

Thursday 02nd December 2010

Workshops related to session 2

16:00 - 18:00

[Parallel Workshop](#) related to Plenary session 2

Workshop

From discovery to conservation of marine biodiversity

Organizer:

- **Rudolf Amann**, *Max Planck Institut für Marine Mikrobiologie, Bremen, Germany* and
- **Helmut Hillebrand**, *Institute for Chemistry and Biology of the Marine Environment, University of Oldenburg, Germany*

In many ways, the year 2010 represents an important milestone in the exploration of global biodiversity. This is particularly true for two areas of marine biodiversity, which are notoriously understudied: deep-sea life and the microbial realm. We know more about the backside of the Moon than about the deep seafloor, which covers about 50% of our planet. Due to the remoteness and vastness of ocean habitats, less than 10% of the marine fauna has been described. Yet, human interactions with the marine environment, including the effects of global change, have already reached all depths.

Starting in 2000, the Census of Marine Life (CoML) has aimed to increase knowledge of the unknown, and has especially excelled knowledge of deep sea life and microbial biodiversity in a decade of dedicated work. For example, the ANDEEP (ANtartic benthic DEEP-sea biodiversity) expeditions have recovered a tremendous number of organisms of all size classes, making it possible for the first time to compare polar deep-sea fauna to those of temperate and tropical seas. ANDEEP has increased our knowledge of the scales and patterns of marine diversity, of its origins, and its endemism. This information is crucial for environmental protection and conservation, as needed for deep-sea mining, gas and oil extraction, and other forms of resource exploitation.

Another major fraction of unknown life includes the marine microorganisms encompassing Bacteria, Archaea and Protozoa. Their small size and our inability to propagate them in the lab have slowed the rate of discovery. One century of microbiological research has merely scratched the surface of the microbial diversity, despite its importance for global element cycling and for maintaining healthy environments. One recent example for their relevant services is the biodegradation of oil and gas from the Gulf of Mexico oil spill.

The workshop will extend from progress with discovery of marine life to the functions and services of marine biodiversity. Theoretical and experimental evidence suggests that the

loss of species in marine habitats leads to changes in primary production, trophic transfer and stability of these systems. Even for vastly diverse communities such as phytoplankton, the efficiency of nutrient conversion to biomass relates to the number of species and the dominance of certain groups.

Oral presentation 1: **Microbes in the Sea: Biodiversity, Resources and Management**

[Antje Boetius](#), *Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany*

Oral presentation 2: **Linking marine biodiversity, ecosystem functioning and ecosystem services: from experiments to global analyses**

[Jay Stachowicz](#), *The Stachowicz Lab, University of California, Davis, USA*

Oral presentation 3: **Biodiversity assessment in deep ocean basins**

[Angelika Brandt](#), *Zoological Museum, University of Hamburg, Germany*

Oral presentation 4: **Consequences of altered diversity for marine ecosystem processes**

[Helmut Hillebrand](#), *Institute for Chemistry and Biology of the Marine Environment (ICBM), University of Oldenburg, Germany*