



Study Area.
Amur River basin, the Sea of Okhotsk and the Oyashio area

Recent oceanographic studies have revealed that marine primary productivity in the northern North Pacific was limited by iron availability. Because iron can hardly be dissolved in water, phytoplankton largely relies on the iron supply from land via atmosphere and/or rivers. In contrast to the central region of the northern North Pacific, the phytoplankton productivity is very high in the Sea of Okhotsk and the Oyashio area, probably due to the sufficient iron supply from the Amur River. Riverine iron, however, cannot remain dissolved in the seawater without being a complex with humic substances created in forest and wetland. Therefore, it is suggested that changes in land uses on the Amur River basin such as deforestation, forest fire, cultivation, urbanization and reduction of wetland could result in reduction of the primary productivity in the northern North Pacific.

In this research project, we will address the following questions;

1) How large is the discharged flux of materials such as iron from the Amur River, how far the iron is transported offshore and the degree to which the riverine iron flux could contribute to the primary production in the Sea of Okhotsk and the Oyashio area; 2) What are the factors controlling the release of materials from the forests to the Amur River in the natural and/or anthropogenic land-surface conditions in the Amur basin; 3) To what extent the economic and social systems around Northeast China and Far Eastern Russia change the land uses in the Amur basin in the past, present and future; 4) How we can conserve the system, now entitled "Kyodai Uotsukirin (Giant Fish-Breeding Forest)" that includes both natural and anthropogenic processes. The project will explore the robustness of Giant Fish-Breeding Forest, and our approaches towards conservation of the system.



External Research Collaborations

Japan

Chiba University
Hokkaido University
The University of Tokyo
Tokyo University of Agriculture and Technology
Yokohama National University
and 11 universities, 3 governmental organizations, and 2 private companies

Russia

Far Eastern Branch Russian Academy of Sciences
Economic Research Institute (ERI)
Institute of Water and Ecological Problems (IWEP)
Institute of Volcanology Seismology (IVS)
Pacific Institute of Geography (PIG)
Far Eastern Regional Hydrometeorological Research Institute (FERHRI)
Federal Service for Hydrometeorology and Environmental Monitoring (ROSHYDROMET)

China

Anhui Agricultural University
Chinese Academy of Sciences
Northeast Institute of Geography and Agricultural Ecology (NEIGAE)
Institute of Applied Ecology (IAE)
Nankai University
Northeast Forestry University (NEFU)

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Research Institute for Humanity and Nature

Amur - Okhotsk Project

Human Activities in Northeastern Asia and
Their Impact on the Biological Productivity
in North Pacific Ocean



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