

# Executive summary

The GIWA region Oyashio Current is a unique marine ecosystem in the Pacific Ocean, characterised by high productivity, an abundance of diverse flora and fauna, and distinct bathymetry, including a narrow oceanic shelf and the deep Kuril-Kamchatka Trench. The majority of the Oyashio Current drainage basin is located in Russia, and a minor part in Japan. The Oyashio Current region has attracted significant attention from politicians and researchers interested in its biological and hydrocarbon resources.

To date, the region has been largely unspoiled by the advances of civilization due to its remoteness, with most GIWA concerns having limited or no impact. The most severe issues are changes in the hydrological cycle and ocean circulation (Global change), and the overexploitation of the fisheries (Unsustainable exploitation of fish and other living resources). Positive temperature anomalies have changed the path of the Kuroshio Current which has consequently influenced the productivity of the fisheries. Storm activity has increased, generating greater energy in surface water layers and causing changes in the thermal flux, thus increasing the frequency of severe storms and floods. These changes are attributed to global climate change and El Niño Southern Oscillation (ENSO) events. Further, the impacts of global climate change are expected to intensify in the future. Overexploitation, particularly in the south of the Oyashio Current region, has led to the depletion of the major commercial fish stocks. This is mainly attributed to 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.

Currently, the impacts of pollution from oil spills and radioactive waste remain slight. However, due to the expansion of the oil and gas industry in the region, as well as the increased shipment of oil and gas, the risk of accidental spills and leakages in the future is high. Further, there is concern that the facilities for storing radioactive waste

in the Petropavlovsk-Kamchatsky area are inadequate and may lead to the contamination of the surrounding environment. Due to a lack of relevant data in the region, this issue was not prioritised for further analysis.

The Causal chain analysis identified the following root causes of the overexploitation of fish:

- *Economy*: Market reform failures; economic constraints prevent fishermen from adopting sustainable technologies; high taxes force fishermen to exceed their quotas; demand from export markets; and fluctuating market prices have changed the level of fishing pressure on each commercial species.
- *Technology*: Use of obsolete and non-selective fishing gear.
- *Governance*: Weak regulations; lack of efficient state policy; lack of alternative employment opportunities for fishermen; and conflicting regional and international fisheries policies.
- *Legal*: Inappropriate legislation regulating the fisheries sector in Russia; laws do not contain the main principles of sustainable fishing; and inadequate enforcement of laws.
- *Knowledge*: Inappropriate assessment methods; inaccurate scientific studies; gaps in fisheries statistics; and an insufficient understanding of ecosystem dynamics.
- *Political*: Political conflicts regarding fishing rights.

Because parties have expressed commitment towards international agreements for the conservation and management of the marine environment, including the Convention on Biodiversity, the UN Fish Stocks Agreement of 1995 and the World Summit on Sustainable Development in 2002, it is anticipated that the management of the fisheries in the Oyashio Current region will gradually improve.

The Causal chain analysis found that changes in the hydrological cycle and ocean circulation have been caused by global issues, such

as global warming, which need to be addressed through international initiatives. It was agreed that inadequate progress had been made by the international community in mitigating this issue due to the non-implementation of relevant agreements. Despite the inability of the countries in the region to resolve this issue by themselves, it was found that insufficient effort has been made in preparation for the predicted climatic induced changes. There is an absence of an effective system in the region to monitor changes in the environment and to respond to future natural hazards. There is also a lack of knowledge on the affect of natural variability and anthropogenic activities on the ecosystems of the Oyashio Current, making it difficult to predict the impacts of future climate changes. The ability of fisheries management to react to climatic induced changes to the productivity of the fisheries is hindered by an inadequate understanding of the region's ecosystem dynamics and the lack of environmental indicators.

The GIWA Task team highlighted the necessity of scientific research. Careful implementation and enforcement of appropriate standards for the management of the fisheries is necessary to avoid disputes amongst the fishermen of South Kuril. Greater cooperation between the region's

scientific and marine environmental management institutions should be encouraged in order to share data and techniques with an aim of improving the environmental quality of the entire region for the mutual benefit of all nations. A priority for the Oyashio Current region is to improve the understanding of the region's natural environment as well as to create an intergovernmental agreement between Russia and Japan.

A multilateral intergovernmental agreement should be initiated. This would aim to: (i) establish an organisation responsible for monitoring the regional environment; (ii) organise available information on the health of the environment; 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.