

# A TURF-Reserve in the Shiretoko World Heritage Area, Hokkaido, Japan

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## TURFs for Japanese Coastal Fisheries

Japanese coastal fishing communities have persisted for hundreds of years with considerable dependence on their local fishery resources. Fisheries management was historically controlled by the central government through a licensing system until 1901 when Japan's Fishery Cooperative Law legally recognized coastal fishermen as the resource users and gave them governance over their resources. In 1948 an additional piece of legislation legally established Fishery Cooperative Associations (FCAs) as the responsible party for managing fisheries and allocating territorial user rights for fisheries (TURFs). FCAs are comprised of both fishers and non-fishers, and they are responsible for managing all species harvested by adjacent communities. This shift of power from the central government to FCAs has allowed Japanese fishers to become involved in fisheries management at a local level, and in some cases implement conservation strategies to ensure sustainable stocks into the future. An FCA in northeast Hokkaido has taken steps to integrate conservation into local TURF management by implementing no-take zones over important spawning grounds for one of the regions principal fisheries, walleye pollock.

## Rausu FCA and TURF Management

The Shiretoko Peninsula is located in northeast Hokkaido, Japan's northernmost island. This region is the southernmost limit of winter sea ice in the northern hemisphere and contains marine and terrestrial ecosystems that are home to many endangered species. The Shiretoko World Heritage site contains three FCAs that govern the TURFs within its waters. One of these FCAs, the Rausu Fishery Cooperative Association, comprised of 461 members and provides a strong example of successful TURF-reserve management. The target species of the Rausu FCA include salmon, walleye pollock, kelp, squid, rockfish, and cod. Walleye pollock is one of the most important regional fisheries and the Rausu walleye pollock fishers have divided their fishing grounds into

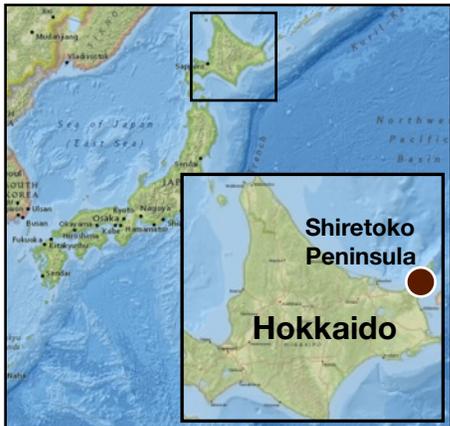


Photo: Murray Foote

thirty-four TURFs based on their local knowledge of the stock. Local fishers have compiled an unusually comprehensive database, which includes data for all fished species for over 60 years. These data revealed that the region's walleye pollock fishery has experienced dramatic declines in recent decades and supported the implementation of multiple seasonal no-take areas.

Japan's fisheries legislation grants Rausu fishers exclusive access to their TURFs, meaning that non-members of the Rausu FCA are not permitted to fish in those areas. The Rausu FCA has considerable management jurisdiction over their fisheries, with governmental involvement limited to assigning annual total allowable catches (TACs) for walleye pollock and issuing fishing licenses. The involvement of local fisheries scientists in TURF management is strong; all data collected by fishers is regularly submitted to the Hokkaido National Fisheries Research Institute for analysis, and scientists and fishers collaborate to refine management actions based on those data. Refinements have included modifications to the size and location of reserves, restrictions on allowable gear types, and seasonal closures.

## Integration of Seasonal No-Take Areas

In the early 1990s, meetings began between the FCA and Hokkaido fisheries scientists to discuss conservation options aimed to recover the local walleye pollock stock. Scientists provided information on the condition of the pollock fishing grounds and based on this information, in 1995 the FCA elected to declare seven of the thirty four fishing grounds no-take

areas during the walleye pollock fishing season. The no-take areas were selected to encompass portions of the pollock's spawning grounds. The no-take areas were selected to encompass portions of the pollock's spawning grounds. Rausu fishermen continued to see declines in catches of walleye pollock after these no-take areas were put in place and incorporated an additional six areas in 2005 when UNESCO requested a new management plan for the walleye pollock. These additional seasonal no-take areas were selected through an independent, scientifically informed decision, similar to the process used to select the first seven areas.

Benefits and drawbacks of the no-take areas are discussed at regular monthly meetings held by Rausu walleye pollock fishermen. Each year the closed areas are reevaluated based on the previous year's performance and input from research scientists. Because the closures are implemented by the FCA and not legally recognized, the FCA has the flexibility relocate them based on new information.

### Enforcement

Enforcement of the Rausu TURFs and fishery closures is carried out primarily by FCA members, with some assistance from the local coast guard. All fishermen in the Rausu FCA live very close to the port and are able to visually determine whether vessels are

within or outside the fishing grounds and no-take areas. In order to keep outsiders from fishing within the TURF area, both FCA members and the coast guard routinely patrol the waters and utilize radar to locate illegal fishing vessels. Due to strong community trust and shared monitoring, Rausu has achieved near 100% compliance with no-take restrictions; it is extremely rare to observe poaching from either Rausu FCA fishermen or outsiders.

### Results

Since implementation of the protected areas, the Rausu FCA fishermen have not seen a significant increase in their walleye pollock landings – a result that Rausu fishermen blame in part on the Russian fishing fleet, which also targets this transboundary stock. Unfortunately, international attempts to coordinate management of the transboundary stock have been met with resistance from Russia. Nonetheless, Rausu fishermen enjoy comparatively higher landings than other regions in Japan and on average, individual fishermen in Shiretoko produce three to four times the national average of walleye pollock by volume. The Rausu fishermen continue to believe in sustainable management of their fishery and hope the recognition by UNESCO will bring international attention to their commitment to TURF-reserve fishery management.



Photos, from top to bottom: NOAA, Rausu Tourist Association (2)

### For more information:

Makino, M., Matsuda, H., & Sakurai, Y. (2009). Expanding fisheries co-management to ecosystem-based management: A case in the Shiretoko World Natural Heritage area, Japan. *Marine Policy*. 33: 207-241.

Matsuda, H., Makino, M., & Sakurai, Y. (2009). Development of an adaptive marine ecosystem management and co-management at the Shiretoko World Natural heritage Site. *Biological Conservation*. 142: 1937-1942.

Makino, M. (2011) The UNESCO World Natural Heritage List and Local Fisheries. *Fisheries Management in Japan*: 131-148.

Matsuda, H., Makino, M., Castilla, J. C., Oikawa, H., Sakurai, Y. & Tomiyama, M. (2010). Marine protected areas in Japanese fisheries: case studies in Kyoto, Shiretoko and Ise Bay. *International symposium on integrated coastal management for marine biodiversity in Asia*. Pp. 59-63.

**Rausu FCA**  
(in Japanese)  
[www.jf-rausu.jp](http://www.jf-rausu.jp)

**Hokkaido National Fisheries Research Institute**  
[hnf.fra.affrc.go.jp/english](http://hnf.fra.affrc.go.jp/english)

**Rausu Tourist Association**  
[www.rausu-shiretoko.com/en](http://www.rausu-shiretoko.com/en)

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