

Appendix 1. EMU numbers, Coastal and Marine Ecosystem Classification System (CMECS) names, EMU names, and EMU volumetric region names and codes. CMECS does not include descriptors for nitrate, phosphate, and silicate, so the labels for these are adopted from EMU names (high, medium and low) based on the observed distribution of values. EMUs and their number designations are unique. However, volumetric region names are compiled from geographic and depth zone descriptors, and are not unique. Volumetric region codes begin with upper case geographic descriptors followed by lower case depth zone descriptors (epipelagic (0 to <200 m); mesopelagic (200 to 1,000 m); bathypelagic (1,000 to 4,000 m); and abyssopelagic (>4,000 m). Median middle-unit depth was used to assign each EMU into a CMECS depth zone. Geographic features in the EMU volumetric region names do not include references to isolated occurrences of the water volume. Refer to Appendix 2 for maps showing geographic locations of EMU volumetric regions. Compare identical volumetric region names for details of water volume properties. Abbreviations: epi=epipelagic; meso=mesopelagic; bathy=bathypelagic; abysso=abyssopelagic; A=Arctic; AA=Antarctic; AS=Arabian Sea; AT=Atlantic; ATS=Atlantic Subtropical; BA=Baltic Sea; BE=Beaufort Sea; BL=Black Sea; BR=Bering Sea; C=Caspian Sea; E=Equatorial; EA=Equatorial Atlantic; EI=Equatorial Indian; I=Indian; L=Labrador Sea; M=Mediterranean Sea; NA=North Atlantic; NP=North Pacific; NPS=North Pacific Subtropical; NS=Northern Subtropical; P=Pacific; PR=Persian Gulf; R=Red Sea; SPS=South Pacific Subtropical; SS=Southern Subtropical; SAA=Subantarctic; SA=South Atlantic; SP=South Pacific; ST=Subtropical; T=Tropical; TA=Tropical Atlantic; TI=Tropical Indian; TP=Tropical Pacific.

EMU No.	CMECS Name	EMU Name	EMU Volumetric Region Name and Code
1	Mesopelagic, Cold, Polyhaline, Severely Hypoxic, Low Nitrate, Medium Phosphate, High Silicate	Moderate Depth, Cold, Low Salinity, Very Low Oxygen, Low Nitrate, Medium Phosphate, High Silicate	Black and Caspian Seas Mesopelagic (BL_C_meso)
2	Epipelagic, Cold, Polyhaline, Hypoxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Cold, Low Salinity, Low Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Black and Caspian Seas Epipelagic (BL_C_epi)
3	Bathypelagic, Very Cold, Euhaline, Severely Hypoxic, High Nitrate, Medium Phosphate, High Silicate	Deep, Very Cold, Normal Salinity, Very Low Oxygen, High Nitrate, Medium Phosphate, High Silicate	North Pacific and Arabian Sea Bathypelagic (NP_AS_bathy)
4	Mesopelagic, Cold, Polyhaline, Severely Hypoxic, Low Nitrate, High Phosphate, High Silicate	Moderate Depth, Cold, Low Salinity, Very Low Oxygen, Low Nitrate, High Phosphate, High Silicate	Black Sea Mesopelagic (BL_meso)
5	Epipelagic, Frozen/Superchilled, Polyhaline, Highly Oxidic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Superchilled, Low Salinity, High Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Arctic Epipelagic (A_epi)
6	Epipelagic, Cold, Polyhaline, Oxidic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Cold, Low Salinity, Moderate Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Black and Caspian Seas Epipelagic (BL_C_epi)
7	Epipelagic, Moderate to Cool, Mesohaline, Oxidic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Cool, Very Low Salinity, Moderate Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Caspian Sea Epipelagic (C_epi)
8	Epipelagic, Moderate to Cool, Euhaline, Oxidic, Medium Nitrate, Low Phosphate, Low Silicate	Shallow, Cool, Normal Salinity, Moderate Oxygen, Medium Nitrate, Low Phosphate, Low Silicate	Subantarctic, North Atlantic, and North Pacific Epipelagic (SAA_NA_NP_epi)
9	Mesopelagic, Moderate to Cool, Euhaline, Oxidic, Low Nitrate, Low Phosphate, Low Silicate	Moderate Depth, Cool, Normal Salinity, Moderate Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Mediterranean and Red Seas Mesopelagic (M_R_meso)
10	Mesopelagic, Cold, Euhaline, Severely Hypoxic, High Nitrate, Low Phosphate, Low Silicate	Moderate Depth, Cold, Normal Salinity, Very Low Oxygen, High Nitrate, Low Phosphate, Low Silicate	Equatorial Indian, Tropical Atlantic, and Tropical Pacific Mesopelagic (EI_TA_TP_meso)

11	Epipelagic, Moderate to Cool, Euhaline, Oxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Cool, Normal Salinity, Moderate Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Northern Subtropical and Southern Subtropical Epipelagic (NS_SS_epi)
12	Epipelagic, Very Cold, Mesohaline, Severely Hypoxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Very Cold, Very Low Salinity, Very Low Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Baltic Sea Epipelagic (BA_epi)
13	Bathypelagic, Very Cold, Euhaline, Hypoxic, High Nitrate, Medium Phosphate, High Silicate	Deep, Very Cold, Normal Salinity, Low Oxygen, High Nitrate, Medium Phosphate, High Silicate	Pacific and Indian Bathypelagic (P_I_bathy)
14	Bathypelagic, Very Cold, Euhaline, Oxic, High Nitrate, Low Phosphate, High Silicate	Deep, Very Cold, Normal Salinity, Moderate Oxygen, High Nitrate, Low Phosphate, High Silicate	Antarctic and Subantarctic Bathypelagic (AA_SAA_bathy)
15	Bathypelagic, Cold, Polyhaline, Anoxic, Low Nitrate, High Phosphate, High Silicate	Deep, Cold, Low Salinity, No Oxygen, Low Nitrate, High Phosphate, High Silicate	Black Sea Bathypelagic (BL_bathy)
16	Epipelagic, Very Cold, Mesohaline, Highly Oxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Very Cold, Very Low Salinity, High Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Baltic Sea Epipelagic (BA_epi)
17	Epipelagic, Cold, Mesohaline, Oxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Cold, Very Low Salinity, Moderate Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Baltic Sea Epipelagic (BA_epi)
18	Epipelagic, Warm to Very Warm, Euhaline, Oxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Warm, Normal Salinity, Moderate Oxygen, Low Nitrate, Low Phosphate, Low Silicate	North Pacific Subtropical and Equatorial Indian Epipelagic (NPS_EI_epi)
19	Epipelagic, Cold, Euhaline, Oxic, Medium Nitrate, Low Phosphate, Low Silicate	Shallow, Cold, Normal Salinity, Moderate Oxygen, Medium Nitrate, Low Phosphate, Low Silicate	Subantarctic and North Pacific Subtropical Epipelagic (SAA_NPS_epi)
20	Epipelagic, Very Cold, Mesohaline, Oxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Very Cold, Very Low Salinity, Low Nitrate, Low Phosphate, Low Silicate	Baltic Sea Epipelagic (BA_epi)
21	Epipelagic, Warm to Very Warm, Euhaline, Oxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Warm, Normal Salinity, Moderate Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Atlantic Subtropical and South Pacific Subtropical Epipelagic (ATS_SPS_epi)
22	Epipelagic, Cold, Mesohaline, Hypoxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Cold, Very Low Salinity, Low Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Baltic and Black Seas Epipelagic (BA_BL_epi)
23	Epipelagic, Frozen/Superchilled, Euhaline, Highly Oxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Superchilled, Normal Salinity, High Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Arctic and Labrador Sea Epipelagic (A_L_epi)
24	Epipelagic, Warm to Very Warm, Euhaline, Oxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Warm, Normal Salinity, Moderate Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Tropical Pacific, Tropical Indian, and Equatorial Atlantic Epipelagic (TP_TI_EA_epi)
25	Epipelagic, Frozen/Superchilled, Euhaline, Highly Oxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Superchilled, Normal Salinity, High Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Arctic and Labrador Sea Epipelagic (A_L_epi)
26	Mesopelagic, Moderate to Cool, Euhaline, Hypoxic, Medium Nitrate, Low Phosphate, Low Silicate	Moderate Depth, Cool, Normal Salinity, Low Oxygen, Medium Nitrate, Low Phosphate, Low Silicate	Tropical and Subtropical Mesopelagic (T_ST_meso)
27	Epipelagic, Very Cold, Polyhaline, Oxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Very Cold, Low Salinity, Moderate Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Caspian Sea Epipelagic (C_epi)
28	Epipelagic, Moderate to Cool, Mesohaline, Oxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Cool, Very Low Salinity, Low Nitrate, Low Phosphate, Low Silicate	Caspian Sea Epipelagic (C_epi)

29	Bathypelagic, Very Cold, Euhaline, Oxic, Medium Nitrate, Low Phosphate, Low Silicate	Deep, Very Cold, Normal Salinity, Moderate Oxygen, Medium Nitrate, Low Phosphate, Low Silicate	Arctic and North Atlantic Bathypelagic (A_NA_bathy)
30	Epipelagic, Very Cold, Euhaline, Oxic, Medium Nitrate, Low Phosphate, Low Silicate	Shallow, Very Cold, Normal Salinity, Moderate Oxygen, Medium Nitrate, Low Phosphate, Low Silicate	North Pacific and Beaufort Sea Epipelagic (NP_BE_epi)
31	Epipelagic, Frozen/Superchilled, Euhaline, Oxic, Medium Nitrate, Low Phosphate, Medium Silicate	Shallow, Superchilled, Normal Salinity, Moderate Oxygen, Medium Nitrate, Low Phosphate, Medium Silicate	Antarctic and Bering Sea Epipelagic (AA_BR_epi)
32	Epipelagic, Warm to Very Warm, Mesohaline, Oxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Warm, Very Low Salinity, Moderate Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Caspian Sea Epipelagic (C_epi)
33	Mesopelagic, Very Cold, Euhaline, Severely Hypoxic, High Nitrate, Medium Phosphate, Medium Silicate	Moderate Depth, Very Cold, Normal Salinity, Very Low Oxygen, High Nitrate, Medium Phosphate, Medium Silicate	Tropical Pacific and Tropical Indian Mesopelagic (TP_TI_meso)
34	Epipelagic, Very Cold, Polyhaline, Anoxic, Low Nitrate, High Phosphate, High Silicate	Shallow, Very Cold, Low Salinity, No Oxygen, Low Nitrate, High Phosphate, High Silicate	Black Sea Epipelagic (BL_epi)
35	Epipelagic, Frozen/Superchilled, Euhaline, Oxic, Low Nitrate, Low Phosphate, Low Silicate	Shallow, Superchilled, Normal Salinity, Moderate Oxygen, Low Nitrate, Low Phosphate, Low Silicate	Arctic and Labrador Sea Epipelagic (A_L_epi)
36	Bathypelagic, Very Cold, Euhaline, Oxic, Medium Nitrate, Low Phosphate, Low Silicate	Deep, Very Cold, Normal Salinity, Moderate Oxygen, Medium Nitrate, Low Phosphate, Low Silicate	Atlantic, Subantarctic, and North Pacific Subtropical Bathypelagic (AT_SAA_NPS_bathy)
37	Bathypelagic, Very Cold, Euhaline, Oxic, High Nitrate, Low Phosphate, Medium Silicate	Deep, Very Cold, Normal Salinity, Moderate Oxygen, High Nitrate, Low Phosphate, Medium Silicate	Subantarctic, South Atlantic and North Pacific Bathypelagic (AA_SAT_NP_bathy)