How did coastal fishers satisfy the global standard of nature protection in Shiretoko World Heritage? Local Action Influencing Global Policy

Hiroyuki Matsuda, Yokohama National University, matsuda@ynu.ac.jp

Shiretoko Natural World Heritage (WH) was inscribed in 2005. Shiretoko WH is characterized by interaction of marine and terrestrial ecosystems, the primary producer that provides the source of food for marine and terrestrial species, largely influenced by seasonal sea ice at the lowest latitude, a number of endangered and endemic species (e.g., Blackiston's fish owl), globally important for salmonids, marine mammals such as Steller's sea lion and cetaceans, and threatened sea birds and migratory birds. Shiretoko WH satisfies criteria (vii) ecosystem and (x) biodiversity as outstanding universal values (OUV).

In Shiretoko, the fisheries sector is the most important industry. To maintain responsible fisheries, local fishers have implemented a wide range of autonomous measures under a co-management framework. Since the nomination of the peninsula and its surrounding marine areas for UNESCO World Natural Heritage, various measures have been implemented to conserve its outstanding ecosystems. The approach was not to eliminate local fishers from the area, but to place their activities at the core of the management scheme to sustain ecosystem structure and function. Fishers exploit most all taxa in marine ecosystems in Shiretoko. Fishers compiled the catch and yield statistics of these taxa of fisheries resources because most of these resources are sold in a local fish market. Like stomach content monitoring of top predators, the catch statistics are informative in evaluating ecosystem status. Chum salmon (*Oncorhynchus keta*) and walleye Pollock (*Theragra chalcogramma*) are two major fishery resources in Shiretoko. The largest yield resource changed in 1993 from walleye pollock to chum salmon. Since walleye pollock stock decreased in 1991 in the Sea of Japan, the Sea of Okhotsk, and the northwestern Pacific, probably due to decadal change of global environment, Shiretoko fisheries now depend on salmon fisheries, which are probably supported by the release of hatching stock.

Experience from the co-management of fisheries in Shiretoko WH site could inform ecosystem-based management in other countries where a large number of artisanal fishers take a wide range of species under a fisheries co-management regime if they compile the catch statistics. Adaptive management based on daily operations can be found in autonomous MPAs construction in the Shiretoko WH site. In 1995, local fishermen divided a fishery ground into 34 areas based on local knowledge and experiences and then introduced temporal MPAs into seven of the 34 areas to conserve fishery resources. In 2005, an additional six areas were designated as protected areas. These protected areas have been introduced on voluntary bases, and reexamined every year based on the results of the previous year's performance and scientific advice from the local research station. Therefore, it can be said that this decision-making process obeys adaptive management. An

important next step would be scientific verification of its validities (Matsuda et al. 2009).

Shiretoko WH is also characterized by coastal fishing ground in the WH site (Fig.2). World heritage site usually excludes fishing ground and other area that is used by industries. The coastal zone is indispensable for the OUV of Shiretoko. Bottom trawling fishery are prohibited in Shiretoko WH area. During the review process of the WH proposal in 2004, The reviewer, IUCN (International Union for Conservation of Nature), informally recommended increasing conservation level in the marine area. However, Japanese Government had promised the local fishers not to make any further regulation of fisheries due to submission to the WH. The Science Council of the Shiretoko WH recommended fishers to improve the conservation level by themselves, instead of further regulation by the government. In fact, Rausu Fisheries Cooperative Association expanded their seasonal fishing-ban area for walleye pollock fishery. Historically, Japanese coastal fisheries are characterized by territorial user rights of fisheries (TURFs) and co-management by fishers. In Shiretoko, seasonal fishing-ban areas for walleye pollock were defined by fishers in 1995, as well as the number of vessels of walleye pollock fishery reduced by almost 50%. The coastal co-management of Japanese fisheries was chosen as one of the 6 Impact Stories by the International Association for the Studies of the Commons in 2010.

According to IUCN "Report of the reactive monitoring mission 18-22 February 2008" for Shiretoko WH, the mission team "applauds the bottom up approach to management through the involvement of local communities and local stake-holders, and also the way in which scientific knowledge has been effectively applied to the management of the property through the overall Scientific Committee and the specific Working Groups that have been set up. These provide an excellent model for the management of natural World Heritage sites elsewhere." After that, Japanese Ministry of Environment organized the scientific committee (SC) for every world natural heritage in Japan.

In addition, the SC for Shiretoko WH proposed a population control plan of deer in cape Shiretoko, a core area of WH. The local stakeholders adopt the policy of no actions. Some people plan to introduce wolves that have gone extinct in the 19th century. However, deer is now overabundant throughout Japan. Economic damage on agriculture and forestry by deer is a big problem, especially in Satoyama areas because older farmers cannot protect their farms. Damage on natural vegetation in national parks including Shiretoko and Yakushima WH sites are also critical. Therefore, the local stakeholders agreed with the SC. From 2007 to 2013, the population size of deer in cape Shiretoko drastically decreased. The SC is monitoring the recovery process of natural vegetation, although it takes a long time.