

Marine Geospatial Information Categories

Categorising marine geospatial information in a consistent way has many benefits, including:

- supporting better data management practices,
- facilitating discovery, access, publication and reuse of information, internally and externally,
- improving data interoperability.

The categories recommended in this document aim to provide consistency in the NZ context and support the development of a NZ National MGI Inventory. The categories draw on input from international initiatives (i.e. IHO MSDI WG, AusSeabed, Australian Ocean Data Network, GOOS Essential Ocean Variables) and the NZ MGI community through the NZMGI Working Group.

This classification applies to data collected in the marine environment and covering estuarine¹, coastal and offshore areas and which detail should be recorded in the keywords/tags section of the inventory.

Please note: keywords/tags are not intended to be exhaustive nor exclusive to the themes and data types, these are examples.

Administrative areas and boundaries

for data related to marine management and human usage

Data types	Examples of keywords / tags
Maritime jurisdictions	contiguous zone, exclusive economic zone, EEZ, continental shelf, high sea; maritime governance; jurisdictional boundaries; territorial sea; estuary
Marine conservation areas	protected areas; Marine Protected Areas ² ; marine mammal sanctuaries; reserves; marine conservation; restored areas; conservancy; marine parks; benthic protection areas; cable protection areas
Regulatory use restrictions	military areas; defence operations; energy exploration areas; permit boundaries; harbour limits; dredged areas; activity management areas; monitoring areas

¹ as defined in the classification of New Zealand's coastal hydrosystems

<https://environment.govt.nz/publications/a-classification-of-new-zealands-coastal-hydrosystems/>

² as defined in the MPA Policy and Implementation Plan 2005

<https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/marine-protected-areas/mpa-policy-and-implementation-plan.pdf>

Commercial fishing/aquaculture areas	marine farms; fishery zones; fisheries; aquaculture; seaweed harvesting; fish farm; quota management areas; trawl footprint; temporary closures and restrictions on fishing methods
Mining extraction/exploration areas	boulder exploration; drilling areas; exploration zones; extraction areas
Māori customary interest areas	customary fishing zones; areas of interest for Māori/Iwi; Mātaitai; Taiāpure; rohe moana; fisheries bylaws; areas of cultural significance
Transportation	commercial shipping; ferry routes; separation scheme; AIS; charts; shipping areas; maritime routes; pilot boarding areas; anchorage areas
Recreational areas	tourism areas; water ski lines; diving sites; swimming /snorkelling areas; archaeological sites; surf breaks; shipwrecks; shore use; beaches; beach access points; recreational fishing areas
Permitted dumping ground	dumping/discharge grounds; radioactive areas; contaminated sites; disposal sites

Biology

for data related to living species and their habitats

Data types	Examples of keywords / tags
Sessile fauna	species distribution; sessile invertebrates; sponges; corals; mussels; biomass; abundance
Mobile fauna	fish species; sea birds; turtles; marine mammals; feeding ground; stranding; microorganisms; nursing/nesting sites; spawning areas; breeding areas; species distribution; vertebrates
Flora	kelp forests; algae; vegetation coverage; biomass; abundance; seagrass meadows
Commercial fishing catch effort	catch effort; landing; quotas; stock assessment; fish stock
Commercial bycatch	accidental captures
Biosecurity	invasive species

**Marine habitats,
mapping and
classification**

habitats; habitat classification; habitat mapping; ecosystems

Geoscience

for data related to Earth Science

Data types	Examples of keywords / tags
Seismology	seismic activity; earthquakes; seismic waves; magnitude; seismic velocity; slow slip events; seismic reflection; seismic refraction; seismographs; tomography; ambient noise; tremor
Volcanology	volcanoes; eruptions; volcanic ejecta; volcanic emissions; lava; magma; gas analysis; collapse; geochemistry
Petrology & mineralogy	mineralogy; rock samples; metamorphic petrology; igneous petrology; physical rock properties
Structural Geology	deformation; active faults; palaeo-faults; kinematics; stress fields; microstructure; rock fabric
Tectonics	tectonic plates; plate motions; fracture zones; subduction zones
Geodesy	geoid; geodynamics; strain; stress
Sedimentology & stratigraphy	basin analysis; stratigraphic cycles; biostratigraphy; rugosity; grain size; sediment composition
Geological Time	palaeontology; geochronology; radiometric dating; chronostratigraphy
Past environments	palaeogeography; palaeo water depth; palaeontology
Geomorphology	geomorphology; submarine landslides; iceberg scours, pockmarks; seamounts; sea channels
Subsurface fluids & gases	hydrogeology; groundwater; gas hydrates; geothermal; geochemistry; seeps; vents and flares; plumes
Potential field geophysics	gravity field; gravity anomalies; microgravity; magnetic fields; magnetic anomalies; palaeomagnetism
Resources	minerals; hydrocarbons; aggregates
Geology (other)	rock specimen; cores; geochemistry
Geophysics (other)	resistivity; heat flow

Hydrography

for data related to seabed features

Data types	Examples of keywords / tags
Bathymetry	water depth; bathymetry; elevation; DEM/DTM; topography of submarine features; seabed; isobath; contours; multibeam; mosaic imagery; RGB imagery; processed bathymetry; grids; raw data; side scan sonar; fair sheets; sounding sheets; ungridded; processed data; bathymetric LiDAR; single beam echo sounder; echo sounder; satellite derived bathymetry; SDB; raw water column returns
Seafloor backscatter	seafloor reflectance; multibeam; seafloor aspect; curvature; hill shade
Coastline	mean high water springs; coastal mapping; chart datum; highest astronomical tide; mainland; islands; mean sea level; lowest astronomical tide
Physical obstructions	rocks; reefs; wrecks; obstructions

Infrastructure

for data related to marine constructions that support human activities

Data types	Examples of keywords / tags
Port/harbour facilities	marinas; harbours; ports
Shoreline constructions	seawalls; jetties; pontoons; boat ramps; wharves; jetties; sewage locations; storm water drainage
Pipelines & underwater cables	underwater cables; pipelines; overhead cables
Energy/resource production sites	oil/gas production sites; marine wind farms; wave/current farms; offshore platforms; oil/gas; mining/mineral extraction
Aid to navigation	lighthouses; buoys; isolated dangers; lights; beacons
Communication structures & coverage	communication signal stations; radar transponders

Ocean physics

for data related to the physical properties of the marine water

Data types	Examples of keywords / tags
Sea state	significant wave height; wave period; wave direction; maximum wave height; swell; directional spectrum; whitecap fraction
Sea surface height	tsunami locations; sea level anomaly; sea surface height gradients; sea level extremes; tidal range
Sea Surface Stress	equivalent neutral winds; stress equivalent neutral winds; scalar stress; air pressure
Sea Surface Heat Flux	latent/sensible heat flux; net /downward/ upward shortwave radiation; albedo; net / downward/ upward longwave radiation; photosynthetically available radiation
Sea ice	ice extent and area; ice concentration; ice thickness; ice motion; fast ice; ice type; ice salinity; snow cover thickness; surface freezeup and melt time; melt pond coverage
Sea currents	near surface velocity at stated depth; surface velocity / currents; Lagrangian drift; stokes velocity; surface speed; 3-dimensional velocity components; geostrophic velocities; Ekman currents; tidal currents; speed;
Sea temperature	sea surface temperature; foundation SST; bulk SST; SVP; CTD
Sea salinity	bulk surface salinity; skin surface salinity; near surface salinity at stated depth; foundation and bulk SSS; CTD; SVP
Sea sound	sound pressure p(t); particle motion (displacement; velocity; acceleration); passive records; acoustic; noise; active emissions
Sea colour	radiance; reflectance; chlorophyll-a concentration; TSS; turbidity; satellite reading; Secchi

Ocean biochemistry

for data related to the chemical properties of the marine water

Data types	Examples of keywords / tags
Nutrients	nitrate; nitrite; ammonium; phosphate; silicic acid
Dissolved Gases	nitrus oxide; dissolved oxygen

Carbon	dissolved inorganic carbon; alkalinity; partial pressure of carbon dioxide; pH; dissolved organic carbon
Tracers	chlorofluorocarbons; sulphur hexafluoride; isotopes
Particulate matter	particulate organic matter; particulate organic / inorganic carbon; suspended matter; calcium carbonate; biogenic silica
Pollution	water contaminants; pelagic pollution; bacterial pollution; ocean dumping; plastics; fishing gear; heavy metals; biotoxin