Facilities protected by disaster prevention works

Those protected by disaster prevention works are the lives of local citizens, their properties and livelihoods, including residences, accommodations, roads and bridges.

Public facilities along the Iwaubetsu River

Hotel and trailhead facilities along the Iwaubetsu River

River mouth in Rausu Town

Hot spring facilities under disaster prevention work

Roles in the fishery industry

Disaster prevention works can prevent mountain-slope and sediment disasters caused by heavy rainfalls and other natural forces. This plays a role in reducing damages to the fishery industry such as damages to or loss of fishery gears and turbid water inflow. In addition, river management that allows salmonid upstream migration and spawning sustains the connectivity between marine and terrestrial ecosystems, leading to the sustenance of local fisheries. Thus, disaster prevention secures the lives of citizens and protects mountains, rivers and the ocean, thereby contributing to the regional economy.

Disaster prevention work in Rausu River

Protected Rausu Fishing Port

Inscription of Shiretoko on the World Natural Heritage List

Towards the inscription on the World Natural Heritage List

What is a World Natural Heritage Site?

The World Natural Heritage Sites are places of universal value that should be shared by all humankinds, including historical remains, landscapes and wildlife inscribed on the World Heritage List based on the 'Convention Concerning the Protection of the World Cultural and Natural Heritage'.

The Convention is an international convention that advocates the protection of the cultural and natural heritages and aims to pass them on to future generations. It was adopted by the general conference of the UNESCO (United Nations Educational, Scientific and Cultural Organization) in 1972 and has been signed by 184 countries as of year 2007. The World Natural Heritage Sites in Japan besides Shiretoko are the Shirakami Mountains and the Yaku Island.

Towards the inscription on the World Natural Heritage List

After 11 years from having ratified the Convention in Japan, the Ministry of the Environment and Forestry Agency jointly organized the 'World Natural Heritage Candidate Site Scientific Council' and in 2003 inventoried Shiretoko, Ogasawara Islands and Ryukyu Islands as the country's tentative candidates. The Government of Japan submitted the file to nominate Shiretoko to the UNESCO World Heritage Centre in January 2004. After IUCN, an advisory board of the World Heritage Committee, evaluated Shiretoko in the field, the Government and IUCN exchanged questions and answers by letter. In July 2005, Shiretoko was evaluated by the World Heritage Committee and included on the Heritage List.

The process leading to the registration

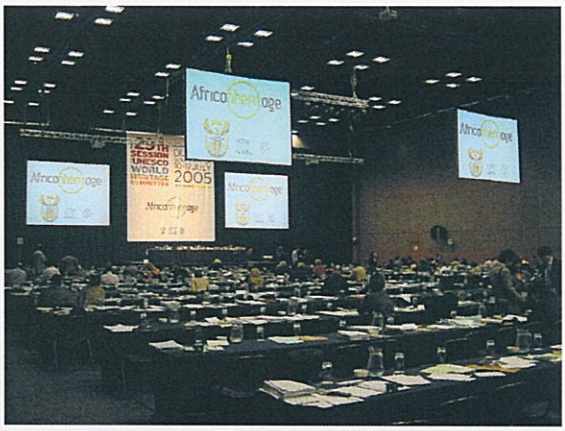
2003 Inclusion of Shiretoko on the country's tentative list by the World Natural Heritage Candidate Site Scientific Council (Ministry of the Environment and Forestry Agency)

2004 Ministries Liaison Conference for the World Heritage Convention

Submission of the nomination of Shiretoko to the UNESCO World Heritage Center

Field evaluation by the IUCN

2005 Inscription of Shiretoko on the World Natural Heritage List at the 29th World Heritage Committee in Durban, Republic of South Africa



The 29th World Heritage Committee
(Presented by Ministry of Environment)
(Republic of South Africa,July 2005)

IUCN

IUCN stands for the 'International Union for Conservation of Nature and Natural Resources' and is called the World Conservation Union in Japan. IUCN is an international organization for wildlife conservation, with its member representing countries, government agencies and NGOs. The former Japan Environmental Agency joined IUCN as the Japan's first government agency in 1978 and the Government of Japan did in 1995 as a state member.

Letters from IUCN and the registration of Shiretoko

IUCN letters and responses by the Government of Japan

Letters based on the results of the IUCN field evaluation were sent from IUCN to the Government of Japan. In the letters, IUCN raised some concerns and asked for the Government's feedbacks while highly evaluating the natural environment of Shiretoko and their management approach. The IUCN comments on river constructions are as follows:

Letters from IUCN (Summary)

- Accelerate a research on the impact of structures on salmon.
- Place the aim of river management on restoration and maintenance of natural river flows and processes, including the removal of structures in the future where there is not a significant risk to human welfare and livelihood.
- Install fish ladders to allow the free movement of salmon on all structures in the rivers of the nominated site and seek a Government's commitment on this matter.

Responses by the Government (Summary)

- River constructions have been installed at limited sites where the lives of inhabitant and their properties should be protected.
- A complementary survey to determine the state of salmon upstream run and spawning is underway in the rivers where salmon may run. The impact of structures on salmon will be evaluated based on the results of this survey.
- River constructions have been installed to protect residents' lives and properties. The structures prevent erosion and mountain-slope failure, serving to conserve the development base of forests and to prevent sediment disasters.
- It is difficult to remove those structures as long as they are required for protecting inhabitant's lives and properties. However, there can be other measures in the future.
- Fish ladders to allow upstream migration have been installed in some of the rivers. The study on the needs to install fish ladders will be continued according to scientific advice. We are prepared to take measures including installing fish ladders where necessary.

Inscription of Shiretoko on the World Heritage List

In July 2005 Shiretoko was inscribed on the World Natural Heritage List as the Japan's third natural heritage site. The evaluation for the registration concluded that Shiretoko has the World Heritage value in the criteria of 'ecological processes' and 'biodiversity'.

Values as a World Natural Heritage Site

[Ecological Process]

- Shiretoko, located in an area where seasonal sea ice reaches the lowest latitude in the northern hemisphere, is largely influenced by the formation of seasonal sea ice. Shiretoko provides an outstanding example of the interaction of marine and terrestrial ecosystems as well

[Biodiversity]

- Shiretoko is particularly important for a number of marine and terrestrial species, including many rare species such as the Blakiston's fish owl and the violet *Viola kitamiana.*
- Shiretoko is globally important for a number of salmonid species and marine mammals, including the Steller's sea
- Shiretoko is significant as a habitat for globally threatened sea birds and is a globally important area for migratory birds.

The River Construction Working Group

Establishment of the Working Group and its achievements

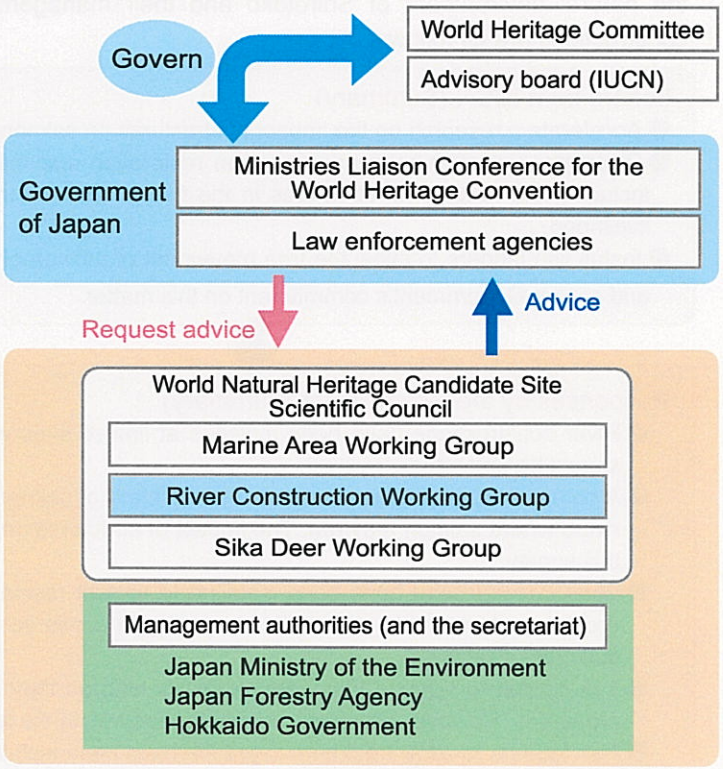
Purpose of Working Group

Responding to the IUCN letters and the requests from the World Heritage Committee, the River Construction Working Group (hereinafter referred to as the 'Working Group') was organized in parallel to Shiretoko's registration in July 2005 under the Shiretoko World Natural Heritage Site Scientific Council (hereinafter referred to as the 'Scientific Council').

The Working Group was formed to obtain advice from experts on the following subjects:

❶ Evaluation of environments around river constructions;
❷ Assessment of river constructions in relation to salmon distribution and disaster prevention functions;
❸ Development of new designs of river constructions according to the results of ❶ and ❷.

● The role of Working Group



Working Group Members

The Working Group consists of experts in various disciplines, related administrative bodies and a secretariat. Results of the Working Group investigations are reported to the Scientific Council. The administrative body of each river constructions (e.g., Hokkaido Regional Forest Office and Hokkaido Government) implements modification.

(Title omitted)

Division	Name/Organ	Organization
Committee Members	Futoshi Nakamura (Chairperson) Eishige Komiyama	Professor, Graduate School of Agriculture, Hokkaido University President, Wild Salmon Institute
Special Committee Members	Takeshi Okabe Yuji Seo Tomomi Marutani	Professor, Faculty of Engineering, University of Tokushima President, Institute for Watershed Ecology Professor, Graduate School of Agriculture, Hokkaido University
Related government agencies	Shari Town Rausu Town	
Secretariat	Hokkaido Regional Forest Office of Forestry Agency, Japan Kushiro Nature Conservation Office, Japan Ministry of the Environment Hokkaido Government	
Observers	Kenkichi Ishigaki Noriyuki Ootaishi Masahide Kaeriyama	Former Chairperson, Scientific Council Emeritus Professor, Hokkaido University Present Chairperson, Scientific Council Emeritus Professor, Hokkaido University Professor, Graduate School of Fisheries Science, Hokkaido University

Shiretoko World Natural Heritage Site Scientific Council

The Scientific Council consists of experts and related administrative bodies. It was organized to obtain scientific advice necessary for understanding the natural environment of Shiretoko and conducting the integrated, science-based management of its marine and terrestrial ecosystems. The Scientific Council was launched in July 2005 and organized, besides River Construction Working Group, 'Sika Deer Working Group' to develop the Sika Deer Management Plan and 'Marine Area Working Group' to develop the Marine Management Plan.

Achievements

The Working Group conducted the evaluation of river constructions with focus on four salmonid species: chum salmon, pink salmon, masu salmon and dolly varden.

First, the Working Group developed the method for assessing: the effects of each river construction on salmon migration and its modification-more specifically, influences of each river construction on the upstream movement; effects of modification on disaster prevention functions; and effects of modification work on the surrounding ecosystem. All aspects were comprehensively examined to determine whether or not it was reasonable to modify the river constructions. The Working Group then developed an engineering design for each of the river constructions to be modified. The administrative body will implement modification in order based on the assessment results.

Launched the River Construction Working Group in July 2005.
Held 12 meetings in total by January 2008.

↓

Developed the method for assessing the impacts of river constructions and remedial measures.

↓

Conducted out the assessment for 100 river constructions in 14 rivers.
Provided technical advice on modification of 18 river constructions which had been planned to be improved before the registration.

↓

Evaluated 13 river constructions as 'reasonable to consider modification'.

↓

Developed modification methods for improving salmon migration.
Implemented modification in order.

Field survey by Working Group

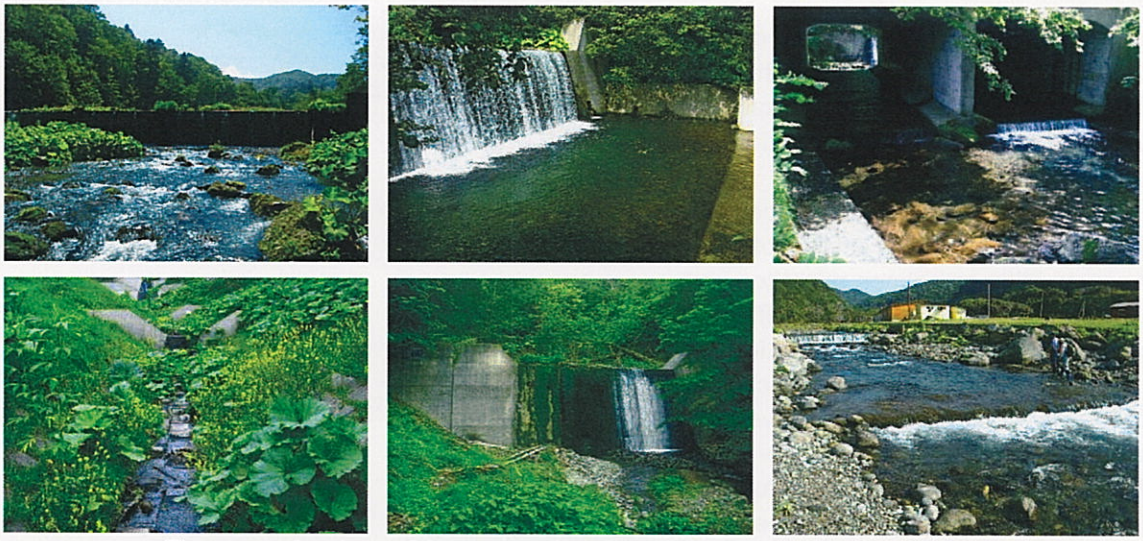
Working Group meeting

River constructions subject to the assessment

What is a river construction?

The Working Group defined 'river construction' as any channel-crossing artificial structure that has been constructed in a river regardless of the purpose of installation.

● Examples of river construction



There are various types of river constructions depending on the purpose of installation.

Distribution of river constructions in Shiretoko

Of 44 rivers within the Shiretoko World Natural Heritage site, a total of 14 rivers have a river construction(s), including the rivers of Iwaubetsu, Rusha, Mosekarubetsu, Ponputa, Rausu, Chitorai, Oshorokko and Aidomari. A total of 123 river constructions are scattered in these rivers, which have been installed and maintained by either the Hokkaido Regional Forest Office (HRFO), the Hokkaido Regional Development Bureau (HRDB), the Hokkaido Government (Hokkaido), Towns of Shari and Rausu or other agencies.

● Number of river constructions

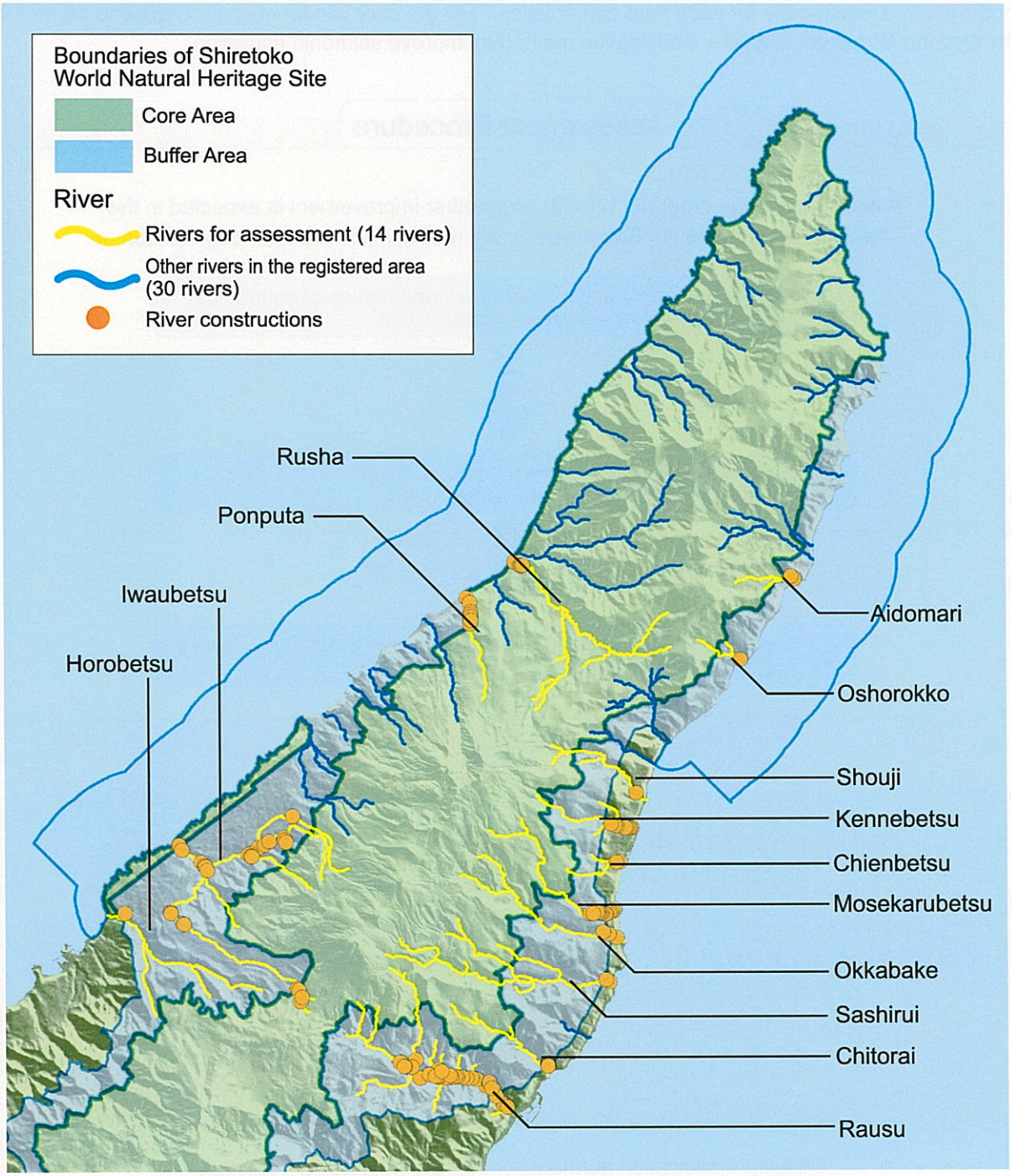
River \ Agency		HBFM	HRDB	Hokkaido	Shari	Rausu	Private	Total
Shari Region	Iwaubetsu	13	7		4		(3)	24 (3)
	Rusha			3			(1)	3 (1)
	Ponputa	7						7
	Horobetsu		5					5
Rausu Region	Mosekarubetsu	6		6				12
	Okkabake	2		1				3
	Kennebetsu			8				8
	Sashirui			2				2
	Rausu	11	1	3 (18)		5		20 (18)
	Chitorai	10						10
	Oshorokko	1						1
	Aidomari	2					(1)	2 (1)
	Chienbetsu			2				2
	Shouji			1				1
Total for Agency		52	13	26 (18)	4	5	(5)	100 (18) (5)

* The numbers in parenthesis for the Rausu River indicate the numbers of river constructions that have been recommended for modification by the Working Group. Those in parenthesis for the private sector denote the numbers of river constructions that have not been considered for modification by the Working Group.

Locations of river constructions

The locations of rivers and river constructions subject to the assessment are shown below. River constructions are concentrated in the rivers of which lower reaches contain a number of residences, accommodations, roads and bridges.

Boundaries of Shiretoko World Natural Heritage Site and Locations of River Constructions

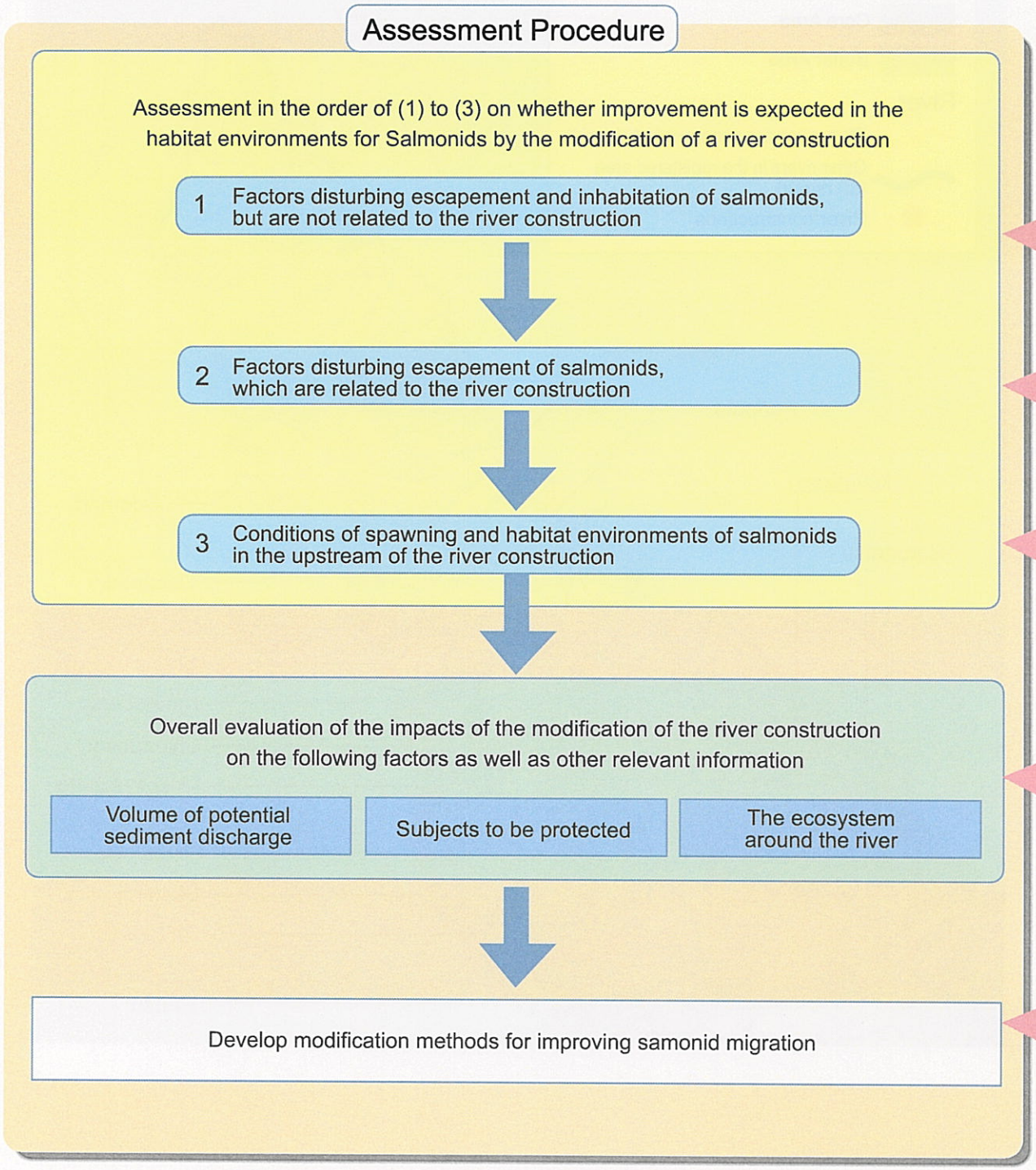


Assessment

How to evaluate the impacts of remedial measures

Assessment Procedure

The Working Group had several discussions on this matter and developed the method for assessing river constructions and remedial measures. Using this method, the Working Group evaluated whether or not modification is reasonable for each river construction. For the river constructions identified to be modified, the Working Group developed a modification method to improve salmonid migration.



Evaluation Criteria

To carry out fair and objective assessment, evaluation criteria at each stage of the procedure were defined. This approach allows to determine whether or not it is reasonable to modify a river construction after going through the evaluation of influences of modification on disaster prevention and surrounding environment as well as scientific analyses of the impacts of the river construction on salmonid species.

Evaluation Criteria

- Are there any natural factors disturbing upstream run and habitat (e.g., waterfall and strong acid water)?
- Is the river construction itself a major barrier to upstream migration (e.g., elevation drop)?
- Are there any suitable spawning and other habitat types in the upstream of the river construction?
- Predict the effects of modification on disaster prevention functions.
  - Is the potential sediment discharge large or small?
  - Are there any risks to human livelihood, lives and assets in the lower reaches?
  - Are there any adverse impacts of the work on environments around the river construction?
- Develop a modification method by comprehensively examining, from technical and economical viewpoints, whether or not the new design allows salmonid migration with assured safety to downstream residents.

Implementation and results of assessment

Implementation of the assessment

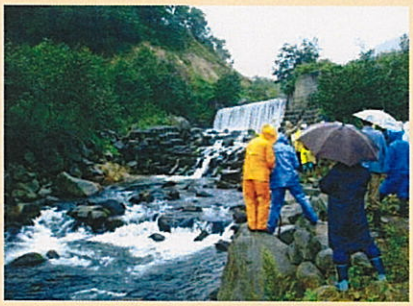
Of 44 rivers within the Shiretoko World Natural Heritage Site, 14 rivers have a total of 123 river constructions. The Working Group conducted the assessment for 100 river constructions by fiscal year 2007 based on the procedure and evaluation criteria. They provided technical advice for modification on 18 river constructions that had been planned before the registration.

●Assessment year and the number of river constructions

2005

- Iwaubetsu ---------- 24
- Mosekarubetsu -------- 12
- Okkabake ---------- 3
- Rusha ---------- 3
- Sashirui ---------- 2
- Kennebetsu ---------- 8

2006



- Rausu ---------- 20
- Chitorai ---------- 10
- Chienbetsu ---------- 2
- Shouji ---------- 1
- Oshorokko ---------- 1
- Aidomari ---------- 2
- Horobetsu ---------- 5

2007

- Ponputa ---------- 7