

REMEDICATION OF SEAFOOD WASTE ACCUMULATIONS

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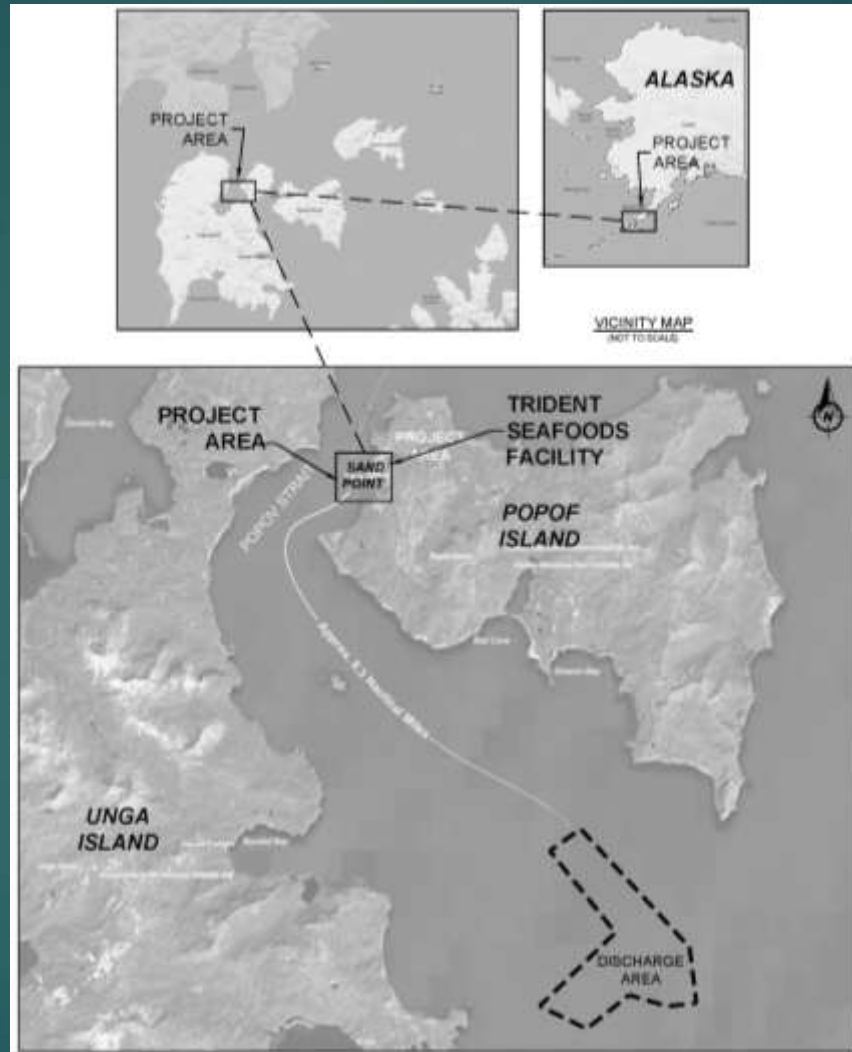
WEDA PACIFIC CHAPTER
2019 ANNUAL MEETING
OCTOBER 29 – 31, 2019
NEWPORT BEACH, CA

Overview

- ▶ Seafood remediation project completed in 2018.
- ▶ Mechanical removal of ~20,000 cubic yards of seafood waste that had collected on the seafloor over an area just 5 acres.
- ▶ Recovered material was taken to an approved at sea placement area.
- ▶ A benthic assessment and bathymetric survey were performed to verify that project objectives had been completed.



Location



Project Removal Area



Background (2010 to 2016)

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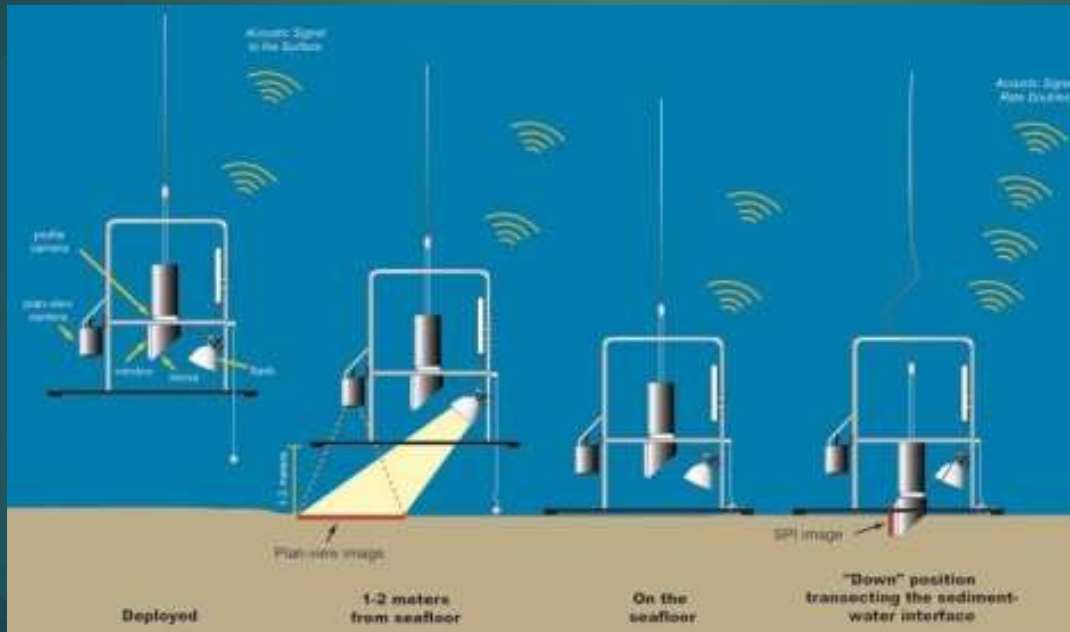
- ▶ Annual Seafloor Monitoring Surveys
 - Performed by Commercial Divers
 - Visual Assessment
 - Probes
 - Push Cores
- ▶ Zone of Deposit between 3 acres and 5 acres



Background (2014)

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- ▶ 2014: Benthic Habitat Assessment & Sediment Coring Survey
 - Sediment Profile Images (SPI)
 - Sediment Coring Survey
 - Vibracore Sampling
 - Box Core Sampling
- ▶ Zone of Deposit: ~3.0 Acres



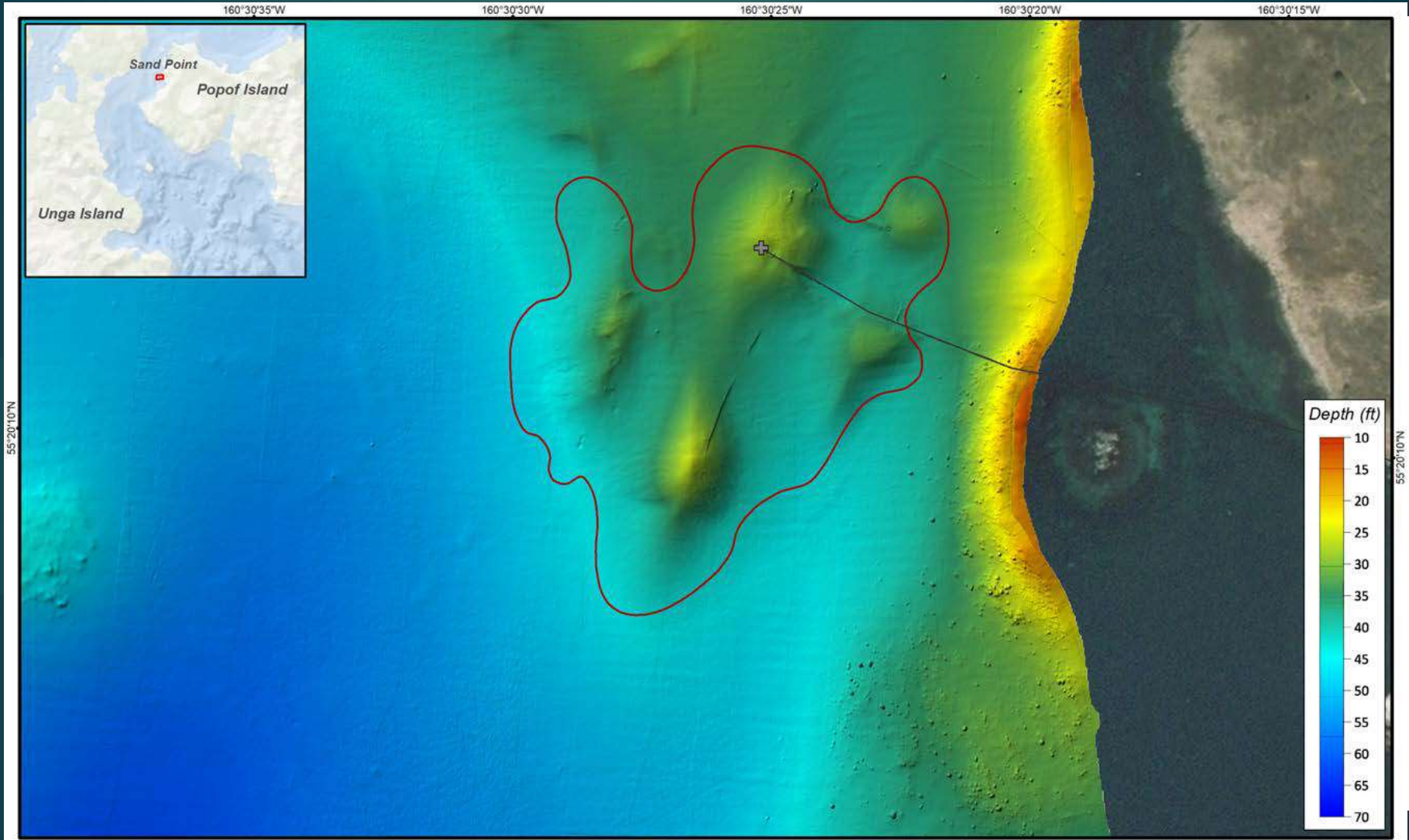
Background (2016)

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- ▶ 2016: Bathymetric Survey & Benthic Habitat Asses
 - Multibeam Survey
 - Sediment Profile Images (SPI)
 - Sediment Coring Survey
 - Vibracore Sampling
 - Video Probe
- ▶ Zone of Deposit: ~3.5 Acres



Background (2016)



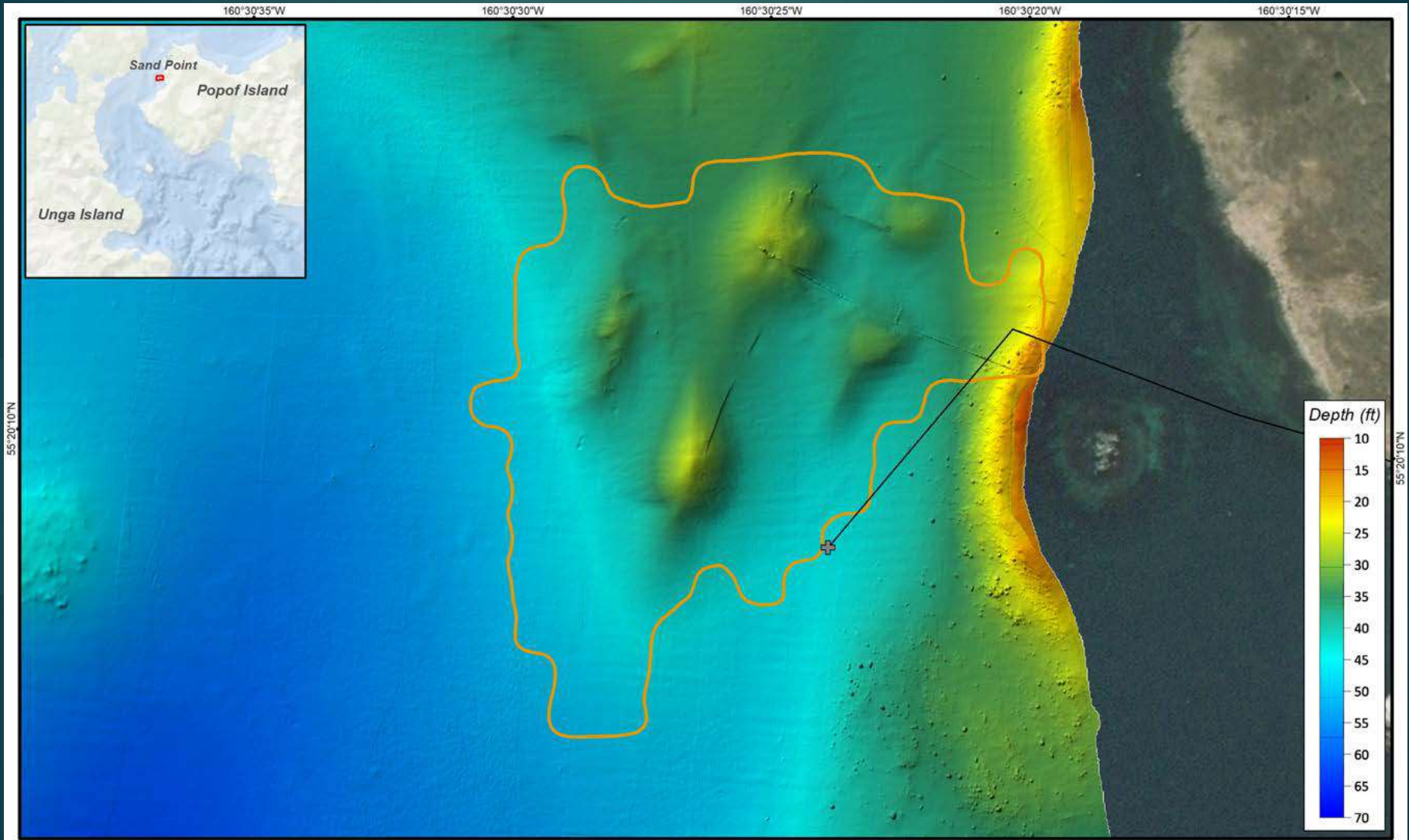
Pre-construction Tasks (2018)

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- ▶ Relocate an active wastewater marine outfall that terminated in the middle of the removal area.
- ▶ Perform a pre-removal visual seafloor survey.
- ▶ Perform pre-removal baseline turbidity monitoring surveys.

Updated Removal Area

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Removal Project Objectives and Requirements

- ▶ Reduce the Zone of Deposit (ZOD) to less than 1 acre.
- ▶ Dredging was to be completed using an enclosed bucket to prevent loss of dredged material over the top of the bucket;
- ▶ Controls shall be implemented as necessary to ensure water quality standards are not violated;
- ▶ Materials coming from the dredge bucket will be observed and best efforts will be exercised to minimize removal of native sediment.

Removal Equipment

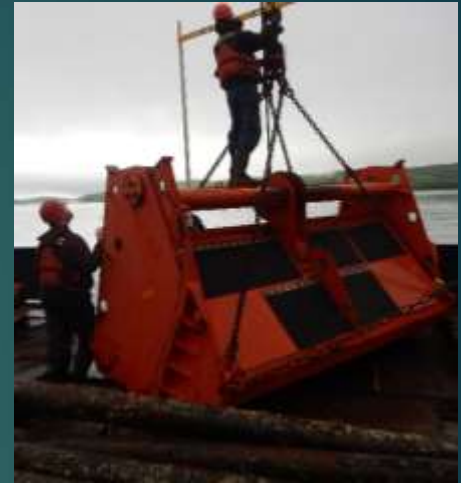
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Removal Equipment

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- ▶ Seafood waste was mechanically removed utilizing either the Anvil material rehandling bucket or CableArm environmental level cut bucket.
- ▶ Recovered material was placed in a split hull material barge.



Progress Surveys

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- ▶ Conducted two visual surveys; at 25% and 50% completion stages of removal operations
- ▶ Utilized a drop camera for seafloor in progress inspections throughout duration of the removal operations.
- ▶ Equipment and methods were modified based on visual surveys and inspections.



Removal Equipment

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▶ Anvil Bucket:

- Closed Top (Prior to start of removal)
- Additional Weight Added (~1.8k lbs)

▶ CableArm Bucket:

- Additional Weight Added (~5k lbs)
- Lower Vents Blocked



Recovered Material

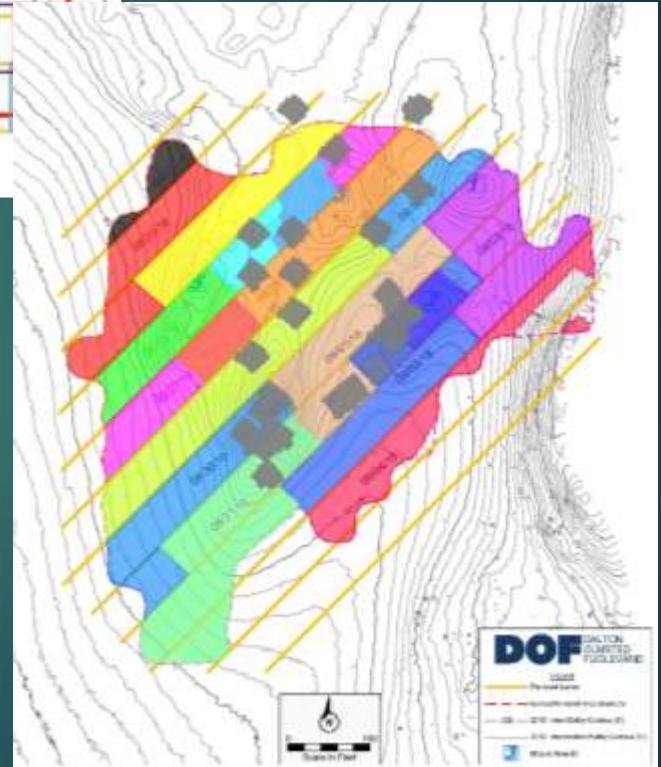
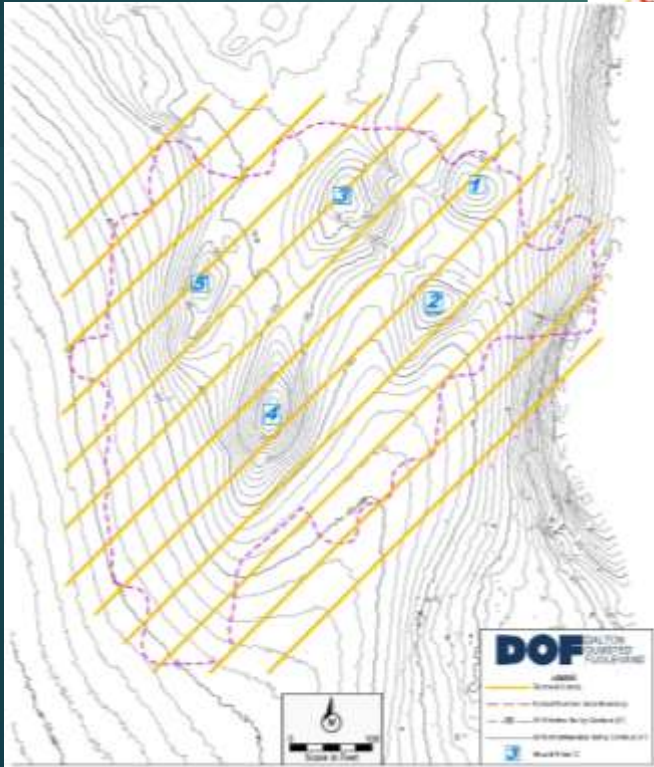
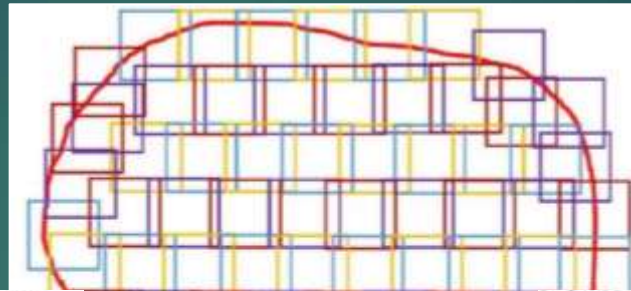
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- ▶ Primarily Seafood Waste
- ▶ Entrained Sediment
- ▶ Debris



Removal Sequencing

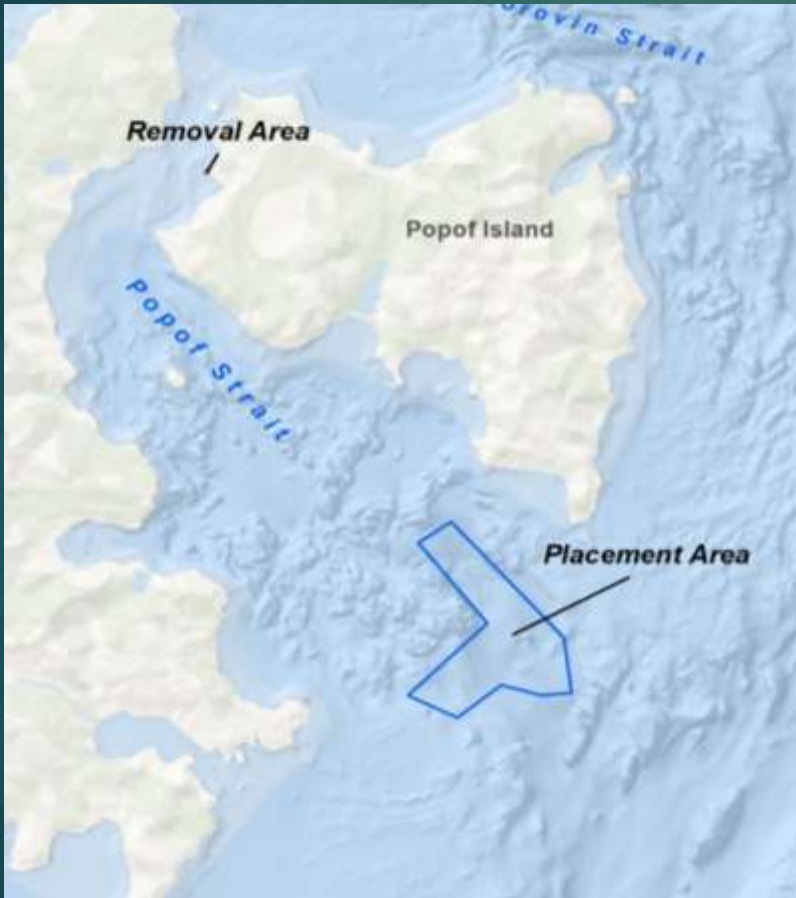
- ▶ Hill Topping
- ▶ Bulk Removal
- ▶ Cleanup Pass



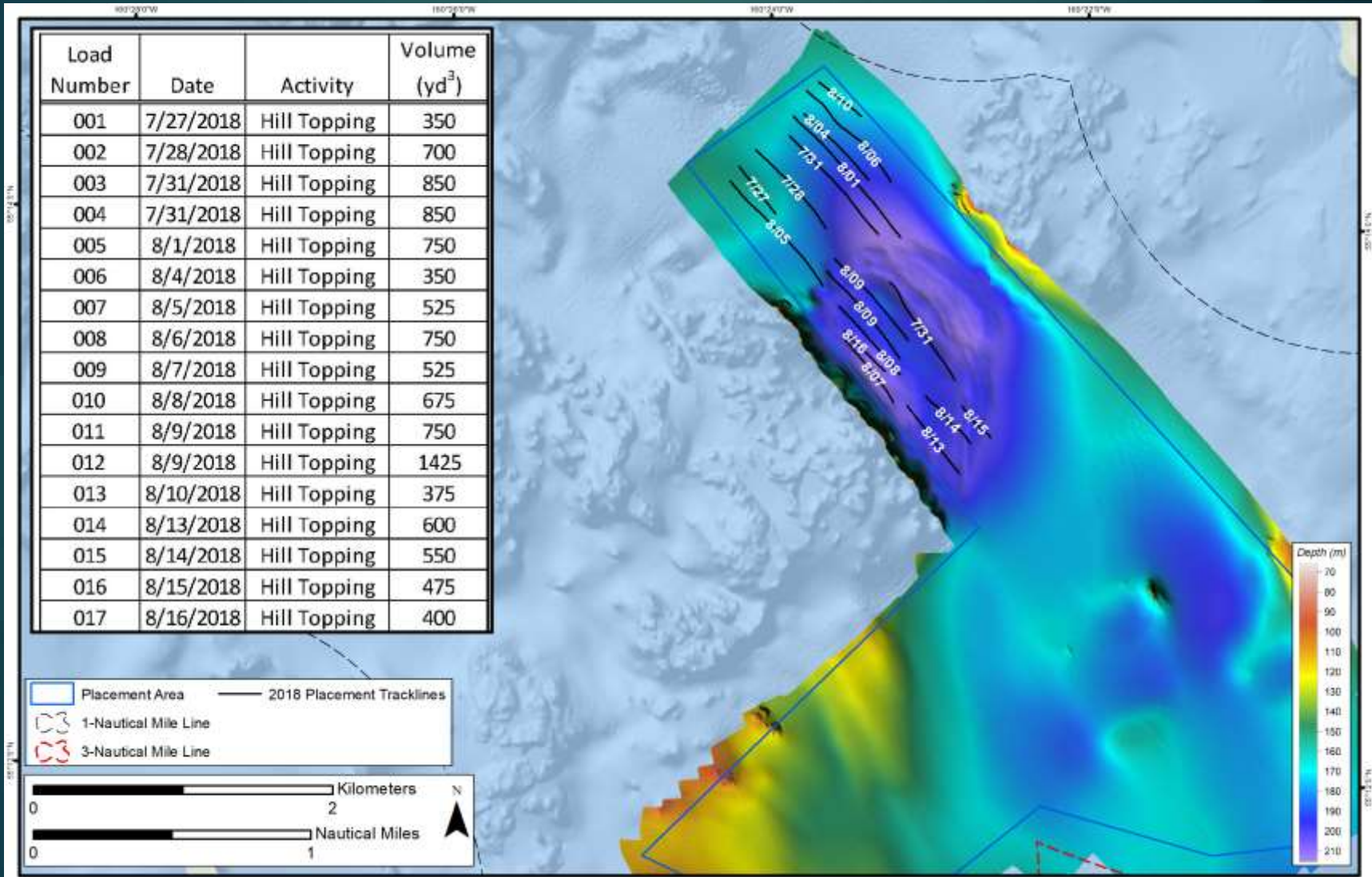
Material Placement

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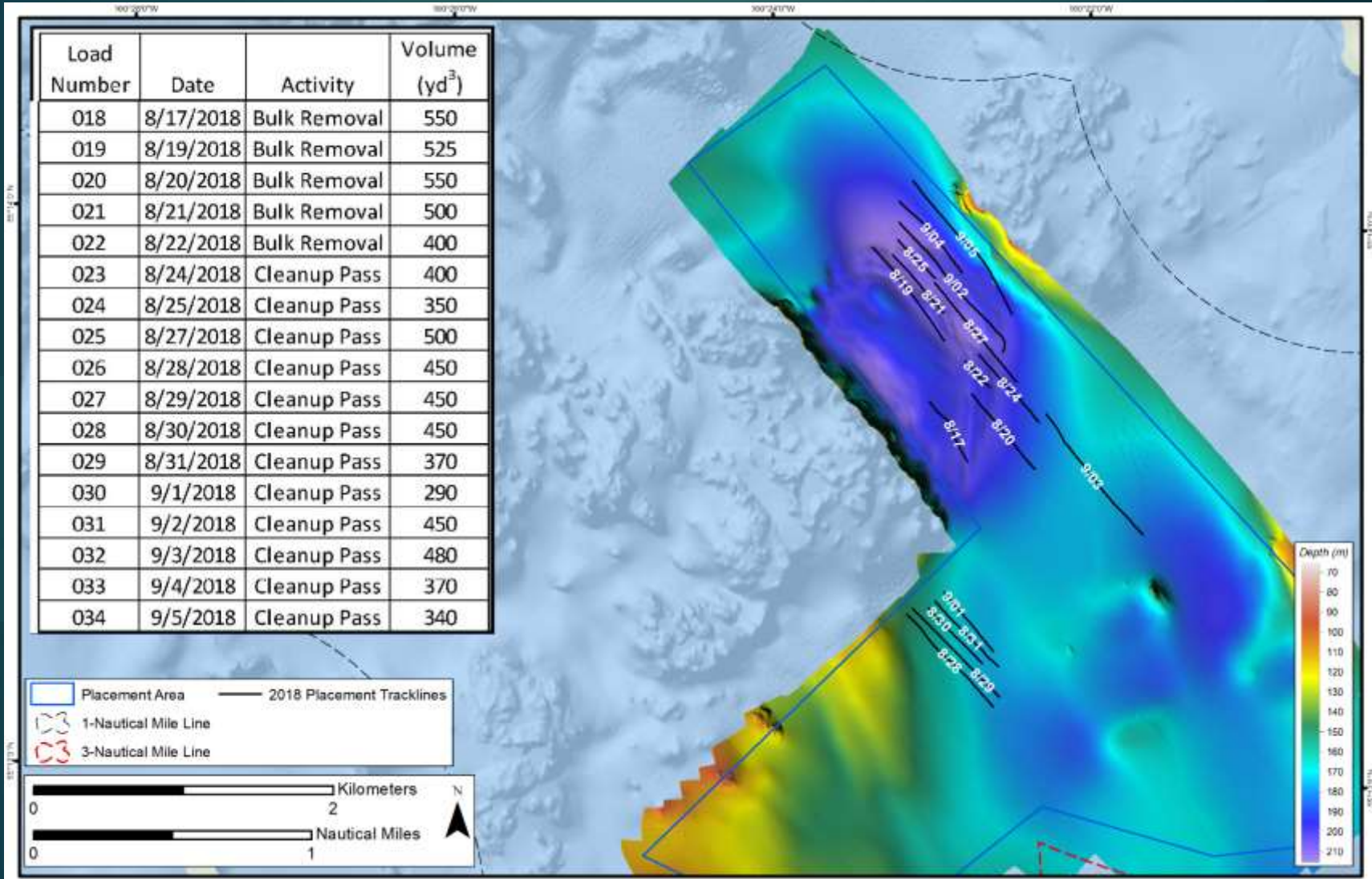
- Placement Site ~8 NM from Removal Site.



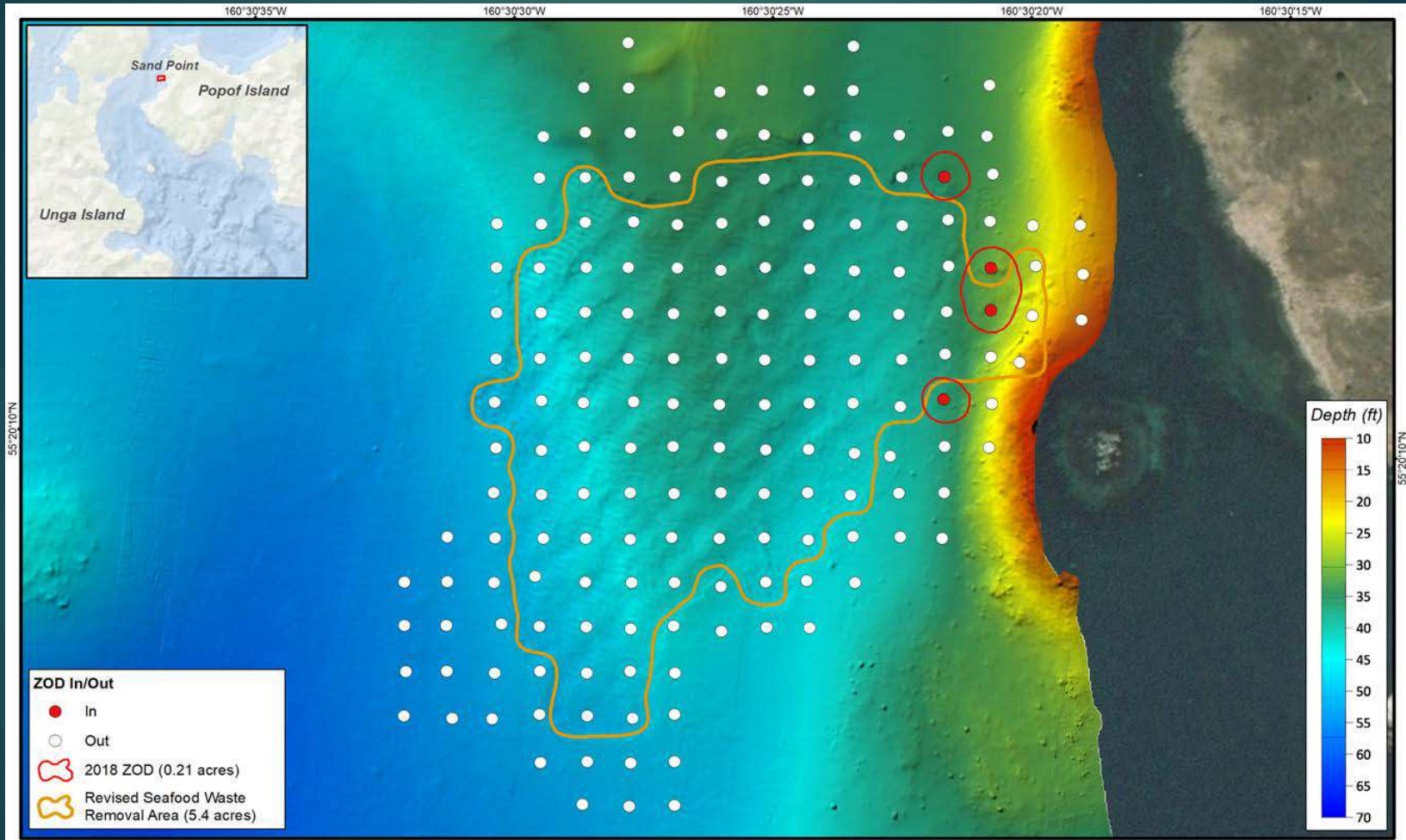
Material Placement



Material Placement

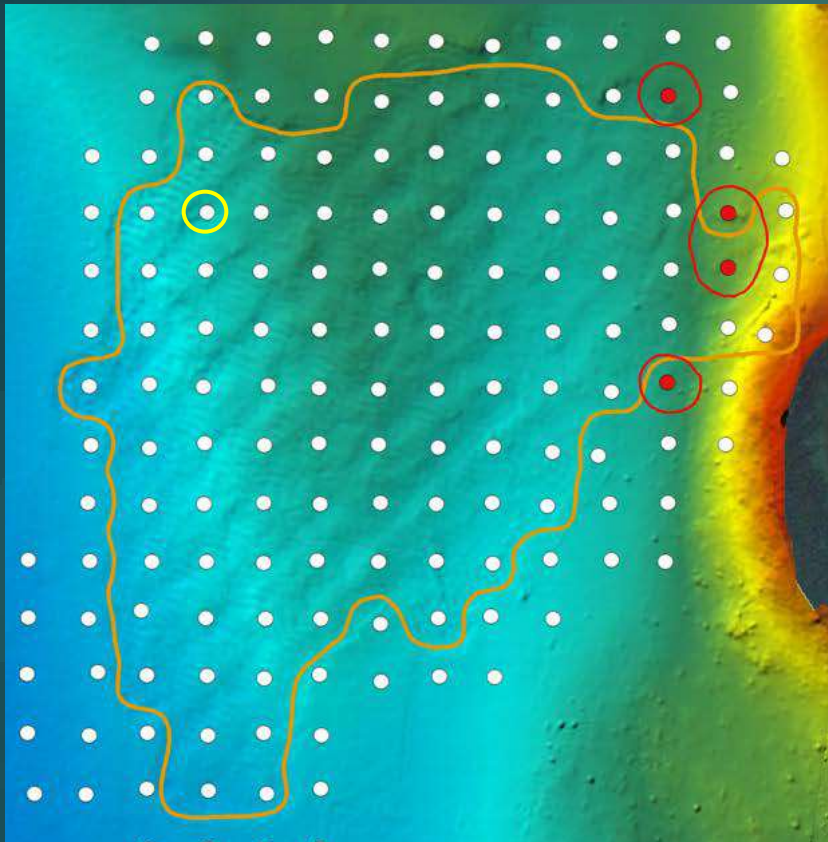


Completion Visual Survey



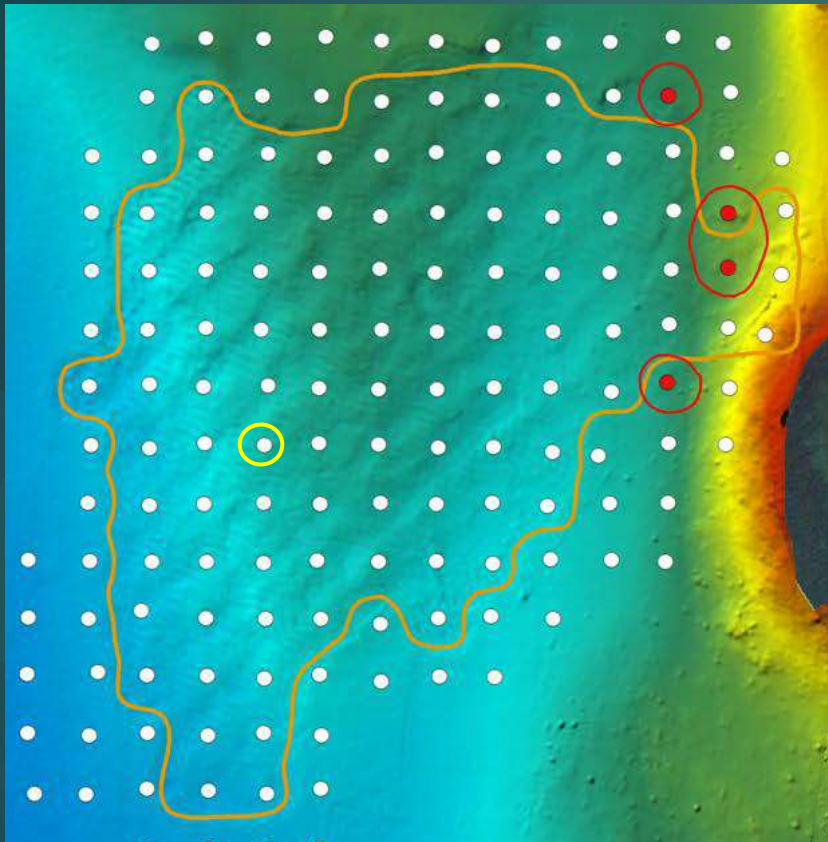
Completion Visual Survey

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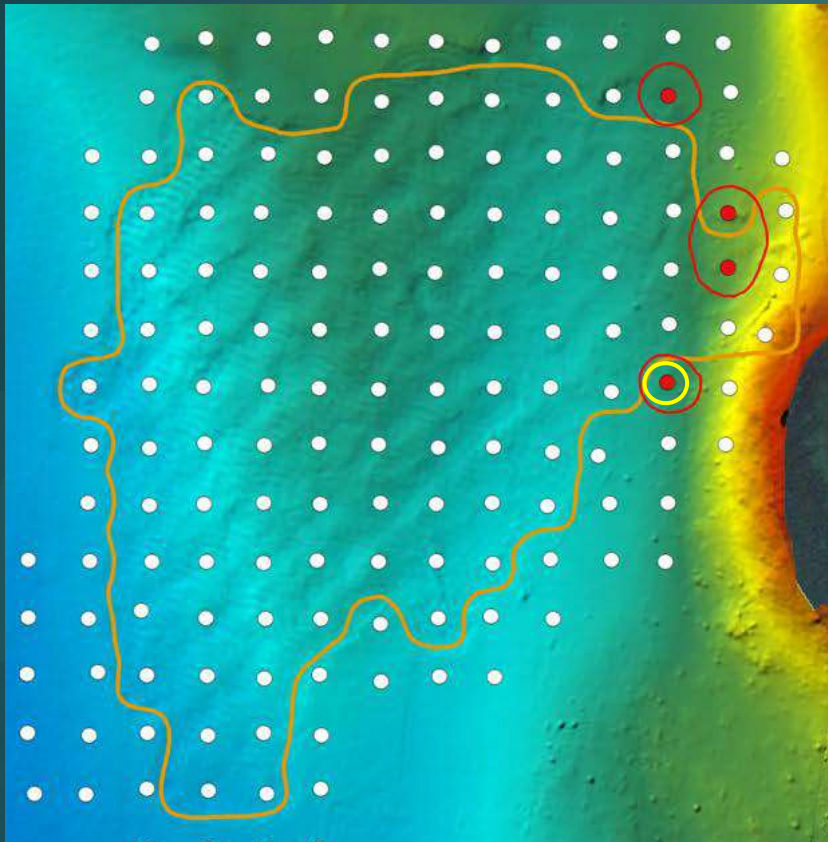
Completion Visual Survey

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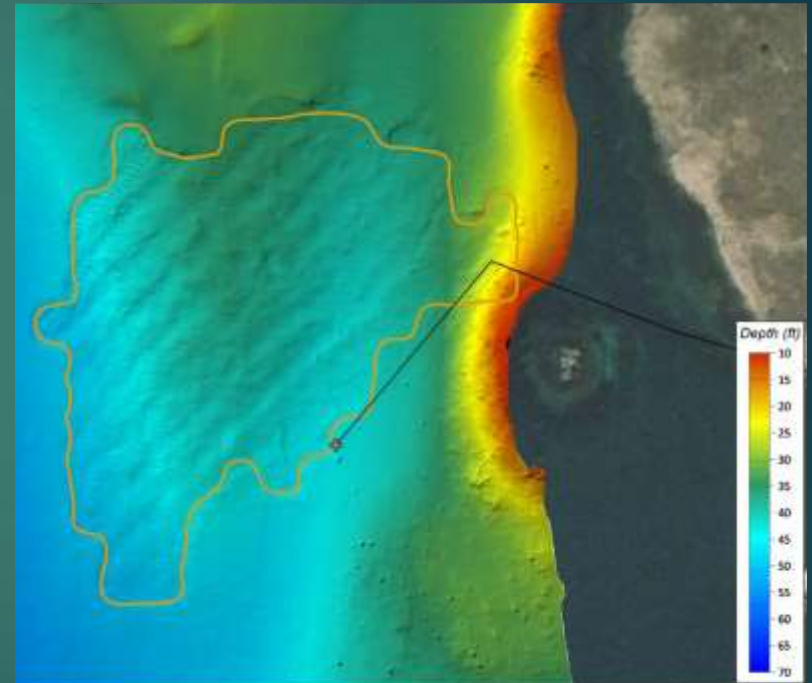
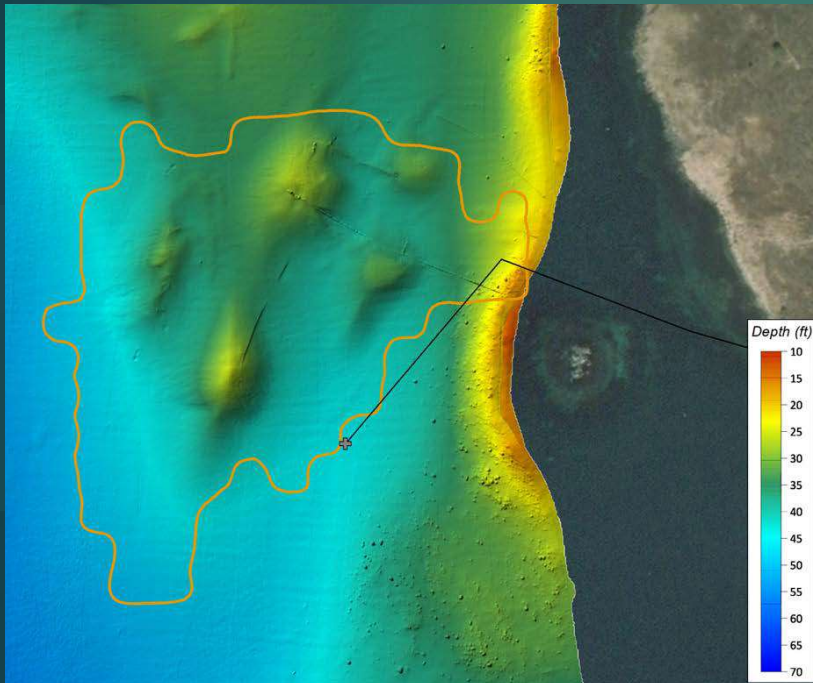
Completion Visual Survey

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Pre & Post Removal Bathymetric Survey

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Questions

