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## Session 2: Climate Change and Biodiversity

### Exploring the Marine Biodiversity: Global and International Accomplishment by Census of Marine Life Project

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A decadal project named “Census of Marine Life (CoML)” has just finished its first phase project in October 2010. The major goal of the project was to assess and explain the diversity, distribution and abundance of marine life. The 3 grand questions were: What did live in the ocean? What does live in the ocean? What will live in the ocean? The founding marine scientists considered these questions can be answered using the most up-to-date marine engineering and information technologies.

More than 2700 scientists from more than 80 countries joined the program. To explore the world oceans, more than 540 expeditions have been carried out. Based on these activities, a first comprehensive figure regarding marine biodiversity of the global ocean was elucidated. All information is accessible by public through OBIS (Ocean Biodiversity Information System) that will be the most important legacy of CoML. The database has collected more than 30,000,000 records for about 120,000 species from 800 datasets.

During the course of CoML research, more than 1,200 new species were described, and more than 6,000 species are waiting to be described by taxonomists in sample bottles. The comprehensive first census of marine life could show baseline of marine biodiversity at the beginning of this century. That showed 250,000 (eukaryotes) species are existing in the marine ecosystem, but yet the figure is only a quarter or less of total marine biodiversity. Far more diversity should be expected for prokaryotes. The analyses of OBIS data also revealed existence of serious human impacts on marine life, as well as existence of strong recovery potential from the critical condition in the marine species.

Comprehensive baseline data provided by CoML will be powerful scientific background for the monitoring of environmental impact such as climate change and ocean acidification on the marine ecosystem, as well as the policy decision in the future. The success of CoML also proved the possibility of organizing global scale scientific research program.



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#### Academic Degrees

1982 D.Sc., Graduate School of Science, University of Tokyo, Japan  
1979 M.Sc., Graduate School of Science, University of Tokyo, Japan  
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Field of Study  
Marine Biology