
10/08/2017	16:00:09	SFLD07A	53.88820	-3.17018	58	4053	10.06	2.0	
10/08/2017	16:01:34	SFLD07B	53.88827	-3.17041	58	4054	9.96	2.3	Biota and PSA
10/08/2017	16:03:24	SFLD07C	53.88842	-3.17022	58	4055	9.87	1.9	

Date	Time UTC	Station Code	WGS84 Latitude DD.DDDDD	WGS84 Longitude DD.DDDDD	Cefas STN number	Hpro fix no.	Water depth (m)	Sediment depth (cm)	Sediment use
10/08/2017	16:14:48	SFLD52A	53.90968	-3.17668	59	4056	18.51	6.5	Biota and PSA
10/08/2017	16:22:29	SFLD47A	53.90216	-3.19758	60	4057	19.56	6.5	Biota and PSA
10/08/2017	16:30:26	SFLD60A	53.89462	-3.21358	61	4058	18.51	7.0	Biota and PSA
10/08/2017	17:31:16	SFLD27_DG 1	53.84620	-3.33614	62	4059	12.55	not recorded	contaminants
10/08/2017	17:41:44	SFLD27_DG 2	53.84631	-3.33621	62	4060	12.46	not recorded	contaminants and PSA
10/08/2017	17:46:37	WQ_SFLD27	53.84620	-3.33632	62	4061	12.36		
10/08/2017	18:21:01	SFLD35_DG 1	53.82562	-3.19901	63	4062	9.29	not recorded	contaminants
10/08/2017	18:26:57	SFLD35_DG 2	53.82575	-3.19930	63	4063	9.19	not recorded	PSA
10/08/2017	18:29:11	WQ_SFLD35	53.82532	-3.19902	63	4064	9.39		
10/08/2017	18:54:05	SFLD54_DG 1	53.84531	-3.11106	64	4065	10.25	not recorded	contaminants
10/08/2017	18:59:11	SFLD54_DG 2	53.84551	-3.11115	64	4066	10.25	not recorded	PSA
10/08/2017	19:01:57	WQ_SFLD54	53.84534	-3.11132	64	4067	10.21		
10/08/2017	19:28:32	SFLD09_DG 1	53.86216	-3.16793	65	4068	6.31	not recorded	contaminants
10/08/2017	19:32:54	SFLD09_DG 2	53.86223	-3.16792	65	4069	6.22	not recorded	contaminants
10/08/2017	19:37:19	SFLD09_DG 3	53.86228	-3.16774	65	4070	6.31	not recorded	PSA
10/08/2017	19:40:03	WQ_SFLD09	53.86192	-3.16773	65	4071	6.31		
10/08/2017	20:06:04	SFLD38_DG 1	53.88091	-3.21551	66	4072	10.06	not recorded	contaminants
10/08/2017	20:11:39	SFLD38_DG 2	53.88097	-3.21527	66	4073	9.67	not recorded	contaminants and PSA
10/08/2017	20:16:14	WQ_SFLD38	53.88094	-3.21531	66	4074	9.96		
10/08/2017	20:34:24	SFLD52_DG 1	53.90991	-3.17604	67	4075	16.97	not recorded	contaminants

Date	Time UTC	Station Code	WGS84 Latitude DD.DDDDD	WGS84 Longitude DD.DDDDD	Cefas STN number	Hpro fix no.	Water depth (m)	Sediment depth (cm)	Sediment use
10/08/2017	20:39:10	SFLD52_DG 2	53.90987	-3.17639	67	4076	16.97	not recorded	PSA
10/08/2017	20:42:03	WQ_SFLD52	53.90965	-3.17627	67	4077	17.07		
10/08/2017	20:57:02	SFLD59_DG 1	53.91017	-3.13107	68	4078	8.91	not recorded	contaminants
10/08/2017	21:02:32	SFLD59_DG 2	53.91021	-3.13108	68	4079	9.19	not recorded	PSA
10/08/2017	21:05:32	WQ_SFLD59	53.91015	-3.13043	68	4080	9.10		
10/08/2017	21:41:03	SFLD41_DG 1	53.94137	-3.15787	69	4081	20.52		empty
10/08/2017	21:44:23	SFLD41_DG 1	53.94106	-3.15757	69	4082	26.19	not recorded	contaminants and PSA
10/08/2017	21:50:43	WQ_SFLD41	53.94135	-3.15789	69	4083	20.81		
10/08/2017	22:05:32	SFLD44_DG 1	53.94978	-3.10012	70	4084	42.60	not recorded	contaminants
10/08/2017	22:12:07	SFLD44_DG 2	53.94963	-3.10058	70	4085	43.18	not recorded	contaminants and PSA
10/08/2017	22:24:03	WQ_SFLD44	53.95013	-3.10184	70	4086	42.51		
10/08/2017	22:36:39	SFLD57_DG 1	53.95404	-3.06213	71	4087	35.98		pebbles only
10/08/2017	22:41:13	SFLD57_DG 1	53.95371	-3.06286	71	4088	37.23		pebbles only
10/08/2017	22:45:59	SFLD57_DG 1	53.95386	-3.06278	71	4089	37.61		pebbles only
10/08/2017	22:51:53	SFLD57_DG 1	53.95350	-3.06295	71	4090	38.28		empty

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