profit and academic sectors. The goal of this undertaking is to build needed capacity for land use planning, implementation of best management practices and watershed restoration where it can be most effective.
From the pursuit of a new scientific understanding related to ecological thresholds to a new structure to facilitate ecosystem-based scientific input to fisheries management to capacity building for watershed restoration at the community level, these three efforts are collectively building a new generation of interdisciplinary, adaptive management approaches for the Chesapeake watershed.

Phytoplankton species succession in Tokyo Inner Bay under global warming using experimental microcosm system

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Global Warming is one of the most important environmental problems because of its serious effect on the ecosystem structure including the energy flow, the material circulation and the biological interaction. IPCC reported in 2007 that 40% of all wildlife species on the earth will exterminate with 4℃ increasing in atmospheric temperature. However, the basic information for the relationship between Global Warming and biological species succession in aquifer has not been enough to establish the countermeasure in both academic and administrative. For this reason, the experimental data is much important to be obtained sooner and numerously.
This study was conducted to investigate the effect of temperature on microbial community structure, especially phytoplankton flora which plays important roles on aquatic ecosystem as primary producer, using the experimental flask-size microcosm system. The experimental microcosm system is filled with sea water and sediment that sampled in spring season from Funabashi port in Tokyo Inner Bay, Japan. The glass culture vessel is 480 ml volume, and was pored 100 g(w/w) of sediment and 380 ml of sea water. that contains nutrient salts and zoo and phytoplankton. The microcosm culturing was conducted under 20,000 lux(L/D=12/12 hr.), without stirring, and the incubate temperature was set up to 10℃ (lower), 20℃ (usual) and 30℃ (higher). Quantity and quality analysis of phytoplankton was conducted with microscopic observation for 60days culturing period.
The results obtained can be concluded as follows;
1) The dominant species was different in each temperature condition within the same sea water, and water bloom (red tide) was observed under high temperature conditions.
2) Heterocapsa rotundata, Thalassiosira spp.and Skeletonema costatum, some of which produce toxic matter, were dominant under high temperature conditions, and the possibility of occurrences of some trouble was suggested in water use for human society.
3) The common species of phytoplankton such as Skeletonema costatum in each microcosm indicated high specific growth rate in high temperature conditions.
4) Bio-diversity was lower in both high and low temperature conditions from the viewpoint of the Shannon Index (H’) analysis.
5) Temperature increasing influences to ecosystem structure as same as temperature decreasing from the viewpoint of the Nomura-Simpson’s coefficient (NSC) analysis.

Effects of climate change on long-term and seasonal variations of the water temperature in Seto Inland Sea

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The Seto Inland Sea (SIS) located in the western part of Japan is connected to the western Pacific Ocean through two channels: Bungo Channel in the west and Kii Channel in the east. The meteorological and oceanographic data with high temporal (~monthly) and spatial (~km) resolutions have been collected over the past few decades around the SIS. To assess the impacts of climate change on the coastal sea, the spatial and temporal variations of air and water temperatures around SIS were examined by historical data and numerical model. The air temperature has increased about 1-2° C due to the global warming and progress of urbanization irrespective of the season. On the other hand, the long-term variation of water temperature in SIS has the seasonal dependence over the past 29 years (1972-2000). The water temperature has positive trends (1~3° C) during autumn-winter and negative trends (-1~-3° C) in spring-summer at the surface and the