

The Multiple Use Integrated Marine Management Plan
for Shiretoko World Natural Heritage Site
(Draft)

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The Multiple Use Integrated Marine Management Plan for Shiretoko World Natural Heritage Site

1. Introduction

(1) Background

- In this management plan, “Shiretoko” refers to the Shiretoko World Natural Heritage Site (hereinafter referred to as “heritage site”) and its surrounding sea areas. Shiretoko is situated at the lowest latitude among the world’s seasonal sea ice in the northern hemisphere, and is featured by the interrelationship between a terrestrial ecosystem and a contiguous marine ecosystem with unique seasonal sea ice characteristics, and salmonids running up the rivers.¹
- Shiretoko is an important area for a large number of marine and terrestrial species. There are a wide variety of marine life inhabiting, including sea eagles and many other rare species, a large number of salmonids running up the rivers, and marine mammals such as Steller sea lions and cetaceans. In addition, the area is internationally important as a habitat of globally threatened seabirds and a stopover point for migratory birds.¹
- In this management plan, “the waters surrounding Shiretoko” refers to the marine section of the heritage site (hereinafter referred to as the “marine section of the heritage site”) and its surrounding sea area. The waters surrounding Shiretoko have a high productivity, and for many years, fisheries activities have been conducted in harmony with the marine life.
- Taking advantage of the opportunity of inscription on the World Heritage list as a natural heritage, it was decided to formulate an integrated marine management plan in order to keep ensuring both the conservation of an ecosystem of the marine section of heritage site and the proper use of the area for human activities, such as fisheries and marine recreation, in the future.

(2) Objective of the Plan

- The objective of this plan is to satisfy both of conservation of the marine ecosystem and stable fisheries through the sustainable use of marine living resources in the marine section of the heritage site²

(3) Management Area

- The target area of this plan is the marine section of the heritage site that extends up to

¹ IUCN technical evaluation report, Shiretoko (Japan) ID No:1193 2005.7

² Response to the letter from the World Conservation Union (IUCN) concerning Shiretoko (Japan). (2005.3.30 A letter from the Director General of the Nature Conservation Bureau of Ministry of the Environment to the Director of the UNESCO World Heritage Centre.)

3km from the coastline (Figure1).



Figure 1. Shiretoko World Natural Heritage Site

2. Basic Concept of Management

(1) Basic Policies

- The premise of the Plan is legal restrictions relating to the conservation of the marine environment, marine ecosystems, and fisheries, as well as voluntary restrictions on marine recreation and community-based marine resource management carried out by fishermen.²
- The Plan defines measures to conserve the marine ecosystem, strategies to maintain major marine living resources, monitoring methods for those resources, and policies for marine recreation. Based on the Plan, proper management should be promoted.

(2) Overview of Marine Ecosystem and Concept of Management in Shiretoko

< Ecosystem of the heritage site >

- The marine section of the heritage site is the southernmost region of the seasonal sea ice that is found in the northern hemisphere, and is affected by the East Sakhalin cold current and the Soya warm current. This area has a complicated marine character created by these two currents together with the intermediate cold water derived from the Sea of Okhotsk, and forms the marine ecosystem where a variety of organisms migrate and live.
- The heritage site is an outstanding example of the interaction of marine and terrestrial ecosystems.¹
- In early spring, when sea ice melts earlier than in other areas, Shiretoko sees the bloom of ice algae and other phytoplankton. As shown in Figure 2, diverse marine life,

including a wide variety of fish, live in the waters surrounding Shiretoko based on a food web that starts from phytoplankton, seaweeds and sea grass, and detritus.¹

- A lot of anadromous salmonids return to rivers in Shiretoko for spawning. Wild salmonids (including hatchery-derived chum and pink salmon that reproduce naturally in the rivers³) running upstream serve as an important source of food for terrestrial mammals (e.g., brown bear) and birds of prey (e.g., Blakiston's fish-owl), and contribute the biodiversity and the transportation of material to the terrestrial ecosystem.¹ Salmonids are also important as marine living resources in the region, where the hatchery programs of chum and pink salmon are carried out.
- In the waters surrounding Shiretoko, fisheries activities have long been carried on in a way to coexist with marine life.

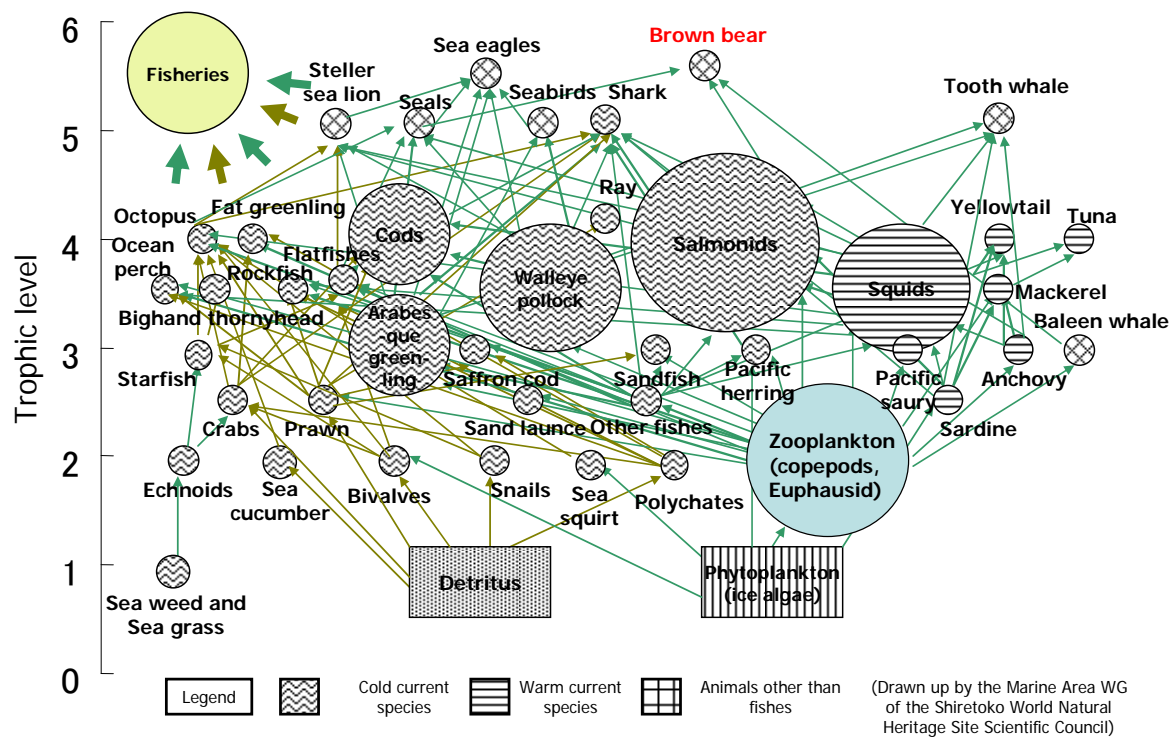


Figure 2. Food web in the Shiretoko

< Adaptive management in Shiretoko marine ecosystem >

- In general, an ecosystem is a non-constant, uncertain, and complex system, and has a structure and function reflecting the interaction between the abiotic environment and organisms.⁴
- The management of Shiretoko marine ecosystem, which has welter of organisms and

³ Shiretoko World Natural Heritage Site Scientific Council (First meeting in FY2006)

⁴ Iwasa, Y. et al. ed. (2003) Encyclopedia of Ecology. Kyoritsu Shuppan Co. Ltd.

unpredictable system, needs the adaptive management (see the note).

- For this purpose, based on a variety of currently acquired knowledge, this Plan defined some species that characterize the marine ecosystem in Shiretoko as indicator species. They are selected from the keystone species, predators of higher trophic levels that have a great impact on ecosystems, threatened species from a viewpoint of biodiversity, and other characteristic species, from among constituent species of the food web in the waters surrounding Shiretoko. Together with the conservation of a marine environment, the management of the ecosystem based on the concept of adaptive management should be continuously implemented.
- Since understanding the current situation of the ecosystem in the neighboring areas of Japan and the Russia Federation is also necessary for adaptive management, Japan-Russia cooperation such as information sharing, should be promoted in the field of conservation and sustainable use of the regional ecosystem.

(Note)

- Adaptive management is aiming the management and use of natural resources that allows maintaining the structure and function of the ecosystem. Changes in the ecosystem are predicted and monitored, and based on the results, the way of management and use are flexibly reviewed and adjusted. These predictions and monitoring should be accompanied by a feedback function. For the review of management and use, it is necessary that all of the parties involved share information, try to verify hypotheses based on the results of the monitoring, and decide the direction they will take while building a consensus.⁴
- In the waters surrounding Shiretoko, adaptive management has already been introduced including the monitoring of the resources trend, to maintain a stable fisheries through the sustainable use of marine living resources. For example, restrictions on catch based on the TAC (*Total Allowable Catch*) system and a voluntary setting of closed fishing areas to protect spawning fish have been introduced for walleye pollock. Targets for escapements, eggs, and juveniles of river-specific hatchery for chum and pink salmon are forecasted, while voluntary catch restrictions result in adequate number of adults returning.⁵

(3) Concept of Management of Each Component in the Marine Ecosystem

a. Marine environment and production in lower trophic levels

< Current situation of the component >

- The marine environment of the waters surrounding Shiretoko is influenced by the oceanic structure of the Sea of Okhotsk (East Sakhalin cold current, intermediate cold water of the Sea of Okhotsk, seasonal sea ice). It is also affected by the Soya warm current that flows in from the Soya Straits along the coast (shallow water along the

⁵ Working document of the second meeting of Marine Area WG in FY2005.

coast) and partially by warm surface water that flows in from the Pacific Ocean.⁵⁻¹

- In winter, the East Sakhalin cold current shifts southward, **and then** the seasonal sea ice formed in the northern part of Sea of Okhotsk covers this sea area. The sea ice melts by spring, but ice algae proliferate under the ice.⁵⁻¹
- From spring to early summer, spring bloom of phytoplankton **occurs**. Then from summer to fall, the production mechanism in lower trophic levels, which **starts** from the production of phytoplankton and lead to the reproduction of zooplankton, develops due to the coastal upwelling caused by complicated ocean floor topography, sea tides, sea winds, and some other factors.
- The continuity of production in lower trophic levels as described above, except in winter, leads to an increase in the biomass of zooplankton such as copepods and krill, that feed on the lower production and proliferate. This generates a diversity of marine life including both sedentary and migratory species of fish, squids, seabirds, and marine mammals, as well as the abundant biological production.

< **Management strategy** >

- Under the conditions mentioned above, in order to ensure the balance between conservation of the marine ecosystem and sustainable fisheries based on adaptive management, it is necessary to conduct research and monitoring and understand accurately the trends and dynamics of marine environment, marine structure, and indicator species of the marine ecosystem, and others that provide basic data for the various analyses of the meteorological and oceanographic phenomena, the sea ice, and so on, in the waters surrounding Shiretoko.

b. Coastal Environment

i. Marine Pollution

< **Current situation** >

- Relevant laws strictly regulate the drainage of harmful substances into the waters from factories, businesses, ships, and so on.⁶ Thus, the marine environment in the waters surrounding Shiretoko is maintained in good quality.

< **Challenges** >

- There is a **concern, however, that** a great variety of marine contaminants from rivers **flowing** into the waters surrounding Shiretoko, ocean currents, and the atmosphere may threaten the **life of marine life at higher trophic level as a** result of biomagnification.
- A potential threat of unexpected oil spill incidence, **caused by oil** development in Sakhalin **and the accident** of ships passing through the waters surrounding Shiretoko, **can have** a serious impact on the coastal ecosystem.

< **Management strategy** >

⁵⁻¹ Mizushima and Torisawa ed. (2003) Fisheries and Aquatic Life in Hokkaido. The Hokkaido Shimbun Press.

⁶ Water Pollution Control Law; Law Relating to the Prevention of Marine Pollution and Maritime Disaster; Regulation of Sea Fisheries adjustment in Hokkaido

- Efforts to prevent the outflow of contaminants from terrestrial area should be continued to conserve marine environment in the heritage site.
- Against the marine pollution caused by unexpected oil spills, measures should be taken quickly and accurately to protect the precious ecosystem.⁷
- For this purpose, all the institutions concerned, including the national government, Hokkaido government, and the towns, need to cooperate and consider concrete measures to confine the damage caused by oil spills to a minimum area.

ii. Natural Landscapes

< Current situation >

- No vehicle road exists in most of the coastal area (land area bordering with the sea) within the heritage site and the natural coast remains intact.
- The coastal and the marine section of the heritage site are designated as the Shiretoko National Park under the Natural Parks Law, where certain activities are regulated in order to conserve natural scenic beauty and biodiversity.

< Management strategy >

- Efforts to conserve the excellent scenic beauty and biodiversity should be continued based on the Natural Parks Law.

iii. Drifting and Washed-up Debris

< Current situation >

- There are some drifting and washed-up debris observed in the marine section of the heritage area.⁸
- The problems caused by the drifting and washed-up debris, including those of foreign origin, are becoming serious in recent years. Examples of the problems are deterioration of the coastal function, of environment including the ecosystem, of scenic beauty, threats to the safe passage of ships, and damage to the fishing industry.⁹

< Management strategy >

- The relevant agencies should work together to transmit the information concerning the alleviation of the harmful effects on the marine ecosystem caused by drifting and washed-up debris and the conservation of the coastal environment.
- Cleaning garbage ashore on the coast in the marine section of heritage site should be conducted regularly with the help of volunteer activities.

c. Fishes

< Current situation of the component >

⁷ Oil Spill Accident Disaster Control Manual (Hokkaido); Plan for Cleaning of Spilled Oil (and HNS) to Hokkaido Coastal Sea Area (Japan Coast Guard); Japanese National Contingency Plan for Oil and HNS Pollution Preparedness and Response as amended in 2006 (Cabinet decision)

⁸ List of the Results of the Shiretoko Cape Volunteer Cleaning Projects in FY2005

⁹ Government response policy: Decision of the Headquarters for Promotion of Special Zones for Structural Reform (February 15, 2006)

- The number of fin-fish species observed in the waters surrounding Shiretoko has totally counted 223 species that belongs to 74 families in 26 orders, of which 150 species are identified in the marine section of the heritage site.
- A large number of fishes including salmonids, walleye pollock, arabesque greenlings, rockfish, cods, flatfish, and cephalopods, live in the marine section of the heritage site. The area serves as a part of a migration route for the salmonids and walleye pollock that widely migrate and mainly feed on copepods and krill in the sea.¹⁰
- In the waters surrounding Shiretoko, fisheries activities have long been actively conducted blessed by the rich biological production and a historical background based on the fishing industry has developed in the region.
- For the major marine living resources, there have been strenuous efforts made to maintain a balance between the state of the resources and catch, and to realize the sustainable use. For example, surveys on trends of resources have been conducted, and regulations concerning the management and use of resources have been established, and resources are propagated through fishery-related legislations and voluntary initiatives by fishery operators and fishery organizations.
- Catch of the major fish species utilized in the fishing industry has been continuously monitored, and the results have been organized and published as statistical data since 1935.

< **Selection of the indicator species** >

- Keystone species include salmonids (e.g., chum, pink, and masu salmon), walleye pollock, arabesque greenling, and Pacific cod.
- Major species used by the fishing industry include salmonids, walleye pollock, Pacific cod, arabesque greenling and common squid. Among them, the catch of salmonids and walleye pollock, which is fished only in Rausu side, are predominant.
- Therefore salmonids and walleye pollock are defined as indicator species because they are highly abundant, keystone species, important fishery species, and characteristic species connecting between the marine and terrestrial ecosystems in this area.

< **Management strategy** >

- Monitoring, various surveys, and information gathering in the waters surrounding Shiretoko should be continued. Proper resource management and the sustainable use of salmonids and walleye pollock should be promoted under the relevant laws, such as the Fisheries Law and the Fisheries Resource Protection Law, while reflecting the voluntary management efforts of the local fishermen and fishery cooperatives. (See Note)

(Note)

In Japan, the sustainable use of marine living resources is promoted through a combination of official and voluntary restrictions. Official restrictions include catch restriction under the

¹⁰ Nomination document of Shiretoko, 3a.6.5 Fishes

Fisheries Law and the Fisheries Resource Protection Law, and management of the amount of extraction of marine living resources and fish catch efforts based on the Act Concerning Conservation and Management of Marine Life Resources which was established when the United Nations Convention on the Law of the Sea came into effect. Voluntary resource management is conducted by fishery workers and fishery organizations utilizing various surveys, aiming at the reasonable use of resources and stable fishery management.

d. Marine Mammals

< Current situation of the components >

- In the waters surrounding Shiretoko, 2 orders, 9 families, 22 genera and 28 species of marine mammals have been identified, including whales, dolphins and porpoises, Steller sea lion, and seals.¹¹
- Marine mammals such as cetaceans are one of the higher-level predators in the food web of the marine section of the heritage site. The waters surrounding Shiretoko is used by these marine mammals as a seasonal migration route and a foraging and breeding ground.¹¹
- Protected by sea ice from their enemies and the impact of ocean waves, the waters surrounding Shiretoko is an important place for seals to forage, rest, and breed. The marine area is also important as a wintering and foraging ground for Steller sea lions due to its high biological productivity.
- There is a challenge in the relationship of the seals and Steller sea lions with the fisheries which is a key industry in Hokkaido. Proper management of the visiting populations should be achieved while trying to alleviate the damage to the fishing industry.¹²

Steller sea lion

< Current situation >

- From winter to spring, groups of Steller sea lions migrate to the waters surrounding Shiretoko for wintering and foraging. They come from their breeding and landing grounds in Russian waters. **These groups mainly consist of the pregnant females that are important for maintaining the populations.**
- Considered to be declining in their population over the long-term and on a global scale (including Russian waters), Steller sea lion is classified as Endangered (EN) in the IUCN Red List and as Vulnerable (VU) in the Red List of the Ministry of the Environment.
- The population of Asian groups of Steller sea lion marked a sharp decline until the 1980s, but has been gradually increasing since the early 1990s. The entire population over Russia (calculated by adding the populations in the western part of the Bering Sea

¹¹ Nomination document of Shiretoko, 3a.6.2 Marine Mammals

¹² **Fishery and Fishing Villages in Hokkaido** 2006

and Komandorskie Islands to the Asian groups) is estimated to be increasing at an annual rate of 1.2% since 1989.

- Along the coasts of Hokkaido, significant damage to the fishing industry by Steller sea lions, including damage to fishing gear and damage to fish by scavenging of hauls, is a serious problem. Consequently, since 1994, the population of Steller sea lions has been controlled within the quota for all of Hokkaido, in addition to various countermeasures against fishery damage. The quota is set up based on the Fisheries Law and other regulations.
- The national government and Hokkaido government are also conducting the surveys and research, to alleviate damage to the fishing industry.

< Selection of the indicator species >

- The Steller sea lion is a higher-level predator in the food web of the marine section of the heritage site.
- Also, their population is considered to be declining internationally in the long-term.
- On the other hand, there is damage to the fishing industry by migrating Steller sea lions in the waters surrounding Shiretoko.
- Based on the above, the Steller sea lion is defined as an indicator species.

< Management strategy >

- The population of Steller sea lion should be managed based on the results of surveys and research on their ecology, number of visiting individuals, and number of animals caught as bycatch, as well as based on the control quota under the Fisheries Law.

Seals

< Current situation >

- Seals that breed on ice (larga seal, ribbon seal, ringed seal, and bearded seal) migrate to the waters surrounding Shiretoko and breed on the sea ice. They feed on a wide variety of marine life including fish of Gadidae, Pleuronectidae, and Cotidae, squids, and octopuses.¹³
- Seals were excluded from the protection under the Wildlife Protection and Hunting Law and there was no restriction on their capture until 2002. Since 2003, they have been protected under the Wildlife Protection and Hunting Law and their capture is restricted.

< Selection of the indicator species >

- Seals are higher-level predators in the food web of the marine section of the heritage site. The area serves as a breeding and foraging ground for seals.
- Feeding on krills, pups are strongly linked to the environment in which sea ice is formed, and to the prey species that make up a component of its ecosystem.
- With increase in number of seals visiting Hokkaido, damage to the fishing industry, such as scavenging hauls, is increasing, while seals are being caught as bycatch through

¹³ Shiretoko Marine Mammal Migration Survey in FY2005 (Hokkaido)

fishnets.¹³

- Based on the above, **all the** species of seals that migrate to the waters surrounding Shiretoko are defined as indicator species.

< **Conservation management strategy** >

- **Surveys on the state of seal's migration and damage to the fishing industry should be conducted, and they should be managed in accordance with the Wildlife Protection and Hunting Law.**

e. Seabirds and Sea Eagles

< **Current situation of the component** >

- The Shiretoko Peninsula and its surrounding marine area provide a diverse habitat for birds. Here, 264 species of birds **belonging** to 50 families in 18 orders are identified, and more than 30% of them use the marine area.¹⁴
- Among the birds identified in the Shiretoko Peninsula and its surrounding marine area, **nine species** are listed on both IUCN and Ministry of the Environment (MOE) red lists. They are: Japanese night heron [IUCN(EN), MOE(EN)], **red-crowned crane** [IUCN(EN), MOE(VU)], Blakiston's fish-owl [IUCN(EN), MOE Endangered(CR)IA], Baikal teal [IUCN(VU), MOE(VU)], Steller's sea eagle [IUCN(VU), MOE(VU)], Japanese yellow bunting [IUCN(VU), MOE (Near Threatened: NT)], white-tailed eagle [IUCN (Least Concern: LC), MOE(EN)], yellow-breasted bunting [IUCN(NT), MOE(CR)], **long-billed murrelet** [IUCN(NT), MOE (Data Deficient: DD)]. Among them, Steller's sea eagles and white-tailed eagles use the marine area as an important feeding ground. Blakiston's fish-owls also use the coast as a foraging ground.
- There are a large number of seabird colonies on the coast of the Shiretoko Peninsula.

Seabirds

< **Current situation** >

- There are many seabirds such as spectacled guillemot, Japanese cormorant, and slaty-backed gulls living on rocky coast of the Shiretoko Peninsula. These seabirds are protected under the Wildlife Protection and Hunting Law. They use the marine section of the heritage site as a major habitat including building nest on the cliffs along the coast in the heritage site. Thus, these birds can be considered as species that characterize Shiretoko's costal ecosystem.
- In recent years, human activities such as excessive approach to nesting areas and feeding by the tour boats in the waters surrounding Shiretoko, **are affecting the behavior of seabirds, thus potentially threatening them.**¹⁵

¹⁴ Nomination document of Shiretoko, 3a.6.3 Birds

¹⁵ The Shiretoko Nature Foundation "Changes and challenges in tourism use of Shiretoko before and after inscription on the World Heritage List." from the working document of the first meeting of Central **Region** of the Peninsula Zone Working Group, Committee on the **Promotion of** Proper Use

- The spectacled guillemot is listed as Vulnerable on the MOE Red List.

< Selection of the indicator species >

- Spectacled guillemot is defined as an indicator species because the species is particularly affected by such recreational use of the site by humans as mentioned above, and, though locally propagating on the coasts from Hokkaido to Tohoku, its population is declining and needs careful monitoring.
- Slaty-backed gull and Japanese cormorant are also defined as indicator species because they are major seabirds breeding in large numbers in the coastal area of the heritage site.

< Conservation management strategy >

- Various surveys and collection of information should be continued, and these seabirds should be properly managed in accordance with the Wildlife Protection and Hunting Law.

Sea Eagles

< Current situation >

- The Shiretoko Peninsula is one of the major breeding grounds of the white-tailed eagle in Japan. Furthermore, a large number of white-tailed eagles and Steller's sea eagles migrate to the area from Russia to winter. They are designated as Domestic Endangered Species by the Law for Conservation of Endangered Species of Wild Fauna and Flora (hereinafter referred to as "the Species Conservation Law").¹⁴
- Steller's sea eagle is classified as Vulnerable (VU) on both IUCN and MOE Red Lists, while white-tailed eagle is classified as Least Concern (LC) on IUCN Red List and as Endangered (EN) on MOE Red List.
- Steller's sea eagle breeds only in the far eastern part of Russia, mostly in northern Eurasia. Their population is estimated to be around 5,000 individuals (including from 1,830 to 1,900 breeding pairs). Shiretoko Peninsula is their major wintering ground where once more than 2,000 birds were observed.¹⁴
- More than 20 pairs of white-tailed eagles breed in the Shiretoko Peninsula every year, making the peninsula the most important breeding ground in Japan for this species. It is also an important wintering ground where up to 600 individuals, including migrating ones, are observed in winter.
- The coast of Shiretoko Peninsula provides an important wintering and living environment for Steller's sea eagle and white-tailed eagle because it has rich food resources, such as salmon, and there are good contiguous forests that serve as roosts for eagles on coastal slopes.
- There are incidents of eagles dying from lead-poisoning caused by lead bullets left in the carcass of Yezo sika deer.

< Selection of the indicator species >

of Shiretoko National Park in FY2005.

- Steller's sea eagle and white-tailed eagle are higher-level predators in the food web of the marine section of the heritage site. They also require careful monitoring from the standpoint of protecting threatened species. Therefore, they have been defined as indicator species.

< Conservation management strategy >

- In line with the Programmes for Rehabilitation of Natural Habitats and Maintenance of Viable Populations under the Species Conservation Law, strict protection and management of Steller's sea eagle and white-tailed eagle should be implemented, including conducting field surveys of their state and surveys of migratory routes.

f. Others

< Current situation of the component >

- In recent years, new recreational activities such as sea kayaking, personal watercraft, and scuba diving are becoming more popular in the waters surrounding Shiretoko, in addition to the conventional sightseeing and leisure cruise, angling, and so on.
- These activities not only bring economic benefits to the local communities through tourism, but also are regarded important for cultural and educational purposes.

< Challenges >

- There is a concern that unregulated recreational use of the waters surrounding Shiretoko may have adverse effects on the fishery activities, biological resources and so on.
- Furthermore, the waters surrounding Shiretoko and the coastal area of the peninsula are the habitat and breeding ground of the seabirds and marine mammals. There is a concern that the human activities, such as navigation of these boats and personal watercraft, and unregulated feeding and watching at close range, may affect the survival of seabirds and marine mammals.

< Management strategy >

- In order to prevent the negative impact of recreational activities on seabirds and marine mammals, and to prevent interference with the local key fishery industry, marine tourism should be managed through the rules for utilization formulated by the authorities concerned including the national government, the Hokkaido government, and relevant towns.¹⁶ Monitoring the situation of recreational use should be continued and efforts should be made to raise awareness of the rules for utilization.

3. Management Measures

(1) Marine environment and production in lower trophic levels

- To understand the marine environment and production in lower trophic levels such as phytoplankton and zooplankton, that support marine ecosystem, marine surveys should

¹⁶ Basic Plan on the Proper Use of the Apical Region of the Peninsula Zone of Shiretoko National Park.

be conducted on the physical, chemical, and biological environment, using satellites, survey boats, observation buoys placed in the ocean, and so on.¹⁷

- Because the production in lower trophic level is directly influenced by changes in the marine environment that in turn reflects global climate change, some features of marine environment including the movement of sea ice in the Sea of Okhotsk, seasonal and annual changes in the East Sakhalin Cold Current and the Soya Warm Current, and behavior of the intermediate cold water in the Sea of Okhotsk, should be monitored.
- Based on these surveys, changes in the productivity of zooplankton and phytoplankton in the marine ecosystem in the waters surrounding Shiretoko should be studied, and the study should shed light on their dynamic state as a food resource to support species at higher trophic level of the ecosystem such as fish, their impact on the ecosystem's biodiversity, and so on.
- These surveys are also important as monitoring of the environment in the waters surrounding Shiretoko and should be continued and further developed.
- In promoting the monitoring or research, the relevant administrative bodies, survey or research institutions, and local parties concerned, including fishery cooperatives, should cooperate and coordinate and should enhance exchange information on the observation system, the results of studies, and so on.
- Based on the results of these monitoring and research, changes in the environment of the marine section of the heritage site will be understood, and further, changes in the marine ecosystem will be predicted. All these results should be utilized for the realization of conservation of the marine ecosystem and a sustainable fishery industry.

(2) Coastal Environment

a. Marine Pollution

- Prevention measures against marine pollution will be taken based on the relevant legislations.
- For the oil spill accidents caused by marine vessels, regional **Council for Countermeasures against Oil Spill Disaster** is established based on the Law Relating to the Prevention of Marine Pollution and Maritime Disaster. In this Council, together with the institutions responsible for the environmental conservation of the coastal waters along the heritage site, concrete oil removal measures should be discussed. In the event of an accident, the institutions concerned, including the national government, Hokkaido government, and the towns, should work together to collect and remove the oil quickly and adequately, and to conserve the marine ecosystem.
- Analysis of oil, cadmium, and other substances in the sea water and in seafloor sediment should be continued to understand the present state of marine pollution on the northeast

¹⁷ “Understanding of the changes in marine environment with the use of fixed-point observation by setting buoys and satellite images.” as the working document No.3 of the second meeting of Marine Area Working Group in FY2006.

coast of Hokkaido potentially caused by the Sakhalin oil development.¹⁸

b. Natural Landscapes

- Coastal area of the heritage site is designated as Special Protection Zone or Special Zones of the Shiretoko National Park under the Natural Parks Law. Within this area, certain activities are regulated in order to conserve scenic beauty.
- The marine section of the heritage site is designated as an Ordinary Zone under the Natural Parks Law. Within this area, certain activities, including land reclamation and new construction beyond a certain scale, are regulated in order to conserve scenic beauty and biodiversity.
- For the conservation of scenic beauty, regular patrol should be conducted to accurately monitor the state of natural environment and park utilization, as well as to instruct visitors and crackdown on violations.
- In accordance with the changes of social conditions and other factors, park area and park plan of the Shiretoko National Park should be reviewed approximately every 5 years based on the scientific knowledge.

c. Drifting and Washed-up Debris

- Information dissemination and awareness raising should be promoted regarding the current situation of, and efforts made against the drifting and washed-up debris in the marine section of the heritage site, making full use of websites and other media, as well as the facilities related to the heritage site, such as visitor centers.
- While collecting information on the situation of drifting and washed-up debris, regular cleaning should be conducted in cooperation and collaboration with the administrative agencies concerned, with consideration given to the natural environment. They also should cooperate with other activities including volunteer clean-up activities by local governments, NPOs and so on.

(3) Indicator Species

- Monitoring of the following indicator species should be conducted and continuous management based on the concept of adaptive management will be implemented.

a. Salmonids

- In order to maintain healthy interactions between marine and terrestrial ecosystems in the heritage site, wild salmonids should be fully secured their escapement and natural spawning, and should be avoided from those obstacles including the river artificial constructions (e.g., dams) to the extent practicable.¹⁹

¹⁸ Marine pollution survey report (March 2006). Hydrographic and Oceanographic Department of Japan Coast Guard.

¹⁹ Working document No.1 of the first meeting of the River Constructions WG in FY2005.

- Based on legislations including the Fisheries Law, surface set nets are designated as the standard marine fishing gear for salmonids, and fishing is prohibited in all rivers and near the mouths of certain rivers to improve success of natural spawning and hatchery programs. Hatchery chum and pink salmon programs, combined with continued fishery restrictions should ensure the protection and sustainable use of salmon resources.
- To maintain and protect populations of naturally spawning salmonids, regular biological monitoring and intensive surveys on migration pattern, escapement dynamics, and spawning of salmonids should be conducted.²⁰

b. Walleye Pollock

- For walleye pollock, gill net fishing and longline fishing are conducted in the waters surrounding Shiretoko, mostly offshore of Rausu Town, with the permission of the governor of Hokkaido under the Regulation of Sea Fisheries Adjustment in Hokkaido that was established based on the Fisheries Law and the Fisheries Resources Protection Law.
- Under the Act Concerning Conservation and Management of Marine Life Resources established based on the United Nations Convention on the Law of the Sea, the national government and Hokkaido prefecture set the upper limit of catch [total allowable catch (TAC)] every year based on the studies including resource survey and resource evaluation conducted by research institutions, and control fish catch.
- In addition to these restrictions based on these fishery laws, immature walleye pollock is protected by resource management agreements signed by the all fishery organizations throughout Hokkaido.
- Further, local fishermen are conducting voluntary management for the protection of spawning fish, including restrictions on the period and area of fishing and on the mesh size of gill nets, with considerations given to their state of maturation and other factors.
- Proper management and sustainable use of walleye pollock resources that migrate into the marine section of the heritage site should be continued and promoted through measures based on these fishery laws and the voluntary efforts of fishery operators and organizations in the waters surrounding Shiretoko.
- Russian trawlers are catching walleye pollock from the **single** stock in the Nemuro Strait, which raises concerns about the impact on marine living resources and the ecosystem of the waters. To address this concern, effort should be continued through various conferences and networks of researchers, **by gathering** as much information as possible on Russian resource management and other relevant issues, **by exchanging** information on marine ecosystem conservation and other nature conservation issues, **and by making** the necessary appeals **to the Russian side**.

²⁰ Working document No.3 (chum salmon, pink salmon, salmonids) of the second meeting of Marine Area WG in FY2006

c. Steller sea lion

- Based on the Fisheries Law, Steller sea lion is managed by a guidance to restrict the total number of animals captured issued by the Hokkaido Fishing Zone Coordination Committee every year. The same system has been applied to manage Steller sea lions inhabited in the waters surrounding the Shiretoko, based on the migration conditions and damages caused by the animals to the fishery industry.²¹
- The number of animals to be captured is determined by calculating the annual number of acceptable man-induced deaths (including all human-induced deaths such as bycatch) using the Potential Biological Removal (PBR) method based on the data of populations migrating to the coast of Hokkaido, and by considering the number of bycatch deaths.
- To understand the migration conditions and damages caused by the animals to the fishery industry, the national and Hokkaido governments conduct surveys and research on the ecology and population of Steller sea lion that migrate to the coasts of Hokkaido as well as the damages to the fishery industry.
- In addition, a system to understand the number of bycatch at any given time should be established, in order to enable more flexible management.
- Through the enhancement of these efforts, an adaptive management based on scientific knowledge should be promoted and should result in the alleviation of damage to the fishery industry and maintenance of the Steller sea lion population.

d. Seals

- Capturing seals requires the permission of the governor of Hokkaido based on the Wildlife Protection and Hunting Law.²²
- Permission to capture wildlife is given based on the criteria for examination defined in line with the permission policy incorporated in the Hokkaido Wildlife Protection Project Plan that is reviewed approximately every 5 years. Permission to capture for the purpose of prevention of damage is given in light of the permission criteria such as minimal capture period, minimum number of people engaged in a capture, and minimum number of animals to be captured, from the perspective of wildlife protection.
- Long-term monitoring of the population trend of the seals in the marine section of the heritage site as well as surveys of damage to the fishery industry should be continued. Also, the proper operation of the capture permission system should be ensured and protection and management of the seals should be promoted.

e. Spectacled Guillemot, Slaty-backed Gull, and Japanese Cormorant

- **Capturing these** seabirds is prohibited in principle based on the Wildlife Protection and Hunting Law. The adequate protection and management based on the law should be continued.

²¹ Working document No.3 (Steller sea lion) of the second meeting of Marine Area WG in FY2006.

²² **Wildlife capture permission examination standard** (Hokkaido)

- Various surveys as well as the collection of information on their state of distribution and population should be implemented and **then** adequate protection and management should be promoted. For the spectacled guillemot in particular, any decrease in the breeding population should be avoided.
- For recreational fishing boats and sight-seeing boats, compliance with the routes that will not give impact on seabirds and marine mammals is requested. As for the use of the marine area by power boat or sea kayaks, instruction should be given thoroughly in cooperation with the institutions concerned, in order to alleviate any negative impact on the seabirds.²³

f. Steller's Sea Eagle and White-tailed Eagle

- Steller's sea eagle and white-tailed eagle are designated as National Endangered Species under the Species Conservation Law and Natural Monument under the Law for the Protection of Cultural Properties, and their hunting, killing or damaging, and transfer are prohibited. Strict protection and management based on these laws should be continued.
- In addition, **Programmes** for Rehabilitation of Natural Habitats and Maintenance of Viable Populations under Species Conservation Law are developed for both Steller's sea eagle and white-tailed eagle. In line with these programs, various projects including studies and monitoring on migration routes across Hokkaido and their behavior, and rescue and rehabilitation of injured or sick birds, should be implemented. Also the results of the surveys on nesting sites, the state of breeding, and so on, should be obtained in collaboration with the researchers or others who have already been studying on them continuously. Based on the examination of the results of those projects and surveys at the regular meeting of **subcommittee on Steller's sea eagle and white-tailed eagle conservation and breeding under the Wildlife Protection Committee**, adaptive protection and management measures that will contribute to increasing their population should be implemented.²⁴
- **The** forests on the coastal slopes in the heritage site that provide an important wintering ground for these birds should be conserved. Awareness raising activities should be conducted to warn users not to get up close to the nesting site during the white-tailed eagle's breeding season.
- The use of lead bullets is prohibited in hunting of large mammals to prevent the lead

²³ Basic Plan on the Proper Use of **the Apical Region** of the Peninsula Zone **of Shiretoko** National Park

²⁴ Programmes for Rehabilitation of Natural Habitats and Maintenance of Viable Populations for White-tailed eagle (Ministry of Education, Culture, Sports, Science and Technology; Ministry of Agriculture, Forestry and Fisheries; Ministry of Land, Infrastructure and Transport; Ministry of the Environment)

Programmes for Rehabilitation of Natural Habitats and Maintenance of Viable Populations for Steller's sea eagle (Ministry of Education, Culture, Sports, Science and Technology; Ministry of Agriculture, Forestry and Fisheries; Ministry of Land, Infrastructure and Transport; Ministry of the Environment)

poisoning of Steller's sea eagles and white-tailed eagles.²⁵

(4) Other Components

Marine Recreation

- For the proper utilization of the Shiretoko National Park, the surveys to understand the situation of recreational use were conducted. Based on the result, desirable way of conservation and utilization were discussed at the Committee on the Promotion of Proper Use of Shiretoko National Park, and the Basic Plan on the Proper Use of the Apical Region of the Peninsula Zone of Shiretoko National Park, targeting the apical region of the Shiretoko Peninsula including the surrounding waters, was formulated in December 2004.
- Based on this basic plan, the request for recreational fishing boats and sight-seeing boats to comply with the routes that will not give negative impact on seabirds and marine mammals, fishery activities and so on, should be continued. While conducting regular monitoring on recreational activities, the content of instruction will be reviewed. For the use of the marine area by power boat or sea kayaks, instruction should be given thoroughly in cooperation with the institutions concerned and other relevant organizations, in order to avert any negative impact on the seabirds, marine mammals and fishery activities.²³
- Landing on the Shiretoko Cape for sightseeing using power boats may have negative impacts on the natural environment. Therefore, since 1984, people have been instructed to refrain from landing, based on the "Agreement on the instructions for usage restrictions of the Shiretoko Cape area" by the administrative bodies involved. The instructions should be carried out strictly and further reinforced.²⁶
- For other recreational use of the coastal area, such as personal watercraft, diving, and other educational activities on sea ice in winter, continuous monitoring should be implemented and concrete policies should be discussed.

4 Administrative Structure and Operation

(1) Implementation of the Plan

- In order to accomplish the plan's objectives, administrative bodies including the Ministry of the Environment and Hokkaido Prefecture, that hold jurisdiction over various systems and measures related to Shiretoko, as well as relevant organizations such as fishery cooperatives and research institutions, should closely cooperate to promote their respective measures for the conservation of the marine ecosystem in the heritage site and for a stable fisheries and so on. At the same time, human resources who are involved in these organizations should be developed.

²⁵ Hokkaido Prefecture Notification No.754

²⁶ Agreement on the instructions for usage restrictions of the Shiretoko Cape area

- The progress of the plan, including the results of various measures, will be disclosed and shared through the reports submitted to the Shiretoko World Natural Heritage Site Scientific Council and the Shiretoko World Natural Heritage Site Regional Liaison Committee, the website of the Ministry of the Environment, the Shiretoko World Heritage Conservation Center, the Rausu Visitor Center, and so on.
- For **the proper promotion** of this plan, the Shiretoko World Natural Heritage Site Scientific Council will provide advice as needed.

(2) Time Frame of the Plan

- The period of this plan will cover until the fiscal year 2012. After 2012, the plan will be reviewed and amended as needed approximately every five years, based on the changes in Shiretoko's marine ecosystem, the results of the management measures, and other relevant information.