



Prepared in cooperation with the Maine Department of Agriculture, Conservation & Forestry, Bureau of Parks and Lands, and the Maine Coastal Program within the Department of Marine Resources.

Submerged Object Investigation Summary of Colonial Pemaquid: Pemaquid River – John’s Bay, New Harbor, Lincoln County, Maine

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Disclaimer

These data and information published herein are accurate to the best of our knowledge. Data synthesis, summaries, and related conclusions may be subject to change as additional data are collected and evaluated. While the Maine Coastal Program makes every effort to provide useful and accurate information, investigations were site-specific and (where relevant) results and/or conclusions do not necessarily apply to other regions. The Maine Coastal Program does not endorse conclusions based on subsequent use of the data by individuals not under their employment. The Maine Coastal Program disclaims any liability, incurred as a consequence, directly or indirectly, resulting from the use and application of any of the data and reports produced by staff. Any use of trade names is for descriptive purposes only and does not imply endorsement by The State of Maine.

For an overview of the Maine Coastal Mapping Initiative (MCMI) information products, including maps, data, imagery, and reports visit <https://www.maine.gov/dmr/mcp/planning/mcmi/index.htm>.

Acknowledgements

The Maine Coastal Mapping Initiative would like to acknowledge the efforts of Hodgdon Vessel Services and the Maine Coastal Program, who contributed throughout the project duration and planning process prior to survey efforts. This project opportunity was made possible with funding through a 2018 Memorandum of Agreement between the Maine Coastal Program, within the Department of Marine Resources, and the Maine Bureau of Parks and Lands, within the Department of Agriculture, Conservation and Forestry.

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Introduction

Colonial Pemaquid State Historic Site (Pemaquid), a 24-acre publicly owned historic site located in New Harbor, Maine, is considered one of the most significant historic places in Maine. Pemaquid was placed on the National Register of Historic Places in 1969 (as "Pemaquid Restoration and Museum") and named a National Historic Landmark in 1993 (as "Pemaquid Archeological Site"). The area was a regional flashpoint in the late 17th-century and early 18th-century conflicts between English and French settlers, and between English settlers and the local Native American population. Shortly after her arrival from Bristol, England in August of 1635, the 250-ton galleon *Angel Gabriel* was wrecked in Pemaquid Harbor during a hurricane.

In October and November of 2018 the Maine Coastal Mapping Initiative (MCMCI), a division of the Maine Coastal Program (MCP), conducted hydrographic surveying in the vicinity of Pemaquid Harbor within the navigable waters of the Pemaquid River and John's Bay. Bathymetric (e.g. depth) and backscatter (e.g. seafloor substrate) data were collected using a multibeam echosounder (MBES). Analyses of these data provided the basis for a more specific investigation using underwater video recordings to examine the Pemaquid Harbor and Johns Bay in search of signs of the *Angel Gabriel* shipwreck and/or any other historic artifacts or structures that may be located on the seafloor within the focus area. The MCMCI has successfully located previously unmapped shipwrecks in the past. Notably, a large uncharted wreck was found approximately 9 nautical miles south of Pemaquid Point in July of 2017.

This investigation was performed at the request of the Maine Bureau of Parks and Lands (BPL). This project coincides with past efforts, as part of a similar agreement between MCP and Maine Submerged Lands Program (SLP), to locate submerged cables using MBES in Johns Bay during the summer of 2017. With the addition of the 2017 cable survey, which covered an area of 2.29 square miles, total MBES coverage in Johns Bay extends south to Birch Island, approximately 8 km (5 mi) downstream from Pemaquid Harbor (Figure 1).

This project also coincides with state efforts to update coastal data sets and increase high resolution bathymetric coverage for Maine's navigable waters and provides new data in the areas covered by National Oceanic and Atmospheric Administration (NOAA) nautical chart (e.g. coastal and harbor) 13293 in mid-coast Maine. These data were not collected nor processed specifically for navigational purposes, but are freely provided to NOAA for any use the agency deems appropriate.

The following report contains results related to the bathymetry and the characteristics and distribution of submerged objects identified in the Pemaquid River and Johns Bay in mid-coast Maine. A full descriptive report related to MBES survey data acquisition and data post-processing for MCMCI's entire 2018 survey season will be generated in the coming months.

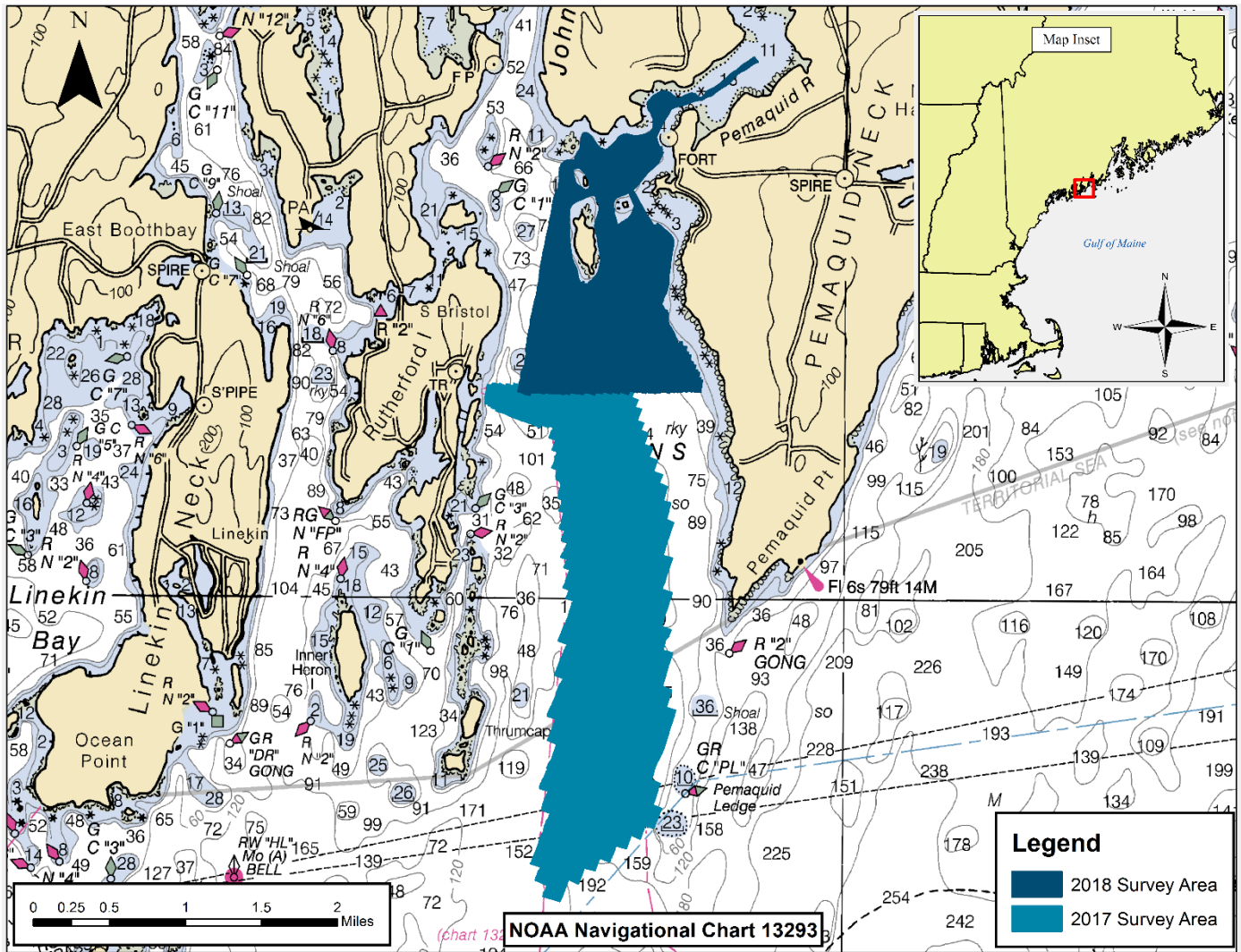


Figure 1. Map showing overall footprint of multibeam survey coverage for the 2017 (light blue polygon) and 2018 (dark blue polygon) seasons in the Pemaquid River and Johns Bay.

Purpose

This investigation was conducted to examine the Pemaquid Harbor and Johns Bay in search of signs of the *Angel Gabriel* shipwreck and/or any other historic artifacts or structures that may be located on the seafloor within the focus area. In theory, results from an investigation of this kind might facilitate future marine archaeology endeavors in the area and could lead to learning more about this nationally significant historic site and of early colonial life in the New World.

Focus Area

The focus area was in the navigable waters of the Pemaquid River and John’s Bay (Figure 1). Survey coverage within the Pemaquid River was between Pemaquid Harbor and approximately 0.8 miles upstream, and coverage within Johns Bay from Pemaquid Harbor to approximately 1.6 miles downstream.

Total survey coverage in 2018 was 1.29 square miles. This section of the Pemaquid River and Johns Bay is estuarine and has a mean tidal range of 3.16 m. Pemaquid Harbor is used both recreationally and commercially, with developments (e.g. docks, boat moorings) and ongoing activities (e.g. boat traffic, lobster fishing) also present.

Methods

A combination of data acquisition and processing techniques were employed to facilitate a high degree of confidence in the delineation of areas suspected to contain submerged objects. Bathymetric and backscatter data were collected using a MBES and provided the basis for this investigation. Based on a preliminary analysis of raw MBES data, specific sites containing the most prominent anomalies were selected for further investigations with an underwater video camera. Post-processing (e.g. data cleaning, tidal data corrections, etc.) and analysis of several forms of MBES data (e.g. bathymetry, backscatter) and subsequent review of video recordings were then used to delineate and characterize anomalies associated with suspected submerged objects. Summarized procedures for each portion of the investigation are provided in the following section.

Multibeam Echosounder Data Collection, Pre-processing and Video Target Selection

All data were collected aboard the R/V Amy Gale (length = 10.7 m, width = 3.81 m, draft = 0.93 m), contracted to the MCMI. MBES data were collected using a pole-mounted Kongsberg EM2040C outfitted with a motion reference unit (MRU; used for real-time corrections of vessel motion in three dimensions), surface sound speed probe (used to monitor changes of sound velocity in the water column at the sonar head), and dual GNSS antennas for navigation and positioning. The main cabin of the vessel served as the data collection center and was outfitted with three display monitors for real time visualization of data during acquisition. The real-time acquisition systems used aboard the R/V Amy Gale throughout the survey are outlined in Table 1 below. Data acquisition was performed using the Quality Positioning Services (QPS) Quality Integrated Navigation System (QINSy) acquisition software. The modules within QINSy integrated all systems and were used for real-time navigation, survey planning, data time tagging, data logging, and visualization during acquisition.

For most of the MBES survey, vessel track lines were pre-planned and run as a series of parallel lines along existing/known bathymetric contours. Whenever possible, lines were spaced at consistent intervals to obtain a minimum of 20% overlap between swaths. Surveying was conducted at approximately 4-6 knots but speed was reduced when necessary to avoid hazards or obstructions.

Sub-system	Components
Multibeam Sonar	Kongsberg EM2040C and processing unit
Position, Attitude, and Heading Sensor	Seapath 330 processing unit, HMI unit, dual GPS/GLONASS antennas, and MRU 5 motion reference unit
Data Acquisition and Display	QINSy software v.8.18 and 64-bit Windows 10 PC console
Surface Sound Velocity (SV) Probe	AML Micro X with SV Xchange
Sound Velocity Profiler (SVP)	Teledyne Odom Digibar S sound speed profiler
Ground-truthing Platform	GoPro Hero 3+ video camera, live feed camera, dive light, LCD monitor

Table 1. Data acquisition hardware and software used aboard the R/V Amy Gale.

Frequent changes in sound speed throughout the water column in the surveyed area were expected due to the considerable freshwater input upstream and pronounced tidal exchange. Thus, sound velocity profiles were taken frequently throughout the survey to ensure accurate depth soundings were recorded.

During the acquisition process, raw sonar files were recorded (WGS84, UTM Zone 19N meters) and bathymetric and backscatter data were gridded at 0.25-meter resolution, which enabled the real-time visualization of small-scale, low-relief features (e.g. bedforms, debris, etc.) on the river bottom. The locations of anomalous features (e.g. pronounced irregularities of suspected unnatural origin on the river bottom) were noted in real time for later review.

Once the MBES data acquisition process was complete the raw sonar files were imported in QPS' Qimera (v.1.7.2) software. Three-dimensional dynamic surfaces (0.5 and 1 meter) were created for enhanced visualization of the area's bathymetry. The data were then inspected and cleaned using the 3-D Editor tool to remove of erroneous soundings. The cleaned data were then reviewed to visualize anomalous features suspected to contain submerged object. The overall criteria utilized for interpreting the multiple types of survey data (in real time and in post-processing) for selecting anomalies as targets for further investigation relied on a combination of factors. These factors include the type of data being considered, survey conditions, the expected bottom types and features likely to be encountered (based on remote reconnaissance/existing charts and historical context of survey area), survey design parameters, local geology and geomorphology, and the scientific knowledge and practical experience of the surveyor/data analyst. The locations of the most prominent anomalies of suspected unnatural origin were selected as targets for further investigation using an underwater video camera rig.

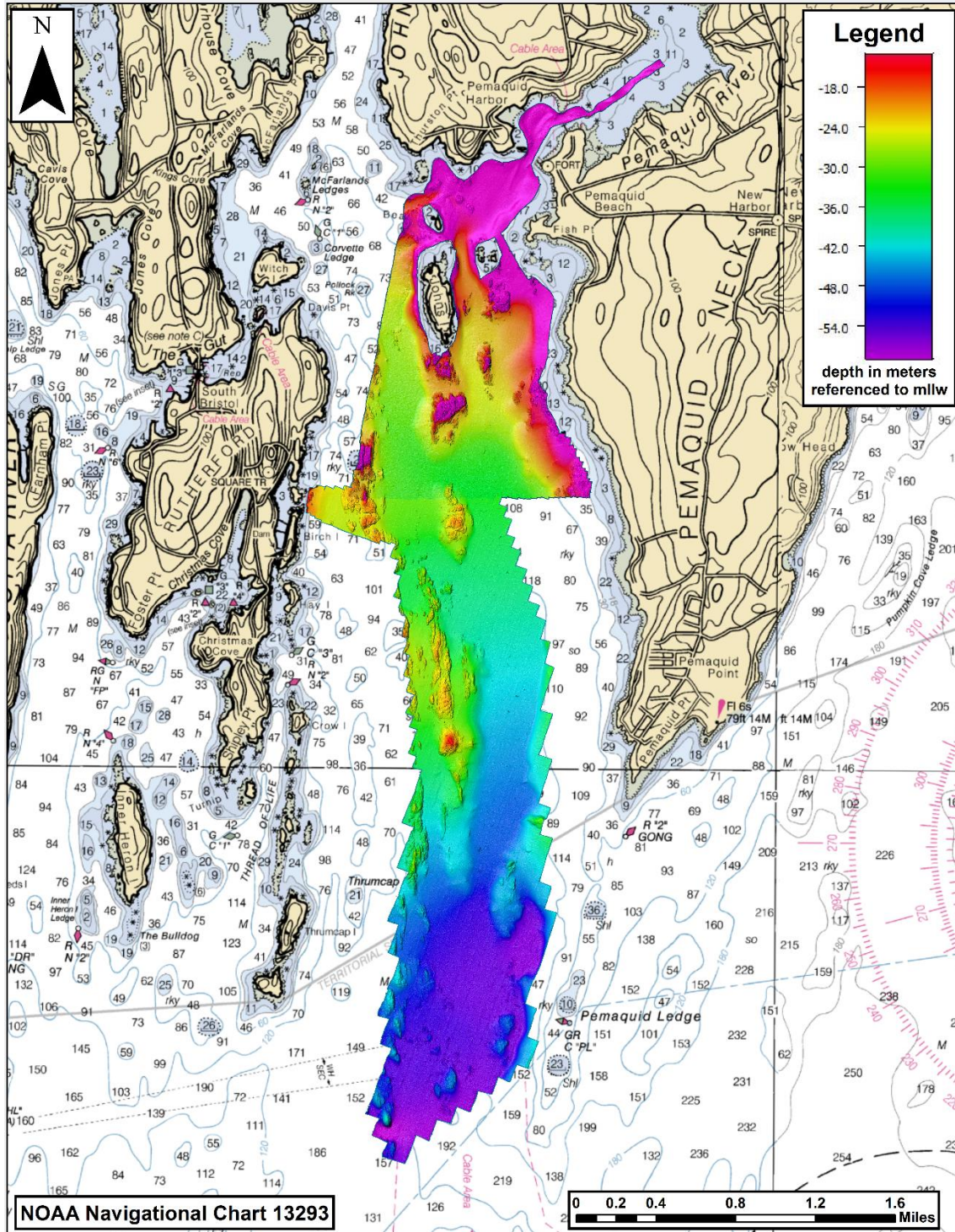


Figure 2. Map showing multibeam bathymetry data collected in 2017 and 2018 in the Pemaquid River and Johns Bay areas. Bathymetric surface gridded at 1-meter (2018 data) and 2-meter (2017 data) resolution with depths in meters referenced to mean lower low water. NOAA nautical chart 13293 (updated 3/2016) in background contains soundings (depths) in feet referenced to mean lower low water level (MLLW).

Targeted Anomaly Video Investigation Procedure

The objective of the video investigation was to obtain true imagery of anomalies suspected to be submerged objects. These videos served several purposes in this investigation. Firstly, the videos served to confirm the presence, or lack thereof, of any submerged objects in the targeted area. If a submerged object was present, the videos allowed MCMI personnel to infer and/or confirm the composition (e.g. wood, metal, etc.) of the submerged object to the best of their ability.

A total of 22 areas were identified as containing anomalies (Figure 3a, Appendix A). Of those 22 areas, 14 were selected for further investigation using the underwater video camera rig (Figure 3b, Appendix B). These areas were chosen because they contained distinct anomalies that presumably contained the highest likelihood of containing submerged objects. Use of the underwater camera rig to visualize the selected targets involved slowly towing the camera rig (at an approximate idle speed of ≤ 3.5 knots) over the plotted anomaly area, suspended slightly above or in contact with the river bed. When using this method, the camera rig was lowered from the starboard (right) side of the vessel (referred to as “dropping” the camera) and towed with the camera oriented facing the stern of the vessel and parallel to the vessel’s motion. Once the vessel left the area of the anomaly, the camera was reeled in and prepared to be dropped again. Depending on the size and nature of the anomaly, one to four drops were performed. All videos were downloaded after the investigation for later review.

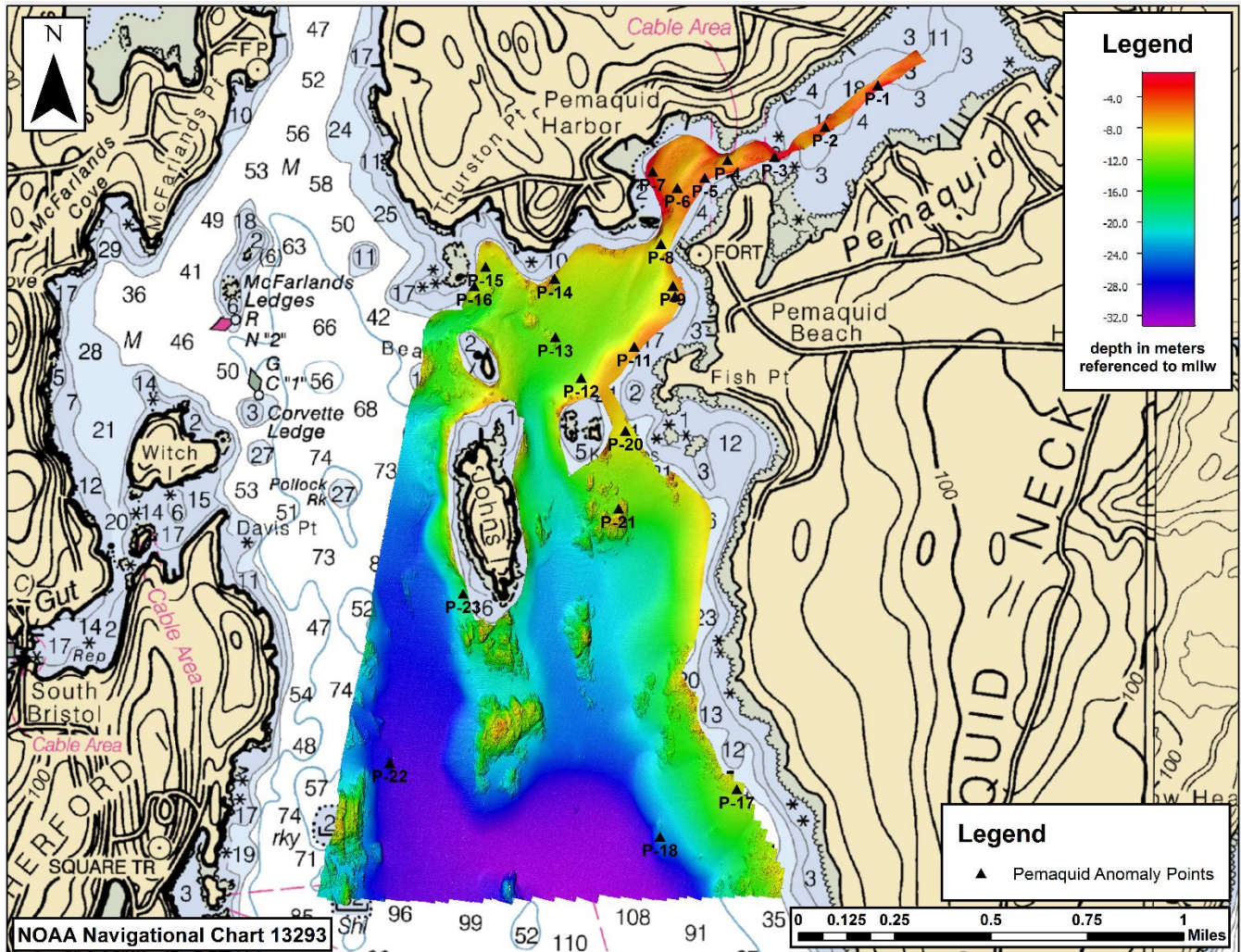


Figure 3a. Map showing locations and IDs of anomalies (black triangles). Bathymetric surface gridded at 1-meter resolution with depths in meters referenced to mean lower low water. NOAA nautical chart 13293 (updated 3/2016) in background contains soundings (depths) in feet referenced to mean lower low water level (MLLW). See Appendix A for anomaly attributes.

The video review process focused on identifying any and all submerged objects recorded by the camera. Once an object was visualized, a representative screengrab image was extracted from the video for illustration. A video time stamp and brief description were also recorded. The coordinates of anomalies identified in videos were then plotted in a geographic information system (GIS) with post-processed MBES data, which were used to further refine their respective locations, depths, etc. Annotated video screengrab imagery is attached in Appendix E. In the interest of being thorough, detailed descriptions of objects, substrate, marine animals, infauna, and any other unique parameter were also recorded. Detailed video logs are attached in Appendix C.

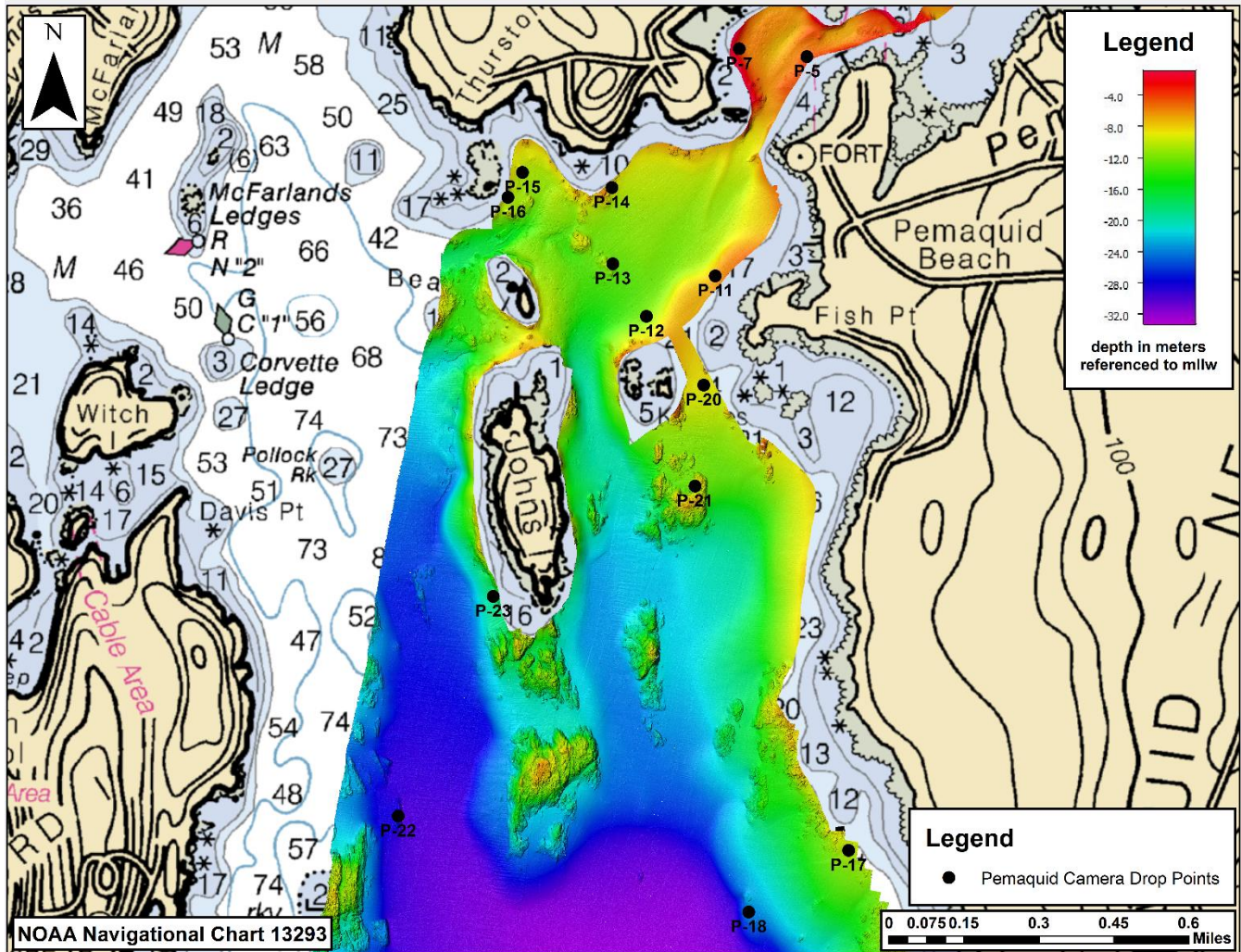


Figure 3b. Map showing locations and IDs of underwater camera drops (black circles). Bathymetric surface gridded at 1-meter resolution with depths in meters referenced to mean lower low water. NOAA nautical chart 13293 (updated 3/2016) in background contains soundings (depths) in feet referenced to mean lower low water level (MLLW). See Appendix B for camera drop location attributes.

Multibeam Echosounder Data Post-processing and Delineation of Anomalies

Following the conclusion of the survey and all video data collection, the bathymetric and backscatter data were further processed and analyzed using Qimera, Fledermaus, Fledermaus Geocoding Tool (FMGT), and QINSy software to refine delineation of anomalies identified in the videos as well as delineate anomalies throughout the survey area. All data were collected and processed in WGS 84 projected in UTM zone 19N (meters).

The first step in the bathymetric data post-processing was to apply tide data to the raw sonar files used to create the initial dynamic surface. Preliminary tide data (6-minute intervals) spanning the range of survey dates (October 15, 2018 – November 01, 2018) were downloaded from the NOAA Tides & Currents webpage for the Portland, ME station (ID: 8418150) referenced to mean lower-low water (MLLW, meters)

and integrated in to the surface created from the raw sonar files. Verified tide data was retrieved from the same NOAA webpage once it was made available. The resulting bathymetric surface was deemed acceptable and contained minimal artifacts in the data (e.g. tide corrections errors that cause lineation with slight height offsets on overlapping swaths parallel to adjacent survey lines). The surface was then inspected once more to clean the data of erroneous soundings. Care was taken to avoid removing seemingly erroneous soundings that may have in fact represented real objects. Once the final surface bathymetric surface was created it was exported as a surface object for visualization in Fledermaus and as a bathymetry attributed grid (.bag) file for visualization in GIS. In addition, general storage format (.gsf) files containing the backscatter data were exported for mosaicking in FMGT.

Results and Discussion

The combination of video and MBES data analysis resulted in the delineation of 22 anomaly areas suspected or confirmed to contain submerged objects (Figure 3a). These areas ranged in size from 2 m² to approximately 3,900 m², with a total combined area of 9,437 m². Depths in the focus area ranged from 0.94 m to 28.01 meters below MLLW.

Video recordings in 14 select areas (Figure 3b) confirmed the presence of submerged objects including ghost (i.e. abandoned/lost) lobster-fishing gear, an aluminum can, various lengths of rope, an eye bolt, and a large piling of unknown composition. Although the presence of submerged debris was confirmed in these areas, no evidence of a shipwreck was found during the course of the investigation.

Raw sonar files, digital video files from camera drops, processed .bag files, and .shp files containing anomaly attribute information will be provided in addition to this report. These items will be available upon request as well.

Conclusions

In October and November of 2018 the MCMI conducted hydrographic surveying within the navigable waters of the Pemaquid River and John's Bay. Survey coverage within the Pemaquid River was between Pemaquid Harbor and approximately 0.8 miles upstream, and coverage within Johns Bay from Pemaquid Harbor to approximately 1.6 miles downstream (Figure 1). Total survey coverage in 2018 was 1.29 square miles. 22 anomalies suspected or confirmed to contain submerged debris were delineated. Analyses of collected bathymetric (e.g. depth) and backscatter (e.g. seafloor substrate) data and review of 14 underwater video recordings confirmed the presence of submerged objects including ghost (i.e. abandoned/lost) lobster-fishing gear, an aluminum can, various lengths of rope, an eye bolt, and a large piling of unknown composition. Although the presence of submerged debris was confirmed in these areas, no evidence of a shipwreck was found during the investigation.

Appendix A - Anomaly Attribute Table

Anomaly ID	Anomaly Area (m²)	Depth (m)	Northing* (m)	Easting* (m)	Description
P-1	8	-3.04	4859079	458702	elongate/polygonal, small oblong feature with relatively low relief, suspected rock/rocky area
P-2	4	-3.32	4858905	458481	elliptical/round, small, suspected rock/rocky area
P-3	130	-1.70	4858780	458270	polygonal/irregular, massive, high relief, suspected rock
P-4	13	-5.60	4858767	458074	elliptical/round, small footprint with relatively high relief
P-5	≤ 2	-4.13	4858693	457979	irregular, suspected mooring
P-6	≤ 3	-5.80	4858651	457864	round, small, suspected mooring
P-7	9	-0.94	4858719	457761	round/cylindrical, suspected piling or wooden post, marked as black circle on ENC (electronic navigational chart)
P-8	≤ 2	-8.77	4858417	457795	round, small, suspected mooring
P-9	≤ 2	-6.98	4858242	457846	elliptical, small, suspected mooring

P-10	≤ 2	-6.80	4858198	457854	elliptical, small, suspected mooring
P-11	≤ 2	-6.15	4857988	457684	rectangular, small, suspected former mooring
P-12	4	-11.94	4857858	457462	elliptical, small, suspected rock/rocky area
P-13	230	-10.93	4858027	457354	elongate/polygonal, medium relief, suspected rocky area
P-14	70	-7.90	4858272	457351	polygonal/irregular, relatively low relief, suspected rocky area
P-15	1,005	-10.28	4858321	457063	elongate/polygonal, large footprint, low relief, suspected sand bar, surface area similar to Angel Gabriel
P-16	250	-8.89	4858241	457016	polygonal/irregular, medium relief, full extent of anomaly not surveyed due to shallow depths, suspected rocky area
P-17	150	-9.98	4856140	458113	elongate/irregular, low relief, suspected rocky area
P-18	3,900	-24.03	4855942	457792	Polygonal/irregular, very large footprint, low relief, suspected sand bar/rocky area
P-19**	---	---	---	---	---

P-20	132	-7.41	4857637	457647	Polygonal/round, high relief, feature highly contrasts with surrounding area, suspected rock
P-21	114	-10.29	4857312	457619	elongate/polygonal, medium relief, suspected rocky area
P-22	2625	-28.01	4856251	456663	Polygonal/elongate, very large footprint, low relief, suspected rocky area
P-23	780	-16.58	4856957	456969	polygonal/elongate, medium footprint, medium relief, multiple elongate NW-SE trending features parallel to main anomaly

* - Coordinates listed for centroid of each anomaly polygon (WGS84 UTM Zone 19N meters).

** - P-19 does not exist. This is due to an error in the naming convention which occurred in the field. IDs of true anomalies encountered are numbered from P-18 to P-20 and then continue normally.

Appendix B – Camera Drop Attribute Table

Anomaly ID	Anomaly Area (m²)	Depth (m)	Northing* (m)	Easting* (m)	Description/Object(s) Identified	Number of Drops
P-5	≤ 2	-4.13	4858693	457979	ghost lobster trap, unidentified cylindrical object	2
P-7	9	-0.94	4858719	457761	large piling with ropes possibly attached, woody debris nearby	2
P-11	≤ 2	-6.15	4857988	457684	active lobster trap and attached buoy line	2
P-12	4	-11.94	4857858	457462	ghost lobster trap vent, line, and wire	4
P-13	230	-10.93	4858027	457354	aluminum can, rope, lobster trap wire	2
P-14	70	-7.90	4858272	457351	none identified	2
P-15	1,005	-10.28	4858321	457063	ghost lobster trap and wire, braided rope and eye bolt	2
P-16	250	-8.89	4858241	457016	ghost lobster trap and line, rope	2
P-17	150	-9.98	4856140	458113	none identified	2
P-18	3,900	-24.03	4855942	457792	ghost lobster trap line	3
P-20	132	-7.41	4857637	457647	none identified	2
P-21	114	-10.29	4857312	457619	none identified	2
P-22	2625	-28.01	4856251	456663	rope	2
P-23	780	-16.58	4856957	456969	ghost lobster trap and line	4

* - Coordinates listed for centroid of each anomaly polygon (WGS84 UTM Zone 19N meters).

Appendix C – Detailed Camera Drop Video Logs

Review of the underwater video recordings resulted in the following notes. MCMI personnel took care to analyze the videos to a high degree of detail. However, the accuracy of these notes and their associated imagery is limited by many factors including turbidity of the water, camera resolution, vessel speed, ocean state (e.g. wind speed, wave period), ambient light, technical difficulties, etc.

Times shown (minutes:seconds) denote time elapsed from start of recording. Depth values represent depth from sea surface to seafloor in vicinity of anomaly, referenced to mean lower low water. Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters). See appendix E for imagery from these videos.

Site: P5

Camera Drop: 1

Date: 10/23/2018

Time recorded (EST): 12:00

File Name: P5_Drop_1.mp4

Depth (m): 4.13

Anomaly coordinates: 4858693 N / 457979 E

Video Notes: The seafloor appears to consist of poorly sorted coarse sand and gravel with shell hash. A ghost lobster trap is seen at 01:18, 01:43, and 02:34. Patches of sponge and brown algae are seen throughout the video. An anemone is seen at 02:01. A patch of larger rocks is seen at 02:05. Sand dollars are seen throughout the video.

Camera Drop: 2

Date: 10/23/2018

Time recorded (EST): Not recorded.

File Name: P5_Drop_2.mp4

Depth (m): 4.13

Anomaly coordinates: 4858693 N / 457979 E

Video Notes: The seafloor appears to consist of poorly sorted coarse sand and gravel with shell hash. A small, unidentified crab is seen at 00:34. A ghost trap is seen at 00:59. Patches of sponge and brown algae are seen throughout the video. Unidentified cylindrical object (<12in) is seen at 01:02.

Site: P7

Camera Drop: 1

Date: 10/23/2018

Time recorded (EST): 12:07

File Name: P7_Drops_1_and_2.mp4

Depth (m): 0.94

Anomaly coordinates: 4858719 N / 457761 E

Video Notes: The seafloor appears to consist of mud with some shell hash. Small, unidentified crab are seen at 00:13 and 00:17. Green crabs are seen at 00:19 and 00:42. The camera impacts a large piling at 01:01. Shell hash appears to be most abundant near the piling. The piling is weathered, covered in sponge and algae, and appears to have two ropes attached.

Camera Drop: 2

Date: 10/23/2018

Time recorded (EST): 12:10

File Name: P7_Drops_1_and_2.mp4

Depth (m): 0.94

Anomaly coordinates: 4858719 N / 457761 E

Video Notes: The seafloor appears to consist of shell hash and gravel. A large piling is seen at 03:18. Much woody debris with algae and sponges are seen near the piling. The seafloor appears to transition to mud as the camera moves away from the piling. Green crabs are seen at 03:56 and 04:05.

Site: P11

Camera Drop: 1

Date: 10/23/2018

Time recorded (EST): 11:03

File Name: P11_Drops_1_and_2.mp4

Depth (m): 6.15

Anomaly coordinates: 4857988 N / 457684 E

Video Notes: The seafloor appears to consist of mud coated with a thin layer of algae with minimal shell hash. A lobster trap is seen at 01:37. Small anemones are present throughout the video. The camera is entangled in a buoy line upon camera retrieval.

Camera Drop: 2

Date: 10/23/2018

Time recorded (EST): 11:09

File Name: P11_Drops_1_and_2.mp4

Depth (m): 6.15

Anomaly coordinates: 4857988 N / 457684 E

Video Notes: The seafloor appears to consist of mud coated with a thin layer of algae with some shell hash. A sand dollar may be seen at 06:06. *Cancer spp* are seen at 06:18, 06:25, 07:08, and 07:20. Anemones are seen throughout the video.

Site: P12

Camera Drop: 1

Date: 10/23/2018

Time recorded (EST): 10:45

File Name: P12_Drops_1_and_2.mp4

Depth (m): 11.94

Anomaly coordinates: 4857858 N / 457462 E

Video Notes: The seafloor appears to consist of mud with patches of algae coating the surface. Shell hash is dispersed among the sediment. Larger patches of macroalgae are seen throughout the video.

Camera Drop: 2

Date: 10/23/2018

Time recorded (EST): 10:49

File Name: P12_Drops_1_and_2.mp4

Depth (m): 11.94

Anomaly coordinates: 4857858 N / 457462 E

Video Notes: The seafloor appears to consist of mud with patches of algae coating the surface and minimal shell hash. A lobster trap vent is seen at 04:26.

Camera Drop: 3

Date: 10/23/2018

Time recorded (EST): Not recorded.

File Name: P12_Drops_3_and_4.mp4

Depth (m): 11.94

Anomaly coordinates: 4857858 N / 457462 E

Video Notes: The seafloor appears to consist of mud with much detritus.

Camera Drop: 4

Date: 10/23/2018

Time recorded (EST): Not recorded.

File Name: P12_Drops_3_and_4.mp4

Depth (m): 11.94

Anomaly coordinates: 4857858 N / 457462 E

Video Notes: The seafloor appears to consist of mud with much detritus with some shell hash and patches of algae. A lobster trap line is seen at 04:50. A lobster trap wire is seen at 04:54.

Site: P13

Camera Drop: 1

Date: 10/23/2018

Time recorded (EST): 12:18

File Name: P13_Drop1.mp4

Depth (m): 10.93

Anomaly coordinates: 4858027 N / 457354 E

Video Notes: The seafloor appears to consist of mud coated with a layer of algae with minimal shell hash. At 01:23, the seafloor consists of rocks with patches of yellow sponge and shell hash. The camera impacts with a rock at 01:32. A lobster in a rock crevice is seen at 02:16. *Cancer spp* are seen at 01:44, 02:10, 02:33, and 03:07. There are steep drop-offs at 02:37 and 03:10. An aluminum can and rope are seen at 03:31. Unidentified trails are seen at 03:46. Some patches of larger algae are seen throughout the video.

Camera Drop: 2

Date: 10/23/2018

Time recorded (EST): 12:25

File Name: P13_Drop_2.mp4

Depth (m): 10.93

Anomaly coordinates: 4858027 N / 457354 E

Video Notes: The seafloor appears to consist of mud coated with a layer of algae with minimal shell hash and debris. A large patch of algae is seen at 00:58. Yellow sponges on rocks are seen ~01:09. A lobster trap wire is seen at 01:25 *Cancer spp* are seen at 01:45, 02:58, 03:12, and 03:14. The seafloor becomes rocky with yellow sponge and shell hash ~01:52. There are steep drop-off at 02:33 and 02:58. An orange sponge is seen at 02:48. Rockweed algae is seen at 02:53. The seafloor becomes flat again ~03:28 with some debris prior to camera retrieval. Unidentified trails are seen at 03:45.

Site: P14

Camera Drop: 1

Date: 10/23/2018

Time recorded (EST): 12:38

File Name: P14_Drops_1_and_2.mp4

Depth (m): 7.90

Anomaly coordinates: 4858272 N / 457351 E

Video Notes: The seafloor appears to consist of mud with shell hash and layered with algae. *Cancer spp* are seen at 00:30, 00:56, 01:00, 01:33, and 01:34. The seafloor appears to transition to a single large rock at 00:59. There is a steep drop-off from the large rock at 01:04, after which the seafloor transitions to shell hash. The seafloor appears to transition to mud with shell hash and layered with algae prior to camera retrieval.

Camera Drop: 2

Date: 10/23/2018

Time recorded (EST): 12:42

File Name: P14_Drops_1_and_2.mp4

Depth (m): 7.90

Anomaly coordinates: 4858272 N / 457351 E

Video Notes: The seafloor appears to consist of large rocks with much shell hash that transitions to mud with some shell hash and little debris ~03:45. As the camera descends closer to the seafloor, patchy layers of algae can be seen. Rope is seen at 04:19.

Site: P15

Camera Drop: 1

Date: 10/23/2018

Time recorded (EST): 11:20

File Name: P15_Drop_1.mp4

Depth (m): 10.28

Anomaly coordinates: 4858321 N / 457063 E

Video Notes: The seafloor appears to consist of mud with layered algae. Wide, unidentified trails are seen in the sediment on camera descent. *Cancer spp* is seen at 02:23. Different sized trails are seen throughout the video. A lobster trap wire is seen at 02:44. A ghost trap is seen at 03:24. Anemones are seen throughout the video. The seafloor is mostly barren here.

Camera Drop: 2

Date: 10/23/2018

Time recorded (EST): Not recorded.

File Name: P15_Drop_2.mp4

Depth (m): 10.28

Anomaly coordinates: 4858321 N / 457063 E

Video Notes: The seafloor appears to consist of mud layered with crustose algae with few patches of larger algae. Braided rope connected to an eye bolt is seen at 00:58 *Cancer spp* are seen at 01:03, 02:07, and 02:27. Various, unidentified trails seen in the sediment throughout the video. Shell hash and debris are seen more frequently as the video progresses. A lobster trap wire is seen at 02:14. Possibly *Corallina* and *Ulva spp* are seen at 02:35. A yellow sponge is seen at 02:42.

Camera Drop: 3

Date: 10/23/2018

Time recorded (EST): Not recorded.

File Name: P15_Drop_3.mp4

Depth (m): 10.28

Anomaly coordinates: 4858321 N / 457063 E

Video Notes: The seafloor appears to consist of mud layered with crustose algae with few patches of larger algae. *Codium spp* may be seen at 00:49. A ghost trap with *Cancer spp* in it is seen at 01:34. Minimal

orange sponge seen throughout the video. Various sized, unidentified trails are seen in the sediment throughout the video. A lobster trap wire is seen at 02:32. *Cancer spp* are seen at 02:32, 03:04, and 03:47.

Site: P16

Camera Drop: 1

Date: 10/23/2018

Time recorded (EST): 11:43

File Name: P16_Drops_1_and_2.mp4

Depth (m): 8.89

Anomaly coordinates: 4858241 N / 457016 E

Video Notes: The dive light did not function in this video. The seafloor appears to consist of gravel, shell hash, and large rocks with patches of crustose algae throughout. Unidentified trails are seen throughout the video. *Cancer spp* are seen at 02:11 and 02:54. Rope is seen at 02:54. A lobster trap and line are seen at 03:02.

Camera Drop: 2

Date: 10/23/2018

Time recorded (EST): 11:50

File Name: P16_Drops_1_and_2.mp4

Depth (m): 8.89

Anomaly coordinates: 4858241 N / 457016 E

Video Notes: The seafloor appears to consist of mud layered with crustose algae. The seafloor transitions to gravel, shell hash, and large rocks ~06:46 and then to gravel and shell hash at 07:09. Some sponges are seen on the rocks throughout the video. Larger algae species are present as well. Unidentified trails in the sediment are seen near the end of the video. *Cancer spp* may be present at 07:41. Rope may be present at 08:23.

Site: P17

Camera Drop: 1

Date: 11/05/2018

Time recorded (EST): 08:40

File Name: P17_Drop_1.mp4

Depth (m): 9.98

Anomaly coordinates: 4856140 N / 458113 E

Video Notes: The seafloor appears to consist of gravel with some shell hash and patches of macroalgae. The camera path appears to follow along a rocky ridge.

Camera Drop: 2

Date: 11/05/2018

Time recorded (EST): 08:42

File Name: P17_Drop_2.mp4

Depth (m): 9.98

Anomaly coordinates: 4856140 N / 458113 E

Video Notes: The seafloor appears to consist of gravel with shell hash and patches of macroalgae. As the video progresses, the camera encounters uneven rock ledges with algae. The seafloor appears to transition to gravel and shell hash prior to camera retrieval.

Site: P18

Camera Drop: 1

Date: 11/05/2018

Time recorded (EST): 07:49

File Name: P18_Drop_1.mp4

Depth (m): 24.03

Anomaly coordinates: 4855942 N / 457792 E

Video Notes: The seafloor appears to be sand or mud with small rocks and shell hash scattered throughout along with few patches of macroalgae. *Cancer spp* is seen at 01:25. Some sponges are seen throughout the video. The seafloor appears to contain larger rocks and more shell hash as the video progresses. A lobster trap line is seen at 03:01. A lobster is seen at 03:30.

Camera Drop: 2

Date: 11/05/2018

Time recorded (EST): 08:02

File Name: P18_Drop_2.mp4

Depth (m): 24.03

Anomaly coordinates: 4855942 N / 457792 E

Video Notes: The seafloor appears to consist of sand or mud with small rocks and shell hash scattered throughout along with patches of macroalgae. A lobster is seen at 01:51. *Cancer spp* is seen at 02:46. The seafloor appears to be consistent throughout the video.

Camera Drop: 3

Date: 11/05/2018

Time recorded (EST): 08:10

File Name: P18_Drop_3.mp4

Depth (m): 24.03

Anomaly coordinates: 4855942 N / 457792 E

Video Notes: The seafloor appears to consist of sand or mud with small rocks and shell hash scattered throughout along with patches of sponges and macroalgae. One patch of large rocks is seen at 02:24. A large rock is seen at 02:30 with radial-branches algae. The seafloor transitions to gravel and large rocks ~02:53. Unidentified fish are seen at 03:35, 03:38, 03:42, 04:02, and 04:05. *Urticina spp* on rock is seen at 04:05.

Site: P20

Camera Drop: 1

Date: 11/05/2018

Time recorded (EST): 08:26

File Name: P20_Drop_1.mp4

Depth (m): 7.41

Anomaly coordinates: 4857637 N / 457647 E

Video Notes: The seafloor appears to consist of sand with some shell hash. The sediment has “ripples” of minimal rocks/shell hash. The seafloor transitions to a large rock covered in sediment and algae ~00:58. A crevice between two large rocks is seen at 01:08. A steep drop-off is seen at 01:14. The seafloor appears to transition to sand prior to camera retrieval.

Camera Drop: 2

Date: 11/05/2018

Time recorded (EST): 08:29

File Name: P20_Drop_2.mp4

Depth (m): 7.41

Anomaly coordinates: 4857637 N / 457647 E

Video Notes: The seafloor appears to consist of sand with some shell hash and macroalgae. The seafloor transitions to a large rock covered in sediment ~00:54. The rock has sponges and both crustose and larger (probably filamentous) algae on it. There is a steep crevice at 01:03. Possible anemone stalk seen at 01:20. The seafloor appears to transition to sand prior to camera retrieval.

Site: P21

Camera Drop: 1

Date: 11/05/2018

Time recorded (EST): 08:19

File Name: P21_Drop_1.mp4

Depth (m): 10.29

Anomaly coordinates: 4857312 N / 457619 E

Video Notes: The seafloor appears to consist of large rocks layered with algae with patches of gravel and shell hash between the rock ridges. Depth seems to vary dramatically between rock features. *Cancer spp* are seen at 01:30 and 02:00. Patches of larger algae are seen on large rocks.

Camera Drop: 2

Date: 11/05/2018

Time (EST): 08:22

File Name: P21_Drop_2.mp4

Depth (m): 10.29

Anomaly coordinates: 4857312 N / 457619 E

Video Notes: The seafloor appears to consist of uneven rocky terrain layered with algae. Minimal sponge seen on descent. *Cancer spp* are seen at 00:30 and 00:39. Patches of gravel and shell hash are seen throughout the video.

Site: P22

Camera Drop: 1

Date: 11/05/2018

Time recorded (EST): 08:56

File Name: P22_Drop_1.mp4

Depth (m): 28.01

Anomaly coordinates: 4856251 N / 456663 E

Video Notes: A unidentified fish swims away from camera at 00:47 prior to camera impact on the seafloor. The seafloor appears to consist of mud with some detritus scattered throughout. Unidentified trails are present on sediment surface. Possible burrows are seen at 01:17 and 02:18. There is a long, unidentified rectangular shape at 02:10. *Cancer spp* are seen at 02:22, 03:35, 03:40, and 04:45. Anemones are seen starting at 02:28. Rope is seen at 03:07. The seafloor appears to contain more shell hash ~03:07. Mussel shells are seen at 03:24 and 04:19. The seafloor becomes rocky ~03:24. The camera follows along a rock ridge at 03:58. A large yellow sponge is seen at 04:01, followed by more seen at 04:05. Unidentified fish are seen at 04:01 and 05:03. Anemones in the mud are first seen at 04:42. A lobster in a rock crevice is seen at 05:11. Two sea stars are seen on a rock at 05:41. *Urticina spp* is seen at 05:42.

Camera Drop: 2

Date: 11/05/2018

Time recorded (EST): 09:00

File Name: P20_Drop_2.mp4

Depth (m): 28.01

Anomaly coordinates: 4856251 N / 456663 E

Video Notes: A sand lance swims by the camera on descent at 01:21. The seafloor appears to consist of mud with minimal patches of algae or detritus scattered throughout. A possible burrow is seen at 01:23.

Site: P23

Camera Drop: 1

Date: 11/05/2018

Time recorded (EST): 09:08

File Name: P23_Drop_1.mp4

Depth (m): 16.58

Anomaly coordinates: 4856957 N / 456969 E

Video Notes: The seafloor appears to consist of gravel and shell hash with patches of macroalgae. The seafloor transitions to rocky terrain ~01:26. An unidentified fish is seen at 01:34. The dive light malfunctioned later in the video as the batteries are drained.

Camera Drop: 2

Date: 11/05/2018

Time recorded (EST): 09:13

File Name: P23_Drop_2.mp4

Depth (m): 16.58

Anomaly coordinates: 4856957 N / 456969 E

Video Notes: The dive light malfunctioned later in the video as the batteries are drained. The seafloor appears to consist of large rocks and gravel/shell hash with patches of macroalgae. A lobster trap and its line are seen at 00:49.

Camera Drop: 3

Date: 11/05/2018

Time recorded (EST): 09:18

File Name: P23_Drop_3.mp4

Depth (m): 16.58

Anomaly coordinates: 4856957 N / 456969 E

Video Notes: The camera nearly impacts large rock on descent. The seafloor appears to consist of large rocks and gravel/shell hash with patches of macroalgae. Unidentified fish are seen at 00:48 and 01:00. Unidentified trails in the sediment are seen throughout the video.

Camera Drop: 4

Date: 11/05/2018

Time recorded (EST): 09:23

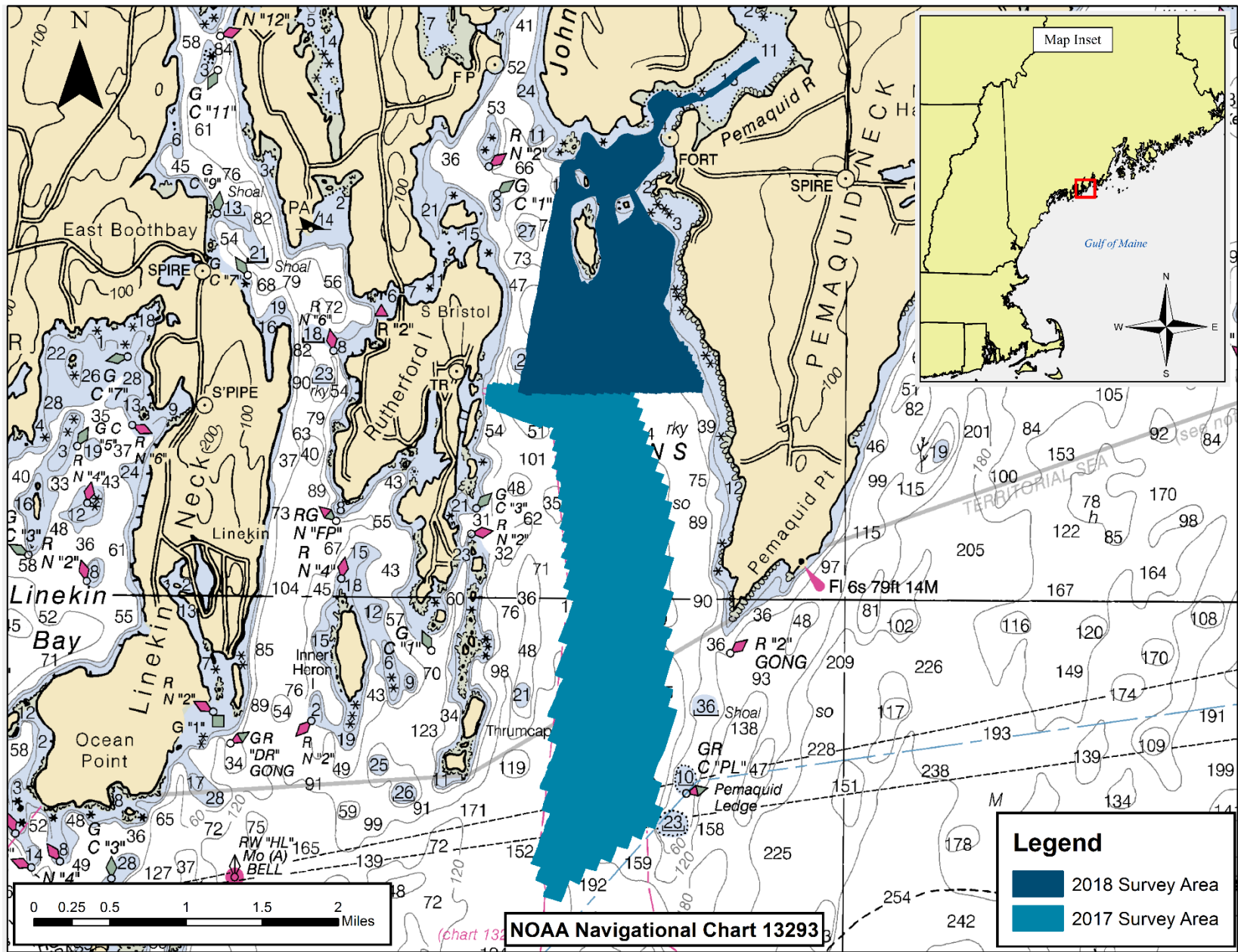
File Name: P23_Drop_4.mp4

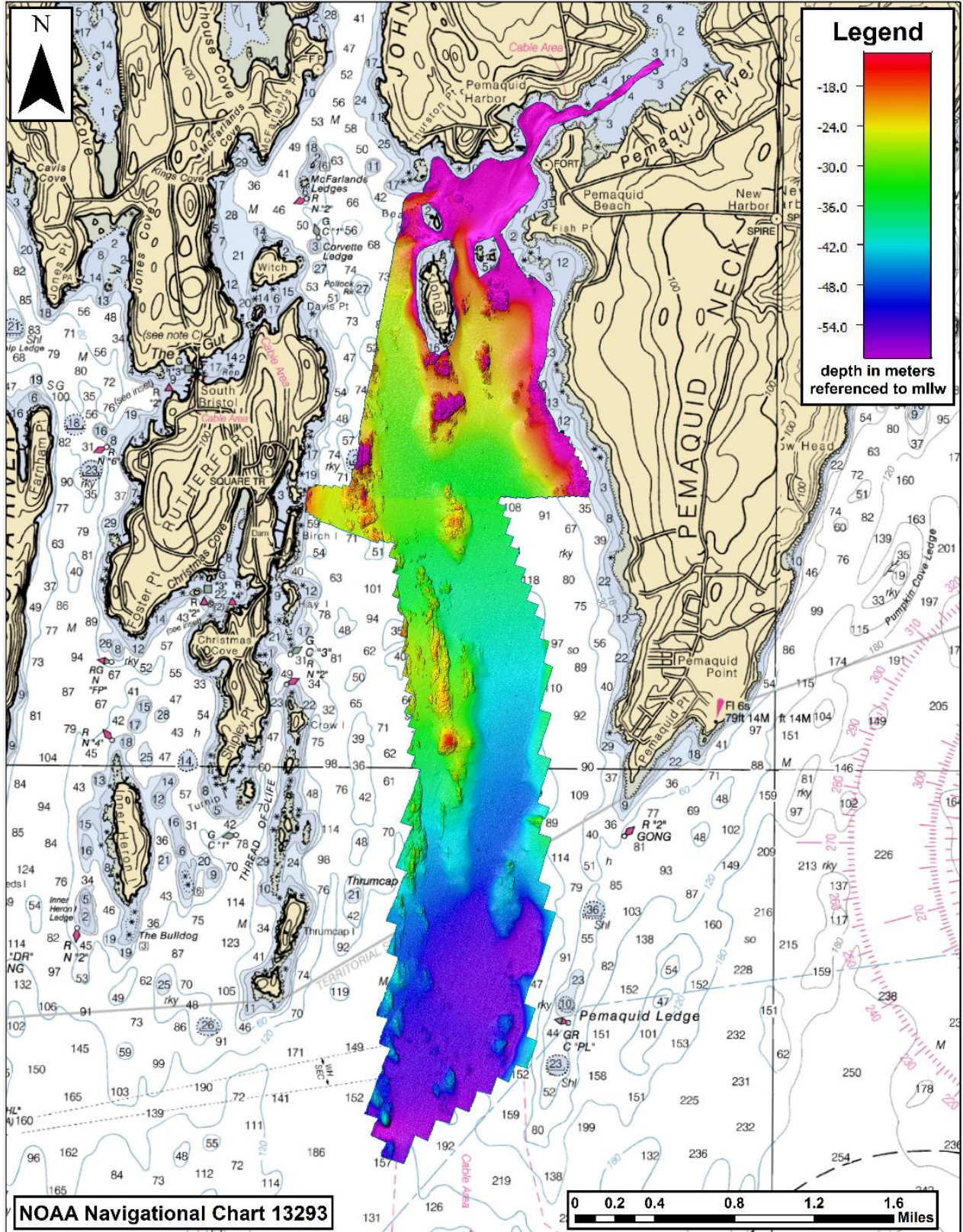
Depth (m): 16.58

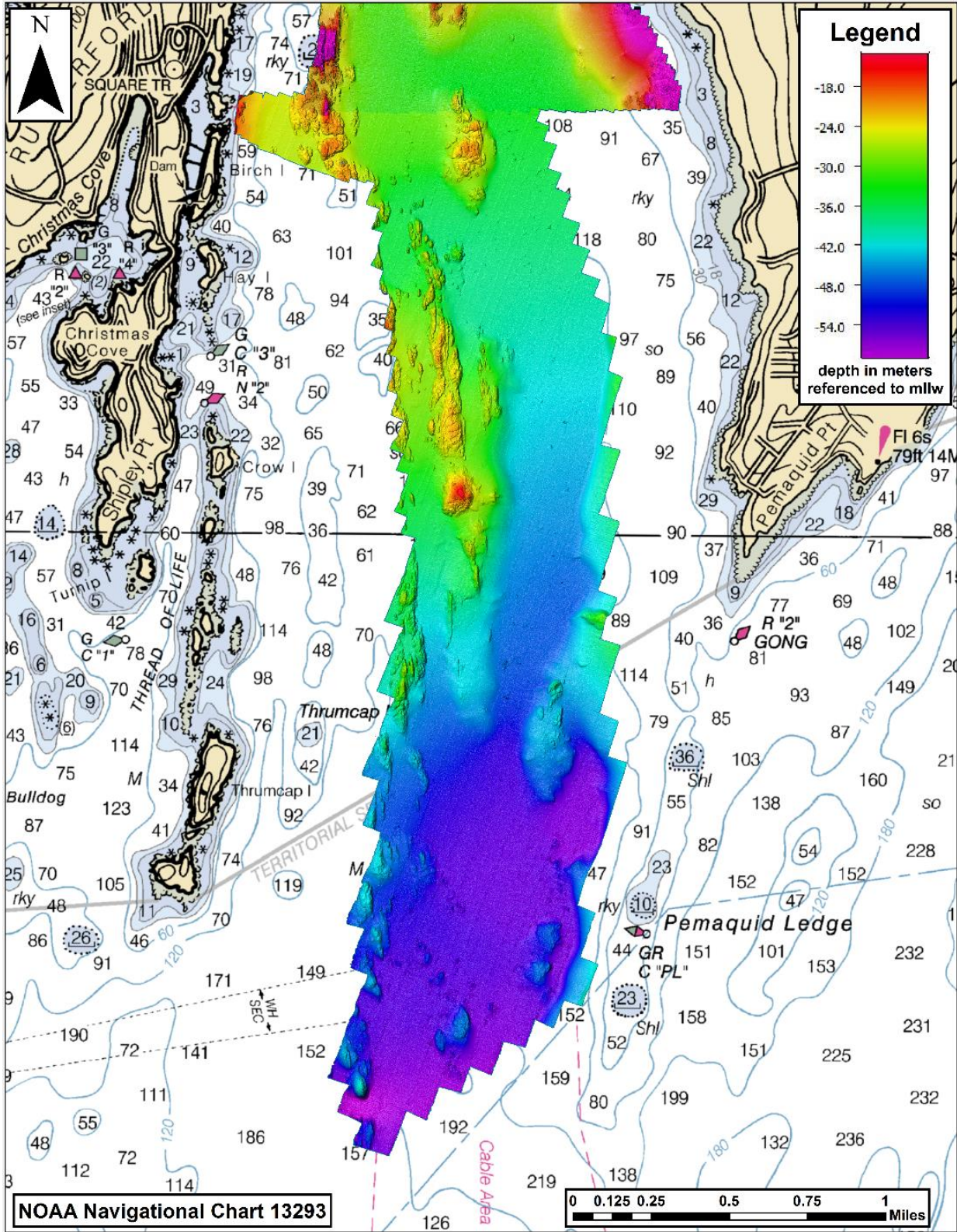
Anomaly coordinates: 4856957 N / 456969 E

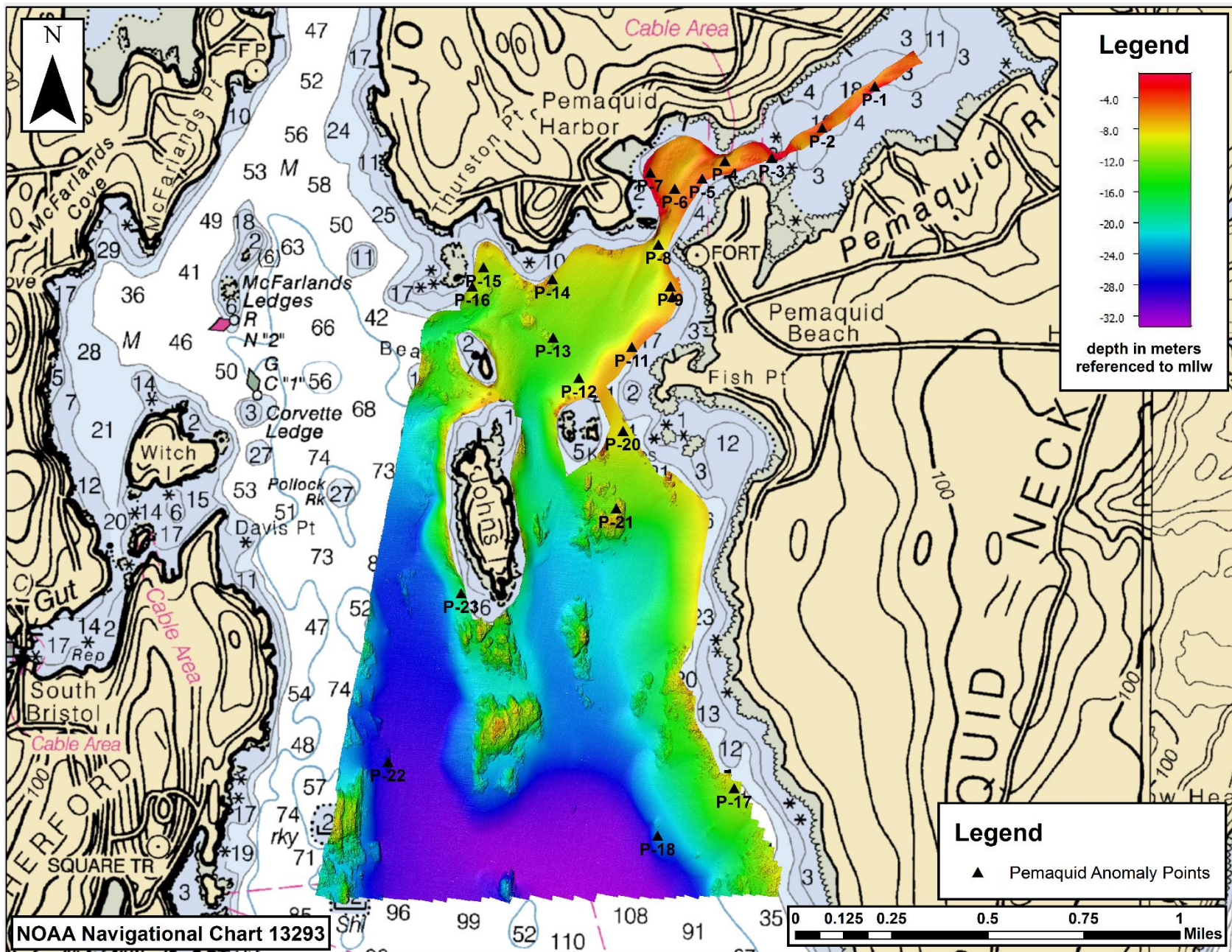
Video Notes: The seafloor appears to consist of gravel and shell hash with patches of macroalgae. The camera follows along a rock ridge as the video progresses. Unidentified fish are seen at 01:38, 01:39, 01:53, 02:04, and 02:08. A larger fish species is seen at 01:39. Sponges are seen along a rock ridge. There is a clear image of rockweed and sediment ~02:06 prior to the camera retrieval.

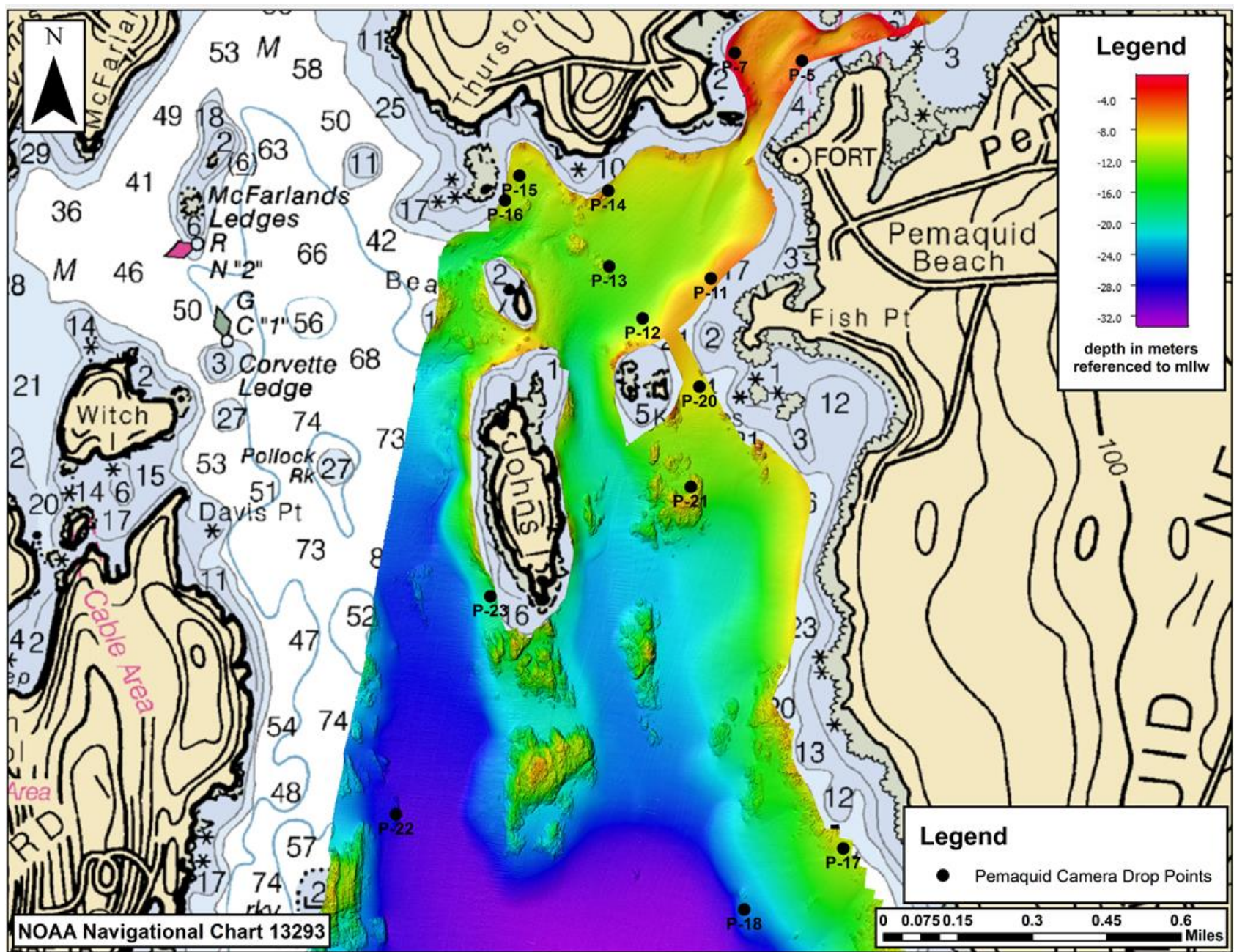
Appendix D – Overview Maps and Select Anomaly Illustrations

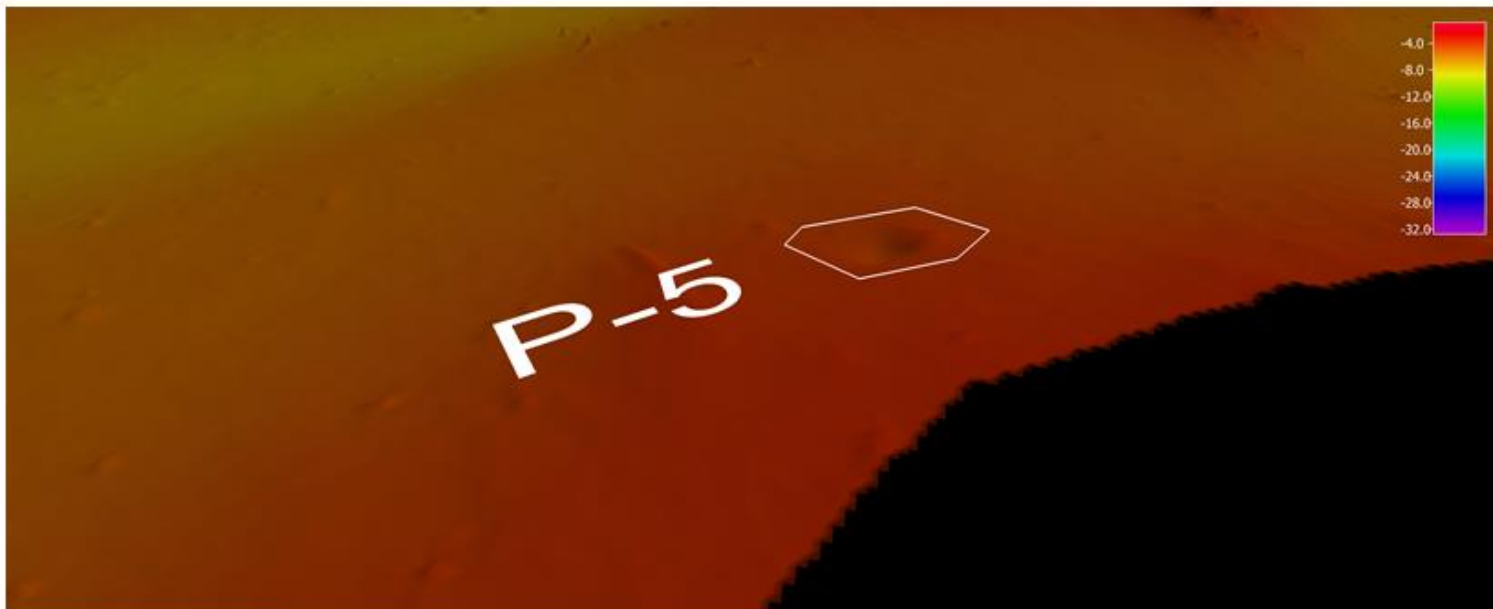










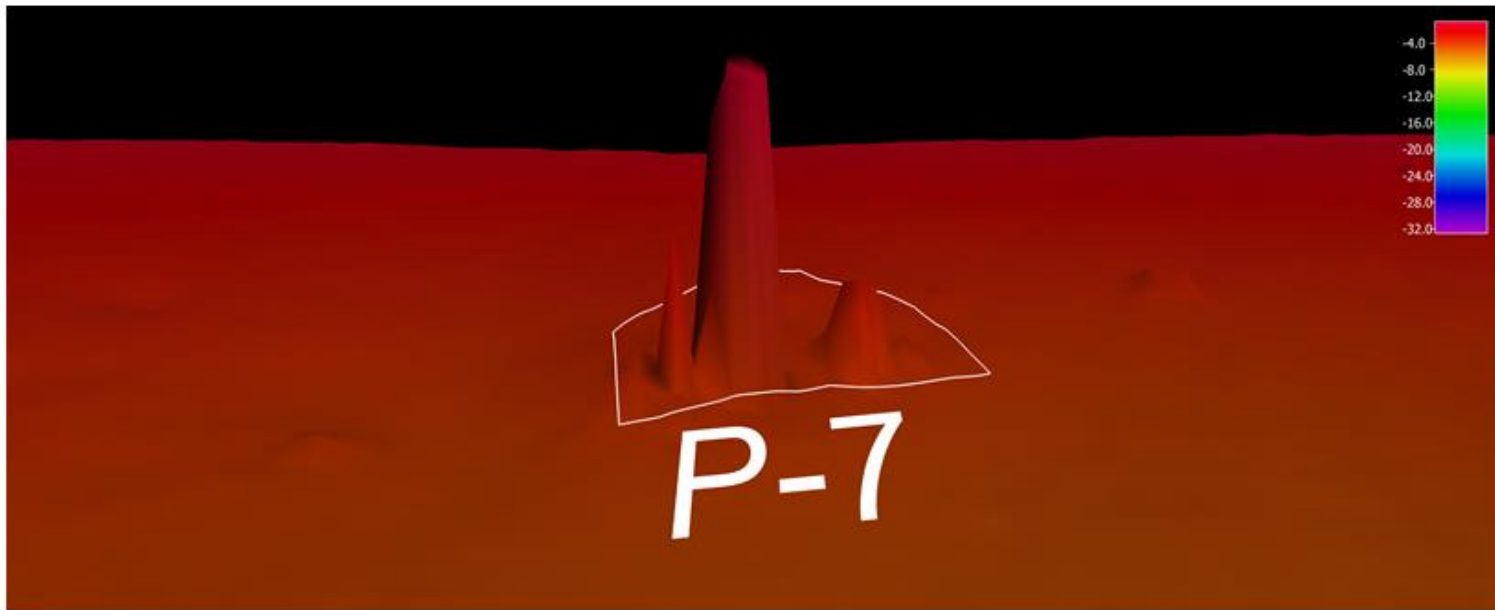


V.E. = 3x

Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).




Anomaly ID	P5
Northing / Easting (m):	4858693 N / 457979 E
Depth (m):	4.13
Perspective:	View towards northwest
Anomaly Description:	irregular, suspected mooring



V.E. = 3x


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

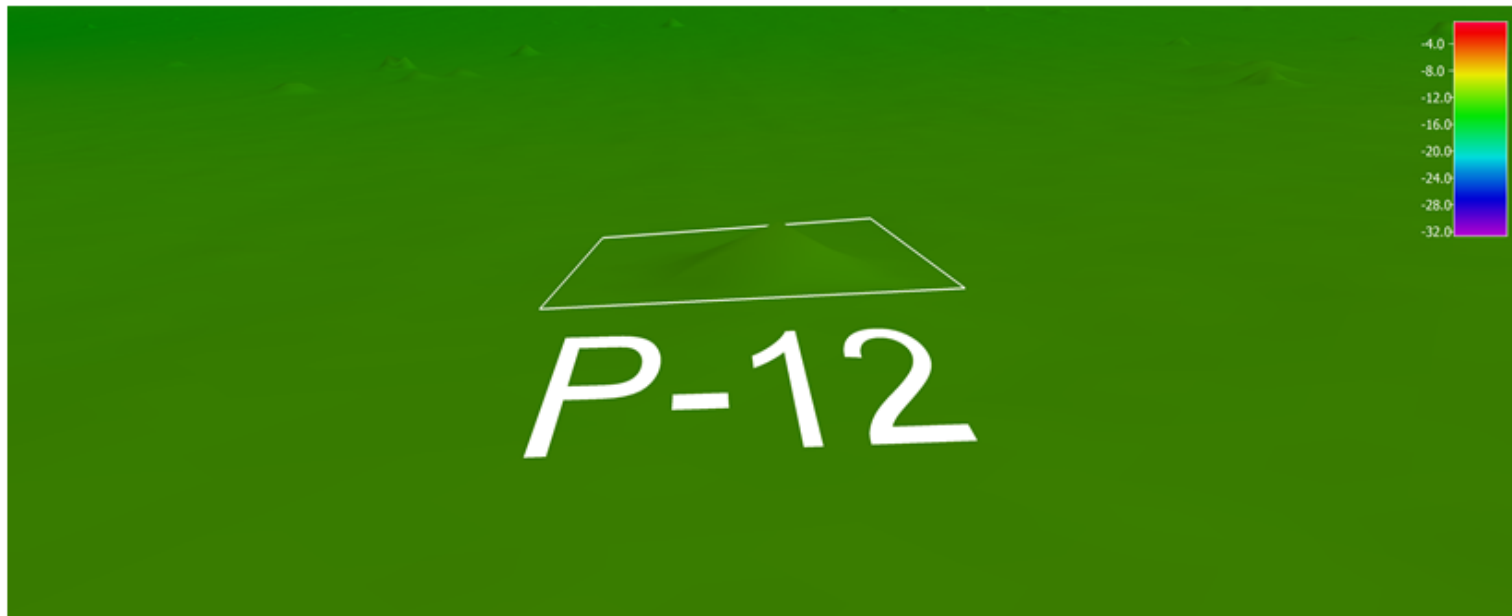
	Anomaly ID	P7
	Northing / Easting (m):	4858719 N / 457761 E
	Depth (m):	0.94
	Perspective:	View towards southwest
	Anomaly Description:	round/cylindrical, suspected piling or wooden post, marked as black circle on ENC (electronic navigational chart)



V.E. = 3x


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

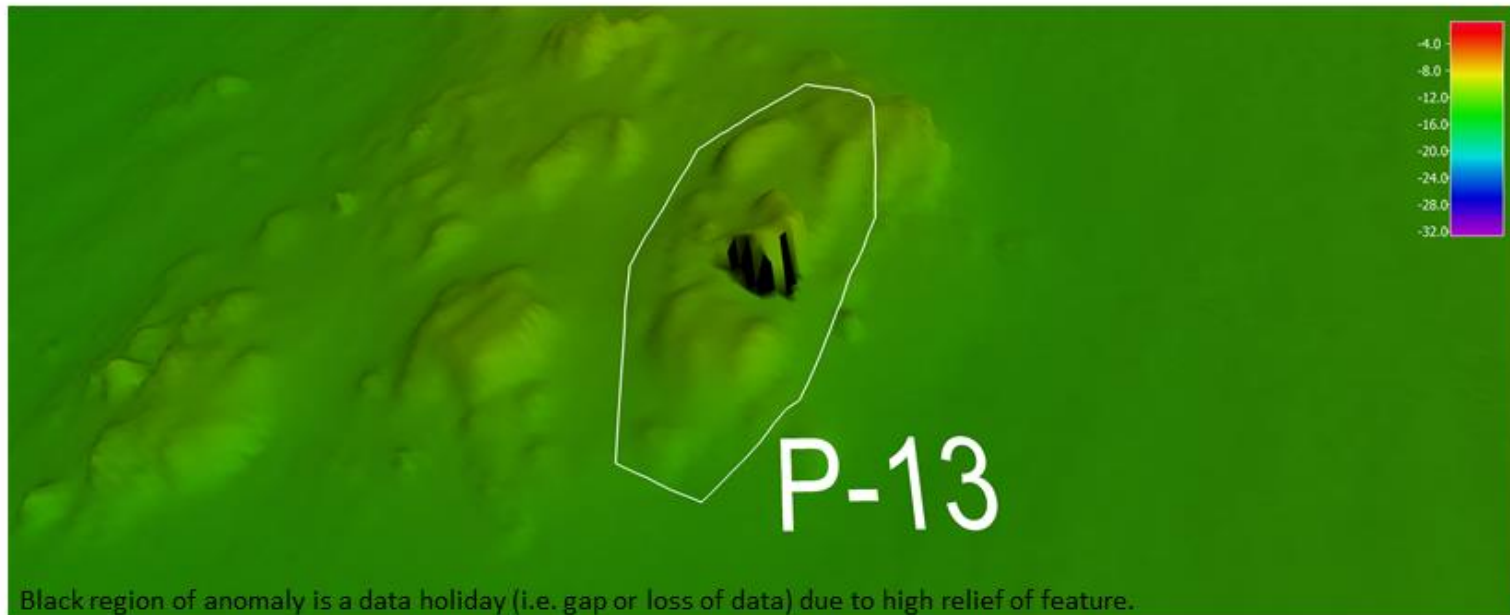
	Anomaly ID	P11
	Northing / Easting (m):	4857988 N / 457684 E
	Depth (m):	6.15
	Perspective:	View towards northwest
	Anomaly Description:	rectangular, small, suspected former mooring



V.E. = 3x


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

	Anomaly ID	P12
	Northing / Easting (m):	4857858 N / 457462 E
	Depth (m):	11.94
	Perspective:	View towards northwest
	Anomaly Description:	elliptical, small, suspected rock/rocky area



V.E. = 3x


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

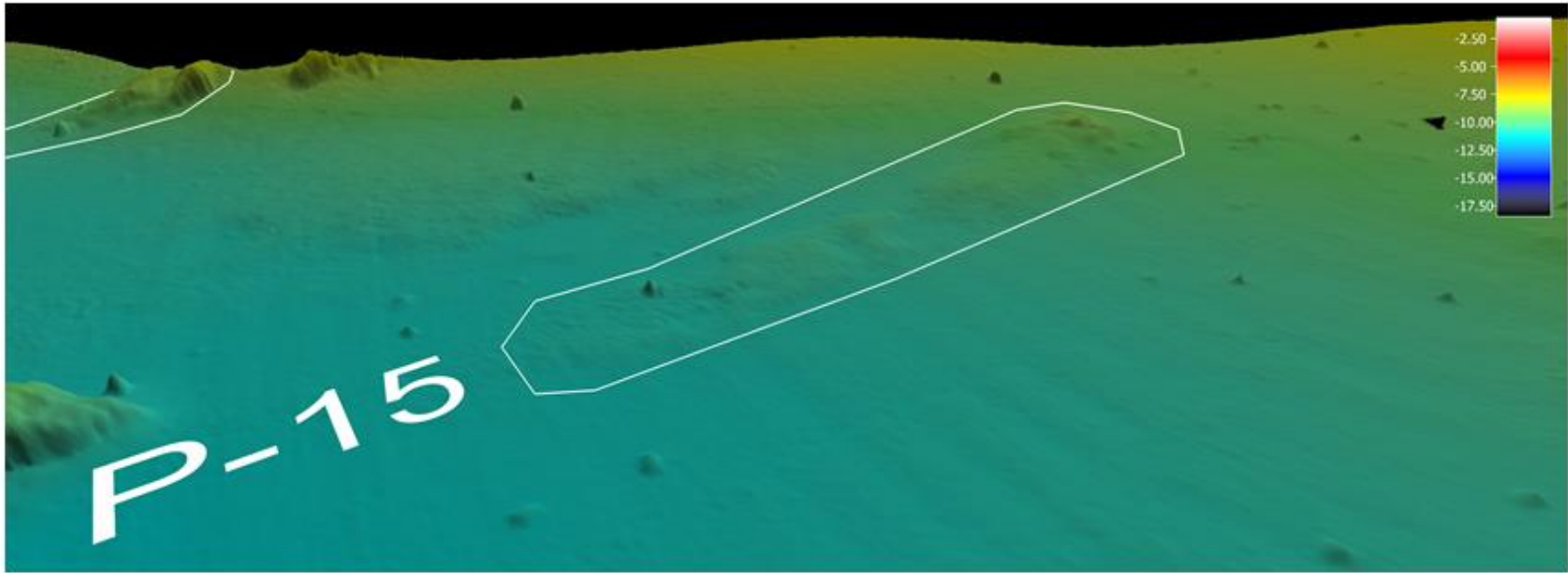
	Anomaly ID	P13
	Northing / Easting (m):	4858027 N / 457354 E
	Depth (m):	10.93
	Perspective:	View towards west
	Anomaly Description:	elongate/polygonal, medium relief, suspected rocky area



V.E. = 3x


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

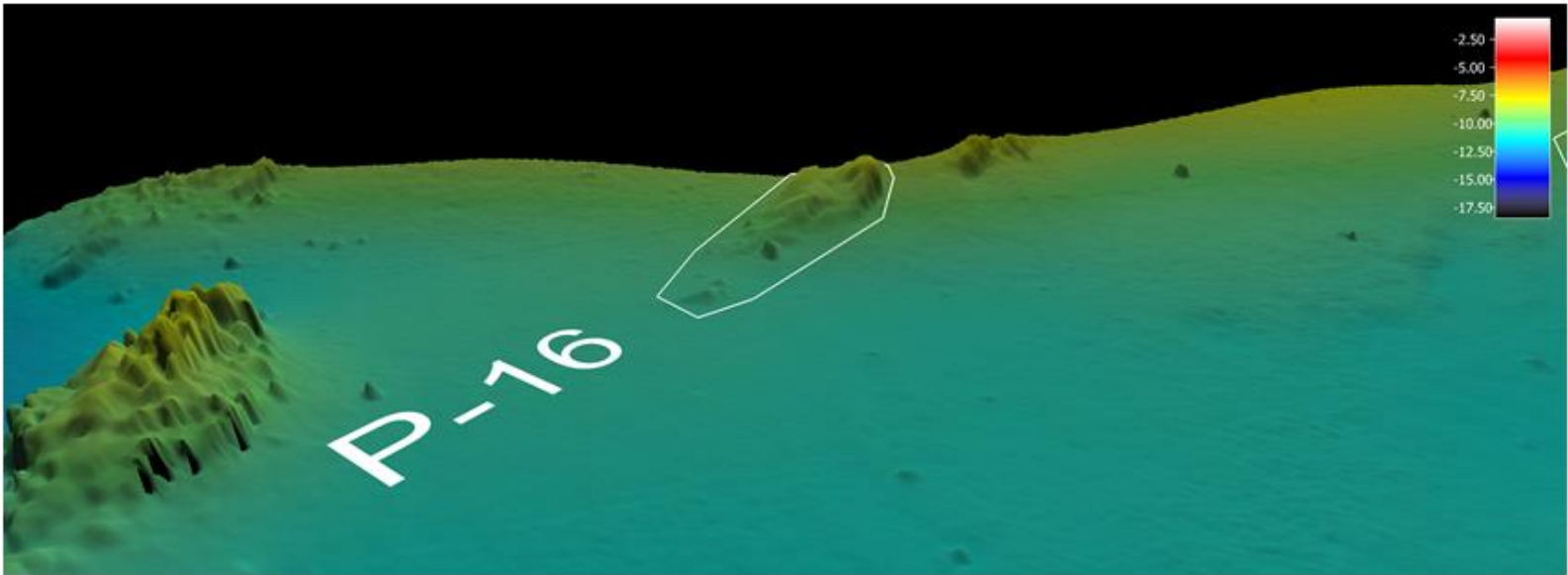
	Anomaly ID	P14
	Northing / Easting (m):	4858272 N / 457351 E
	Depth (m):	7.90
	Perspective:	View towards southeast
	Anomaly Description:	polygonal/irregular, relatively low relief, suspected rocky area



V.E. = 3x


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

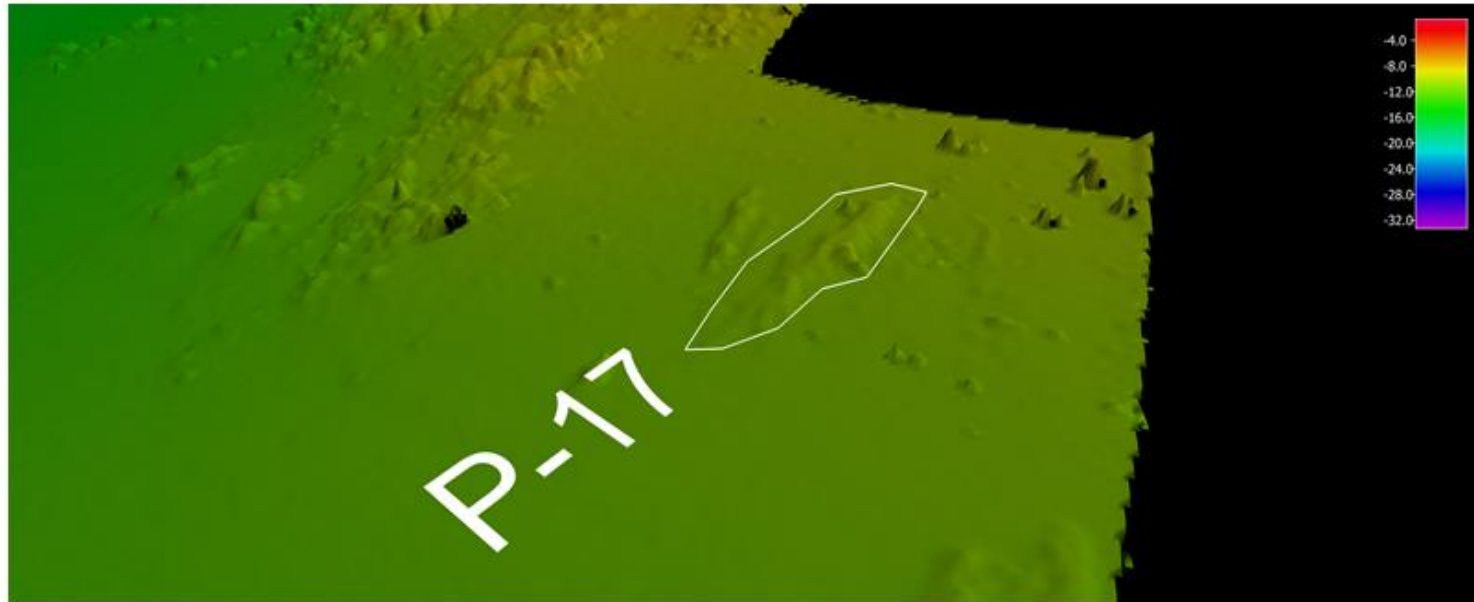
	Anomaly ID	P15
	Northing / Easting (m):	4858321 N / 457063 E
	Depth (m):	10.28
	Perspective:	View towards southwest
	Anomaly Description:	elongate/polygonal, large footprint, low relief, suspected sand bar, surface area similar to Angel Gabriel



V.E. = 3x


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

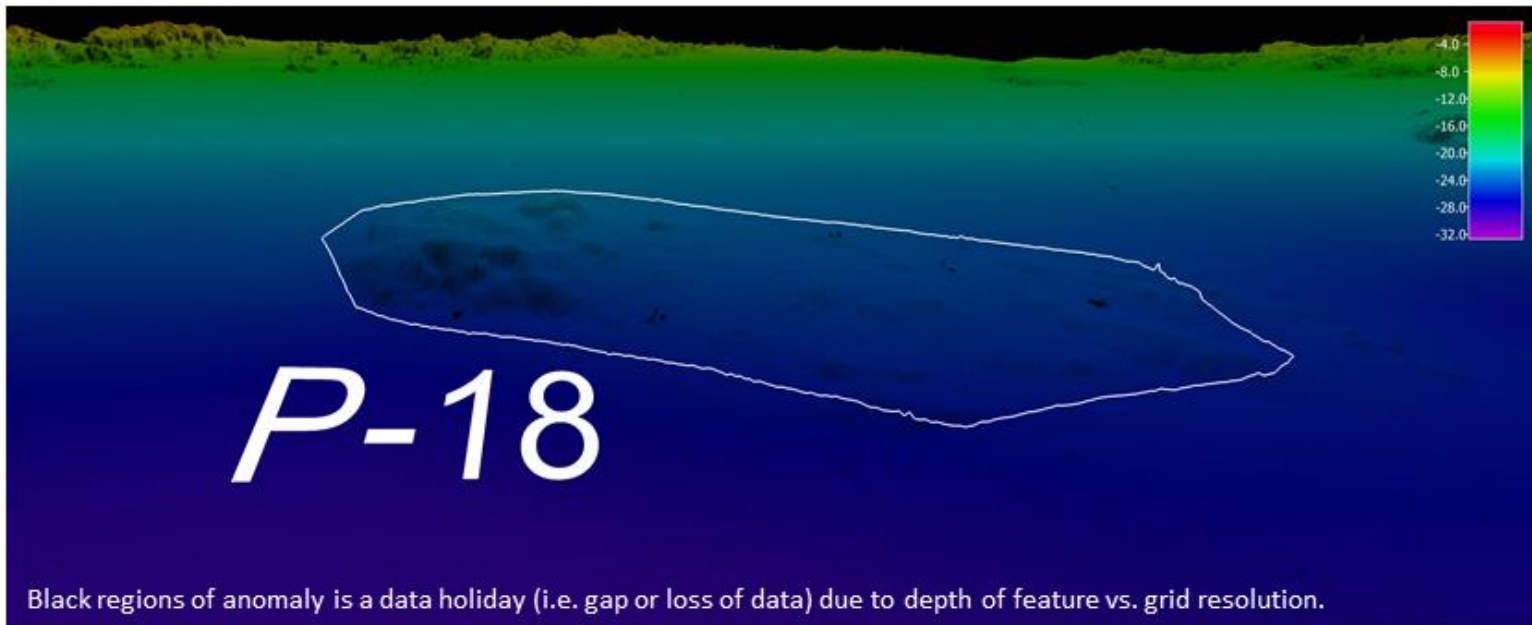
	Anomaly ID	P16
	Northing / Easting (m):	4858321 N / 457063 E
	Depth (m):	8.89
	Perspective:	View towards northwest
	Anomaly Description:	polygonal/irregular, medium relief, full extent of anomaly not surveyed due to shallow depths, suspected rocky area



V.E. = 3x

Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

	Anomaly ID	P17
	Northing / Easting (m):	4856140 N / 458113 E
	Depth (m):	9.98
	Perspective:	View towards north
	Anomaly Description:	elongate/irregular, low relief, suspected rocky area

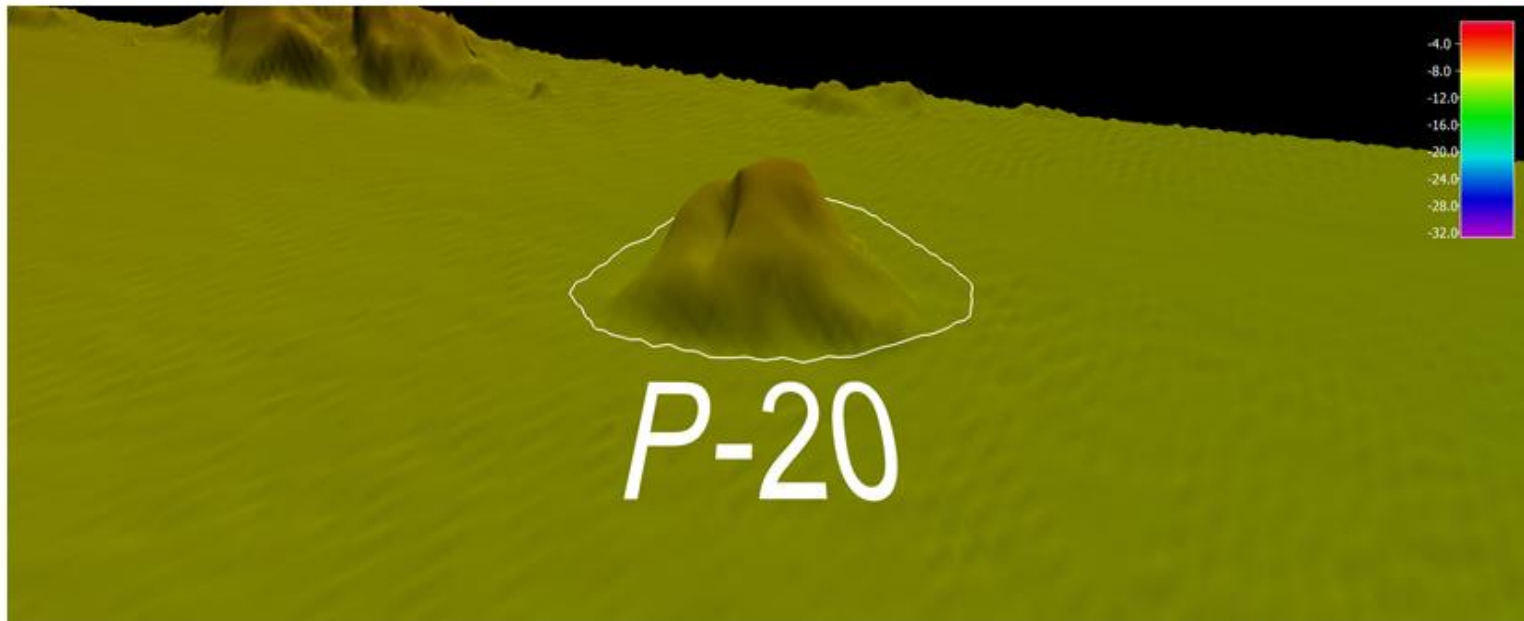


V.E. = 3x

Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).




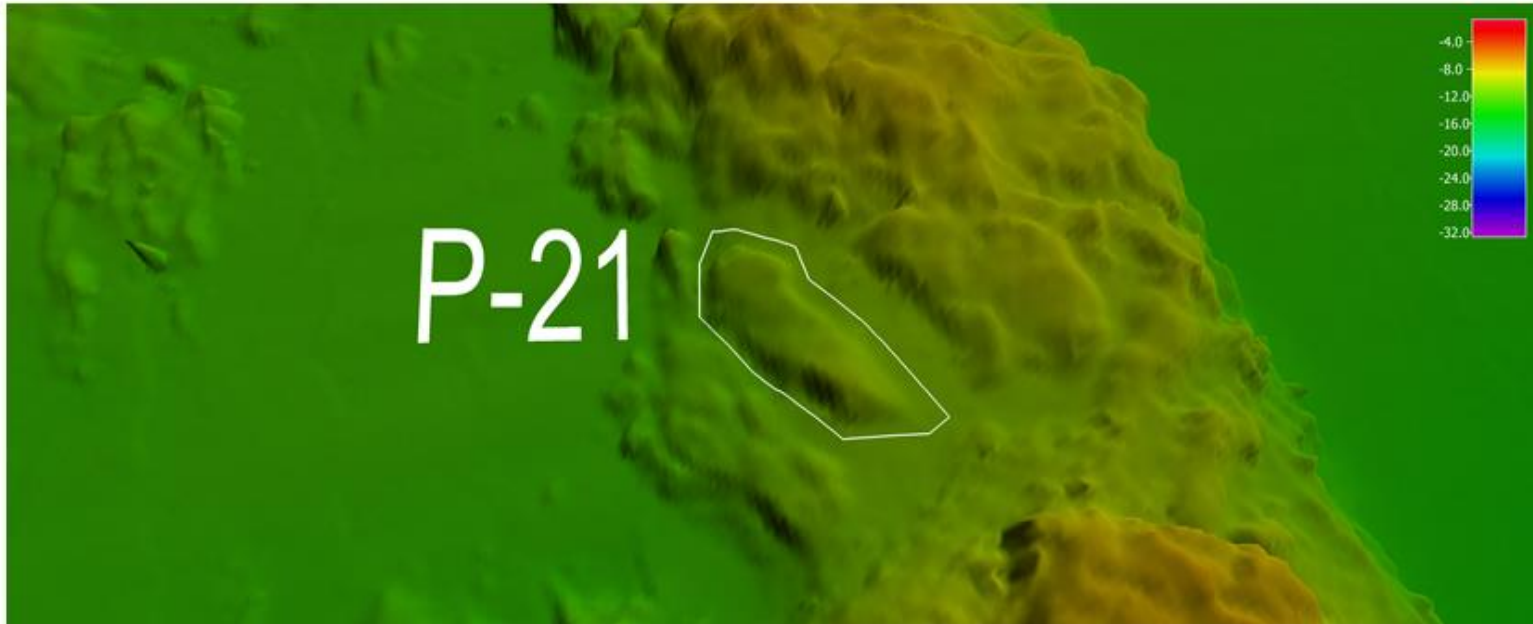
Anomaly ID	P-18
Northing / Easting (m):	4855942 N / 457792 E
Depth (m):	24.03
Perspective:	View towards east
Anomaly Description:	Polygonal/irregular, very large footprint, low relief, suspected sand bar/rocky area



V.E. = 3x


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

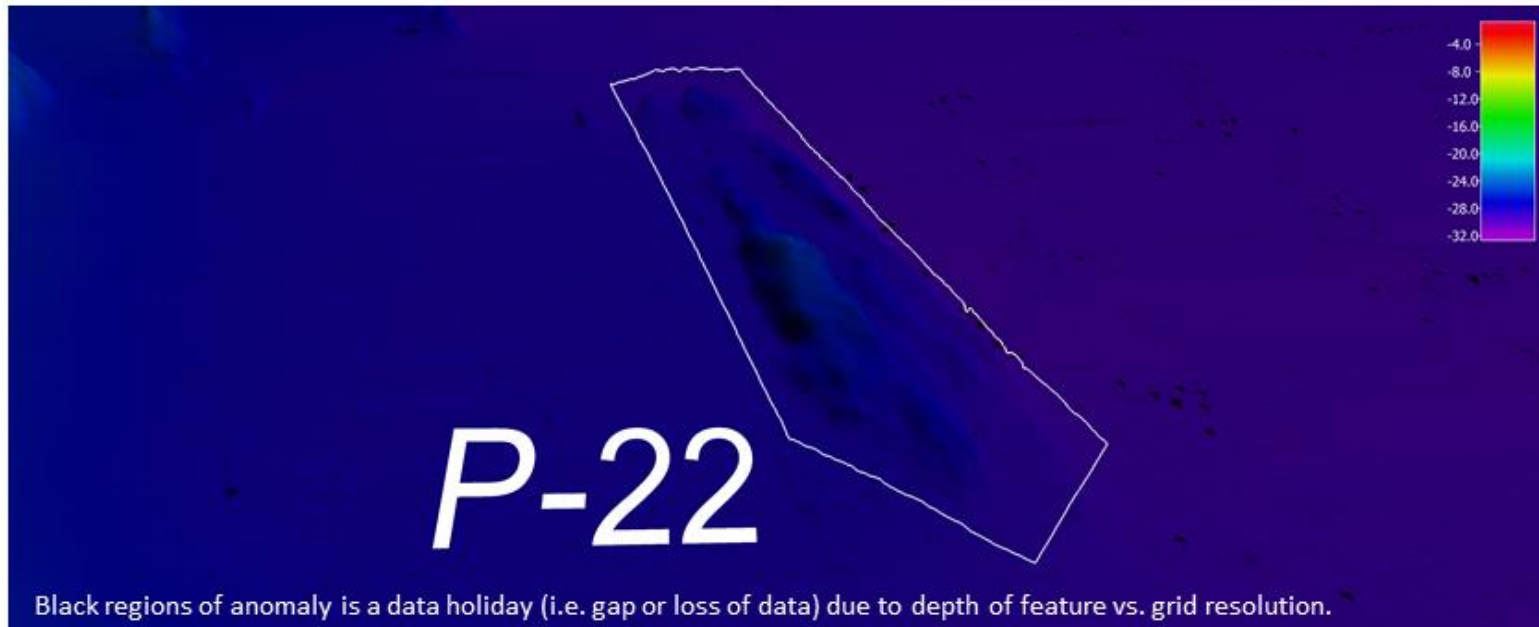
	Anomaly ID	P-20
	Northing / Easting (m):	4857637 N / 457647 E
	Depth (m):	7.41
	Perspective:	View towards northeast
	Anomaly Description:	Polygonal/round, high relief, feature highly contrasts with surrounding area, suspected rock



V.E. = 3x


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

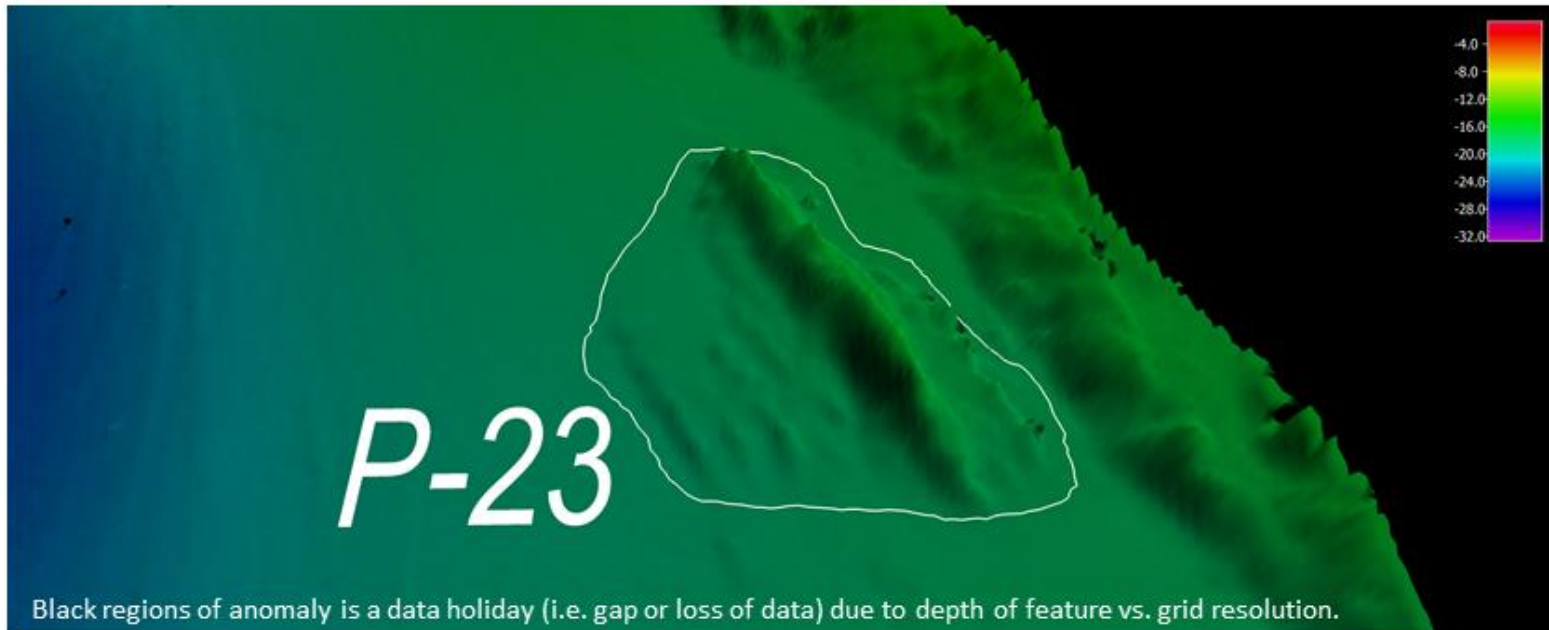
	Anomaly ID	P-21
	Northing / Easting (m):	4857312 N / 457619 E
	Depth (m):	10.29
	Perspective:	View towards north
	Anomaly Description:	elongate/polygonal, medium relief, suspected rocky area



V.E. = 3x


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

	Anomaly ID	P-22
	Northing / Easting (m):	4856251 N / 456663 E
	Depth (m):	28.01
	Perspective:	View towards northeast
	Anomaly Description:	Polygonal/elongate, very large footprint, low relief, suspected rocky area

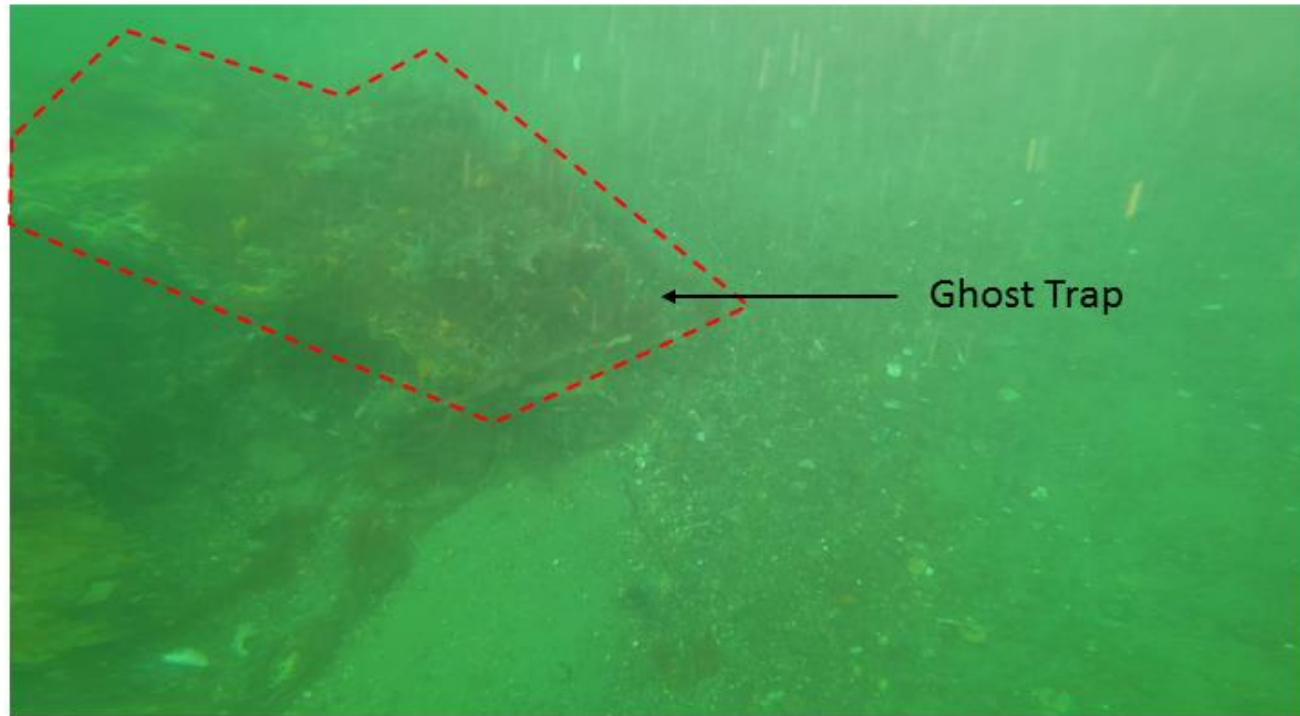


V.E. = 3x


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

	Anomaly ID	P-23
	Northing / Easting (m):	4856957 N / 456969 E
	Depth (m):	16.58
	Perspective:	View towards north
	Anomaly Description:	polygonal/elongate, medium footprint, medium relief, multiple elongate NW-SE trending features parallel to main anomaly

Appendix E – Underwater Video Imagery Screengrabs

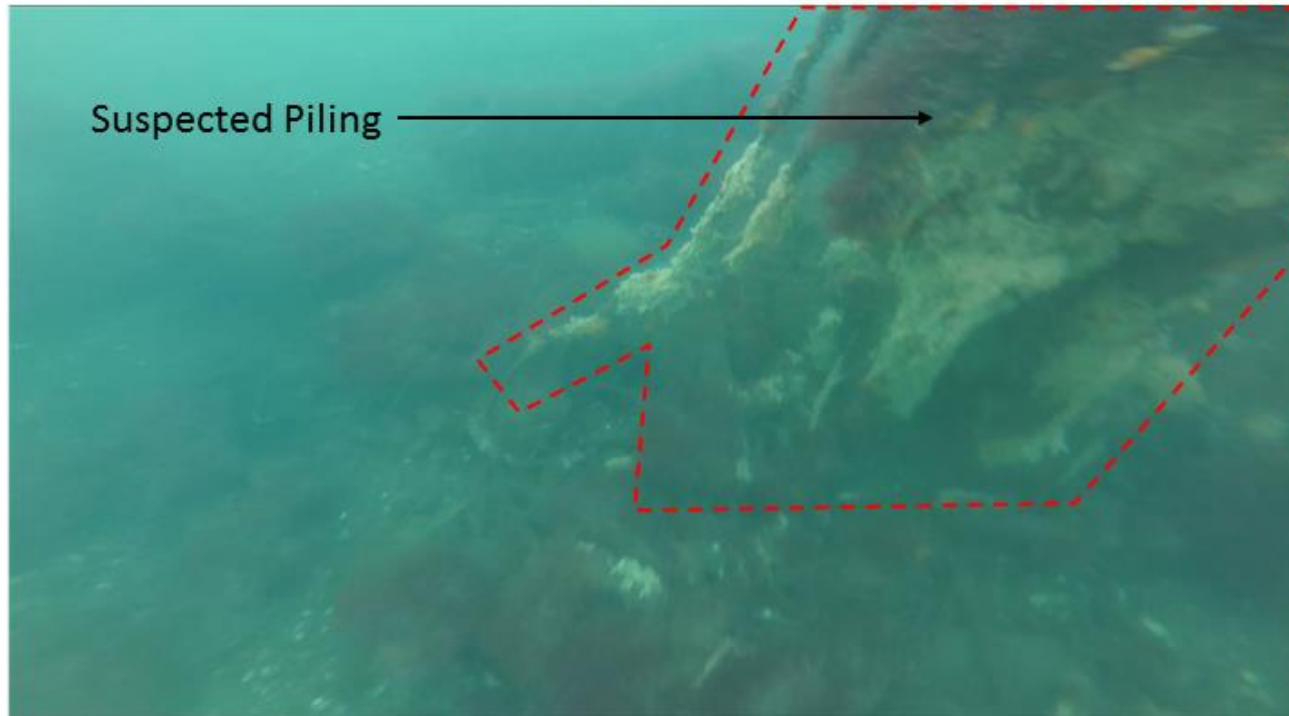


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).


 *Anomaly Footprint (approx.)*






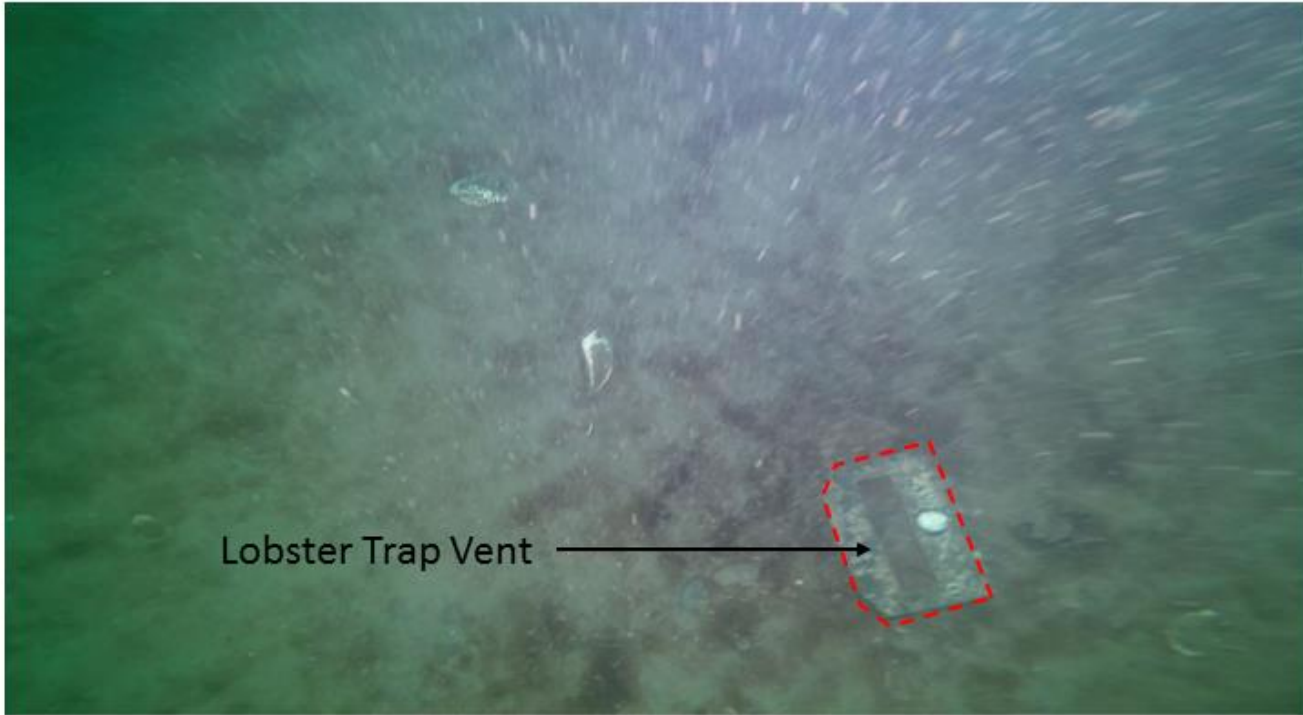
Anomaly ID / Drop #:	P5 / Drop 1
Date / Time of Deployment (EST):	10/23/2018 / 12:00
Depth (m):	4.13
Northing / Easting (m):	4858693 N / 457979 E
File Name / Time Stamp (mm:ss)	P5 Drop 1 / 01:22




Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

 *Anomaly Footprint (approx.)*

  	Anomaly ID / Drop #:	P7 / Drop 1
	Date / Time of Deployment (EST):	10/23/2018 / 12:07
	Depth (m):	0.93
	Northing / Easting (m):	4858719 N / 457761 E
	File Name / Time Stamp (mm:ss)	P7 Drops 1 & 2 / 01:33

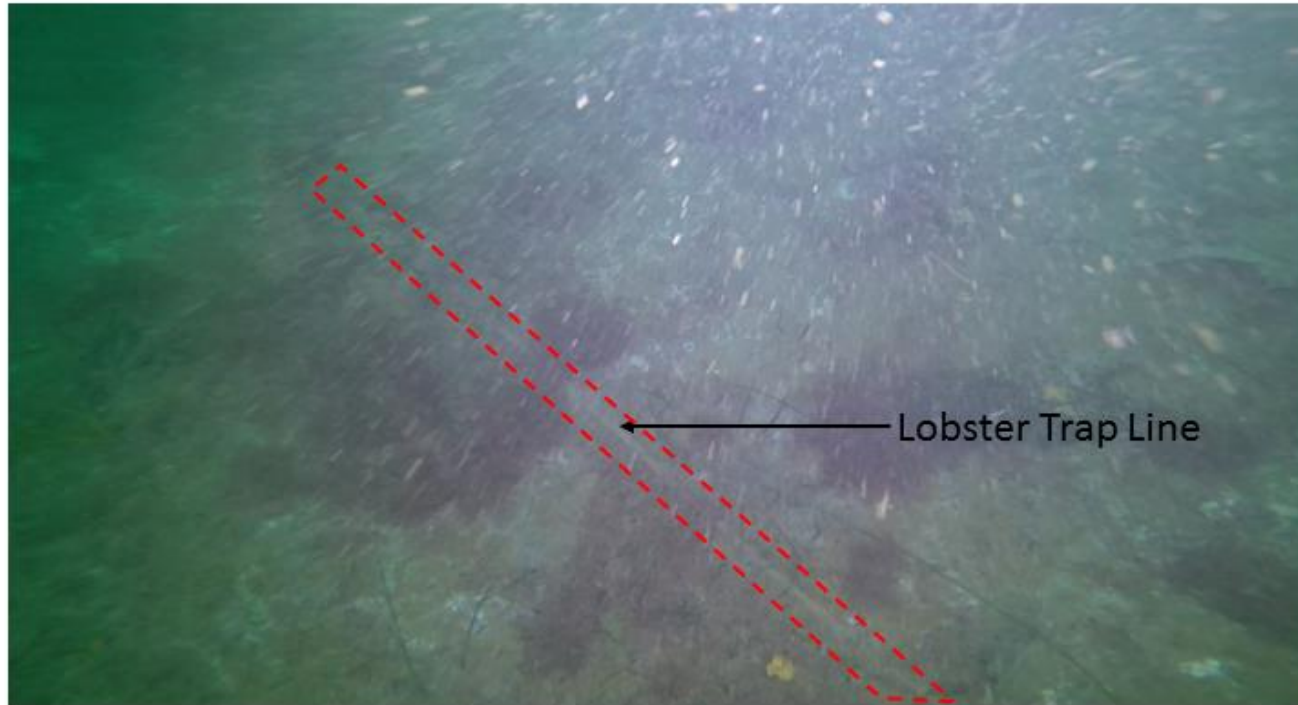


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).


 *Anomaly Footprint (approx.)*



Anomaly ID / Drop #:	P12 / Drop 2
Date / Time of Deployment (EST):	10/23/2018 / 10:49
Depth (m):	11.94
Northing / Easting (m):	4857858 N / 457462 E
File Name / Time Stamp (mm:ss)	P12 Drops 1 & 2 / 04:28

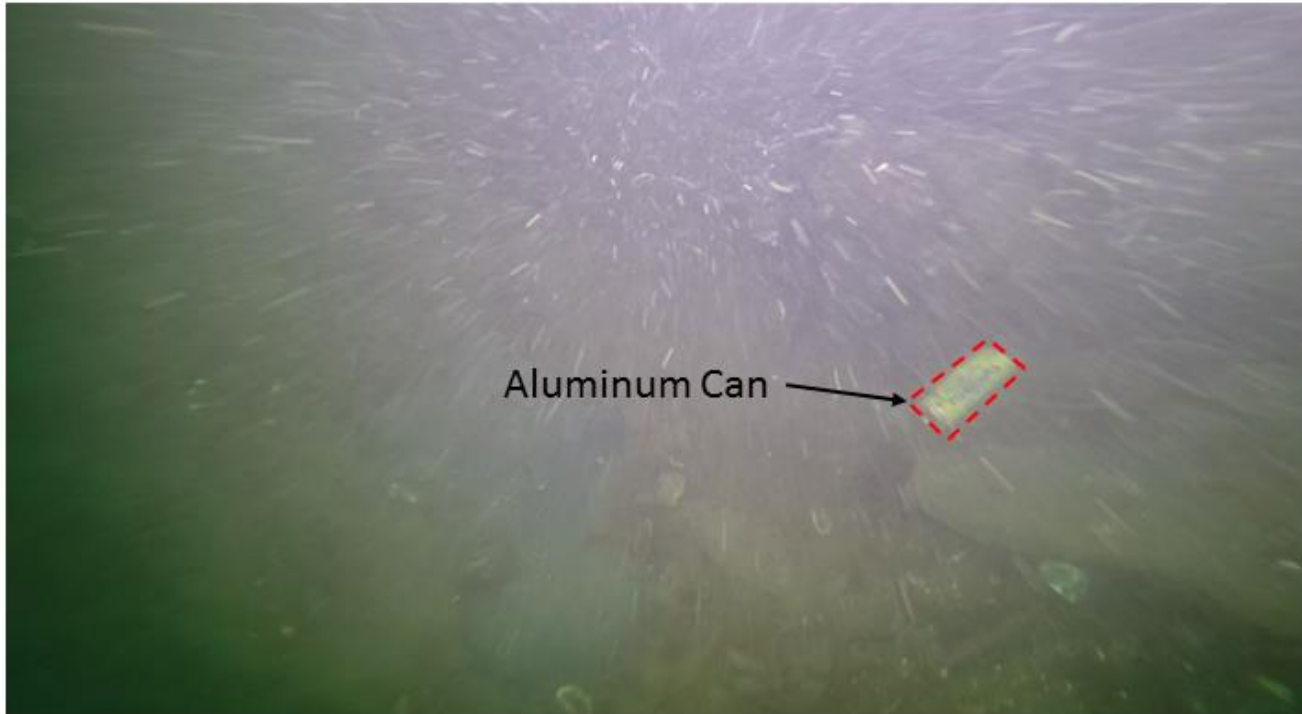


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).


 *Anomaly Footprint (approx.)*



Anomaly ID / Drop #:	P12 / Drop 4
Date / Time of Deployment (EST):	10/23/2018 / Not recorded
Depth (m):	11.94
Northing / Easting (m):	4857858 N / 457462 E
File Name / Time Stamp (mm:ss)	P12 Drops 3 & 4 / 04:50

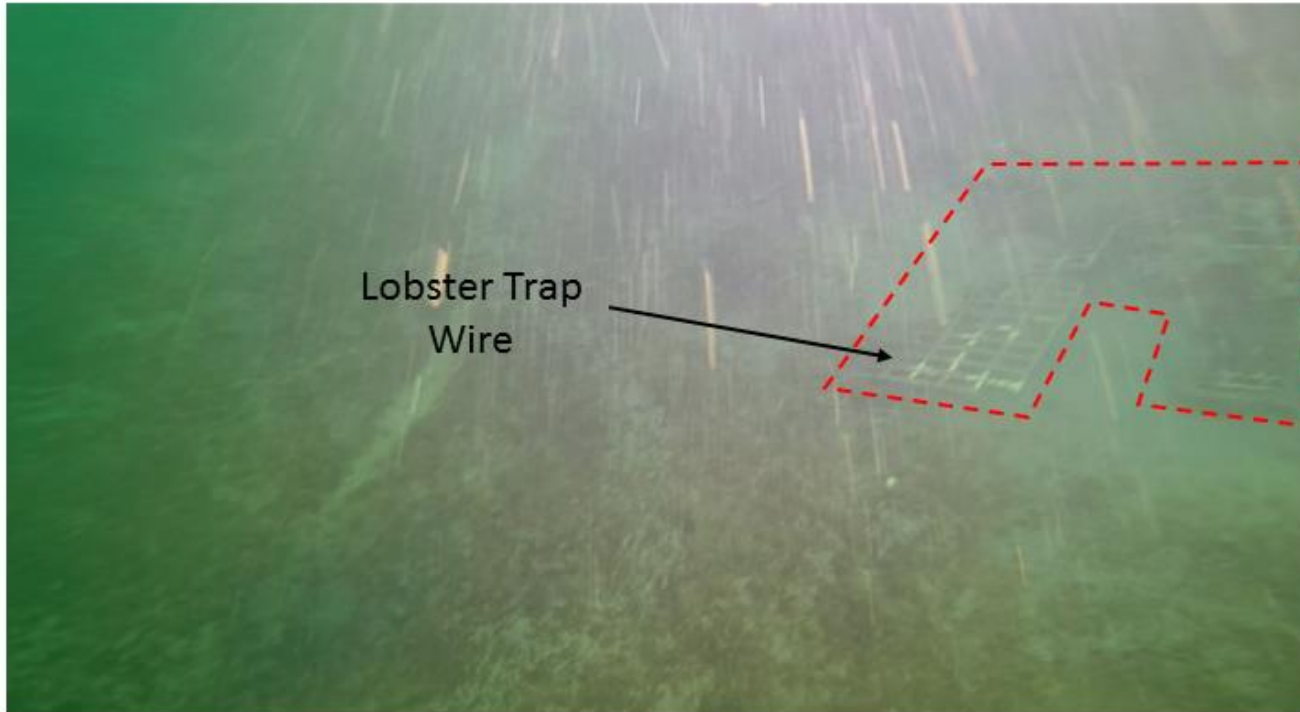


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).


 *Anomaly Footprint (approx.)*






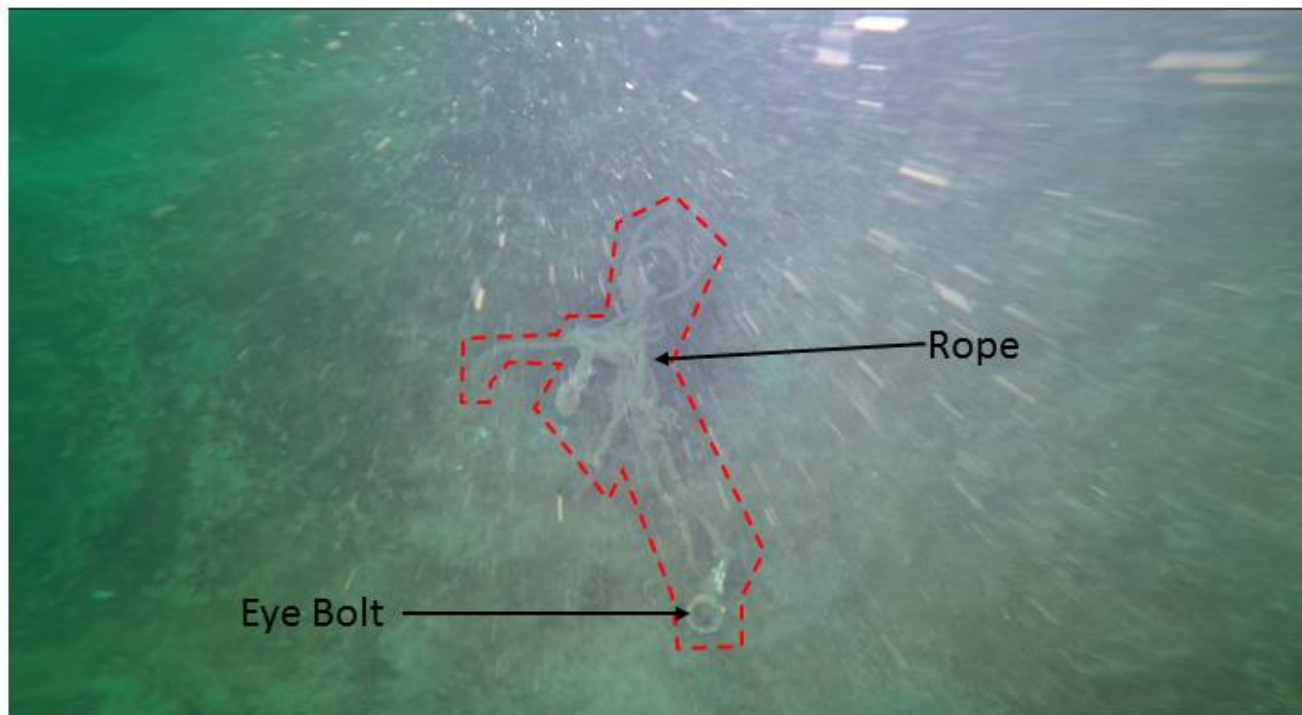
Anomaly ID / Drop #:	P13 / Drop 1
Date / Time of Deployment (EST):	10/23/2018 / 12:18
Depth (m):	10.92
Northing / Easting (m):	4858027 N / 457354 E
File Name / Time Stamp (mm:ss)	P13 Drop 1 / 03:32




Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

 *Anomaly Footprint (approx.)*

  	Anomaly ID / Drop #:	P15 / Drop 1
	Date / Time of Deployment (EST):	10/23/2018 / 11:20
	Depth (m):	10.28
	Northing / Easting (m):	4858321 N / 457063 E
	File Name / Time Stamp (mm:ss)	P15 Drop 1 / 02:45



Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).


 *Anomaly Footprint (approx.)*



Anomaly ID / Drop #:	P15 / Drop 2
Date / Time of Deployment (EST):	10/23/2018 / Not recorded
Depth (m):	10.28
Northing / Easting (m):	4858321 N / 457063 E
File Name / Time Stamp (mm:ss)	P15 Drop 2 / 00:58

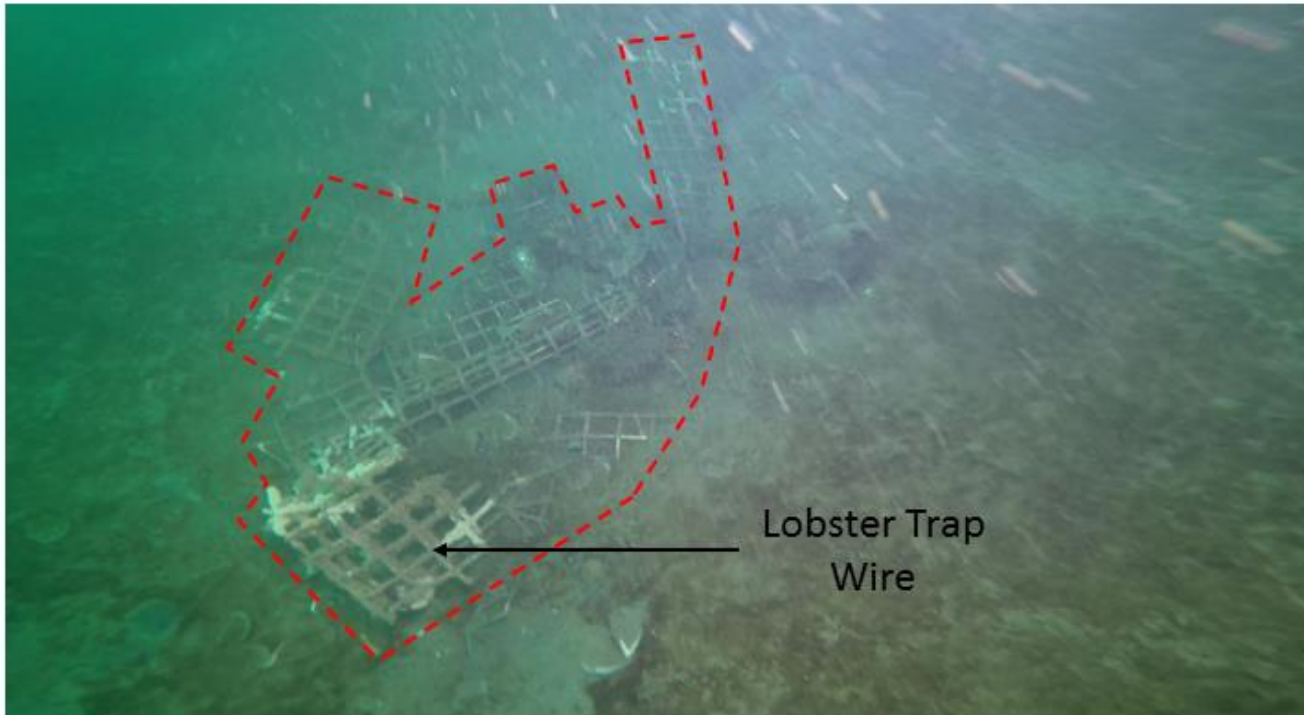


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).


 *Anomaly Footprint (approx.)*



Anomaly ID / Drop #:	P15 / Drop 3
Date / Time of Deployment (EST):	10/23/2018 / Not recorded
Depth (m):	10.28
Northing / Easting (m):	4858321 N / 457063 E
File Name / Time Stamp (mm:ss)	P15 Drop 3 / 01:35

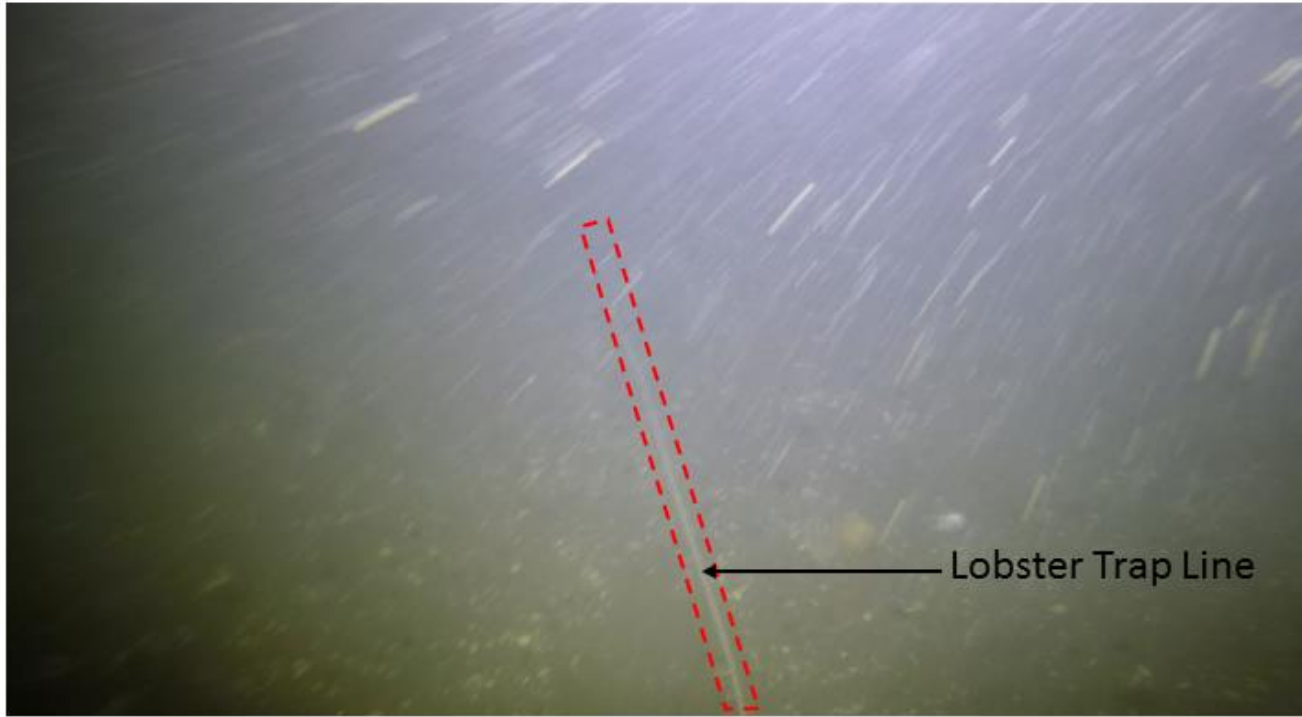


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).


 *Anomaly Footprint (approx.)*



Anomaly ID / Drop #:	P15 / Drop 3
Date / Time of Deployment (EST):	10/23/2018 / Not recorded
Depth (m):	10.28
Northing / Easting (m):	4858321 N / 457063 E
File Name / Time Stamp (mm:ss)	P15 Drop 3 / 02:33



Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

 *Anomaly Footprint (approx.)*



Anomaly ID / Drop #:	P18 / Drop 1
Date / Time of Deployment (EST):	11/05/2018 / 07:49
Depth (m):	24.03
Northing / Easting (m):	4855942 N / 457792 E
File Name / Time Stamp (mm:ss)	P18 Drop 1 / 03:03

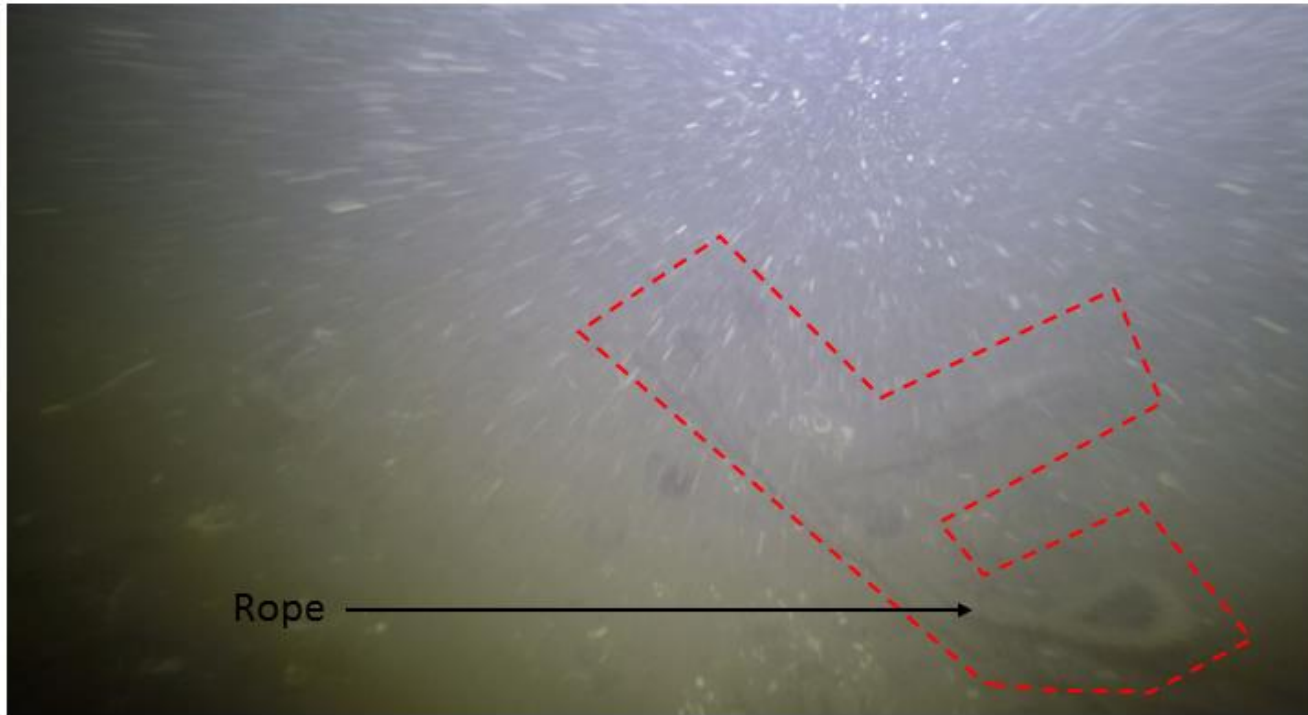


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).


 *Anomaly Footprint (approx.)*



Anomaly ID / Drop #:	P20 / Drop 2
Date / Time of Deployment (EST):	11/05/2018 / 08:29
Depth (m):	7.41
Northing / Easting (m):	4857637 N / 457647 E
File Name / Time Stamp (mm:ss)	P20 Drop 2 / 01:13

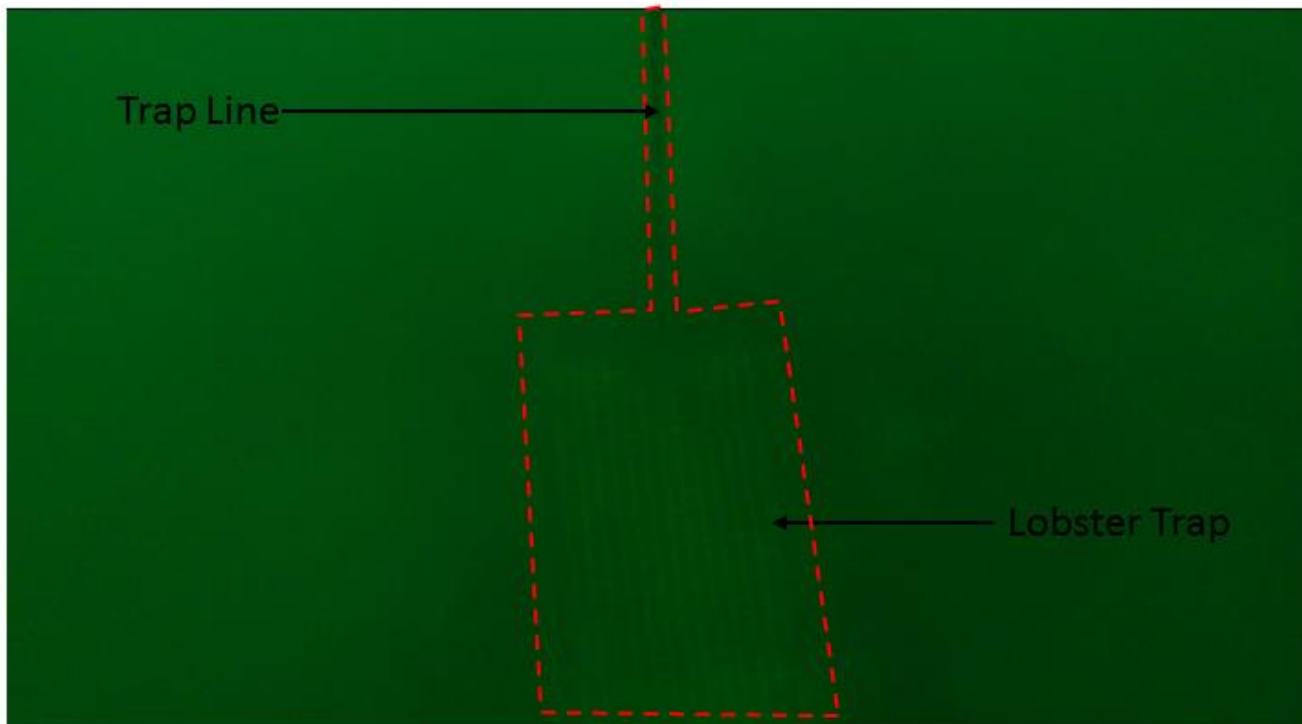


Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).


 *Anomaly Footprint (approx.)*



Anomaly ID / Drop #:	P22 / Drop 1
Date / Time of Deployment (EST):	11/05/2018 / 08:56
Depth (m):	28.01
Northing / Easting (m):	4856251 N / 456663 E
File Name / Time Stamp (mm:ss)	P22 Drop 1 / 03:07



Depth values represent depth from sea surface to seafloor in vicinity of anomaly.
 Coordinates listed in projected coordinate system WGS84 UTM Zone 19N (meters).

 *Anomaly Footprint (approx.)*



Anomaly ID / Drop #:	P23 / Drop 2
Date / Time of Deployment (EST):	11/05/2018 / 09:13
Depth (m):	16.58
Northing / Easting (m):	4856957 N / 456969 E
File Name / Time Stamp (mm:ss)	P23 Drop 2 / 00:52