

Census of Marine Life: Global and Japanese marine biodiversity

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The CoML (Census of Marine Life) was a huge marine biological program, global network of researchers in more than 80 nations engaged in a 10-year scientific initiative to assess and explain the diversity, distribution, and abundance of life in the oceans. The main purpose of the CoML was to assess and explain the diversity, distribution, and abundance of marine organisms in the global ocean. The CoML consisted of four major component programs: the History of Marine Animal Populations (HMAP), the Ocean Realm Field Project including 14 field projects, the Future of Marine Animal Populations (FMAP), and the database of the Ocean Biogeographic Information System (OBIS). The 14 field projects focused on the major habitats and groups of species in the global ocean. Several marine biological activities in Japan contributed to the CoML.

To ascertain the level of marine biodiversity in Japanese waters, Japanese CoML community have compiled information on the marine biota, including the number of described species (species richness), the number of identified but undescribed species, and our current state of knowledge about each taxon. This is the first attempt to estimate species richness for all marine species in Japanese waters. A total of 33,629 species have been reported to occur in Japanese waters. The total number of identified but undescribed species was at least 121,913. The total number of described species combined with the number of identified but undescribed species reached 155,542. This is the best estimate of the total number of species in Japanese waters and indicates that more than 70% of Japanese marine biodiversity remains un-described. Japanese Exclusive Economic Zone (EEZ) extends from approximately 17N to 48N, and from 122E to 158E. The land area of Japan is small at 3.78×10^5 km², but the EEZ ranks sixth largest in the world, or approximately 12 times the area of the land. The total area of Japanese EEZ is only 1.2% of the area of the global ocean. According to CoML investigations, the total number of marine species described from the global ocean is estimated at about 250,000. A total of 33,629 species approaches 13.5% of all marine species. Thus, Japanese marine species richness is high considering the small area and volume of Japanese waters. The state of knowledge was extremely variable, with taxa containing many inconspicuous, smaller species tending to be less well known. Although Japanese marine biota can be considered relatively well known, at least within the Asian-Pacific region, considering the vast number of different marine environments such as coral reefs, ocean trenches, ice-bound waters, methane seeps, and hydrothermal vents, much work remains to be done. We assume global climate change to have a tremendous impact on marine biodiversity and ecosystems. The present result will be the good baseline to monitor (detect) the impact of environmental change on marine biodiversity

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