Report on the implementation of the recommendations of the 2008 monitoring mission of Shiretoko

Ministry of the Environment

Forestry Agency

Agency for Cultural Affairs

January 2012

Responses to the Recommendations in the UNESCO/IUCN Report of the reactive monitoring mission in February 2008

Recommendation 1

Explore with the International Maritime Organisation (IMO) the obtaining of a Particularly Sensitive Sea Areas (PSSA) designation for the marine component of the property, with a view to giving it an added layer of protection.

1. We consider that the effect of the international marine transportation operation on the marine component of the Shiretoko World Natural Heritage site is not high at present. Currently, the Ministry of Land, Infrastructure, Transport, and Tourism is investigating and deliberating the introduction of an international ship navigation control system. Depending on the results of this deliberation, we plan to investigate the need for, and possibility of, introducing PSSA designation in collaboration with the organisations concerned.

Recommendation 2

The Management Plan should not only outline Objectives and Management Strategies, as contained in the Marine Management Plan, but also be action oriented with clear identification of activities, results and objectively verifiable indicators. The plan should also assign clear roles and responsibilities to the various implementation agencies and elaborate a time-frame for its implementation.

1. In December 2009, the Ministry of the Environment, the Forestry Agency, the Agency for Cultural Affairs, and the Hokkaido Government completely revised the “Management Plan for the Shiretoko World Natural Heritage Nominated Site” (compiled in 2004). The new document was called the “Management Plan for the Shiretoko World Natural Heritage Site” (World Heritage Management Plan) (Appendix 1).

2. In the World Heritage Management Plan, we give details of future activities based on the results of past efforts and experiences. We also describe the roles of various meetings and organisations concerned with appropriate management of the Shiretoko World Natural Heritage site.

3. Currently, the Scientific Council is deliberating on developing a mid- and long-term Monitoring Plan to evaluate whether the values of the Shiretoko World Natural Heritage Site are being properly maintained. The necessary indicators are also being deliberated by the Council.

4. The details and results of the activities of the relevant organisations are compiled every year in an Annual Report and are evaluated.

5. Currently, the “Sika Deer Management Plan in the Shiretoko Peninsula” (Appendix 2) and the “Multiple Use Integrated Marine Management Plan for the Shiretoko World Natural Heritage Site” (Appendix 3), which are annexed to the World Heritage Management Plan, are being reviewed. In addition, role assignment among the relevant organisations and the setting of indicators and time frames are being deliberated.

6. In the future, depending on the results of the above deliberations, we will review the World Heritage Management Plan by, for example, defining objectively verifiable indicators and the time frame.

Recommendation 3

Complete the revision of the management plan for the property into one comprehensive site Management Plan, which should integrate all the other individual plans, including the Multiple Use Marine Management Plan. The site Management Plan should additionally deal with all key management issues, such as the management of Salmonids, sika deer, key indicator species like Walleye pollock, Stellar Sea lion, Stellar Sea Eagle, etc and with ecotourism.

1. The Ministry of the Environment, the Forestry Agency, the Agency for Cultural Affairs, and the Hokkaido Government combined the “Multiple Use Integrated Marine Management Plan for the Shiretoko World Natural Heritage Site” and the “Sika Deer Management Plan in the Shiretoko Peninsula” to develop the “Management Plan for the Shiretoko World Natural Heritage Site” in December 2009. Key management issues conceivable at the time, such as the management of indicator species, and ecotourism are described in this plan (Table 1).

Table 1 List of management items described in the World Heritage Management Plan

1) Conservation of terrestrial ecosystem and natural landscape: 26 items

i) Plants	ii) Animals	iii) Conservation of natural landscape	iv) Measures against alien species
7 items	14 items including the following: Sika deer: 2items Brown bear: 2 items Blakiston’s fish-owl: 3 items White-tailed eagle and Steller’s sea eagle: 2 items	2 items	3 items

2) Conservation of marine areas: 1 item

3) Conservation of interaction between marine and terrestrial areas

i) Conservation of river environment	ii) Utilisation and conservation of salmonid species
1 item	1 item

4) Appropriate utilisation of natural environment

i) Appropriate utilisation	ii) Promotion of ecotourism	iii) Policies on key utilisation types
3 items	2 items	19 items including the following: Sightseeing excursions: 7 items Mountain climbing and trekking: 3 items Recreational use of marine area: 5 items Others: 4 items

5) Measures against impact of climate change: 1 item

6) Information sharing and awareness programs: 3 items

Recommendation 4

Consider identifying and designating locally relevant conservation zones, including no take zones, and practices within the marine habitat to ensure sustainable productivity of the marine biodiversity, including for sustainable production of the fishery resource.

1. In the marine areas around Shiretoko, sustainable productivity of biodiversity is ensured by the legal restrictions relating to the conservation of the marine environment and ecosystems (Makino *et al*. 2009), and the fisheries. It is also ensured through the self-management measures carried out by fishers and their organisations; these management efforts include the no-take zones and no-take periods (Column 2).

2. The Kushiro Nature Conservation Office and the Hokkaido Government will continue to ensure sustainable productivity of biodiversity in Shiretoko in accordance with the Marine Management Plan by, for example, promoting monitoring activities in close collaboration with the relevant organisations, making full use of the knowledge and experience of fishery operators.

Recommendation 5

Continue the cooperation which has been initiated with the Russian Federation to find long-term solutions to resource use problems, particularly the unsustainable harvesting of the Walleye pollock, and for regular exchange of scientific information.

1. To promote cooperation on the conservation of ecosystems in the neighboring areas of Japan and the Russian Federation, the “Cooperation Program between the Government of Japan and the Government of the Russian Federation in the neighboring areas of the two states on the Study, Conservation and Rational/Sustainable Use of Ecosystems” was signed by the governments of Japan and Russia in May 2009, and symposiums and workshops since have been held (Column 1). In addition, a joint statement among researchers from Japan, China, and Russia was adopted and the researchers’ network “Amur Okhotsk Consortium” was established.

2. On the basis of this Program, we will continue to share information between Japan and Russia by holding workshops etc. in close collaboration with existing research exchange bodies. We will also continue to promote cooperation in monitoring as well as conservation and management technology.

Column 1: Actions in based on the Cooperation Program between the Government of Japan and the Government of the Russian Federation in the neighboring areas of the two states on the Study, Conservation and Rational/Sustainable Use of Ecosystems

Based on the cooperation program signed by the governments of Japan and Russia in May 2009, cooperation on the study, conservation, and effective and sustainable use of ecosystems, such as the promotion of collaborative research work, information sharing, and expansion of researcher exchange, has been promoted.

1. Information sharing

Thus far, two symposia in Japan, and one workshop in Russia have been held. They were attended by experts belonging to government agencies, universities, museums and research institutes from both countries, in order to share information such as research outcomes on the marine environment, fish, mammals and birds and to exchange opinion on future cooperation between Japan and Russia. The symposia held in Japan were hosted by the Ministry of the Environment and the Ministry of Foreign Affairs of Japan.

With regard to Walleye Pollock fishing, information on catches and distribution, and on the fishery regulations of the respective countries was exchanged; and Japan has proposed that information-sharing be further expanded. In the search for sustainable Walleye pollock fishing, Japan reported on the conservation efforts of the Rausu Fishermen's Cooperative in the Nemuro Straits, appealing for consideration on the part of Russian fishing trawlers operating in the same area.

2. Expansion of expert exchange

In the neighboring areas of Japan and Russia where research studies had not previously been active, experts on vegetation, mammals and other fields, from both countries, now conduct joint research on a yearly basis.

Recommendation 6

Address the declining population trends of the two indicator species - Walleye pollock and Stellar Sea lion – through sound management interventions for their sustainable conservation within the property and through cooperative measures with relevant parties for areas outside the marine component of the property.

1. In the case of Walleye pollock (*Theragra chalcogramma*), we are promoting proper management and sustainable use by taking measures in accordance with fishery laws and the voluntary efforts of fishers and their organisations. Because of these measures, the estimated resource of Walleye pollock in the marine waters off Nemuro in 2010 remained on the same level as those in recent years. However, the catches in recent years have been low, at less than one-tenth of those at the peak time (1989) (Fig. 1, Column 2).

2. For Steller sea lions (*Eumetopias jubatus*), in an effort to prevent damage to the fishing industry throughout Hokkaido, we have implemented shared use of reinforced nets, including fixed fishing nets; in addition, as a measure to minimize damage to the gill net fishery, which accounts for most of the damage, we are now testing the development of reinforced gill nets to prevent damage by Steller sea lions. We have also used skyrockets and firecrackers to deter Steller sea lions. We intend to verify the effectiveness of this method and will explore even more effective deterrence methods. By taking these measures, we are trying to keep the number of Steller sea lions that need to be eliminated to the bare minimum.

3. In addition, the Asian group of Steller sea lions which supplies individuals migrating to Japan shows a recovering and increasing trend (Burukanov and Loughlin 2005, Burukanov *et al*. 2011, Hattori *et al*. 2011). Steller sea lions migrating to the Hokkaido region are managed according to the target harvest number specified within the range of the total allowable catch calculated by the government using the PBR (Potential Biological Removal) method, and in accordance with the guidelines of the Hokkaido Fishing Zone Coordination Commission, such as those respecting limitations on the total catch throughout the Hokkaido fishing ground (Column 3).
   For Steller sea lions inhabiting the waters around Shiretoko, same management is adopted based on the conditions of migration and damages to the fishery industry.

4. We will continue these efforts under the Marine Management Plan in close collaboration with relevant organisations.

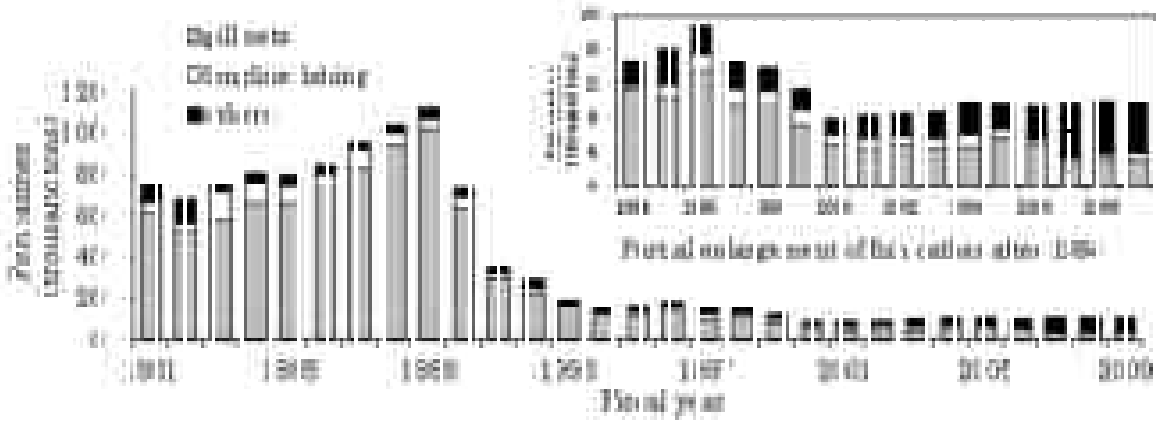

Fig. 1　Changes in walleye pollock catches in the Nemuro Straits (Stock Assessment of walleye pollock in the Nemuro Straits in FY2010, Hokkaido National Fisheries Research Institute)

Column 2: Self-management of walleye pollock fishing in the marine waters off Rausu

With regard to walleye pollock fishing in the marine waters off Rausu, in order to conserve biodiversity and ensure sustainable marine productivity, in addition to complying with Japanese laws and regulations, voluntary resource management has been carried out by fishery operators, as described below.

Unfortunately, however, in spite of such voluntary efforts, the resource level of walleye pollock has remained low in recent years. Since detailed information is not disclosed sufficiently at present, such as the capture numbers of Russian trawlers operating in the Nemuro Straits, which makes walleye pollock resource management difficult, we have been seeking to promote greater information exchange.

1. Voluntary reduction of fishing boats, and the collective management system

To utilize Walleye pollock resources in a sustainable manner, fishermen in the area voluntarily reduced the number of their fishing boats or discontinued fishing altogether; and as a result, the number of fishing boats decreased from 193 in 1988 to 85 at present. In 2002, a collective management system was introduced, forming groups consisting of five boats each, with rotating suspensions of one boat in each group. This resulted in a reduction of 20% in pressure for catch.

2. Restrictions on fishing gear

Smaller gill nets of 15.5 m are currently in use, compared to the 17.6-m gill nets used in the past. In addition, net mesh size was increased from 91 mm to 97 mm, to lessen pressure for catch and protect small adult fish.

3. Establishment of no-fishing periods and zones

To protect spawning adult fish and facilitate reproduction, no-fishing zones are applied during a certain period of the spawning season. The zones are defined based on fishing maps created by fishery operators themselves, taking into account the frequency of use, unit fish prices, and maturity level of spawning adult fish, for each fishing ground.

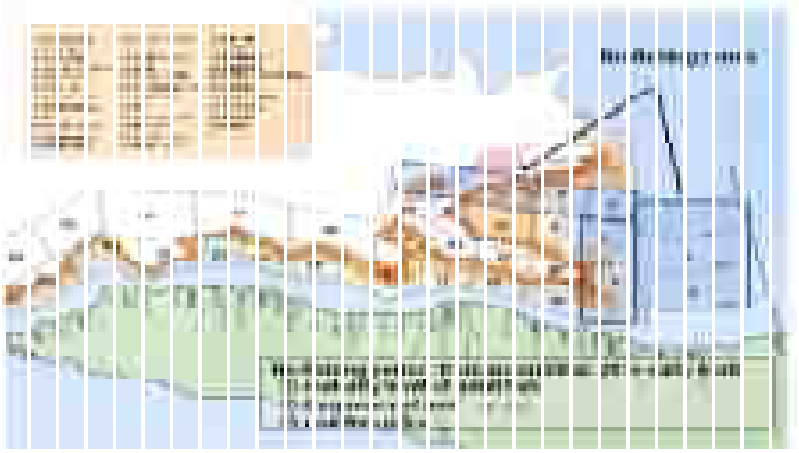

Fig. 1　Establishment of no-fishing periods and zones

4. Resource studies

With the cooperation of fisheries experimental stations, catch studies, fish-finding surveys, studies on the distribution of eggs and young fish, and on water temperature, are carried out.

Fig. 2 A Russian trawler in operation

Column 3: Efforts for the coexistence of Steller sea lions and fisheries

In the marine areas around Hokkaido where the Shiretoko World Natural Heritage Site is located, Steller sea lions have caused damage to the fishing industry by preying on fish catch and breaking nets. The total amount of damage exceeds one billion yen each year since 1992, and the situation has worsened in recent years as migration areas and periods have expanded.

On the other hand, as Steller sea lions are internationally endangered species, prevention of population decline is required. Therefore, the national and Hokkaido governments are taking measures based on the assumption of fisheries coexistence with the Steller sea lions.

These measures include deterring and capturing Steller sea lions, and conducting tests aimed at the practical use of reinforced gill nets made of durable materials, in cooperation with fishermen. However, no effective deterrent measures have yet been confirmed, owing to the high learning capacity of the sea lions.

Therefore, aiming equally at fisheries coexistence with the Steller sea lions and damage management for the fishery industry, the Hokkaido government has determined a target capture number within the range of the total allowable catch, based on the scientific rationale of the PBR (Potential Biological Removal) method, in cooperation with the national government, while supporting the use of reinforced nets that could reduce damage.

In October 2010, a quarter system was introduced for a period of five years, to replace the conventional single-year management method. This new system allows for flexible management based on migration and damage conditions in the Hokkaido fisheries ground. We are committed to further promoting the healthy coexistence of Steller sea lions and fisheries.

Recommendation 7

Continue and accelerate measures to promote the free movement of salmon within the property and also to increase salmon escapement.

1. The River Construction Working Group of the Hokkaido Regional Forest Office and the Hokkaido Government devised methods for evaluating the effects of river constructions, investigated these effects on salmonid species escapement, and comprehensively reviewed and evaluated the suitability of modifications to these structures. Most of the river structures have already been modified by the organisations responsible on the basis of this evaluation. In accordance with the results of deliberations by the working group, the Hokkaido Government will modify the remaining structures that need modification and will make effort to increase salmonid species escapement in the future.

2. In the four rivers where modifications were completed by 2010, remarkable effects of the modifications, including increases in the rates of escapement and spawning bed preparation in the upper reaches above the modified structures, have been observed (Appendix 4).

Recommendation 8

In the long-term perspective while continuing monitoring, give priority attention to the modification of constructions on the Rusha River, given its importance for salmon species within the property.

1. The Hokkaido Government completed the modification of two constructions on the Rusha River in 2006.

2. The results of monitoring after modification show that the modifications have had remarkable effects, including an increase in the rate of spawning bed preparation in the upper reaches above the modified constructions (Appendix 4).

3. We will continue checking the status of the river by periodic inspection.

Recommendation 9

Continue and accelerate monitoring efforts within the property, with particular attention to the impact of the modification of constructions on the movement of salmon populations within and outside the property.

1. The Hokkaido Regional Forest Office and the Hokkaido Government, which are in charge, will continue to monitor the status of salmonid species escapement to verify the effect of the modifications to the river constructions (Column 4).

Column 4: Establishment of the River Construction Advisory Committee

The River Construction Advisory Committee was established in 2009 to provide technical advice on construction work, and scientific advice on monitoring and evaluation, with regard to structures such as dams, in the Shiretoko World Natural Heritage Site.

The committee consists of five experts in the fields of river environment conservation, fish, erosion control engineering, and related areas. The committee meets roughly twice a year.

Fig. 1 River Construction Advisory Committee

Recommendation 10

Clear indicators should be developed to help define acceptable and unacceptable limits for the impact of grazing from Sika Deer on natural vegetation in the property.

1. The Kushiro Nature Conservation Office is discussing the development of indicators in collaboration with scientists at the Sika Deer and Terrestrial Ecosystem Working Group (Fig. 2).

Vegetation index for sika deer population control in the Shiretoko Cape grassland

	Aim	Species	Monitoring issue		Time to achieve
			Index	Density of deer	
1	Increase in Poaceae	*Poa platensis*, *Poa trivialis*, etc	biomass	（high）	（short）
2	Decrease in *Cirsium vulgare*	*Cirsium vulgare*	Population, Number of Reproductive individuals		
3	Increase in *Sasa* species	*Sasa senanensis*	Plant height, Number of shoot		
4	Increase in deer-browse plants	Broad-leaf herbs(ex. *Rubus matsumuranus*)	Dominance ratio, Number of shoot		
5	Decrease in deer-deterrent plants	*Senecio cannabifolius, Senecio pseudo-arnica, Ligularia hodgsonii , Scutellaria strigillosa*	Number of shoot, Shoot height		
6	Recovery of tall herbaceous plants	*Conioselinum chinense, Coelopleurum lucidum*, etc.	Population, dominance ratio, number of reproductive individuals		
7	Recovery of rare species	*Empetrum nigrum var. japonicum, Trifolium lupinaster, Artemisia laciniata, Aconitum misaoanum*, etc.	Population, dominance ratio, number of reproductive individuals	（low）	（long）

Fig. 2　Discussion image of vegetation index

Recommendation 11

Implementation of the Sika Deer Management Plan in the Shiretoko Peninsula, and the associated Action Plan should continue but the impacts of control measures on sika deer populations and the biodiversity and ecosystems of the property should be carefully monitored.

1. The Kushiro Nature Conservation Office is monitoring the vegetation status and sika deer (*Cervus nippon yesoensis*) population in the areas where experimental density manipulation of sika deer is being conducted. On the basis of these monitoring results, adaptive management measures are being taken in accordance with the advice of the Sika Deer and Terrestrial Ecosystem Working Group.

2. In addition, the Office is conducting a monitoring survey of insects to investigate the effects of management measures on the biodiversity and ecosystems on the property. We are also planning to conduct a monitoring survey of birds on the basis of the survey results obtained by scientists and the related bodies (Appendix 5).

Recommendation 12

The management of sika deer within the Shiretoko World Heritage site should be carefully coordinated with the management of sika deer within Hokkaido in general.

1. The “Sika Deer Management Plan in the Shiretoko Peninsula,” developed by the Kushiro Nature Conservation Office, is positioned as the regional plan of the “Conservation and Management Plan for Sika Deer in Hokkaido” developed by the Hokkaido Government.

2. Development of the abovementioned two plans was accomplished with the involvement of the same experts and with good coordination between the Hokkaido Government and the Ministry of the Environment. Conservation and management measures based on the two plans are implemented with close communication and coordination.

Recommendation 13

Any control measures of deer populations in the property should be carefully, humanely and sensitively implemented.

1. Because there is a high possibility that the browsing pressure of sika deer is irreversibly affecting the ecosystem and biodiversity on the property, we have initiated control of the population of sika deer on the basis of the precautionary principle. The control measures are implemented carefully, humanely, and sensitively, with appropriate monitoring, evaluation, and verification (Column 5).

2. For example, at the apical part of the Shiretoko Peninsula we have conducted experimental density manipulation in order to examine the feasibility of population control and to verify vegetation restoration over the past 3 years, and we have observed a certain level of success in population control and confirmed a small trend toward vegetation restoration. On the basis of the evaluation made by the Scientific Council, we will take measures to reduce the excessive impacts of sika deer on the ecosystem and on biodiversity by conducting full-scale population control (which includes erecting temporary fences to assist capture).

Column 5: Population control in the apical region of the Shiretoko Peninsula

In the apical region of the Shiretoko Peninsula, full-scale population control is now being conducted, after examining the feasibility of various harvesting methods and carrying out experimental density manipulation for three years. In light of humanitarian concerns, guns are used for harvest.

The number of sika deer passing the winter, the number of natural deaths, and the condition of deer-deterrent vegetation inside and outside the fences, as well as that of the standing crop of Poaceae, are investigated on a yearly basis.

Based on the results of these investigations, and the advice of the Sika Deer and Terrestrial Ecosystem Working Group, the target harvest number and method are determined.

Fig. 1 Sika deer population wintering in Shiretoko Cape

Recommendation 14

Develop a consolidated ecotourism strategy for the property as quickly as possible. This strategy should be based on the protection of the natural values of the property, the promotion of high quality nature based experiences for visitors, and the promotion of local economic development.

1. The “Committee on Proper Use of Nature and Ecotourism,” formed by the Kushiro Nature Conservation Office, the Hokkaido Regional Forest Office and the Hokkaido Government initiated an “Shiretoko Ecotourism Strategy” in 2010. The main points of the strategy are protection of the natural values of the property, promotion of high-quality nature-based experiences for visitors, and promotion of local economic development. The timeline for initiation of the strategy is as follows: in the first year, preparation of the main points; in the second year, consensus formation; in the third year, formulation and trial implementation of the strategy.

2. In the Shiretoko-goko Lakes area, which is a habitat for brown bears (*Ursus arctos*) and is visited by many tourists, in 2011 we will start full-scale visitor control in accordance with the Management Plan with a view to protecting the natural values of the property, promoting high-quality nature-based experiences for visitors, and promoting local economic development (Appendix 6).

Recommendation 15

Continue current activities in relation to “proper use” and “ecotourism” and consolidate them under one consolidated Working Group to ensure these matters are addressed in an integrated manner

1. In 2010, the Kushiro Nature Conservation Office, the Hokkaido Regional Forest Office , and the Hokkaido Government set up a “Committee on the Proper Use of Nature and Ecotourism” to integrate activities involving proper use and ecotourism. We plan to address individual activities in an integrated manner under this committee (Fig. 3).

2. In the Shiretoko ecotourism strategy, we plan to encompass the use of the land and sea areas integrally, covering recreational and sightseeing use of the sea areas in addition to the land areas.

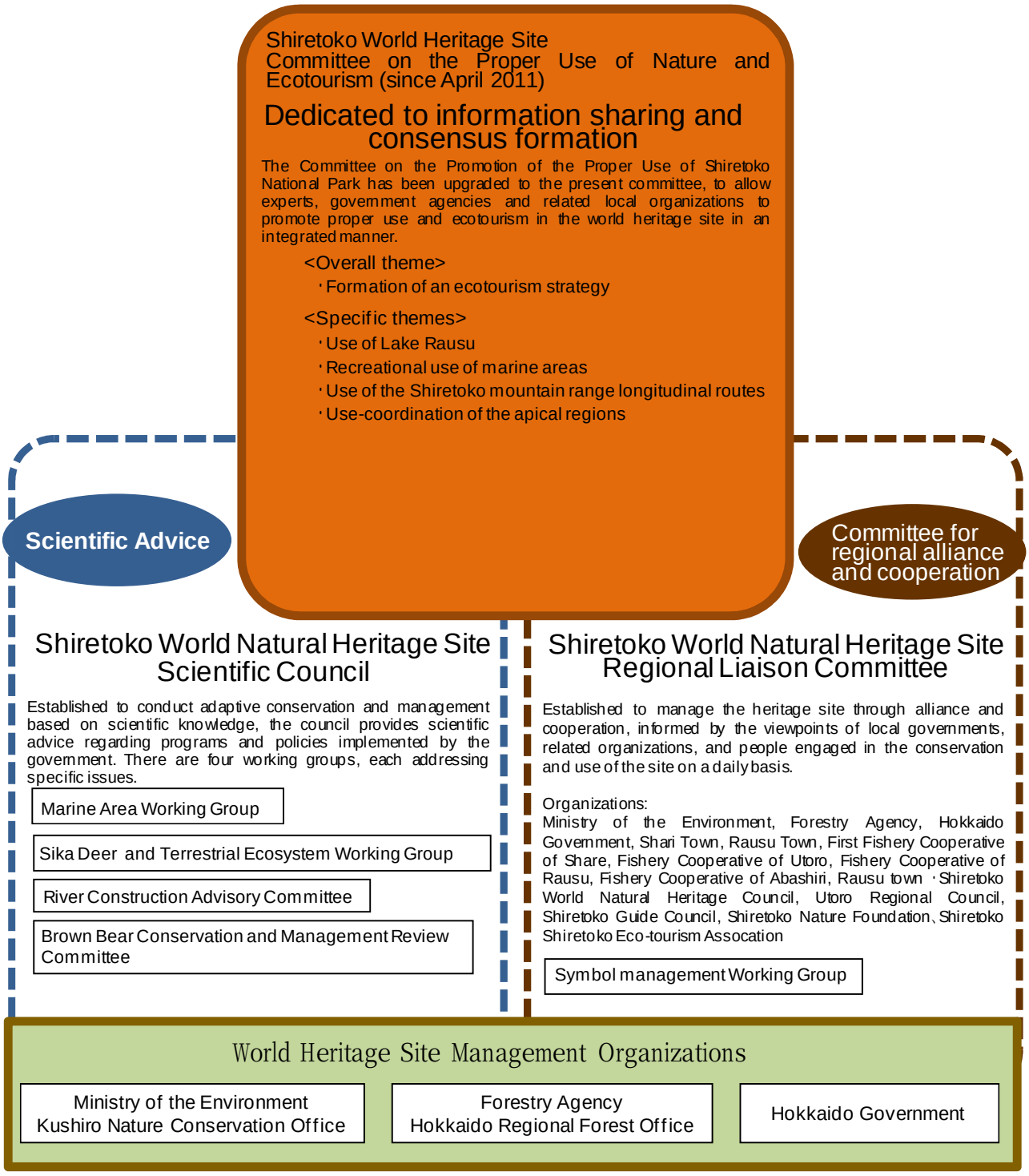

Fig. 3 Overall organisation of the Committee on Proper Use of Nature and Ecotourism

Recommendation 16

Ensure that the ecotourism strategy for Shiretoko is closely linked and integrated with regional strategies for tourism and economic development within Shiretoko.

1. The participants in the “Committee on Proper Use of Nature and Ecotourism” include, in addition to academic experts and the relevant government agencies, a wide range of relevant local bodies, such as tourist associations and tour guide associations, from Shari town and Rausu town, and the Shiretoko Eco-tourism Association. At the meetings, opinions, such as “Sustainable use of fish resources by local fishery operators should be further utilized as an attraction for ecotourism,” are presented. Through this Committee, we will closely collaborate with the relevant local bodies and will make efforts to ensure that the Shiretoko ecotourism strategy is developed and there is close liaison on, or integration of, the economic activities within Shiretoko.

Recommendation 17

Develop a Climate Change Strategy for Shiretoko which includes: (a) development of a monitoring programme; and (b) adaptive management strategies to minimise any impacts of climate change on the values of the Shiretoko World Heritage site.

1. At the Scientific Council meetings, the Kushiro Nature Conservation Office, the Hokkaido Regional Forest Office, and the Hokkaido Government are discussing the monitoring plan (Appendix 7) that will be needed to maintain the values of the Shiretoko World Natural Heritage site. In this discussion, we will include the issue of the monitoring technique to be used for early prediction of the effects of climate change on the Shiretoko World Natural Heritage site. In addition, in 2010 we started a discussion on adaptive management strategies for minimizing the impacts of climate change.

2. The Forestry Agency has been promoting the development of a climate change monitoring program as part of the “Monitoring of the Impact of Climate Change, etc. Project.” We will reflect the results of this project in the aforementioned monitoring program.