Supplementary Materials

Table S1. Properties and sources of data layers used in this study.

Data layer	Year	Native resolution, scale	Native extent	Data processing	Source
Species range data of rare, endangered, and commercially important species	2022	1°	-90, 90, -180, 180	Re-interpolated the layers to 0.083°× 0.083°grid cells	Ocean Biodiversity Information System（OBIS） https://mapper.obis.org/
Seagrasses	2020	1:1,000,000	-90, 90, -180, 180	Rasterized the layer with 0.083°× 0.083°grid cells	UNEP-WCMC, Short FT (2021) https://doi.org/10.34892/x6r3-d211
Mangroves	2010	0.8 arc seconds	-38.85,32.3 -180, 180		Bunting et al. (2018) https://doi.org/10.3390/rs10101669
Kelp beds	2020	30 arc seconds	-90, 90, -180, 180		Jayathilake et al. (2020) https://doi.org/10.1016/j.biocon.2020.108815
Salt marshes	2015	Between 1:10,000 to 1:4,000,000 (largely 1:10,000 to 1:100,000)	-46.9, 73.3, -170.7, 179		Mcowen et al. (2017) https://doi.org/10.3897/BDJ.5.e11764.
Coral reefs	2018	Variable	-34.3, 32.5 -180, 180		UNEP-WCMC, WorldFish Centre, WRI, TNC (2021) https://doi.org/10.34892/t2wk-5t34
Hydrothermal vent and Cold seeps	2010		-90, 90, -180, 180	Rasterized the layer with 0.083°× 0.083°grid cells	German et al. (2011) https://doi.org/10.1371/journal.pone.0023259.g002

Automatic Identification System data of global vessels	2024		-90, 90, -180, 180	Rasterized the layer with 0.083°× 0.083°grid cells	Shipxy (http://www.shipxy.com)
Important Bird and Biodiversity Areas (IBAs)	2020		-79.2, 81.4, -180, 180	Rasterized the layer with 0.083°× 0.083°grid cells IBAs in land were removed	Birdlife International (2020) http://datazone.birdlife.org/site/ibasindanger
Marine protected areas (MPAs)	2023		-90, 90, -180, 180		UNEP-WCMC and IUCN www.protectedplanet.net
Ecologically or Biologically Significant Marine Areas (EBSAs)	2023		-90, 90, -180, 180		EBSAs (2023) https://www.cbd.int/ebsa/
Global Coastline	2019	30m	-70, 88, -176, 179	Rasterized the layer with 0.083°× 0.083°grid cells Inland rivers were removed	Sayre et al. (2019) https://rmgsc.cr.usgs.gov/ecosystems/datadownload.shtml
Exclusive Economic Zone (EEZ)	2020		-90, 90, -180, 180		Flanders Marine Institute (2020) https://www.marineregions.org/
Topographic data	2021	15 arc seconds	-90, 90, -180, 180'	Resampled the layers to 0.083°× 0.083°grid cells	General Bathymetric Chart of the Oceans (2021) https://www.gebco.net/data_and_products/gridded_bathymetry_data/gebco_2021/

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