

## A new framework to integrate the marine biodiversity information around Japan

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Occurrence records of organisms (when and where an individual of an organism occurred) are essential information to understand the distribution of each species as well as to assess the local and global biodiversity. In the last decade, a global database for marine species, the Ocean Biogeographic Information System (OBIS, <http://www.iobis.org>) constructed by the Census of Marine Life and now working under the International Oceanographic Data Exchange (IODE) in the International Oceanographic Commission (IOC) of UNESCO, was established, and the integration and accumulation of occurrence records of marine organisms have greatly progressed. Currently, OBIS holds 32.2 million records from 1014 datasets, and covers 145 thousand species in 200-250 thousand known species from world oceans. As the results, OBIS became a major marine component of the Global Biodiversity Information Facility (GBIF) and the data contributed to researches challenging the assessment and prediction of the global biodiversity. However, several data biases are present on OBIS. For example, most occurrence records come from shallow waters, and the data from deeper regions (particularly over 2,500 m depth) is quite scarce. Additionally, OBIS data covers only 4.8 thousand species against 33 thousand species known from Japanese waters. These data gaps may affect the accuracy in estimating and predicting local and global marine biodiversity.

The Japan Agency for Marine-Earth Science and Technology (JAMSTEC) is holding specimens of marine organisms collected through the deep-sea researches and expeditions and has archived videos/photographs taken by submersibles such as the DSRV Shinkai 6500. A considerable amount of occurrence records based on the collection and observation by JAMSTEC may be able to compensate for a part of the scarceness of deep-sea data from on OBIS. Therefore, JAMSTEC start to provide the data to OBIS since 2010, through the data system named the Biological Information System of Marine Life (BISMaL, <http://www.godac.jamstec.go.jp/bismal>) constructed and operated by JAMSTEC. Furthermore, JAMSTEC decided to host the Japan Regional OBIS Node (J-RON) and to start collecting data held by researchers as well as institutions in Japan. Although J-RON is not formally launched yet because the organization including non-JAMSTEC researchers/officers is now ongoing, a nation-wide research program supported by the Ministry of Environment, Japan, covering a variety of marine habitats from shallow to deep, already plans to provide data to J-RON and publish it through BISMaL as well as OBIS. Furthermore, the Tohoku Marine Science project ,assessing effects of the great tsunami on 11 March 2011 on the marine ecosystem of the disaster area and evaluating the recovery process, by the Ministry of Education, Culture, Sports, Science and Technology, Japan, has just started, and the possibility to publish biological data through BISMaL/J-RON is discussed in JAMSTEC responsible to the data management and data publishing. The integration and accumulation of the marine biodiversity information around Japan must be not easy and take a long way, however, the new framework consisted of BISMaL/J-RON and OBIS is sure to make a robust baseline to analyze the biodiversity profiles in the adjacent waters of Japan and further contribute the better understanding of the global marine biodiversity.

Keywords: Biodiversity information, Ocean Biogeographic Information System, Biological Information System for Marine Life, Japan Regional OBIS Node, OBIS, BISMaL