Centre for Environment Fisheries & Aquaculture Science

Cefas

RESEARCH VESSEL SURVEY REPORT

RV CEFAS ENDEAVOUR
Survey: C END 09 - 2017

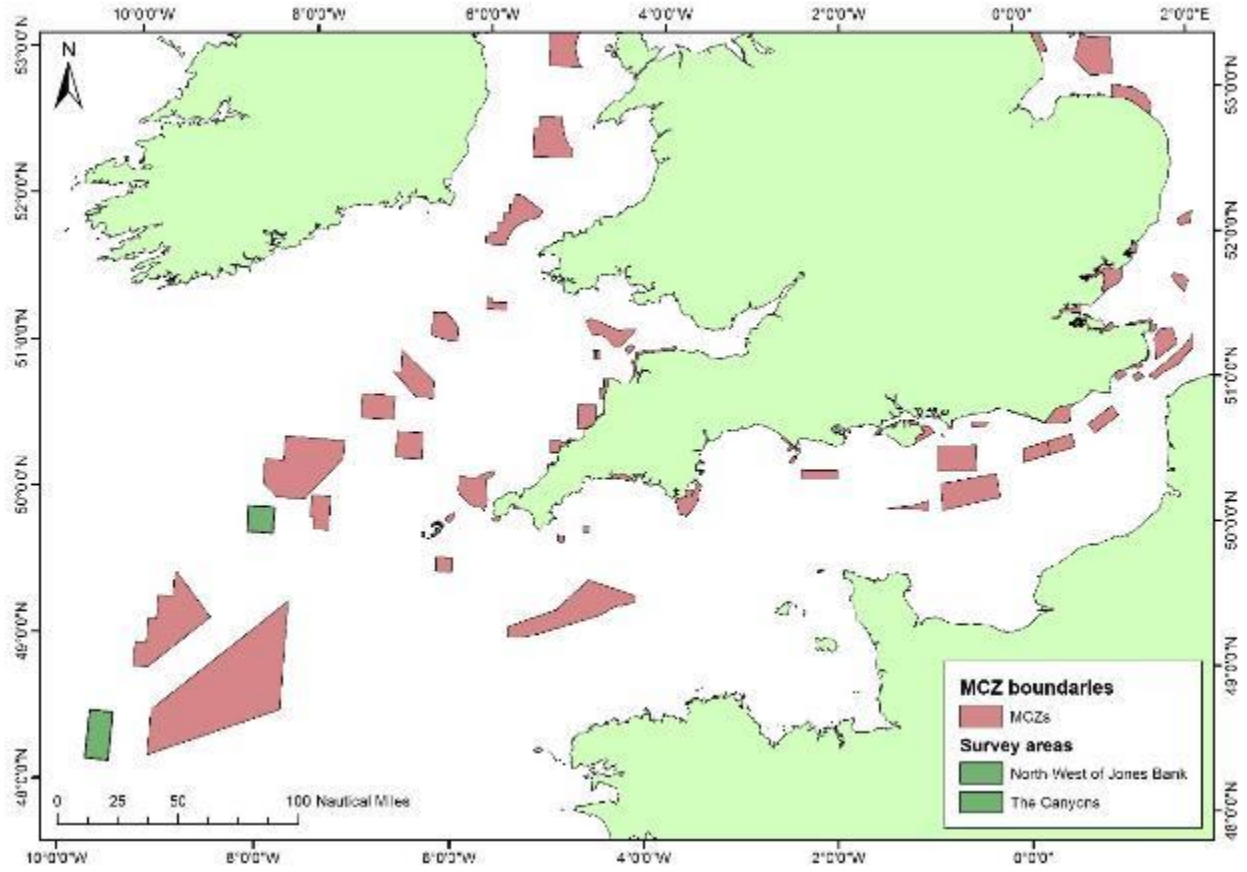
STAFF:

Name	Role
Alex Callaway	SIC
Anna Neish	Data Manager
Andy Eggett	Deck Scientist / JNCC lead
Paul McIlwaine	Benthic lead / 2IC / Shift Lead
Clare Marshall	Deck Scientist / MIST
Neil Needham	MIST
Hayden Close	MIST trainee / Deck Scientist
Jo Bluemel	Deck Scientist

Name	Role
Tabitha Pearman	Deck Scientist
Laura Robson	Deck Scientist
Ellen Last	Deck Scientist
Dan Wood	Shift Lead
Sophie Lozach	Deck Scientist
Bill Meadows	MIST Lead
Axayacatl (Axa) Molina-Ramirez	MIST trainee
Yessica Griffiths	Deck Scientist

DURATION: 26 Days; 20th May 2017 – 15th June 2017

LOCATION:



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North West of Jones Bank
TL: 8°19'56.081"W ; 50°0'13.999"N
TR: 8°3'13.390"W ; 50°0'15.067"N
BR: 8°3'13.714"W ; 49°49'28.741"N
BL: 8°19'53.015"W ; 49°49'30.432"N

The Canyons
TL: 9°47'57.611"W ; 48°29'57.788"N
TR: 9°33'32.690"W ; 48°29'57.925"N
BR: 9°33'31.057"W ; 48°9'56.976"N
BL: 9°47'59.508"W ; 48°9'54.372"N

Wave Rider
Buoy: 6°32'38.220"W ; 49°49'00.000"N

AIMS:
The survey will carry out baseline monitoring at North-West Jones Bank MCZ and The Canyons MCZ. The survey will also incorporate the recovery and deployment of a wave rider buoy off the Isles of Scilly if possible.

NARRATIVE:
The vessel departed Lowestoft at 06:00 on 20/05/2017 and transited to the south west. The vessel sailed with only one regular bridge officer. The second officers were unfamiliar with the vessel and manoeuvring using dynamic positioning (DP) resulting in a request of time for training and familiarisation. This was combined with deployment of the CTD rosette and a Wave Rider buoy south of the Isles of Scilly. The deployments commenced at 17:00, 21/05/2017 and were completed by 20:00. The vessel then transited to North West of Jones Bank Marine Conservation Zone (NWJB MCZ).

<u>North West of Jones Bank MCZ</u>

The vessel was on station at 05:00 and began Day grab (DG) operations. The use of the camera sledge (CS) was delayed until after 10:00 due to MIST lead concerns over deployment method with new fibre-optic cable. A wet test of the CS was carried out at 11:50. The system was resting on the seabed, an alarm related to water ingress sounded on the camera system topside unit and MIST lead advised to continue with deployment. The equipment failed at 12:15 and was recovered to deck.
Upon recovery, the camera was transferred to the copper co-axial cable. DG deployments continued whilst the camera system was prepared. It was noticeable that new OOW had difficulty controlling the vessel on DP and positioning on station.
The CS was ready for deployment again by 20:30. During deployment the same alarm sounded. The CS was recovered before camera failure and investigation into the problem undertaken. DG sampling continued.

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Water ingress was found in the tail warp of the cable and an electronic re-termination was required. It was decided to complete DG operations and supplement with and NIOZ corer stations before recommencing CS operations due to time required for waterproof sealing compound to cure. The CS was deployed 14:00, 24/05/2017 and failed at the seabed. The issue was identified as tight turns on cables and after reconfiguration was operational again. At 07:20, 26/05/2017 a twist and separation of cable armour wires was noticed. CS operations ceased and NIOZ corer sampling recommenced. Upon review MIST staff were confident that the internal core was undamaged so the cable was straightened and protected with serving wire. CS operations recommenced at 13:30. CS stations were completed at 06:30, 28/05/2017 and remaining NIOZ corer stations targeted. The vessel departed for The Canyons MCZ at 13:00 and arrived at the first station at 22:00.
A total of 71 stations were targeted with Day grabs and video tows achieved at every station and NIOZ core acquired from seven stations. Three stations were further targeted for additional Day grab deployments to contribute to a small scale variability study.

The Canyons MCZ

Drop Camera (DC) operations commenced at 22:30 and were alternated with NIOZ deployments at designated stations. During deployments, the HiPAP beacon signal was intermittent or failing. The beacons were swapped for shallower rated units and stronger signal was received. Faults found with hired deep-water beacons and HiPAP software not receiving attitude data. DC and NIOZ continued until the morning of 31/05/2017 when crossed layers were noticed on winch barrel. The spooling gear was reset resulting in 20 minutes wait before continuing survey.

During the morning of 03/06/2017 the vessel lost DP heading whilst gear was deployed and attempted to manoeuvre without recovery. This resulted in the fibre-optic cable rubbing against a block plate on the gantry. Fortunately, this was noticed at an early stage by an AB and hauling was ceased until vessel was on a favourable heading. The result was damaged armour of the cable but no damage to the fibre-optic. The cable was patched and operations continued. During 04/06/2017 deteriorating weather was forecast, NIOZ stations were completed before the vessel headed to deeper water to reduce swell effects, survey operations were ceased at 22:00. With only DC operations remaining, survey recommenced at 23:00, 06/06/2017.

Unfortunately, water was observed on the still image camera feed at 06:30 07/06/2017. The tow was abandoned with water ingress confirmed upon recovery. The still camera unit was exchanged and ready for deployment at 07:40. Upon deployment the second still image camera failed, again due to water ingress of the housing. The still image camera was removed and the drop frame rigged to use HD video only.
DC survey continued until 11:00, 08/06/2017 when communications with the camera were lost. A solution was found and DC operations began again at 14:00.

At around 20:30, it was noticed that the camera was being dragged forward by tidal flow in contrast to surface currents. The wire was in contact with the block plate so the vessel manoeuvred to return wire to block which resulted in the DC being located port side of the vessel. Attempts to change heading to bring the system to the starboard side were slow in progress but ultimately successful with gear recovered undamaged. The power required to make required manoeuvres was not available.

The communications with the DC was lost again on 09/06/2017 with worsening weather on site. Contingency work was undertaken with a CTD rosette station targeted prior to MIST lead coming on shift. A wreck was targeted for multibeam echosounder calibration but was not located. The MBES data were of poor quality leading to decision to deploy DC as 'dead' equipment in area of deep water in excess of fibre-optic cable length. This would enable cable to be respooled in its entirety, except for turns retained for safety, under tension to remove kinks which STR postulated were increasing electrical resistance and preventing communication with the camera. DC communications were established at 2,200 m water depth and the cable was respooled without overlapping layers. This solved communication problems for the remainder of the survey. No more survey operations were achievable with inclement weather.

Survey operations recommenced at 13:00, 10/06/2017 and continued untila winch failure during DC recovery. A failed circuit board was replaced and after 30 minutes downtime the gear was recovered. DC operations continued until 23:30, 12/06/2017. During the final 24 hours, errant turns were evident in the cable again. Due to remaining survey targets being in areas of shallower water, this could not be rectified a second time. The vessel began the transit back to Lowestoft at 23:30, 12/06/2017.

In total, 37 stations were successfully targeted for NIOZ coring and 153 stations for drop camera.

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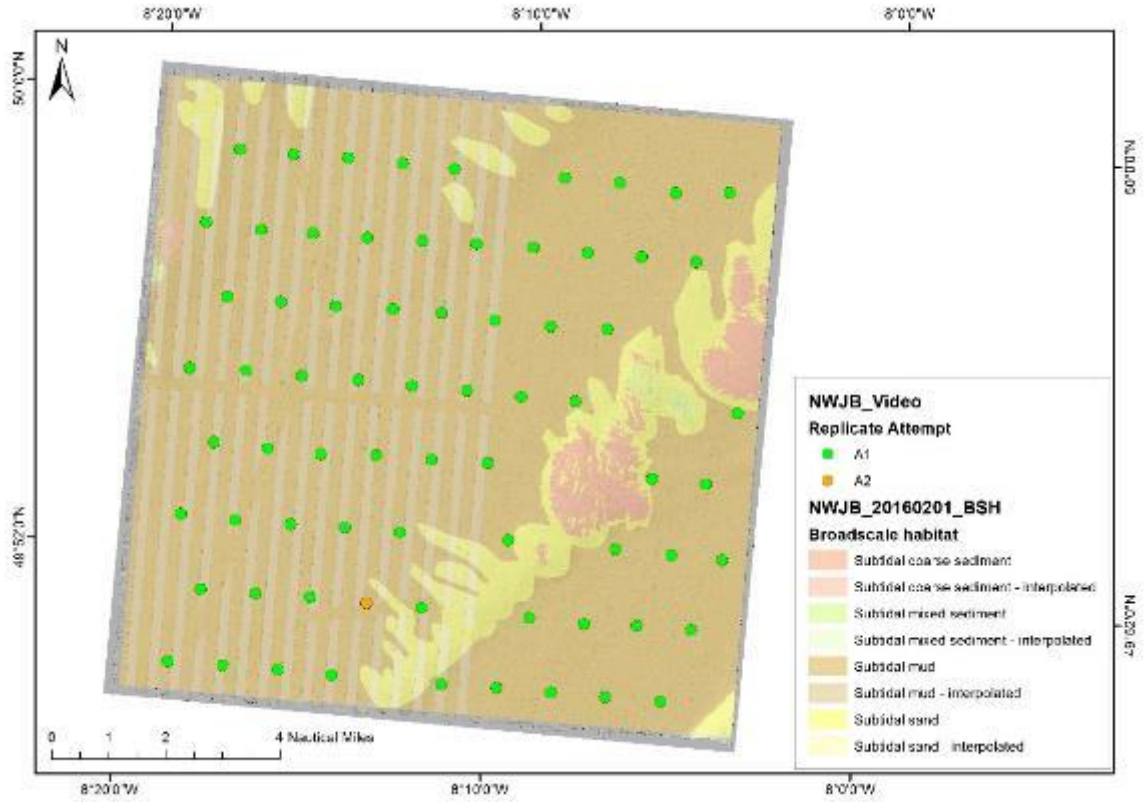
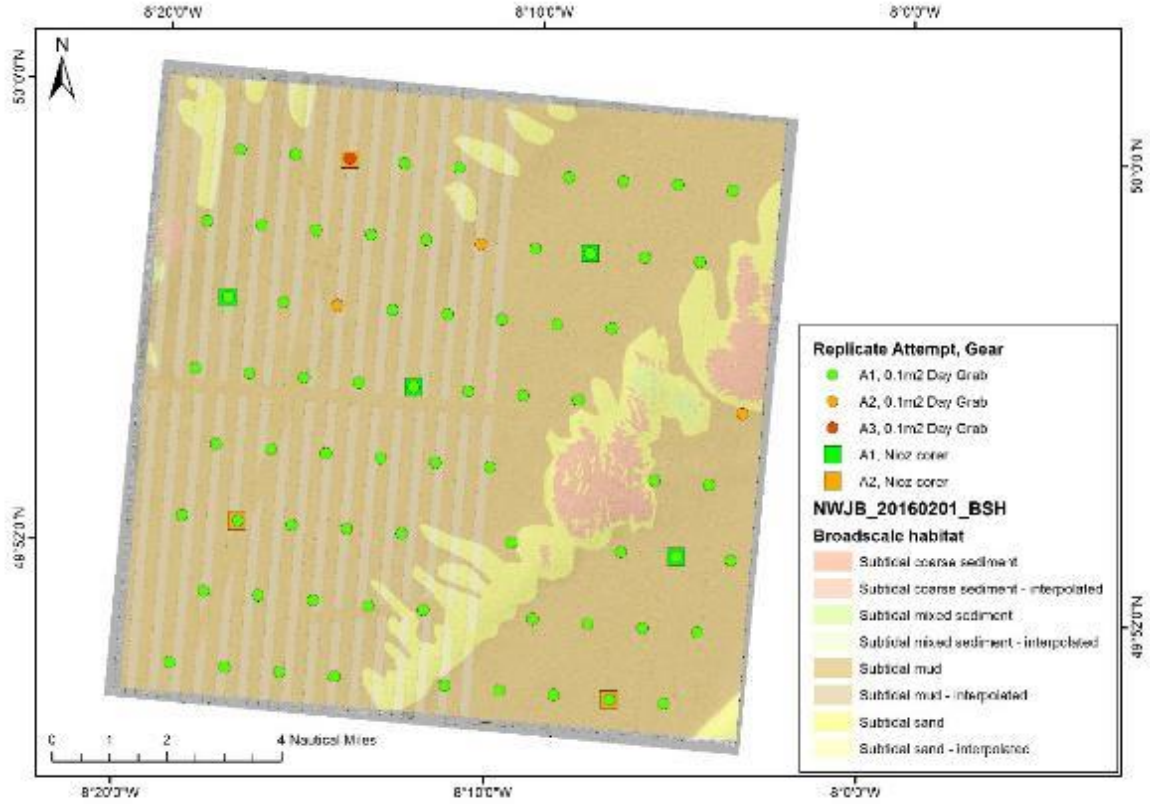
RESULTS:





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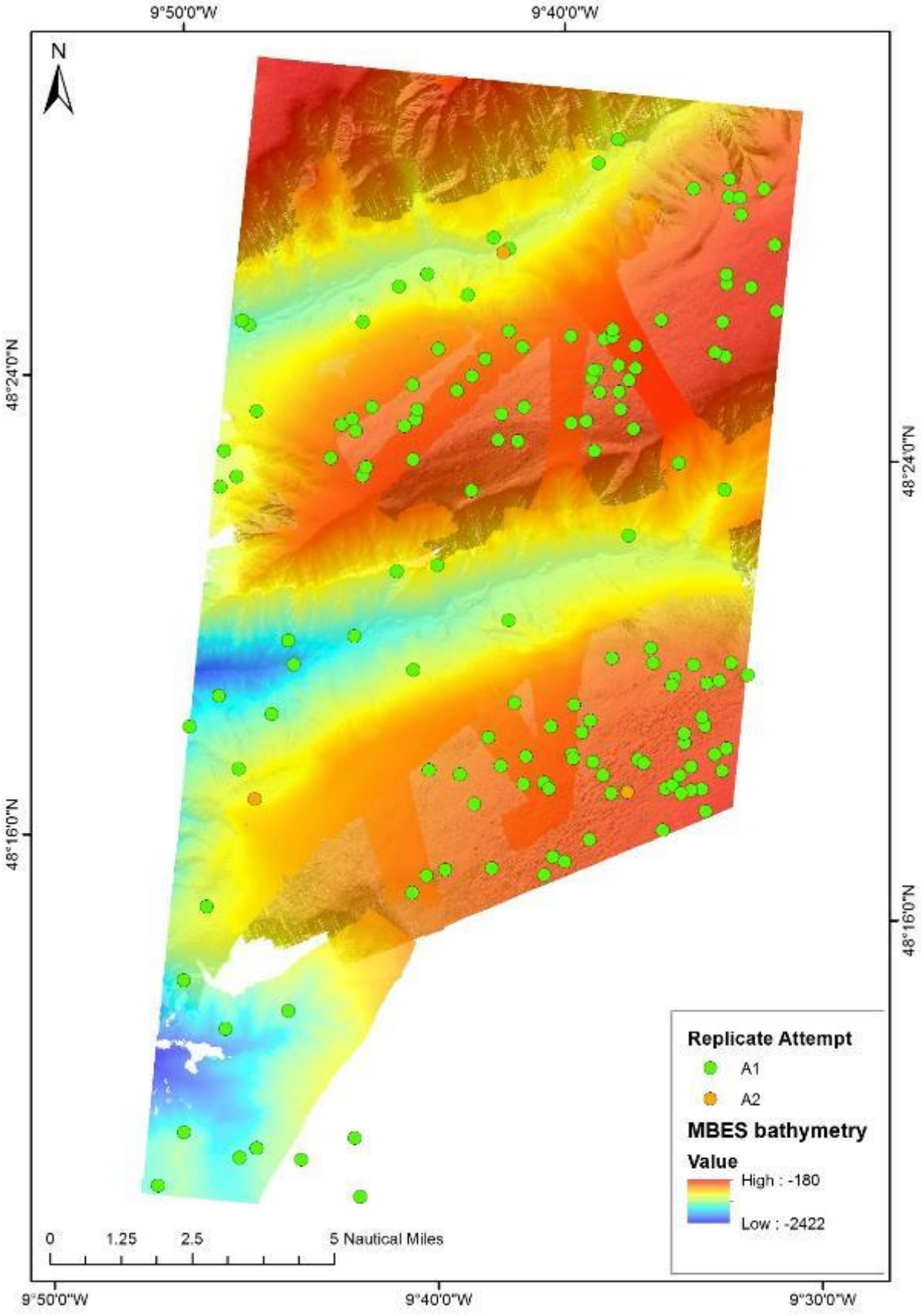

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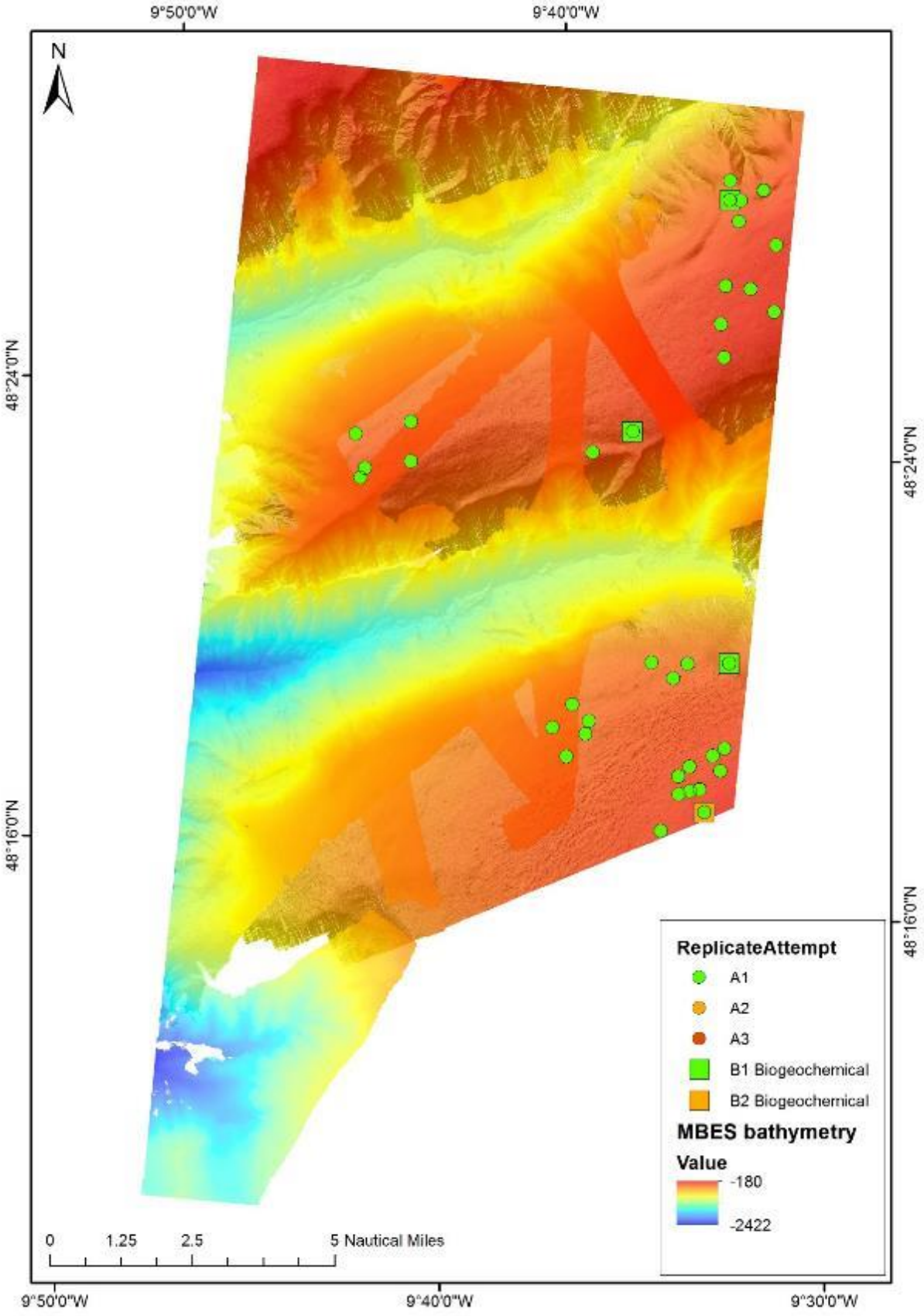

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Alex Callaway
Scientist in Charge
14/06/2017

SEEN IN DRAFT

Master:
Senior Fishing Mate:

INITIALLED:

DISTRIBUTION:

BODC