Japan: a marine biodiversity hotspot!

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To ascertain the level of marine biodiversity in Japanese waters, we 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 Japan's marine biodiversity remains un-described.

Japan's Exclusive Economic Zone (EEZ) extends from approximately 17° N to 48° N, and from 122° E to 158° E. The land area of Japan is small at 3.78×10^5 km^2, but the EEZ ranks sixth largest in the world, or approximately 12 times the area of the land. The total area of Japan's EEZ is only 1.2% of the area of the global ocean. According to OBIS, the total number of marine species described from the global ocean is estimated at about 230,000. A total of 33,629 species approaches 14.6% of all marine species. Thus, Japan's 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 Japan's 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. The number of invasive species reported as recently introduced into Japanese waters was 39.

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.