

Conclusions

The GIWA Assessment of the Oyashio Current region identified priorities that should be addressed by policy makers in order to improve the environmental health of the region's transboundary waters. Because the region is located far from the developed coastal regions of Japan and Russia, it is largely not affected by economic development. The most significant threats to the region are posed by Global changes and the Unsustainable exploitation of fish and other living resources, and, more specifically, the issues of changes in the hydrological cycle and overexploitation.

Positive temperature anomalies have changed the path of the Kuroshio Current which has consequently influenced the productivity of the fisheries. Storm activity has increased, thus generating greater energy in surface water layers and causing changes in the thermal flux. These changes are attributed to climate changes caused by global warming and ENSO events. Overexploitation in the Oyashio Current region has been caused mainly by increased fishing effort and the overcapacity of the fishing fleet in the past two decades, particularly in the salmon, King crab, scallop and pollock fisheries. The growing export market has encouraged the industry to concentrate fishing effort on these commercially attractive species. A large proportion of catches go unreported which means fishermen exceed their allocated fishing quotas, leading to overfishing. However, the intensity of overfishing is generally not too severe, allowing stocks to restore themselves periodically.

The principal root causes for changes in the hydrological cycle and ocean circulation can not be resolved solely by Russia and Japan. However, climate change is significantly impacting the natural resource dynamics, and social and economic integrity of Kamchatka and the Kuril Islands. Climate change is a global issue that needs to be addressed through international cooperation. It is important for regional policy makers to inform the international community of the

impacts experienced within the Oyashio Current region as a result of climate change and to take active participation in discussing and formulating solutions to the root causes of the Global change concern. The region is currently ill prepared to respond to future changes in the hydrological cycle that are likely to affect fish stocks. This is alarming given the importance of the fisheries to the regional economy. There is an absence of a regional system capable of monitoring climatic changes and a lack of knowledge regarding its influence on the future abundance and distribution of biological resources.

Fishermen employ outmoded and non-selective fishing equipment and due to economic difficulties they lack the necessary capital to invest in modern fishing gear essential for sustainable fishing. Fishermen argue that due to the inappropriate taxation system they are forced to exceed their quotas in order to make a profit. The fisheries in the region are poorly regulated with weak legislation that has not been formulated based on the principles of sustainable fishing. Enforcement is ineffective and illegal fishing is known to occur in the region. The governments of the region have not provided alternative employment opportunities in coastal settlements in order to reduce the fleet capacity. In addition, a lack of knowledge regarding commercial species and their ecosystems does not allow fisheries managers to make informed decisions.

A priority for the Oyashio Current region is to improve the understanding of the region's natural environment. Studies that are currently needed include: (i) a comprehensive oceanographic survey of the currents; (ii) full estimate of marine living resources; (iii) a model of basic hydrological and ecological processes in the region which could simulate the impacts from anthropogenic activities; (iv) the creation of a monitoring network and information management system to regularly assess the ecological quality of the region; and (v) a comprehensive study of the impact of future changes in the hydrological cycle and ocean circulation on the issues of overexploitation and habitat modification in the Oyashio

Current region. Cooperation and integration between the region's national scientific and environmental management institutions should be promoted in order to share data and techniques with an aim to improve the environmental quality of the entire region for the mutual benefit of both nations.

A multilateral (including Russian Federation and Japan) intergovernmental agreement should be created. This would aim to:

(i) establish an organisation responsible for monitoring the environment in the region; (ii) organise available information on the health of the environment in the region; and (iii) establish an intergovernmental commission mandated to coordinate environmental management in the region. The GIWA Task team believes it is necessary to develop and improve the legislative basis at all levels.