

Unalaska Navigation Channel Improvements

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U.S. Army Corps of Engineers – Alaska District

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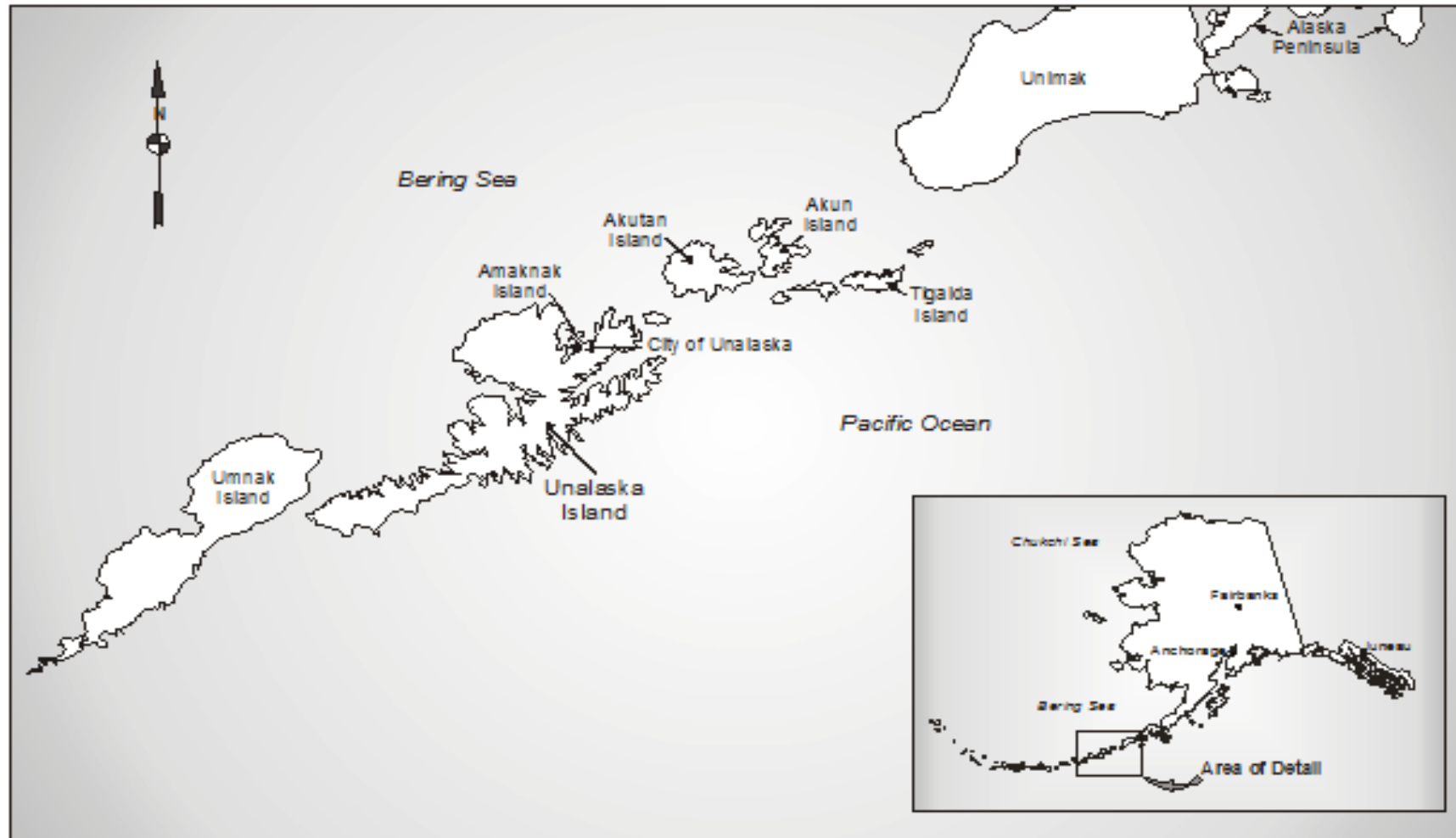
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Project Location



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Unalaska/Dutch Harbor

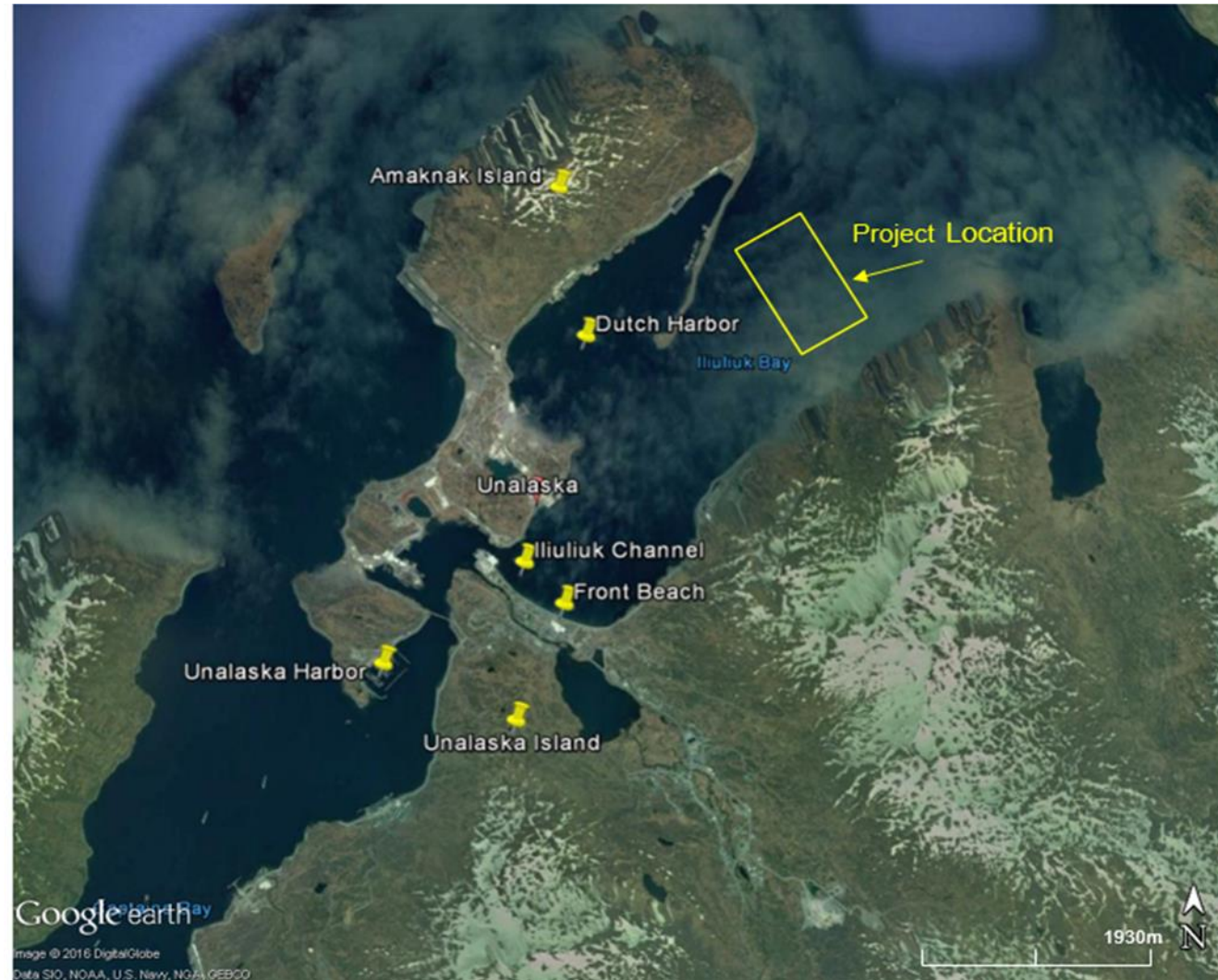
- Population of 4,605
- #1 U.S. commercial fishing port by quantity of catch since 1997
- For more than 30 years, Unalaska's economy has been based on commercial fishing, seafood processing, fleet services, and marine transportation
- Contains numerous sites designated as a Potential Places of Refuge by Alaska Department of Environmental Conservation (ADEC)
- Only functional deep draft, year-round ice-free port along 1,200 mile Aleutian Islands, serving the North Pacific and Bering Sea



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Problem Statement

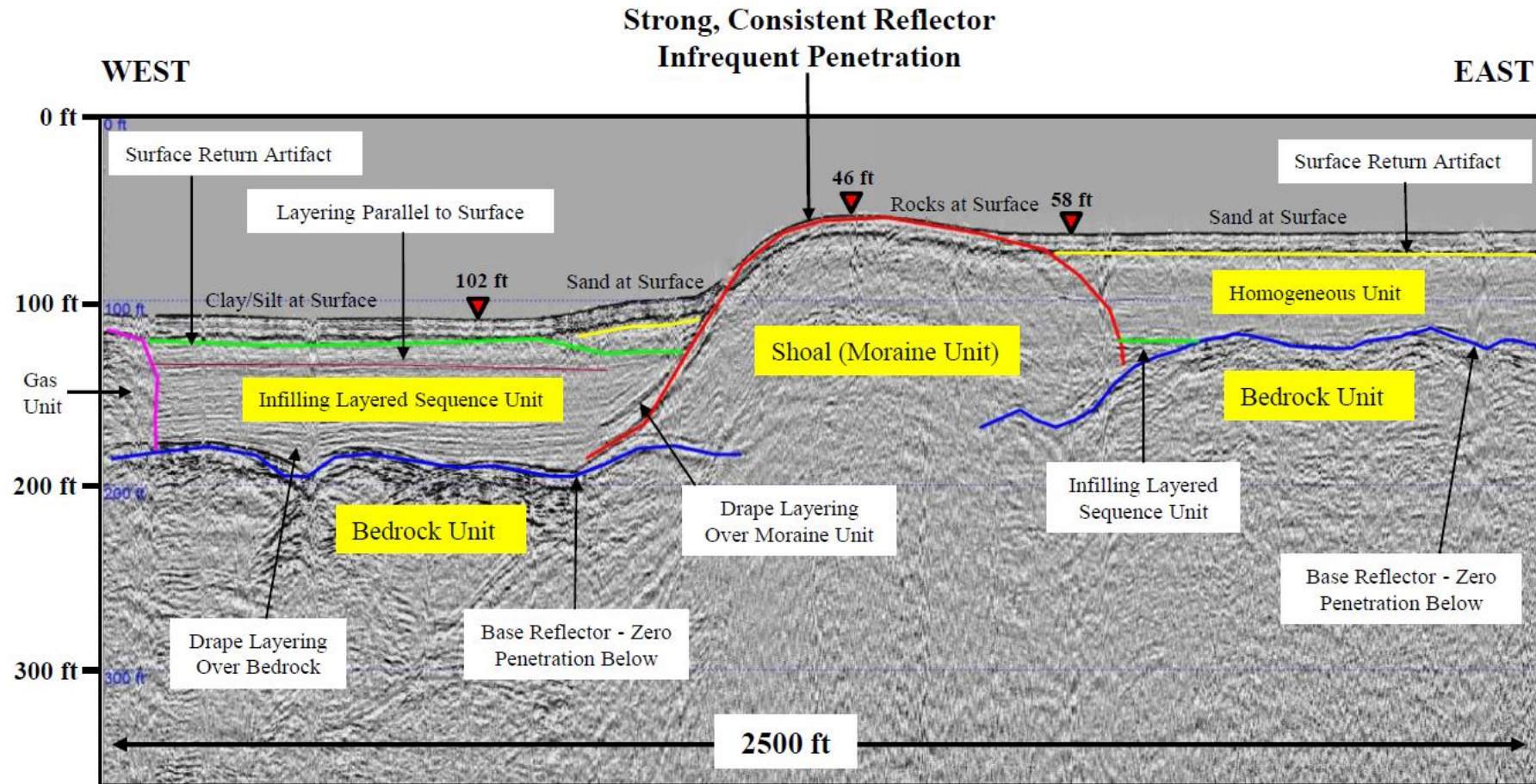
- The entrance to Iliuliuk Bay limits access to Dutch Harbor, constrains economic development, regional stability, and presents safety and environmental risks
- Delivery of fuel, durable goods, and exports, to and from Unalaska/Dutch Harbor, is limited for the current and future fleet, creating economic inefficiencies for the region, Nation, and global seafood marketplace
- The entrance to Iliuliuk Bay hinders access to services provided in Dutch Harbor as a Potential Place of Refuge



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Existing Conditions: Geotechnical



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Existing Conditions: Environmental

- Primary Threatened and endangered species of concern include Steller sea lion, humpback whale, and northern sea otter
- MMPA protected species including harbor seal
- All marine waters are designated Essential Fish Habitat
- Significantly important area for migratory birds



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Existing Conditions: UXO

- Due to military activity during WWII, the presence of UXO is a concern to be addressed



Land Mine collected while fishing June 2012



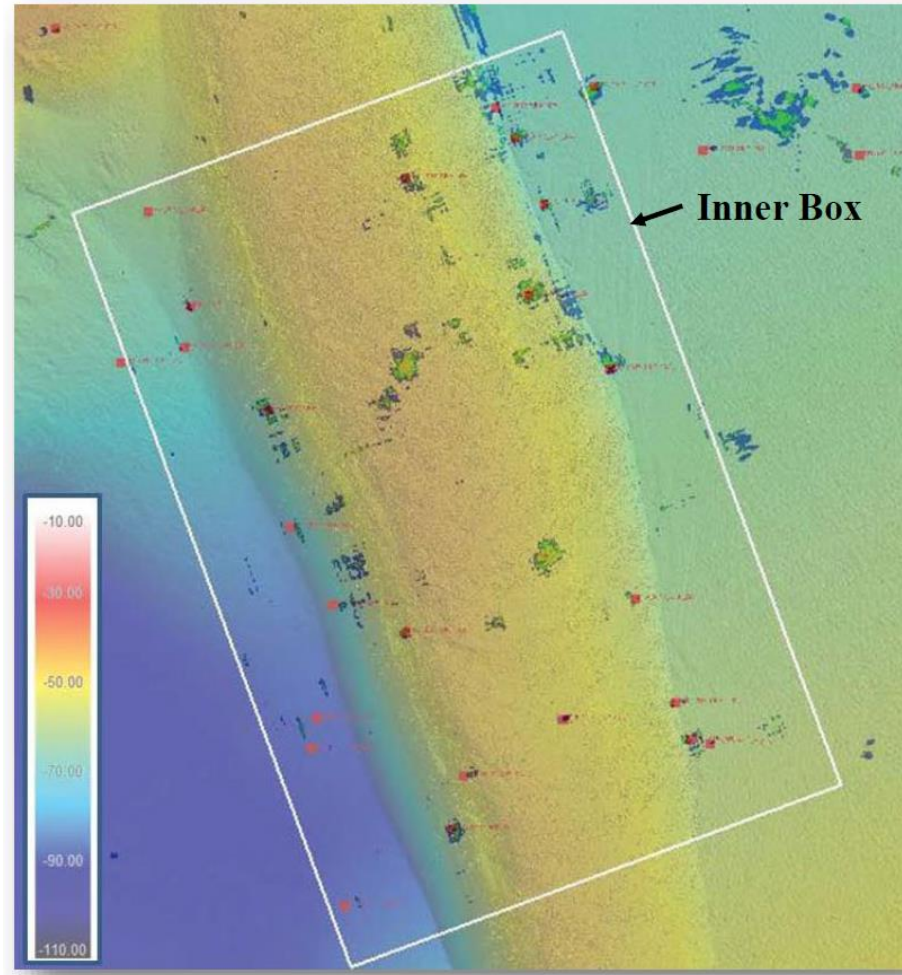
Projectile collected while fishing June 2012



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Existing Conditions: Possible UXO Objects



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Environmental Resources

- Sampling related to dredging and disposal sites
- Marine mammal permitting issues



2017 Field Sampling of the Bar Area and Potential Disposal Sites



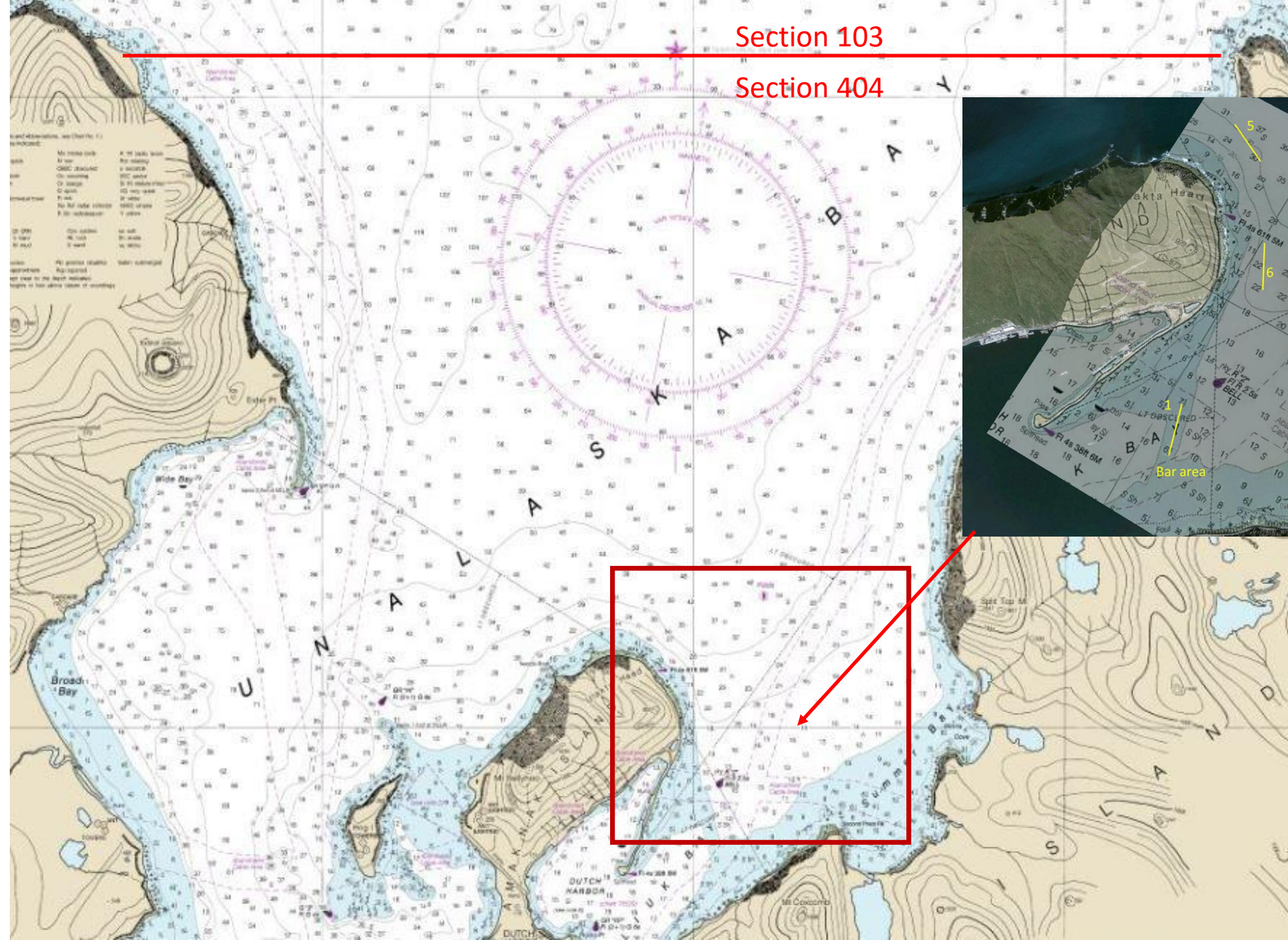
Objective: Collect adequate data to support a decision on the best in-water disposal area.

- In-water disposal was identified as the most likely disposal scenario due to both cost and suitability of the material.
- Five potential disposal sites were selected that were reasonably close to the dredge site.



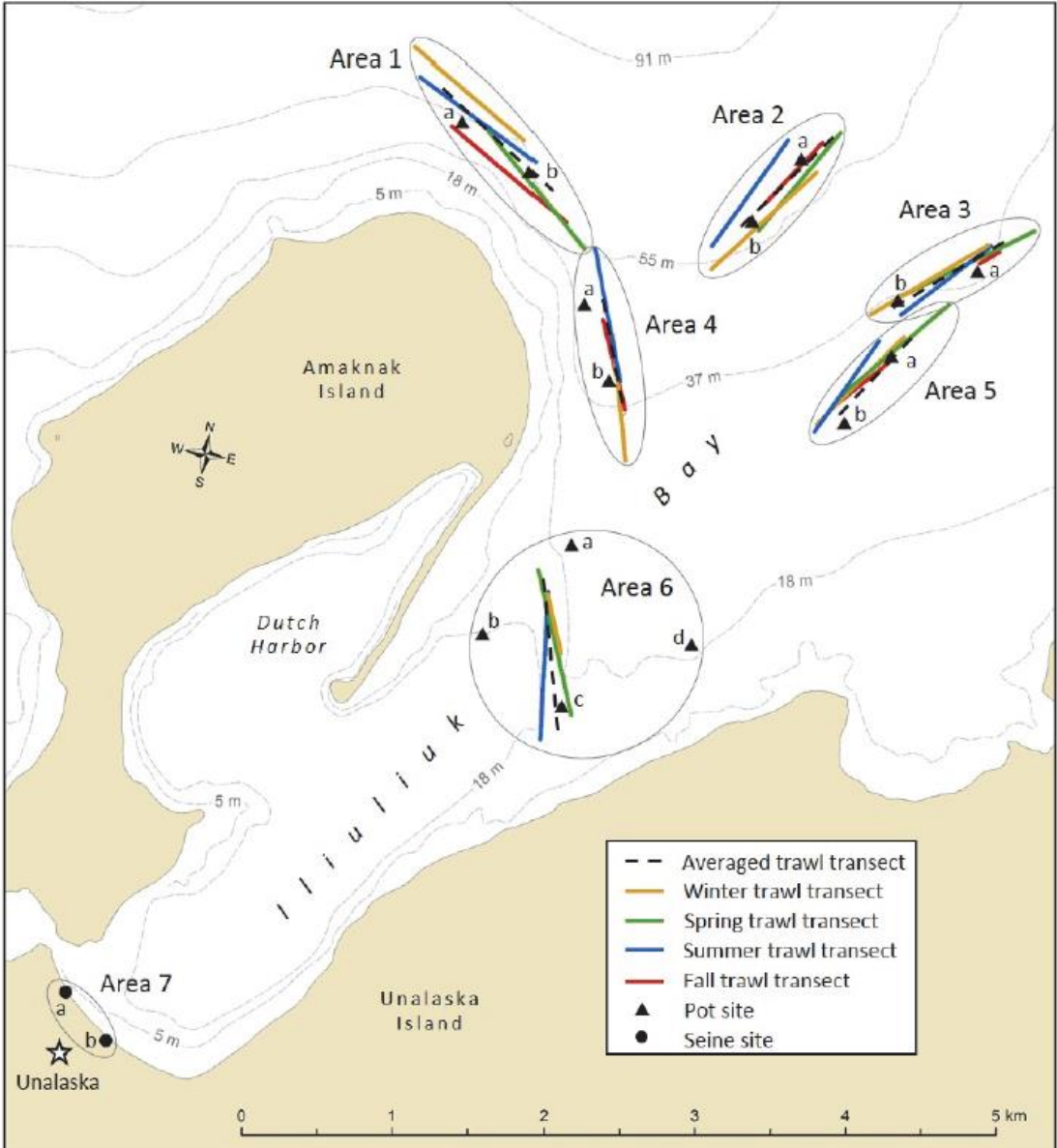
Section 103

Section 404



All potential sites are well within the closing line for Section 404 disposal

- This avoids the complex and costly process required for disposal in Section 103 waters.









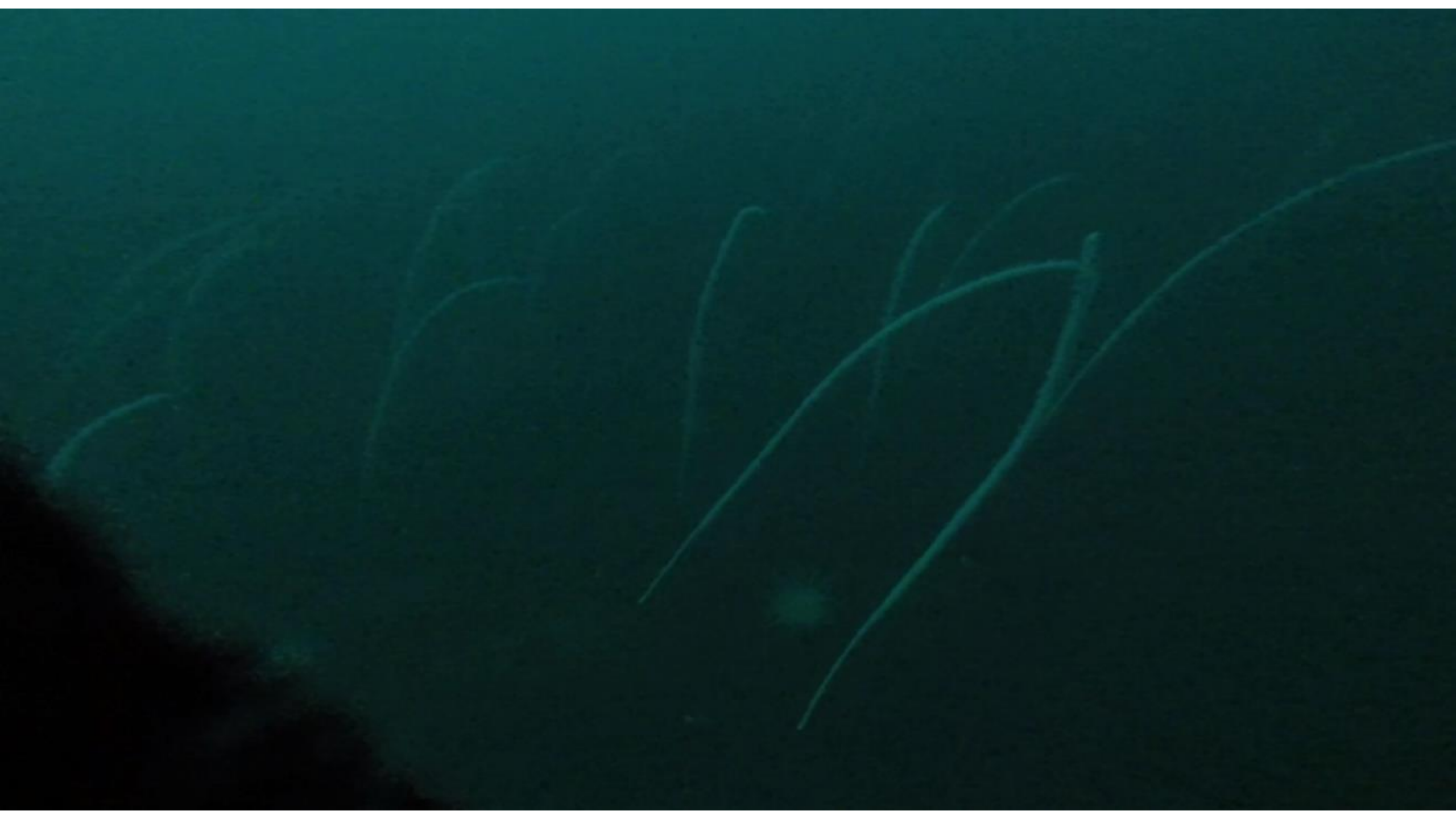
Bar area substrate



Debris observed on bar









Still image of proposed disposal area

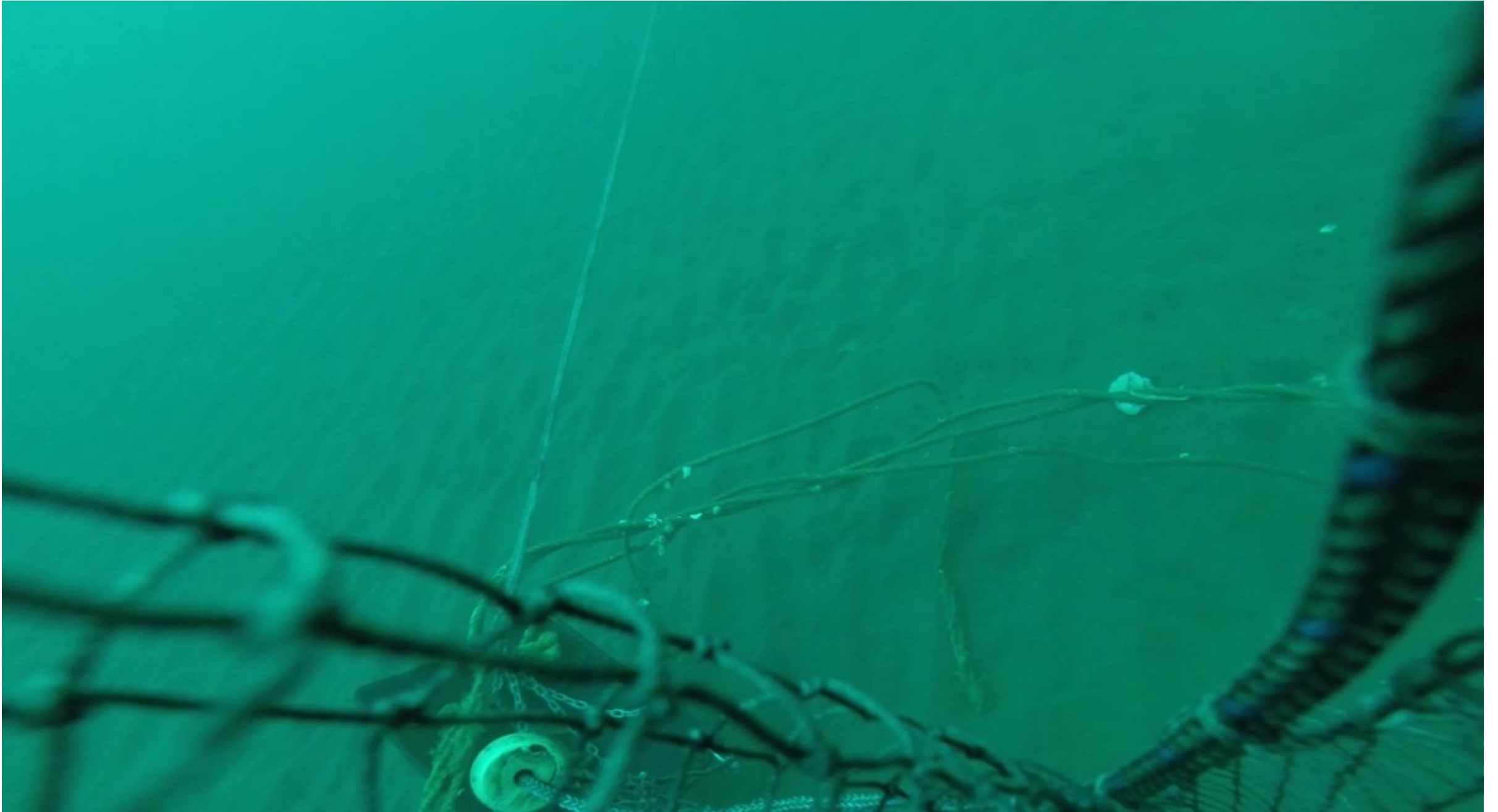
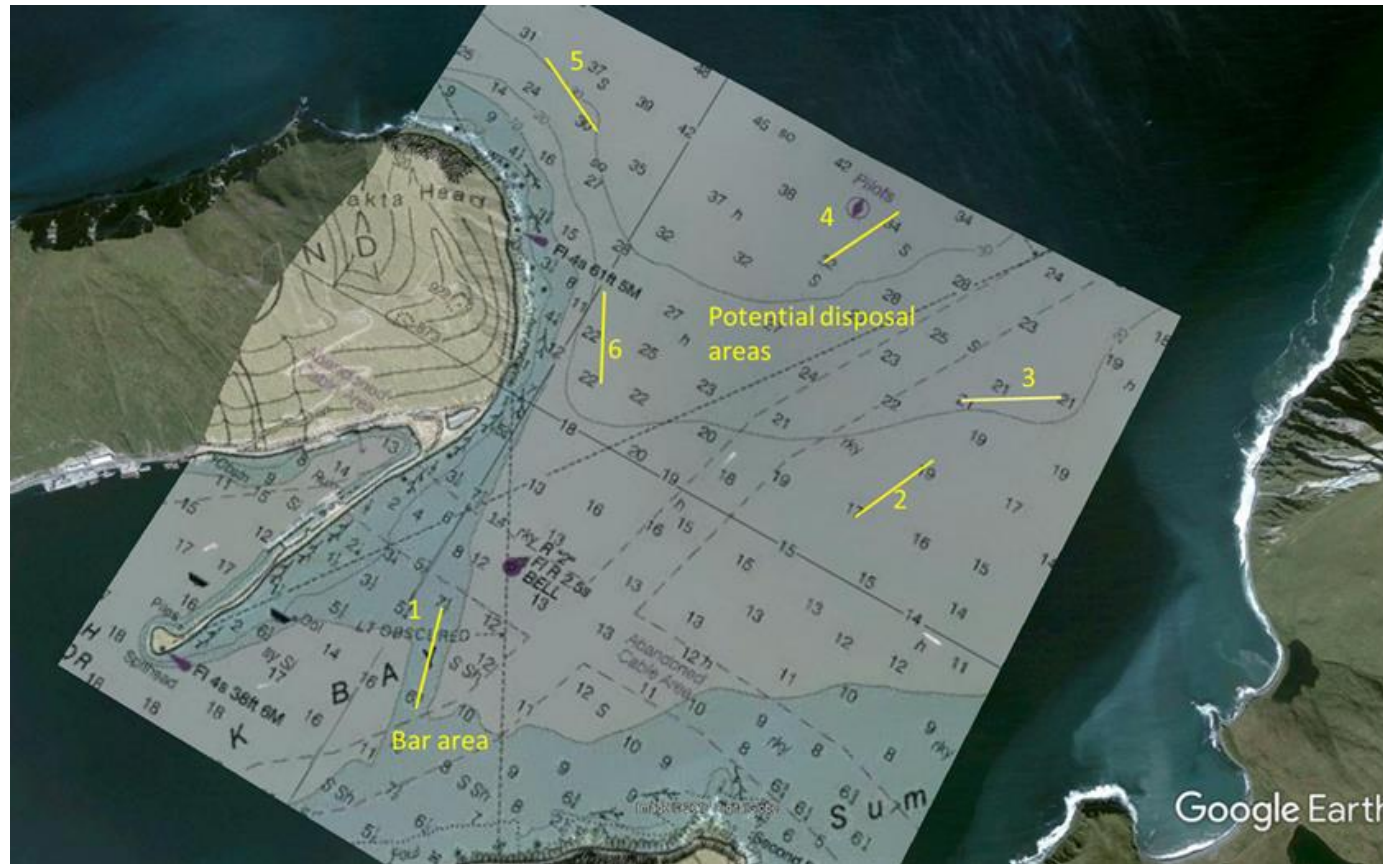
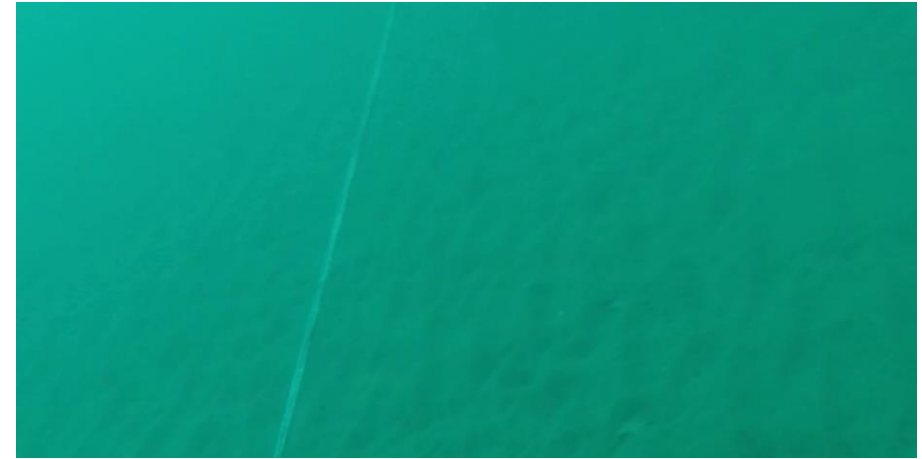


Table 2. Total catch, catch-per-unit-effort (CPUE, unit = set), and percent frequency of occurrence (FO) of fishes captured with bottom trawl, crab pot, and beach seine in Iliuliuk Bay, Alaska during 2017. The top CPUE and FO values for each gear type are bolded. Fishes are listed in descending order of abundance based on total catch among all sets.

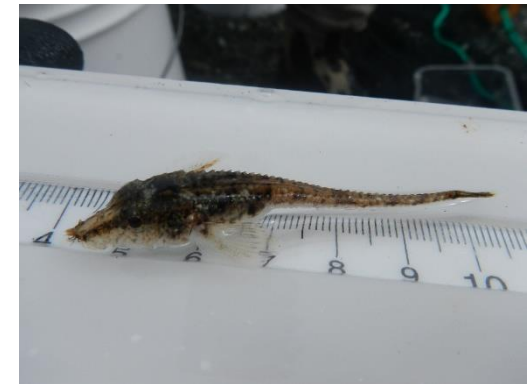
Common name	Scientific name	Family	Catch	Trawl		Pot		Seine	
				CPUE	FO	CPUE	FO	CPUE	FO
Rock sole	<i>Lepidopsetta</i> spp.	Pleuronectidae	272	11.4	36			5.5	100
Pink salmon	<i>Oncorhynchus gorbuscha</i>	Salmonidae	146					36.5	100
English sole	<i>Parophrys vetulus</i>	Pleuronectidae	106					26.5	100
Sturgeon poacher	<i>Podotheucus accipenserinus</i>	Agonidae	31	0.1	9			7.3	75
unidentified flatfish		Pleuronectidae	25	0.6	14			2.8	50
Pacific cod	<i>Gadus macrocephalus</i>	Gadidae	21	0.1	9	< 0.1	4	4.0	50
Yellow Irish lord	<i>Hemilepidotus jordani</i>	Cottidae	21			0.5	35		
Pacific sand lance	<i>Ammodytes personatus</i>	Ammodytidae	20					5.0	50
Masked greenling	<i>Hexagrammos octogrammus</i>	Hexagrammidae	15					3.8	25
Snake prickleback	<i>Lumpenus sagitta</i>	Stichaeidae	14					3.5	50
unidentified sculpin	<i>Myoxocephalus</i> sp.	Cottidae	13					3.3	75
Starry flounder	<i>Platichthys stellatus</i>	Pleuronectidae	7					1.8	50
unidentified ronquil		Bathymasteridae	7					1.8	25
Highbrow sculpin	<i>Triglops metopias</i>	Cottidae	5	0.2	9				
Crescent gunnel	<i>Pholis laeta</i>	Pholidae	4					1.0	25
Red Irish lord	<i>Hemilepidotus hemilepidotus</i>	Cottidae	4	0.1	9	< 0.1	2		
Great sculpin	<i>M. polyacanthocephalus</i>	Cottidae	3	0.1	9	< 0.1	2		
Pacific halibut	<i>Hippoglossus stenolepis</i>	Pleuronectidae	3	0.1	9			0.3	25
Roughspine sculpin	<i>Triglops macellus</i>	Cottidae	3	0.1	9				
unidentified poacher		Agonidae	3					0.8	50
Dolly Varden	<i>Salvelinus malma</i>	Salmonidae	2					0.5	25
Kelp greenling	<i>Hexagrammos decagrammus</i>	Hexagrammidae	2					0.5	25
unidentified snailfish		Liparidae	2	0.1	5				
Armorhead sculpin	<i>Gymnocanthus galeatus</i>	Cottidae	1	< 0.1	5				
Arrowtooth flounder	<i>Atheresthes stomias</i>	Pleuronectidae	1	< 0.1	5				
Dark rockfish	<i>Sebastes ciliatus</i>	Scorpaenidae	1	< 0.1	5				
Dover sole	<i>Microstomus pacificus</i>	Pleuronectidae	1	< 0.1	5				
Northern sculpin	<i>Icelinus borealis</i>	Cottidae	1	< 0.1	5				
Ribbed sculpin	<i>Triglops pingelii</i>	Cottidae	1	< 0.1	5				
Searcher	<i>Bathymaster signatus</i>	Bathymasteridae	1	< 0.1	5				
Slim sculpin	<i>Radulinus asprellus</i>	Cottidae	1	< 0.1	5				
Sockeye salmon	<i>Oncorhynchus nerka</i>	Salmonidae	1					0.3	25
Walleye pollock	<i>Gadus chalcogrammus</i>	Gadidae	1	< 0.1	5				
Yellowfin sole	<i>Limanda aspera</i>	Pleuronectidae	1	< 0.1	5				
	Total catch		740	215		25		419	
	Number of sets		72	22		46		4	
	Mean CPUE		10.3	9.8		0.5		104.8	
	Number of species		31	19		4		17	

A disposal area near areas 2 would do the following:

- Minimize impacts to fish and invertebrates
- Provide a close and therefore low cost disposal location
- Disposes material where it will not be a hazard to navigation



Beach Seining on Front Beach



Marine Biota in Iliuliuk Bay, Alaska

Project Report



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U.S. Army Corps of Engineers
Alaska District, Environmental Resources Section
Anchorage, AK

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Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA) coordination

Species

- Several ESA listed species by NMFS including Steller sea lions, humpback whales
- USFWS manages the ESA listed Southwest Distinct Population Segment of Northern sea otters
- The primary MMPA species of concern in area is the harbor seal

Potential impact

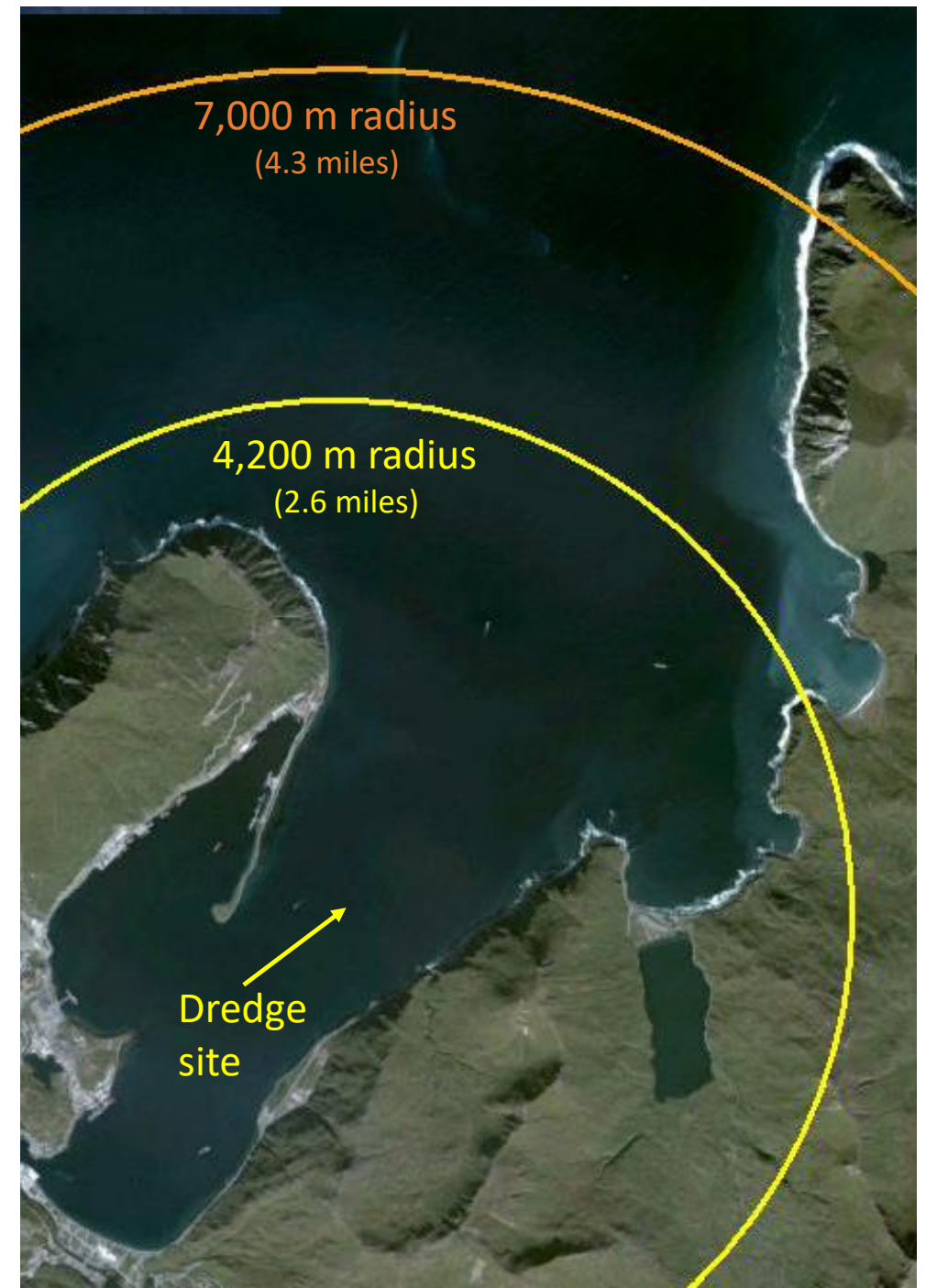
- The primary concern is impacts to marine mammals from confined underwater blasting

Permitting path forward

- Due to the large area where marine mammals could be impacted and the low likelihood of this zone being free of marine mammals, and Incidental Harassment Authorization (IHA) will be obtained from NMFS and USFWS
- Conversations have been started with both NMFS and USFWS and surveys will commence this summer to gather required data for the IHA application
- NMFS has an approved model for determining impact zones for different blasting scenarios
- Due to the level of detail needed for the IHA applications and the roughly 12-month permitting timeline, the IHAs will be secured after the feasibility phase.
- ESA coordination cannot be finalized until after the IHA is issued.

Potential radii to consider for blasting

- These radii are based on model runs for confined blasting in Valdez, AK using the NMFS model
- 4,200 m is probably a minimum shutdown zone for humpback whales based on Valdez charge size
- 7,000 m zone is possible if charge sizes are large
- Without an IHA these zones would have to be marine mammal free before detonation
- With an IHA, we just have to monitor these zones for exposure and only shutdown for much smaller zone with impacts could be permanent (hearing) or lethal



Questions?

