

SUPPLEMENTARY MATERIALS FOR

ECOLOGICAL BENTHIC UNITS

A NEW CHARACTERIZATION OF THE GLOBAL SEAFLOOR FOR OCEAN SPATIAL PLANNING AND MANAGEMENT

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<https://doi.org/10.5670/oceanog.2026.e211>

TABLE S1. Classification thresholds for environmental variables based on the NOAA Coastal and Marine Ecological Classification Standard (CMECS) where available and noted.

VARIABLE	UNITS	CLASSIFICATION CRITERIA
Gradient (slope)	Degrees	<2: Very gentle 2–<5: Gentle 5–<10: Moderate 10–<20°: Steep ≥20°: Very steep
Tidal range (tidal_range_cm)	cm	Using CMECS classification: <10: Atidal 10–<30: Microtidal 30–<100: Minimally tidal 100–<400: Moderately tidal 400–<800: Macrotidal ≥800: Megatidal
Wave height (sig_wave_hght)	m	Using CMECS classification: <0.1: Quiescent 0.1–<0.25: Very low 0.25–<1.0: Low 1.0–<2.0: Moderate 2.0–<4.0: Moderately high 4.0–<8.0: High ≥8.0: Very high
Depth (depth_mean; and where photic depth is not included in the vertical zoning)	m (absolute)	Using CMECS classification: 0–<5: Shallow infralittoral 5–<30: Deep infralittoral 30–<200: Circalittoral 200–<1,000: Mesobenthic 1,000–<4,000: Bathybenthic 4,000–<6,000: Abyssalbenthic ≥6,000: Hadalbenthic
pH (ph_mean)	–	<7.766: Below CCD 7.766–7.804: Near CCD > 7.804: Above CCD

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VARIABLE	UNITS	CLASSIFICATION CRITERIA
Salinity (so_ltmín)	PSU	Using CMECS classification: <5: Oligohaline 5–<18: Mesohaline 18–<25: Lower Polyhaline 25–<30: Upper Polyhaline 30–<40: Euhaline ≥40: Hyperhaline
Dissolved oxygen (o2_ltmín) assumes 1 mg O ₂ / L = 31.25 mmol O ₂ m ⁻³	mmol m ⁻³	Using CMECS classification: <3.125: Anoxic 3.125–<62.5: Severely hypoxic 62.5–<125: Hypoxic 125–<250: Oxic 250–<375: Highly oxic ≥375: Very oxic
Primary productivity (phyc_mean)	mmol m ⁻³	<0.1: Very Low 0.1–<1: Low 1–<5: Moderate 5–<15: High ≥15: Very high
Temperature (thetao_ltmáx)	°C	Using CMECS classification: ≤0: Super chilled 0–<5: Very cold 5–<10: Cold 10–<15: Cool 15–<20: Moderate 20–<25: Warm 25–<30: Very warm 30–<35: Hot ≥35: Very hot
Sea ice cover (icec_day_mean)	Fraction (0–1)	= 0: No ice > 0–<0.25: Very low ice 0.25–<0.50: Low ice 0.50–<0.75: Moderate ice ≥0.75: High ice
Current velocity (sws_mean)	m s ⁻¹	0: Zero 0–<0.001: Very low 0.001–<0.01: Low 0.01–<0.1: Moderate 0.1–<0.5: High ≥0.5: Very high
Seafloor downward organic carbon flux (seafloor_carbon_flux_average)	mmol/m ² /d	<0.1: Very low 0.1–<0.3: Low 0.3–<1: Moderate ≥1: High
Seafloor spreading rate (spreading_rate)	mm yr ⁻¹	<50: Slow 50–<100: Moderate ≥100: Fast
Crustal age (age_2020)	Ma	<50: Young 50–<100: Middle-aged 100–<150: Old ≥150: Very old
Sediment thickness (global_sediment_thickness)	m	<500: Sparse 500–<2000: Moderate ≥2000: Thick
Seamount height	m	<2,000: Very low 2,000–<3,000: Low 3,000–<4,000: Moderate ≥4,000: High