

Causal chain analysis

This section aims to identify the root causes of the environmental and socio-economic impacts resulting from those issues and concerns that were prioritised during the assessment, so that appropriate policy interventions can be developed and focused where they will yield the greatest benefits for the region. In order to achieve this aim, the analysis involves a step-by-step process that identifies the most important causal links between the environmental and socio-economic impacts, their immediate causes, the human activities and economic sectors responsible and, finally, the root causes that determine the behaviour of those sectors. The GIWA recognises that, within each region, there is often enormous variation in capacity and great social, cultural, political and environmental diversity. The Causal chain analysis uses a relatively simple and practical analytical model. For further details on the methodology, please refer to the GIWA methodology chapter.

The concerns of Unsustainable exploitation of fish and other living resources and Global change were considered as the GIWA Oyashio Current region's priority concerns. Concerning Unsustainable exploitation of fish and other living resources, the issue of overexploitation was selected, and for Global change the issue of changes in the hydrological cycle and ocean circulation. These issues have transboundary impacts as both the Russian and Japanese territories are highly dependent on the fisheries and have experienced climate changes. The focus of the Causal chain analysis is to determine the drivers of these two prioritised issues, so that they can be addressed by policy makers rather than the more visible causes.

Overexploitation

Figure 14 shows the causal chain diagram of overexploitation in the Oyashio Current region.

Immediate causes

Overexploitation in the Oyashio Current region has primarily been a result of increased fishing effort and the overcapacity of the fishing fleet in the past 10 to 15 years, particularly in the salmon, King crab, scallop and pollock fisheries. Although overfishing has caused only slight impacts

overall, catches of some commercial fish species now exceed biologically safe limits. A large proportion of catches go unreported which means fishermen exceed their allocated fishing quotas, thus leading to overfishing (Greenpeace 2000, Ozolin'sh & Spiridonov 2001, Titova 2003).

Root causes

Economy

Foreign trade liberalisation has led to a sharp growth of interest rates and prices for fuel and materials in Russia. Vessel owners lack the financial resources to invest in the modernisation of the fleet and their fishing equipment in order to meet the requirements of sustainable fishing.

A decline in the profitability of fishing has led to increased poaching and unregistered landings in order to avoid taxation. High taxes in the fisheries sector in Russia and the non-conformity of the tax system to the specific character of the fishery have also led to catches exceeding quotas. The introduction of fishing auctions with prices for quota-rights has only served to increase overfishing (Titova 2001).

Technology

There are often significant by-catch and discards associated with the cod fisheries. This is due to the employment of outmoded and non-selective fishing gear and the use of inappropriate or illegal fishing

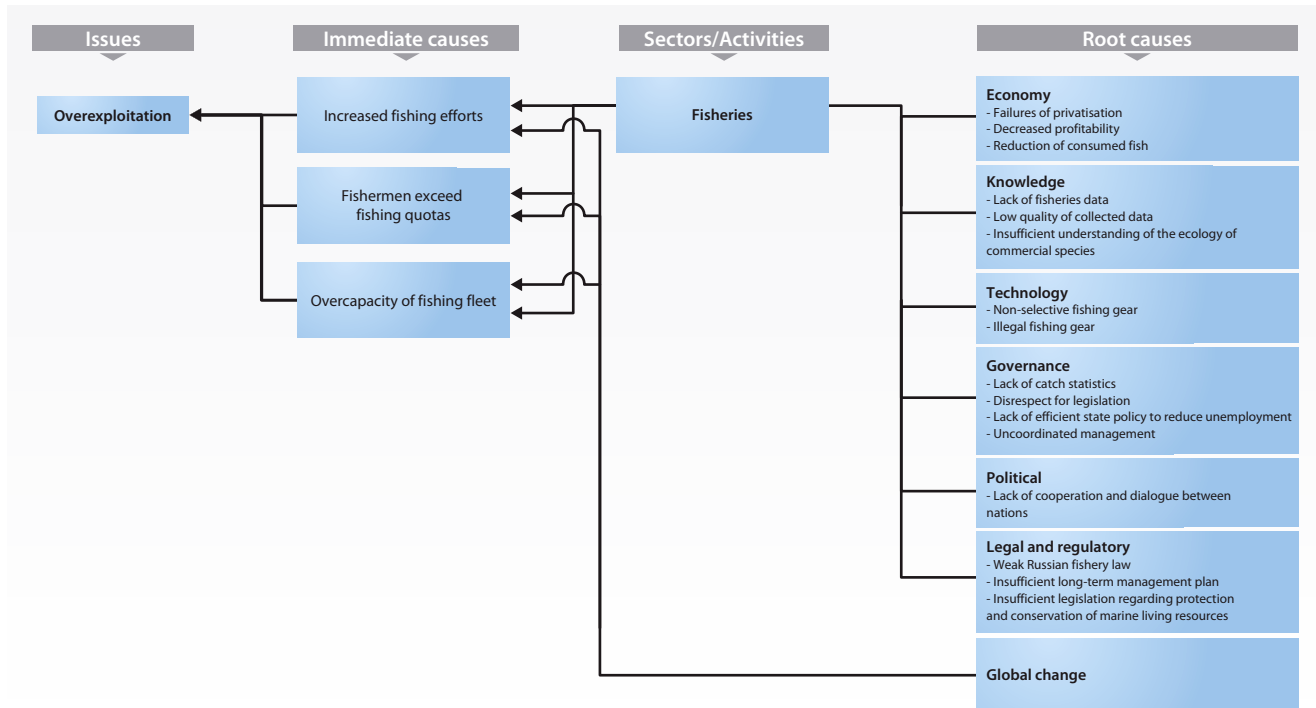


Figure 14 Causal chain diagram illustrating the causal links for overexploitation of fish.

practices. Bottom trawling for cod, perch, Black halibut and American plaice destroys benthic habitats.

Governance

There is a lack of efficient state policy aimed at reducing unemployment among fishermen, supporting the coastal fishery and improving living standards in coastal settlements. The fisheries industry is the economic backbone of these communities; in order to reduce overexploitation, alternative livelihood strategies and greater governmental support are required.

Uncoordinated management has led to conflicting regional and international policies regarding the use of biological resources (Kotenev & Zaytseva 2003, Titova 2003). This has, for example, led to the concentration of King crab exploitation around East Kamchatka and the Kuril Islands.

The rapid transition from the centralised planned economy to the free market system in Russia did not allow for the creation of market structures and an adequate system of auctions in the fisheries sector. There was a lack of state support for the national fishery sector during the period of market reforms (Ozolin'sh & Spiridonov 2001, Titova 2001, 2003).

The reduction in state control over fisheries export activities and the increasingly export-oriented fishery has increased fishing pressure on the most commercially attractive species on the world market (for example

salmon, King crab, scallop and pollock). Additionally, a variable market price for fish products has led to fluctuations in the level of fishing pressure on different fish species.

Legal and regulatory

Russian Fishery Law is particularly weak as it does not reflect the current market situation nor contain the main principles of sustainable fishing. Weak legislation and a lack of enforcement enable fishermen to exceed their quotas. The state regulatory system for the long-term management of marine living resources lacks an effective mechanism to control illegal fishing. Although the level of illegal fishing in Russian territorial waters is never declared, it is known that many pirate fishing vessels of Russian, Japanese, Chinese (mainly calamari and non-salmon species) and Taiwanese origin, as well as flag of convenience ships, operate in these waters. Fishermen often violate fisheries legislation. It has been argued that fishing quotas are too meagre, so fishermen have no choice but to catch illegal quantities of fish in order for their business to survive.

There is an absence of Federal Law regarding the fishery and the protection and conservation of marine living resources in order to meet the requirements of sustainable fishing and to reduce poaching and corruption. Without such laws many provisions of the "Conception of the development of the fishery sector of the Russian Federation until the year 2020" cannot be fulfilled.

The Federal Border Service is now responsible for the enforcement of fisheries laws. Fishery inspectors only control coastal and inland fisheries while the Marine Guard of the Federal Border Service patrols the EEZ with the use of marine boats and planes. According to media reports and newsletters of the North Pacific Anadromous Fish Commission, the seizure of illegally operating fishing boats is common (Greenpeace 2000).

Knowledge

The credibility of scientific recommendations and predictions is diluted by a high level of scientific uncertainty and a lack of fisheries data. While researchers are aware of the inaccuracies of their recommendations, politicians and industry officials do not take this into account when formulating policies (Ozolin'sh & Spiridonov 2001).

Knowledge of the fisheries is lacking due to gaps in fisheries statistics; the low quality of collected data on which the science is based; and an insufficient understanding of the ecology of some commercial species and of the region's ecosystems.

Political

The region is governed by Japan and Russia. Fishing rights in the region, sovereignty over the South Kuril Islands, and a weak Russian economy at the beginning of the 1990s appear connected. The question of sovereignty over the islands, a legacy from World War II, is a nationalist issue as well an economic question for the two nations. Japan refers to the four southern Kuril Islands as its 'northern territories' and has offered to buy them from Russia. Regarding fishing rights, Russia currently allocates Japan only a small proportion of fish in the region and has also issued fishing licenses to countries such as South Korea, North Korea and Ukraine whose fishermen all operate near the Kuril Islands. Japan is seeking to

prevent the implementation of a Russian-South Korean agreement on the fishing of Pacific saury off the southern Kuril shores.

Changes in the hydrological cycle

Climate changes in the region are predominantly a result of global issues, in particular global warming. It is not within the scope of the GIWA Assessment to analyse the root causes of global climate change as these are issues that need to be addressed at the global level rather than within the region. It was agreed, however, that inadequate progress had been made by the international community in mitigating this issue due to the non-implementation of relevant agreements.

The GIWA Task team analysed the region's precautionary responses to the predicted global changes and found that the region is inadequately prepared to react to the anticipated changes in the environmental conditions. Climate change greatly influences the distribution and abundance of biological resources, including the fisheries. There is an absence of an effective system in the region to monitor changes in the environment and to respond to future natural hazards. Knowledge is lacking regarding the impacts of climatic variability on the ecosystems of the Oyashio Current region, making it difficult to predict the impacts of future climate changes. The ability of fisheries management institutions to react to climatically induced changes to the productivity of the fisheries is hindered by an inadequate understanding of the ecosystem dynamics of the region and the lack of environmental indicators.