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Mapping and Characterizing Benthic Habitats in Northern Labrador: Insights for Marine Conservation and Indigenous Resource Management

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TABLE S1. Environmental features calculated across multiple scales to model species assemblages.

Source layer	Derivative layer	Units	Scales (m)	Method
Bathymetry	Source bathymetry surface	m	50	
	Bathymetric position index (BPI): topographic highs and lows	m	150, 250, 350, 450, 550, 650, 750, 850, 950, 1050	MultiscaleDTM
	Vector ruggedness measure (VRM): quantifies seafloor roughness by incorporating slope and aspect into a single measurement	Unitless	150, 250, 350, 450, 550, 650, 750, 850, 950, 1050	MultiscaleDTM
	Mean curvature	Degrees/m	150, 250, 350, 450, 550, 650, 750, 850, 950, 1050	MultiscaleDTM
	Profile curvature: rate of change of a slope (convex and concave contours in the surface	Degrees/m	150, 250, 350, 450, 550, 650, 750, 850, 950, 1050	MultiscaleDTM
	Planar curvature: perpendicular to slope (define ridges and valleys)	Degrees/m	150, 250, 350, 450, 550, 650, 750, 850, 950, 1050	MultiscaleDTM
	Eastness: orientation of the seabed (sine transformed measure of aspect)	unitless	150, 250, 350, 450, 550, 650, 750, 850, 950, 1050	MultiscaleDTM
	Northness: orientation of the seabed (cosine transformed measure of aspect)	unitless	150, 250, 350, 450, 550, 650, 750, 850, 950, 1050	MultiscaleDTM
	Relative difference to the mean value (RDMV) (measure of topographic postion: combines slope and aspect to decouple terrain ruggedness)	unitless	150, 250, 350, 450, 550, 650, 750, 850, 950, 1050	MultiscaleDTM
	Slope: steepness of gradient	Degrees	150, 250, 350, 450, 550, 650, 750, 850, 950, 1050	MultiscaleDTM
	Standard deviation (SD) of terrain variability	m	150, 250, 350, 450, 550, 650, 750, 850, 950, 1050	MultiscaleDTM
Distance to coast	Distance to coast: distance from the coast relative to each pixel	m		Euclidean distance
Temperature	Temperature: bottom water temperature	˚C		EBK
Salinity	Salinity: bottom water salinity	ppu		EBK

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TABLE S2. Total abundance of morphotaxa throughout survey in Nain, Newfoundland and Labrador. Status denotes dominant (x) and indicator taxa (*).

Status	*Morphotaxa*	Total abundance
	Actiniaria spp.	6
	Actinostola callosa	41
x	Ascidiacea sp.1	561
	Ascidiacea sp.2	55
x *	Ascidiacea sp.3	474
	Asterias sp.99	20
x	*Boltenia ovifera*	610
x	Bryozoa sp.004	234
x	Bryozoa sp.1	222
x *	Bryozoa sp.2	516
	Bryozoa sp.6	120
	Buccinum spp.	11
x *	*Ceriantharia* spp.	14,768
	Chionoecetes opilio	56
x	*Chlamys islandica*	649
x	*Cottidae* spp.	229
x	*Crossaster papposus*	263
	Ctenodiscus crispatus	10
x	*Cucumaria frodosa*	714
	Haliclona sp.2	19
x *	*Halocynthia pyriformis*	93
	Henricia sanguinolenta	83
	Hyas araneus	44
	Hyas coarctatus	24
x	*Leptasterias polaris*	108
x	*Leptoclinus maculatus*	380
x	*Lumpenus lampretaeformis*	874
	Lycodes vahlii	63
	Myoxocephalus scorpius	36
	Myoxocephalus spp.	44
x *	*Myxicola infundibulum*	2511
	Neohela monstrosa	27
x *	Ophiuroidea sp.1	3288
	Ophiuroidea sp.2	128
	Pagurus spp.	22
x	*Pandalus* spp.	2066
	Polinices heros	4
x	Porifera sp.11	292
x	Porifera sp.13	424
	Porifera sp.21	41
	Porifera sp.22	16
x	Porifera sp.3	319
x	*Psolus fabricii*	2594
x	*Psolus phantapus*	2072
x	*Sabellida* spp.	455
	Solaster endeca	13
	Stichaeus punctatus	5
	Stomphia coccinea	249
x *	*Stronglyocentrotus droebachiensis*	8495
x	*Urticina felina*	461

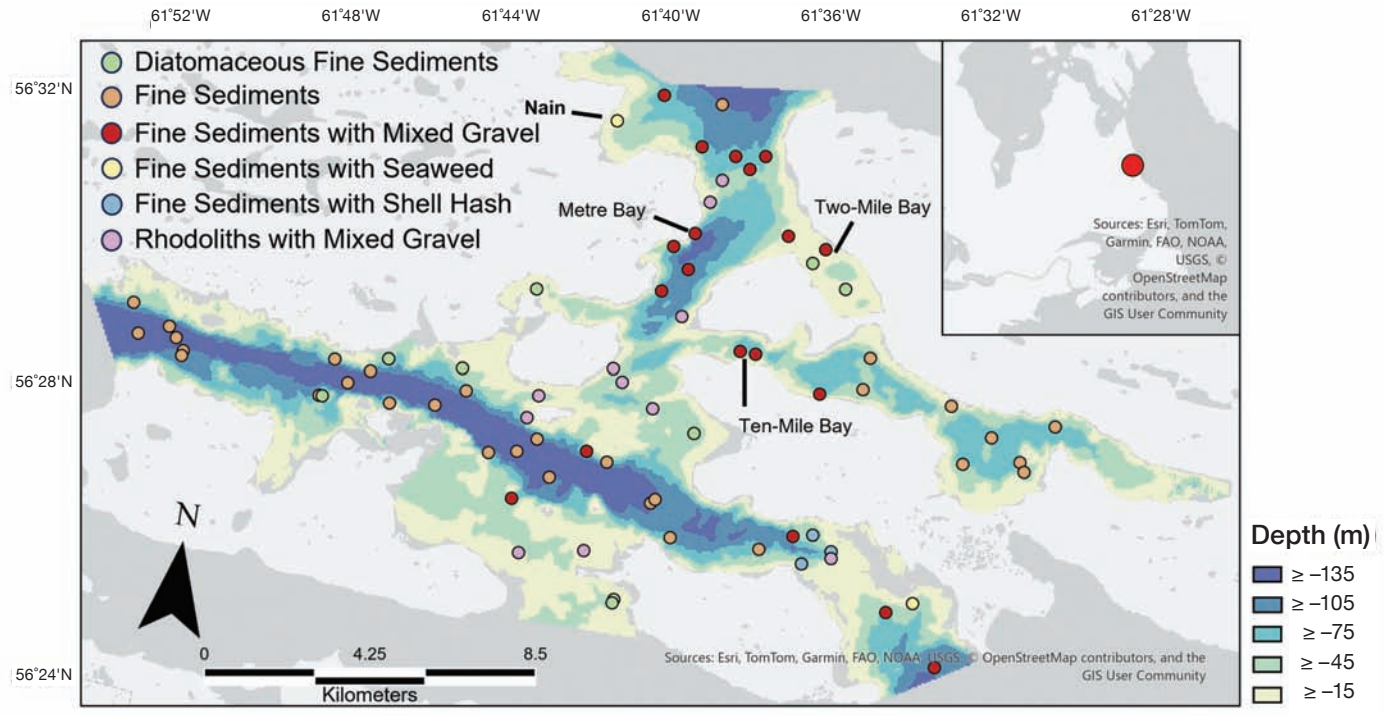


FIG. S1. Drop-camera video survey locations (n = 75) from GRTS design. Sites are colour coded by substrate classification. Depth classifications from deep to shallow are coloured from dark to light, respectively.

Assemblage	Indicators	Image	Dominant Taxa	Sample Size
1	Ascidians & bryozoans		*Stronglyocentrotus droebachiensis*, *Psolus fabricii*, *Pandalus* spp., *Myxicola infundibulum*, *Boltenia ovifera*, Bryozoa sp. 2, *Psolus phantapus*, Ascidiacea sp. 3, *Lumpenus lampretaeformis*, Ascidiacea Sp. 1, Porifera sp. 11, Porifera sp. 13, Bryozoa sp. 1, *Crossaster papposus*, *Cottidae* spp., Ophiuroidea sp. 1, *Halocynthia pyriformis*, *Chlamys islandica*	21
2	Green sea urchins		*Stronglyocentrotus droebachiensis*, *Myxicola infundibulum*, *Psolus fabricii*, *Psolus phantapus*, *Cucumaria frodosa*, *Chlamys islandica, Crossaster papposus*, *Urticina felina,* Bryozoa sp. 004, *Leptclinus maculatus*, *Leptasterias Polaris*, *Bolteni ovifera*, *Cottidae* spp.	25
3	Brittle stars, tube-dwelling anemones & tube worms		Ceriantharia spp., Ophiuroidea sp. 1, *Pandalus* spp., Sabellida spp., *Lumpenus lampretaeformis, Stronglyocentrotus droebachiensis*, *Psolus Phantapus*, *Myxicola infundibulum*, Porifera sp. 3, *Leptoclinus maculatus*	29

FIG. S2. Images of epifaunal assemblages and dominant taxa observed for each species assemblages observed around Nain. Sample size refers to the number of drop-camera stations.

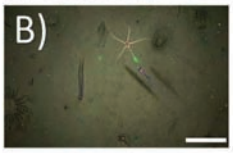
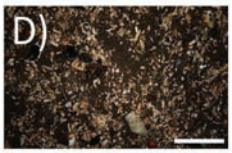
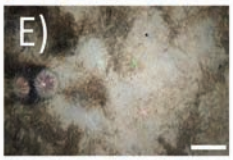
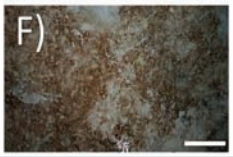
Images	Substrate Class	Description
	Rhodoliths with Mixed Gravel	High coverage of crustose algae that form rounded calcareous nodules and branching patterns (rhodoliths: likely *Lithothamnion glaciale*) and contained a mixture of gravel substrates (i.e., pebbles, cobbles, boulders) enveloped by encrusting coralline algae
	Fine Sediments	Composed entirely of sand and/or mud with many infications of bioturbation
	Fine Sediments with Mixed Gravel	Composed mostly of mud and/or sand, but had multiple patches of large pebbles, cobbles, and boulders often enveloped by encrusting coralline algae
	Fine Sediments with Shellfish	Composed of mud and/or sand but had an extensive coverage of broken scallop and mussel shells
	Fine Sediments with Seaweed	Composed mostly of mud and/or sand with a high density of seaweeds (*Agarum ciathratum*, *Saccharina longicruris*, *Lithothamnion* spp., *Rhodophyta* spp.)dispersed overtop the sediment
	Diatomaceous Fine Sediments	Composed mostly of fine sediments overlain with microalgal mats

FIG. S3. Detailed descriptions and representative images of each substrate class identified in the drop camera survey from Nain, Newfoundland and Labrador.