
釧路川
KUSHIRO RIVER

Characteristics of the Kushiro River Basin

The Kushiro River is located on the Pacific side of eastern Hokkaido. It has its origin on the soma of the Kussharo Caldera (crater lake) including Mt. Mokoto (elevation:1,000m). The river flows out of Lake Kussharo, flows across the Teshikaga Plain, meets the Tobetsu River at Teshikaga and several tributaries including the Osobetsu River at Shibecha, and then, finally the river reaches the Kushiro Wetland.

Later, the Kushiro River meets other tributaries including the Kuchoro and Setsuri Rivers within the marsh. The river becomes the Shin-Kushiro River at the Iwabokki mark and flows into the Pacific Ocean, after flowing through the urbanized parts of Kushiro City.

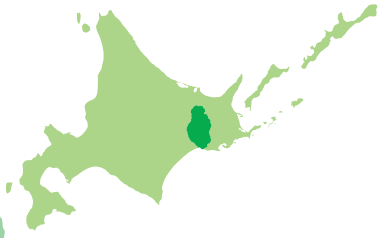
The Kushiro River Basin has a wealth of rich nature with natural sites located upstream, including Lake Kussharo being designated as the Akan National Park and the Kushiro Marsh stretching downstream being registered under the Ramsar Convention, as well as being designated as the Kushiro-shitsugen National Park.

There are one city, three towns and one village on the Kushiro River Basin - Kushiro City, Kushiro Town, Shibecha Town, Teshikaga Town and Tsurui Village, and the combined population reaches approximately 220,000 (2010 National Census). Among them, Kushiro City is the largest municipality on the basin and is also the social/economical/cultural center of the eastern Hokkaido Region.

* The Ramsar Convention: an intergovernmental treaty that provides the framework for the conservation of wetlands which are an important habitat for waterfowl and for the protection of flora and fauna habitating on wetlands. The treaty was adopted in the Iranian city of Ramsar in 1971.

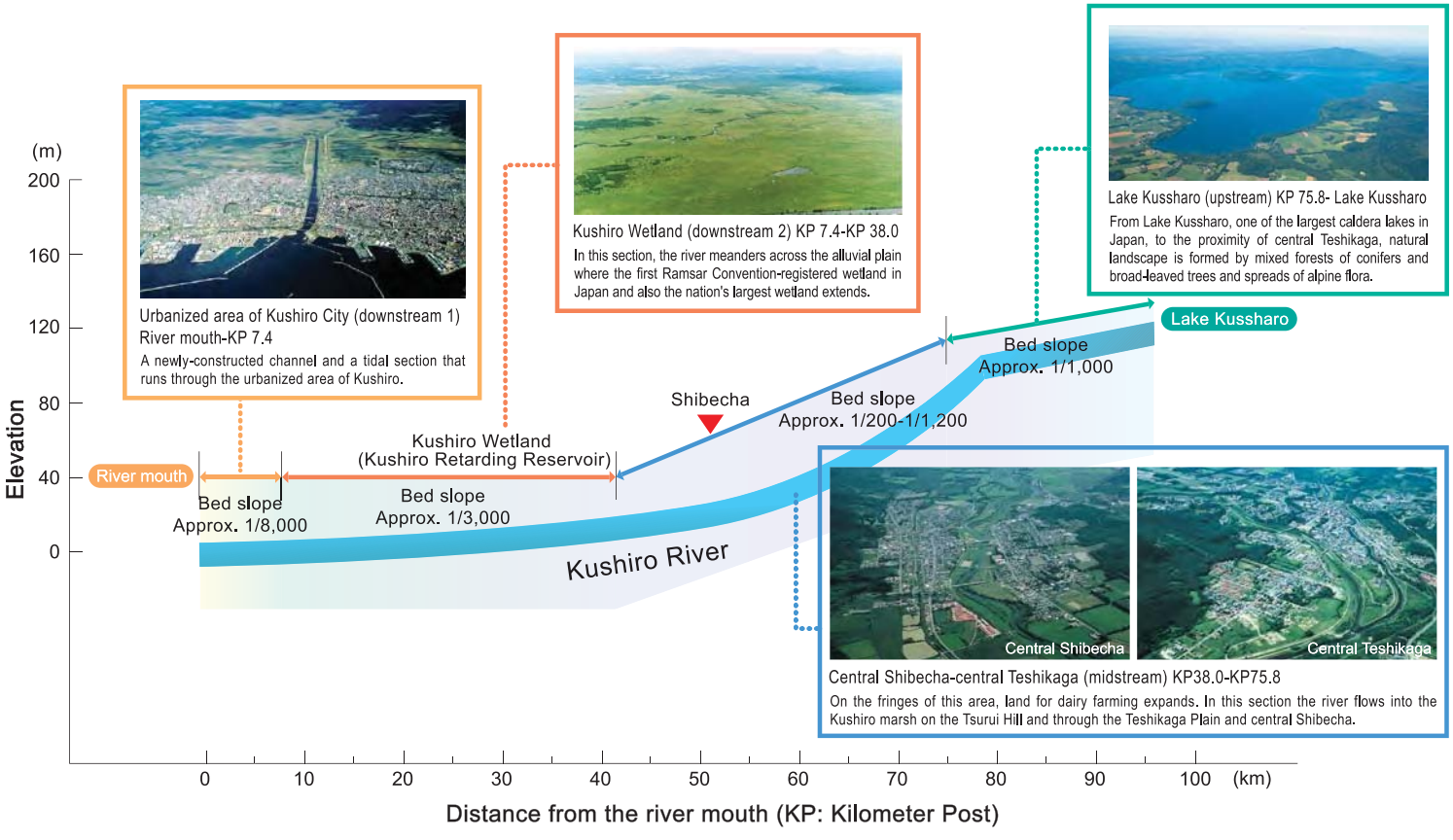
Basin Data

Basin area	2,510 km^2
Length of the main river	154 km
Basin population	Approx. 180,000
Basin municipalities	Kushiro City, Kushiro Town, Shibecha Town, Teshikaga Town, Tsurui Village
Estimated area of the flood zone	163 km^2
Estimated population within the flood zone	Approx. 80,000
Estimated assets within the flood zone	Approx. 940 billion yen



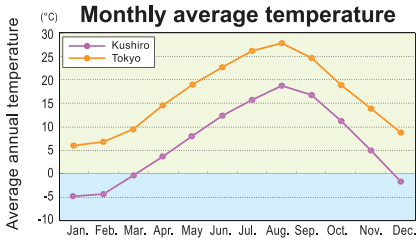


Basin appearances



Weather conditions

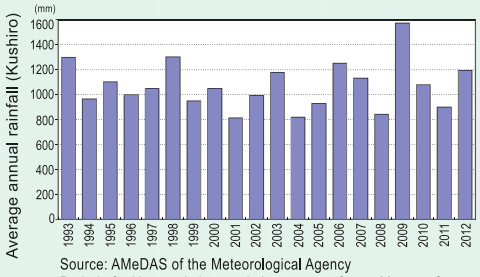
The average annual rainfall in the basin is approximately 1,000-1,200mm. Due to the ocean current contributing to frequent fog formation during summer in the coastal area located downstream, sunshine is blocked resulting in a wet and cool climate.



Source: AMeDAS of the Meteorological Agency
Period of taking statistics: average temperature (2003-2012, graph: average value over 10-year period)

Average annual rainfall in the Kushiro River basin

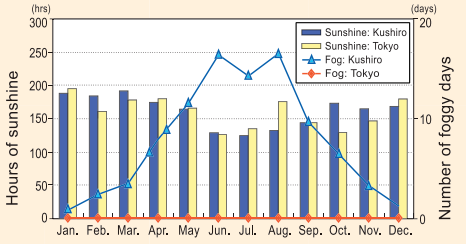
- Average annual rainfall in Kushiro is approximately 1,000-1,200mm
- It's between Southern Hokkaido and the coasts of the Sea of Japan where the average annual rainfall is over 1,200mm and the coasts of the Sea of Okhotsk with less than 1,000mm.



Source: AMeDAS of the Meteorological Agency
Period of taking statistics: statistical values of over 20 years from 1993 to 2012 are used

Average monthly hours of sunshine and the number of days in which fog was formed

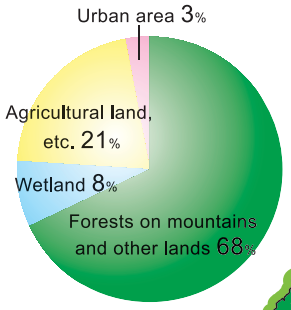
- It is categorized as the climatic type on the Pacific side of Japan and the annual hours of sunshine in Kushiro almost equal that in Tokyo.
- August has fewer hours of sunshine and more foggy days.

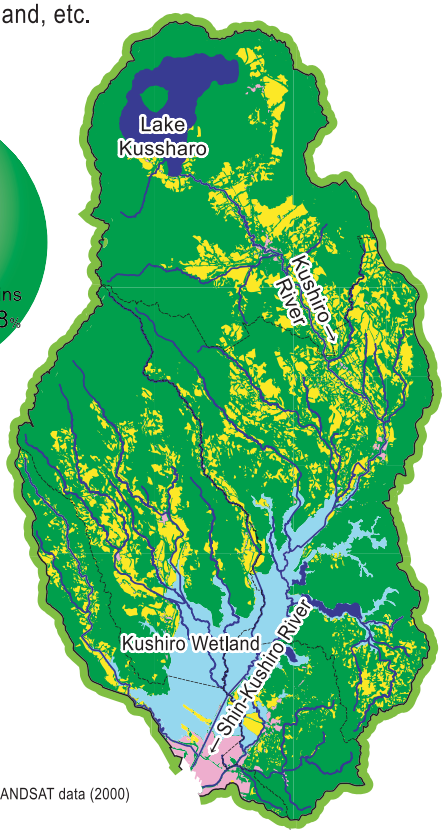


Source: the Meteorological Agency
Period of taking statistics: hours of sunshine (2003-2012, graph: average value over 10-year period), number of foggy days (2003-2012, graph: average value over 10-year period)

Land use patterns in the Kushiro River basin

The Kushiro River basin consists of 68% mountains/other lands and 21% agricultural land, etc.





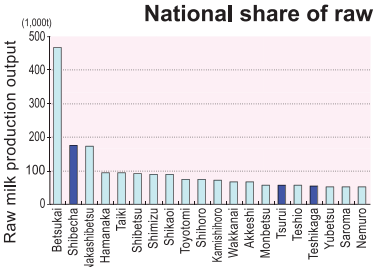
Legend
- Kushiro Wetland
- Forests
- Agricultural land
- Urban area

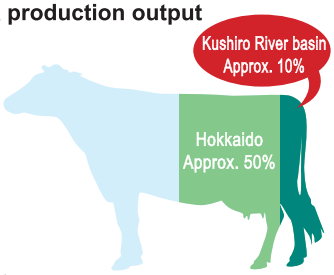
* Land use classification based on LANDSAT data (2000)

Major industry in the Kushiro River basin

Dairy farming has prospered as a major industry in the region, and the production output of raw milk in the Kushiro River basin accounts for 10% of the 50% of the national share that Hokkaido retains. The town of Shibecha boasts second place in Hokkaido for its raw milk output. Approximately 230,000 tons per year of the production output in the Kushiro/Nemuro region is transported outside of Hokkaido.

National share of raw milk production output



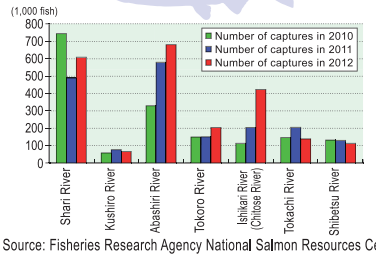


Source: 2006 Annual Report of Agriculture, Forestry and Fisheries

Aquatic resources in the Kushiro River

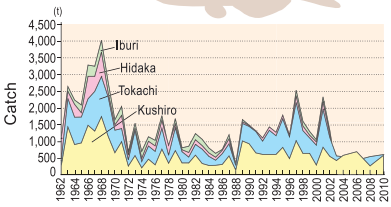
An artificial incubation program of salmon, trout and shishamo smelt is thriving. As for shishamo smelt, the region has become a major catching area with most of the catch of shishamo smelt across Hokkaido coming from the Tokachi/Kushiro region.

Number of captures by river (salmon)



Source: Fisheries Research Agency National Salmon Resources Center

Trends of the catches of shishamo smelt

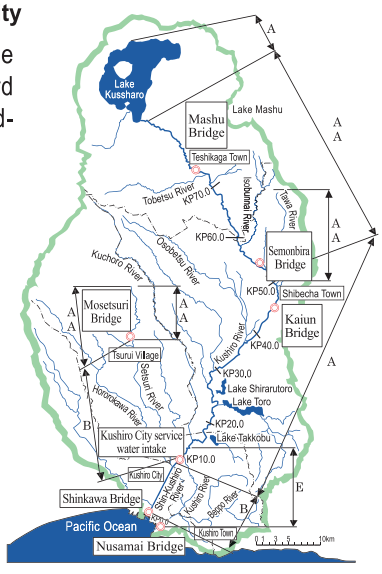


Source: Hokkaido National Fisheries Research Institute

River water quality

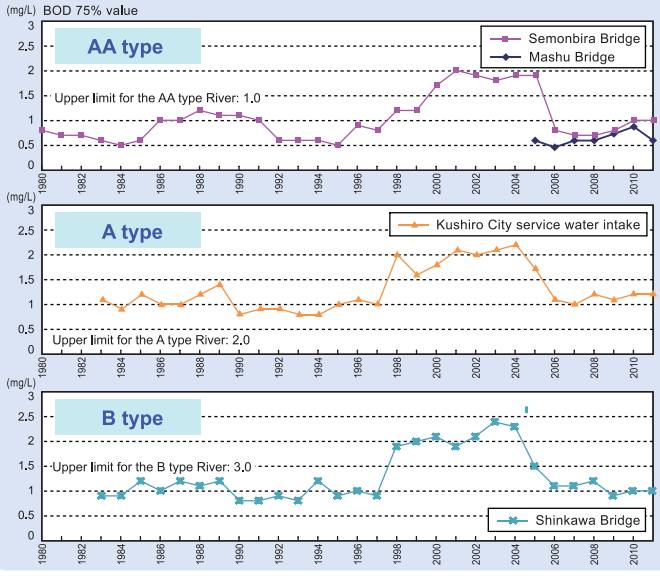
Present condition of water quality

The BOD 75% value exceeds the specified environmental standard at the reference point in the mid-/downstream.



Legend
- Point of environmental standard for water quality
- Basin divide

Transition in the river water quality of the Kushiro River



Progress of the Kushiro River

Toward local safety and development

Chronology of the Kushiro River

Sourc: * 1 Flood Disaster * 2 Kushiro River's History of River Improvement *3 Hokkaido Regional Plan for Disaster Prevention *4 Disaster Records *5 Statistics on Flood Damages

Meiji era

1985 In October, the Akan River overflowed due to a storm, causing the tributaries to inundate and the Tottori Village (present Kushiro City) was flooded.

1890 Akan River first diversion construction commenced.

1896 The River Law was enacted.

1898 In September, flooding occurred due to heavy rain across Hokkaido.

1899 Akan River's second diversion construction commenced.

1912 In September, the Akan River channel diversion project commenced.

Taisho era

1917 In October, 103 hectares of land was submerged due to flooding.

1918 In March, the Akan River was opened and renamed as Shin-Akan River.

1920 In August, heavy rain in the Kushiro and Tokachi District caused unprecedented flooding of the Kushiro and Akan Rivers, and the river channel of the Akan River was shaped to its present form.

[Flood due to low air pressure]
Discharge: 1,169 m^3/s (Beppo)
Inundated area: 17,100ha *1,*2
No. of houses flooded: approx. 2,000 *1,*2,*3

1921 Kushiro River improvement project commenced.
[Shin-Kushiro River Improvement Plan]
Plan was drawn up for the excavation of a new channel with an estimation of 1,170 m^3/s of high-water discharge at the river mouth.

1922 Excavation of the Kushiro River new channel (Shin-Kushiro River) commenced.

Showa era

1927 Iwabokki Sluice construction commenced.

1930 In August, the channel diversion project on the Setsuri River was completed and the river was opened.

1931 In September, the Channel Opening Ceremony of the Shin-Kushiro River commenced.
Construction of the Iwabokki Sluice was completed (Kyu-Iwabokki Suimon)

1932 The levee on the left bank of the Kushiro River was completed.
Local restoration work at upstream of the Kushito River commenced.

1932 Dredging work of the Kushiro Canal commenced.

1934 The levee on the right bank of the Kushiro River was completed.

1935 A flood caused by a typhoon resulted in four bridges being swept away and the embankment collapsing in one place.

1936 In October, seven people lost their lives and six people went missing during the flood caused by a typhoon.

1940 The Kushiro River Improvement Project was completed and the Tottori Factory was closed down.

The river improvement projects of the Kushiro River were undertaken along with the cultivation of expansive wastelands and virgin forests, and progressed through the main project of cutoff channel construction, with the aim of enabling decent land use by reducing flooding that occurs on the low-lying lands while lowering the water table.

Snapshots of the Aftermaths of Floods


Flood in March 1960: flooding in Shibecha


Flood in March 1960: flooding in Teshikaga


Flood in October 1979: flood in Teshikaga


Flood in October 1979: on the left bank of the Kushiro River, near the Minami-Teshikaga Bridge in Teshikaga


Flood in October 1979: Shibecha on the left bank of the Kushiro River, near the Kumaushi Water Level Station


Flood in 1998: sight frontage downstream of the Kushiro River's Nita Sluice

Past River Improvement Measures

With the outbreak of the largest and worst flood on record that occurred in August 1920, serious river improvement projects were begun. 12,000 hectares of the marsh's lower reaches covering the entire Kushiro Wetland and urbanized areas of Kushiro City were flooded, with over 2,000 houses being swept away or inundated. In response to this devastating flood, a river development program was drawn up the following year of 1921 to achieve the estimated high-water discharge of 1,170m3/s at the river mouth, in order to allow the flood current to safely flow downstream.

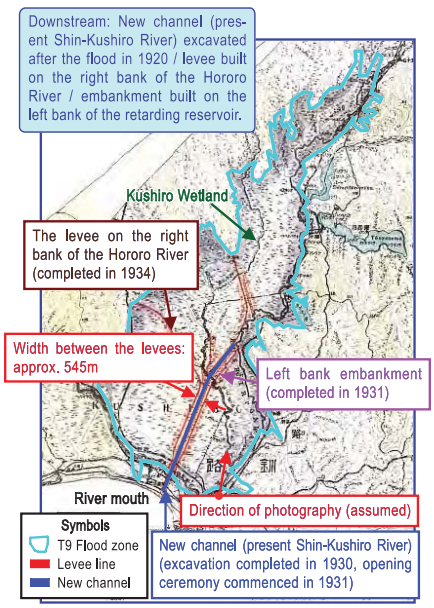
At the downstream section where Kushiro City is located, the excavation of a new channel (present Kushiro Shin River) of a length of 11.2km was carried out starting in 1921, from Iwabokki to the river mouth of the Akan Shin River, and the channels were opened in 1931. Additionally, levees were constructed in the urbanized areas of Kushiro with a river width of 545m, and dikes were built on the right bank of the Hororo River. Also a river channel diversion project of a length of 2.7km was undertaken to diverge the Kuchoro River to the Kushiro River as well as a channeling project of a length of 1.1km from the confluence of the Hororo River and the Setsuri River to the Kushiro River's new channel. Furthermore, downstream of the Kushiro River (present Hokkaido Prefectural management section), dredging work was carried out from Nusamai Bridge to the confluence of the Beppo River.



Inundation at the time of the flood in 1920



Present state (Photographed in March 2006)



Retouches added to the 1931 edition of the "River Survey"

1947 In September, levees were damaged in 75 locations due to the flood caused by Typhoon Kathleen.

[Flood caused by Typhoon Kathleen]
Discharge: 618 m^3/s (Shibecha)
Flooded agricultural land: 7,261ha (across Hokkaido) *1,*3
No. of houses flooded: 7,288 *1,*3

1949 River improvement work at midstream of the Kushiro River commenced.

1950 Cutoff channel work upstream of the Kaiun Bridge in Shibecha/ the Kushiro River completed.

1952 In March, the Tokachi Oki Earthquake occurred.

1953 The Kushiro River Comprehensive River Improvement Plan was formulated.

1954 Embankment work in Asahi-cho/Tawa-cho on the left bank of Shibecha was completed.

1955 Embankment work in Fuji-cho on the left bank of Shibecha was completed.

1956 Embankment work in Rururan on the left bank of Shibecha was completed.
Embankment work on the right bank at downstream of the downtown of Shibecha commenced.

1958 The Kushiro River Improvement Plan was formulated.
Construction of the Kaiun Bridge was completed.

1959 Embankment on the left bank of Osobetsu was completed.
Excavation work on a new channel of the Osobetsu River commenced.

1960 In March, levees collapsed at two locations due to the snowmelt flood triggered by heavy rain.

[Flood caused by low air-pressure (snowmelt flood)]
Discharge: 778 m^3/s (Shibecha)
No. of flood damage cases: 520 buildings flooded above the floor and 824 underneath

1961 Excavation work on the Minami Teshikaga new channel was completed.

1962 Excavation work in Isobunnai commenced.

1964 New River Act was promulgated.
Embankment work on the left bank at Gojikkoku commenced.

1965 In September, heavy rain and flooding as a result of a typhoon washed away two bridges at different locations.

1967 The Kushiro River was designated as a class A river.
Master Plan for the Implementation of Construction Work for the Kushiro River was formulated.
Peak flow rate of design flood (Shibecha): 1,200 m3/s

1968 Work on setting-back of a levee on the right bank of Shibecha commenced.
Gojikkoku Bridge completed.

1969 Kumaushi embankment work commenced.
An area of 6,900ha was designated as a river zone to serve as a flood control zone (retarding reservoir).

1972 Extension/widening work on the Kaiun Bridge commenced.

1973 Dredging of Numahoro Area/River Osobetsu commenced.

1974 Embankment in the urban area of Teshikaga commenced.

1975 In May, levees collapsed at 95 locations as a result of heavy rain and flooding caused by low air-pressure.

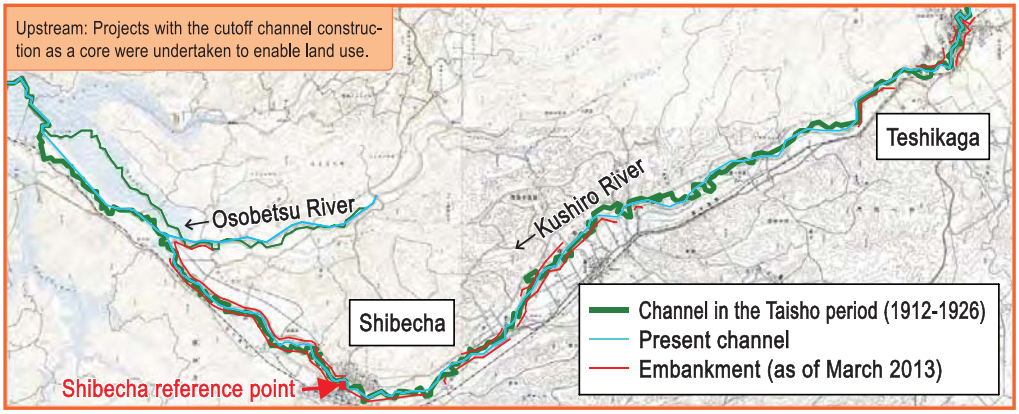
1976 Work for setting-back of a levee on the left bank of Shibecha commenced.

1979 In April, 42ha of land was inundated due to heavy rain and flooding caused by low air-pressure.
In October, 695 houses experienced flooding beneath/above the floor due to heavy rain and flooding caused by a typhoon.

[Flood caused by Typhoon No. 20]
Discharge: 428 m^3/s (Shibecha)
No. of houses damaged: 734 *4
Inundated area: 255.3ha (Kushiro City, Kushiro Town), 544.2ha (Akan Town, Tsurui Village) *4 *5

1980 Kushiro River Retarding Reservoir Construction Project commenced.

After the war, a river improvement plan was drawn up in 1949, with the planned flood discharge of 900m3/s at the reference point in Shibecha, in response to the previous floods that occurred in September 1947 and September 1948. Based on the plan, a cutoff channel was excavated and other construction projects including levee building were carried out in the midstream section where the towns of Shibecha and Teshikaga were located, in order to prevent flood damage. Around that time, river improvement programs were being promoted based on the Comprehensive Development Plan of Hokkaido included in the Hokkaido Development Act, which was enacted in 1950, while promoting the expansion of land use in the river basin as a base for food production. The cultivated area of the basin significantly increased from approximately 17,000ha in 1958 to approximately 28,500ha in 1970.




Dredging of the Numahoro new channel

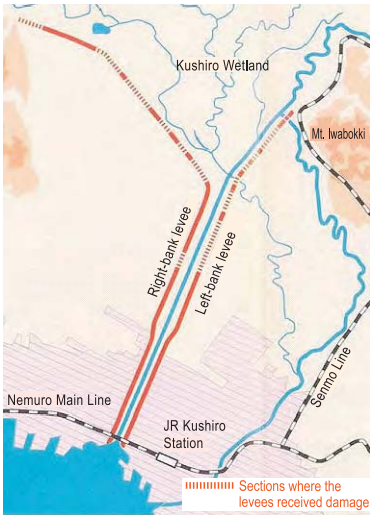

Dredging of the Osobetsu River (1976)


The filling of the embankment

Damage caused by Earthquakes and Tsunami in the Kushiro District

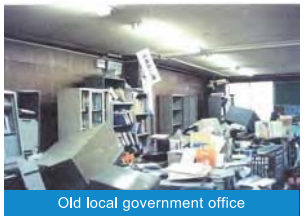
The Pacific coast of the eastern parts of Hokkaido where the Kushiro River basin lies is an earthquake-prone zone and the district experienced a number of earthquakes in the past. More recently the district had the Kushiro Oki Earthquake in January 1993, the Hokkaido Toho-Oki Earthquake in October 1994 and the Tokachi Oki Earthquake in September 2007.

When the Kushiro Oki Earthquake occurred in January 1993, a tremor with an intensity of 6 on the Japanese seven]stage seismic scale (equivalent to magnitude 7.6 on the Richter scale), the highest ever in recorded history, was recorded (2 died and 477 slightly/seriously injured), causing damage to the levees built downstream of the Kushiro River for the length of approximately 10km. However, no major damage has occurred during other large-scale earthquakes after that, as the measures such as the lowering of the levee gradient were taken in response. In 2005, the Act on Special Measures concerning Advancement of Countermeasures against Earthquake Disaster in Relation to Subduction Zone Earthquakes around the Japan Trench and Chishima Trench came into effect. In 2006, all municipalities on the Kushiro River basin were designated as the area of advancement of countermeasures against earthquake disasters in relation to subduction zone earthquakes around the Japan Trench and Chishima Trench, being required to make efforts on the prevention and reduction of damage at the time of earthquake occurrence. Additionally, during the catastrophic Tohoku Earthquake in March 2011, the Hirosato Water Level Station observed a rise of 1.4m in water level and the distance of tsunami propagation into the river reached as far as 11km.



Damage caused by the Kushiro Oki Earthquake in January 1993


Right-bank levee of the retarding reservoir


Old local government office

Damage caused by the Kushiro Oki Earthquake in January 1993


Left-bank embankment in Shibecha

Damage from the Hokkaido Toho-Oki Earthquake in October 1994

1981 Embankment in the urban area of Teshikaga was completed.

1984 Master Plan for the Implementation of Construction Work for the Kushiro River was revised.
The Kushiro Retarding Reservoir Plan was implemented.

1985 Reconstruction of the Iwabokki Sluice commenced.

1986 Embankment of Semonbira commenced.

1987 Dredging for the embankment of Osobetsu commenced.
Kushiro Wetland is designated as a national park.

Heisei era

1990 Master Plan for The River Environment Management of the Kushiro River System was formulated.

1992
[Flood caused by Typhoon No. 17]
Discharge: 324 m^3/s (Shibecha)
Area of inundation: 58.25ha (Kushiro City)*5
No. of houses damaged: 26 (Kushiro City)*5

1993 In January, the Kushiro-Oki Earthquake occurred.

1994 In October, the Hokkaido Toho-Oki Earthquake occurred.

1997 The River Act was revised.

1998
[Flood caused by Typhoon No. 5]
Discharge: 255 m^3/s (Shibecha)
Area of inundation: 106ha*4
No. of houses damaged: 13 (Kushiro City, Kushiro Town)*4

1999 "The Review Committee for the Conservation of the River Environment in the Kushiro Wetland" was established.

2000 Almost the entire Kushiro Wetland was added to the River Zone.

2001 Proposal on the Conservation of the River Environment in the Kushiro Wetland was announced.
The Kyu-Kushiro River was renamed as the Kushiro River.

2003 Act on the Promotion of Nature Restoration was enacted.
The Kushiro Wetland Nature Restoration Council was established.
In September, the Hokkaido Tokachi-Oki Earthquake occurred.

[Flood caused by Typhoon No. 10]
Discharge: 337 m^3/s (Shibecha)
Area of inundation: 138ha*4
No. of houses damaged: 3*4

2005 The Comprehensive Kushiro Wetland Nature Restoration Plan was formulated.

2006 Kushiro River System River Improvement Basic Plan was formulated.
Peak flow rate of the design flood (Shibecha): 1,200 m^3/s
Implementation Plan for the Old River Restoration in Kayanuma Area was drawn up.
Implementation Plan for Measures Against Sediment Inflow (Kuchoro River) was drawn up.

2008 The Kushiro River System River Improvement Plan was formulated.
Discharge for the improvement plan (Shibecha): 780 m^3/s

2011 In March, the Toyoku Earthquake occurred.
Old river restoration work in the Kayanuma Area was completed.

2012 Implementation Plan for the Hororo Area Wetland Restoration was drawn up.

As a measure in the case of an earthquake, an information communication channel will be secured via optic fibers, etc., during the earthquake in cooperation with other relevant organizations/agencies. Additionally, earthquake-resistant measures will be implemented to river control facilities where necessary and in the case of damage caused by the earthquake, swift restoration efforts of vital functions will be made.

In the case where a tsunami occurs together with an earthquake, assumed scenarios may include harm to river users by tsunami propagation into the river and the occurrence of flood damage due to reverse flow from the sluice way. Therefore, while verifying the behavior and impact of tsunami propagation into the river, several damage-reduction measures including the remote operation/control automation of sluice will be implemented as necessary. Moreover, in order to quickly provide information to relevant local governments, local residents and river users, information provision facilities including information notice boards will be improved.

Dates of occurrence	Epicenter name (area or given earthquake name)	Magnitude (M)	Tsunami recorded at Kushiro Port
March 22, 1894	Off the Southeast Coast of Nemuro Peninsula	7.9	100cm
May 23, 1960	Off the coast of Chile (Off-Chile)	8.5	267cm
May 16, 1968	Off the coast of Sanriku (1968 Tokachi-Oki)	7.9	138cm
October 4, 1994	Off the eastern coast of Hokkaido (Hokkaido Toho-Oki)	8.2	103cm
September 26, 2003	Off the coast of Kushiro (2003 Tokachi-Oki)	8.0	120cm
March 11, 2011	Off the coast of Sanriku (Great East Japan (Tohoku) Earthquake)	9.0	208cm

* Earthquakes with the tsunami record at Kushiro Port exceeding 100cm.

January 1993 - restoration work after the Kushiro-Oki Earthquake



Foundation reinforcement: foundation treated with the sand compaction pile method

September 2003 - tsunami propagation into the river caused by the Tokachi-Oki Earthquake



Right bank of the upstream of the Kusuri Bridge (around 16:30)

March 2011 - tsunami propagation into the river caused by the Tohoku Earthquake



Flooding of the Nishikimachi quay MOO



Flooding of the Irifune Area

Tsunami countermeasures: Showa Sluice Way (remote/automatic control)



Showa Sluice Way (remote/automatic control)



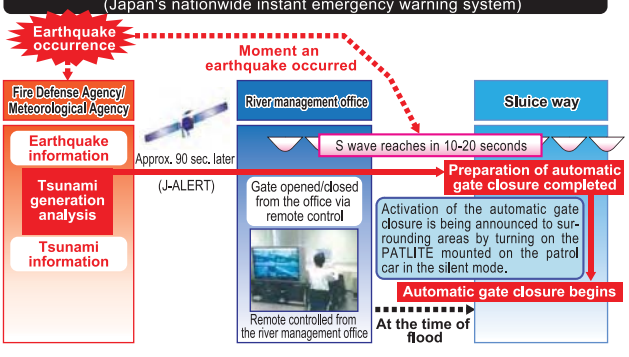


March 11, 2011 (23:48)
Outside water level: 2.18m Inside water level: 0.92m
Water level difference: 1.26m



Information notice board

Flow of automatic floodgate closure operated by J-ALERT (Japan's nationwide instant emergency warning system)



Conservation and Restoration of the Kushiro Wetland (Kushiro Wetland Nature Restoration Project)

Boasting of its share of approximately 60% of Japan's wetland areas, Kushiro Wetland is the largest wetland in Japan, serving as a vital habitat for diverse and valuable flora and fauna, including Japanese red-crested cranes, and is one of the special natural monuments in Japan. To us humans, the marsh offers essential functions such as the water retention/purification function, the flood-control function and the local climate-moderation function, proving it is a precious asset for us all to conserve well into the future. However, with the expansion of economic activities in the basin, the wetland area was reduced by approximately 30% over the past 60 years and the wetland area that remains today suffers significantly from drying out due to sediment inflow as well as from rapid changes in vegetation.

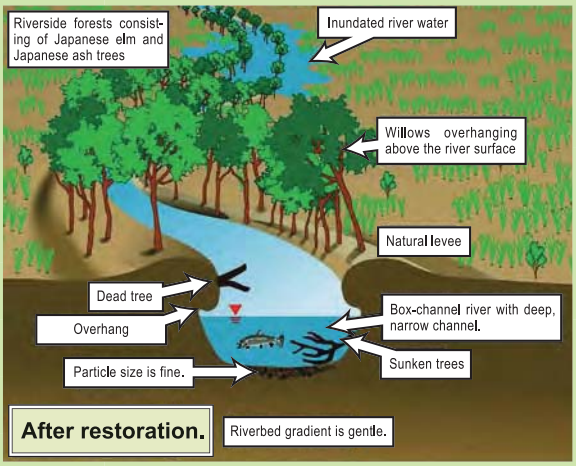
Awareness has been raised among local residents for this worsening situation, and the Kushiro Wetland Nature Restoration Council was formed with participants from the residents in the basin, experts, NPOs and associated organizations and the Comprehensive Kushiro Wetland Nature Restoration Plan (March 2005) was formulated.

At Kushiro Development and Construction Department, with targets of "Qualitative and Quantitative Recovery of the Wetland Ecosystem", "Restoration of Cycles that Sustain the Wetland Ecosystem" and "Creation of Society that can have Continuous Involvement with the Wetland", we promote conservation and restoration projects of the Kushiro Wetland, through collaboration with local communities.

Kayanuma District Old River Restoration Project

During the period of the latter half of the 70s to the first half of the 80s, the channel was straightened in the Kayanuma District as a river improvement measure as well as for the purpose of enabling land use in surrounding areas. However, the drying of wetland in the basin progressed and the wetland environment was significantly changed as a result of vegetation unique to the wetland (colonies of reeds and sedges) being decreased and sediment inflow to the wetland being increased. After giving consideration to the conservation and restoration of the wetland environment, the "Old River Restoration Project" was implemented.

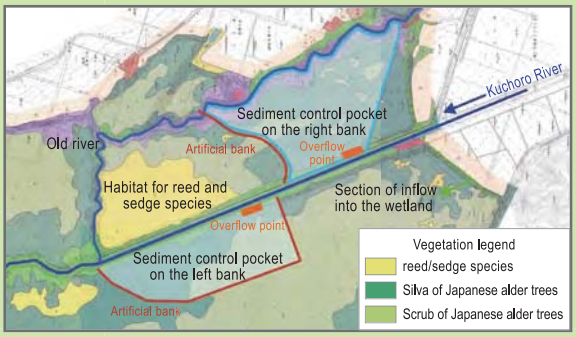
The Old River Restoration Project was completed in March 2011, and as a result of an environmental survey, it was found that sediment inflow has been reduced and wetland vegetation was recovered, demonstrating that the proper wetland environment is on the way to recovery.



Kuchoro River Sediment Inflow Countermeasure Project

One of the most important issues that the Kushiro Wetland faces is the drying of the wetland due to an increase in sediment inflow to the wetland. Therefore, at the Kuchoro River, relevant organizations in the basin collaborate to implement various countermeasures in order to reduce the amount of sediment flowing into the wetland. Of these countermeasures, the Kushiro Development and Construction Department take initiatives in the improvement of the sediment inflow control pockets at affected parts of the wetland.

The amount of sediment flowing down to the wetland is reduced by directing muddy floodwater to inundate the sediment control pockets and allowing the fine sediment to settle down there.





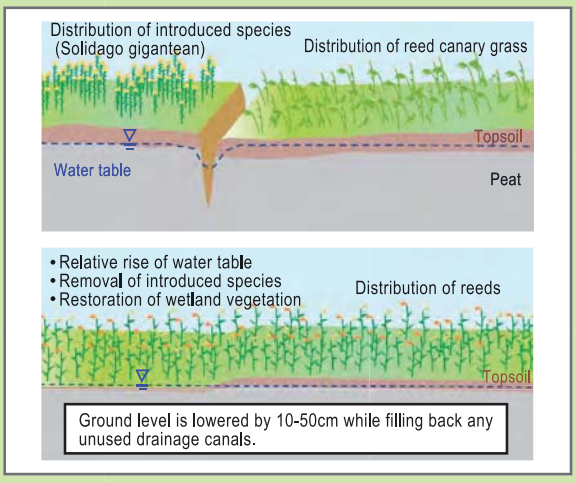
What is artificial bank?

It is an artificially-raised strip of ground for holding back muddy water that resembles a ridge between rice paddies.

Hororo District Wetland Restoration Project

At Hororo District, with the aim of recovering wetland size that was lost as a result of economic activities, a project has started to restore the river zone along the Hororo river where it was once cultivated as agricultural field but is not in use, into wetland.

The project aims to restore the proper wetland environment by bringing closer the ground level and water table, through lowering the ground level and filling back any unused drainage canals.



Introduction of the municipalities within the district

Teshikaga Town

弟子屈町
Teshikaga Town

- Population: 8,278
- Area: 774.53 km²

Teshikaga is blessed with nationally renowned tourist attractions including Lake Mashu, Lake Kussharo and Mt. Io. 65% of the town is located in the Akan National Park.

URL http://www.town.teshikaga.hokkaido.jp/





Lake Mashu

Shibecha Town

標茶町
Shibecha Town

- Population: 8,285
- Area: 1,099.53 km²

Shibecha is located almost in the center of the Kushiro District, comprising of 45% of the Kushiro Shitsugen National Park. It is a town of dairy farming blessed with the wealth of nature and fresh water.

URL http://www.town.shibecha.hokkaido.jp/yakuba/welcome.html





Tawadaira Observation Platform

Tsurui Village

鶴居村
Tsurui Village

- Population: 2,672
- Area: 571.84 km²

Tsurui is located in the mid-west of the Kushiro District. Its core industry is dairy farming and the milk quality is one of the highest in Japan. With this quality milk, the village produces cheese and soft-whipped ice cream, both of which are regarded as special local produce of Tsurui.

URL http://www.vill.tsurui.lg.jp/





Red-crowned Cranes (G. japonensis), Japan's special natural monument

Kushiro City

釧路市
Kushiro City

- Population: 181,169
- Area: 1,362.53 km²

Kushiro is an attractive major city in the eastern part of Hokkaido, combining both magnificent nature including the two national Parks of "Kushiro Shitsugen" and "Akan" and excellent urban functions such as economy, transportation, education, culture and healthcare.

URL http://www.city.kushiro.hokkaido.jp/





Nusamai Bridge

Kushiro Town

釧路町
Kushiro Town

- Population: 20,526
- Area: 252.58 km²

The town of Kushiro is a town with rich nature, with its northern part being surrounded by the Kushiro Wetland. The view, from the Hosooka Observation Platform, of the sun setting in the extensive wetland is one of the most amazing views in Japan, attracting large numbers of tourists from outside Hokkaido.

URL http://www.town.kushiro.hokkaido.jp/





Kushiro Wetland (sunset)

* Population: Results of 2010 Population Census of Japan (as of Oct.1, 2010)
* Area: Statistical Reports on the Land Area by Prefectures and Municipalities in Japan, Geospatial Information Authority of Japan (as of Oct. 1, 2010)

Northern Wisdom Creates Tomorrow
Hokkaido Regional Development Bureau

River Improvement Section,
Kushiro Development and Construction Department

Saiwai-cho 10-3, Kushiro shi, Hokkaido 085-8551, Japan
Tel. 0154-24-7000, Fax. 0154-24-6839
URL: http://www.is.hkd.mlit.go.jp/

2013.3

For the preparation of this map, we obtained approval from the Head of the Geospatial Information Authority of Japan and used their 1: 25,000 topographic map (Approval number: 平24 情使,第244-30175号)

KushiroRiver

Map of the basin

S=1:600, 000

Teshikaga channel excavation

Releasing the young Seema (salmon) into the river

Hanasaka Jiisan Project

Shibecha Mizubeno Gakko Project

Tsunami Countermeasures (Showa Sluice/remote and automatic control)

■ Magnification of Teshikaga S = 1:50,000

■ Magnification of Shibecha S = 1:50,000

Kayanuma District Restoration Project

Kuchoro River Sediment Inflow Countermeasures

Hororo District Wetland Restoration Project

Legend

- Embankment (completed)
- Planned low-water channel alignment
- Multi-use road
- Groundsill/fixed weir
- Sluice
- Irrigation sluice/sluice pipe
- Drainage sluice/sluice pipe
- Irrigation and drainage sluice/sluice pipe
- Bridge
- Urban planning area
- Urbanization area
- Port area and fishing port area
- National highway and expressway
- Major local roads
- General prefectural road
- General subprefectural bureau/ promotion bureau boundary
- County/city boundary
- Town/village boundary
- Area administered by the minister in charge
- The river that is covered under the River Act
- Waterway and others
- River zone
- Development and Construction Department
- Office
- Disaster prevention S.T./supply base for food prevention
- Emergency storehouse (MLIT)
- Flood prevention storehouse (municipality)
- Automatic rain gauge station
- Automatic rain gauge station (ordinary gauging available)
- Automatic water gauge station
- Automatic water gauge station (ordinary gauging available)
- High/low discharge observatory
- Water quality observation point (public waters)
- Water quality survey point (general)
- Radio/telemeter
- Information notice board installation
- Milepost
- Flood zone (appeared on April 9, 1979)
- National Park
- Areas designated as a wetland registered under the Ramsar Convention

1:100,000 (1km=1cm)

釧路開発建設部

Kushro Sub-branch Office, Hokkaido-Chizu Co., Ltd.
Tel. 0154-22-3851