Ogata Village Geoguide

Ogata Village, Akita Prefecture

What is a Geopark?

A geopark is a designated site of geological, environmental and cultural or human importance that provides a rich educational experience for its visitors.

Global and Japanese Geoparks

Global Geoparks are certified by the Global Geoparks Network, which was established with UNESCO support in 2004. A hundred areas in thirty countries, mostly in Europe and China have been certified to date. As of October 2015, there are 39 areas certified by the Japan Geopark Committee of which 8 are also certified as Global Geoparks.

Notable Features of Oga Peninsula - Ogata Geopark

Oga Peninsula-Ogata Geopark was certified in September 2011. It is the first Japanese Geopark in Tohoku region. The Oga Peninsula and Ogata area is located on the 40th parallel north and has three special features.

1. **It has 70 million years of geological history that tells the complete story from when Japan was part of the mainland continent to the present day.**
2. **The last 10,000 years of this 70 million year history saw the formation of Lake Hachirogata. The lake was then reclaimed for large-scale mechanized agriculture.**
3. **The area has been repeatedly affected by natural disasters. Memorials dedicated to earthquake and tsunami victims act as a reminder of this.**

As described above, the Oga Peninsula and Ogata area is a place where we can feel the deep relationship and impact between geological, environmental and human resources. Therefore, the theme of this geopark is the place where "The Story of the Land", "The Story of Man and the Land" and "The Bountiful Land" come together.

Before reclamation

After reclamation

Nishikurosawa Coast (Oga City)

Unosaki Coast (Oga City)

Features of Ogata Village as a Geopark:

On Newborn Land - The Story of the Only Village to be Created on Reclaimed Land in Japan

Sakura and Nanohana Road

Lake Hachirogata was created in the shallow waters between Oga Island and mainland Honshu by a sandbar that sheltered it from the open sea. Ogata Village was born from land reclaimed from bed of the lake.

From the start, Ogata Village was to become a model Japanese village practicing modern mechanized rice farming. Settlers from all over the country were selected to farm this newborn land.

The Japanese government oversaw the creation of Ogata Village and construction of its living and agricultural infrastructure. Ogata Village is the only example of a municipal construction project overseen by the Japanese government since the 1960's. The reclaimed land of Ogata Village is characterized by expansive rice fields and long, straight roads bordered by windbreak forests. The scenery here is quite unique.

Fifty years have passed since the land was reclaimed, and with it a new ecosystem called "Wetland Satoyama" was formed. Birds of prey such as the Eastern marsh harrier sit at the top of the food chain.

The scenery, monuments and facilities of Ogata Village tell us about this newly born ecosystem and the history of the reclamation. We can also learn about the measures taken by villagers to maintain their way of life on this manmade land.

Rice fields in early summer

Geosite

Guide Map

❶Polder Museum of Ogata-mura (p.6-7)

❷Hachirogata Reclamation Monument Watermark Monument (p.10)
500m from the Polder Museum

❸Polder Infrastructure (p.13)
- Drainage Channels
- Polder Dike (around village)
- Tidal Gate
  12.7kms from the Polder Museum
- South Pumping Station
  8.5kms from the Polder Museum
- Agricultural Water Intakes
  (19 in total)

❹Ogata Fuji Lake Hachirogata Water-level Commemorative Monument (p.14)
8.4kms from the Polder Museum

❺Latitude and Longitude Intersection Monument (p.14)
5.1kms from the Polder Museum

Signpost leading to Intersection Monument

❻Windbreak Forest (p.15)

❼Ogata Grasslands Wildlife Conservation Area Observation Station (p.15)
2.4kms from the Polder Museum

Signpost leading to Wildlife Conservation Area Observation Station

Geosite ①

Polder Museum of Ogata-mura

You can learn about the history of Lake Hachirogata, Ogata Village and its agriculture and local environment here. In addition to our permanent exhibits, we stage a variety of events, temporary displays and nature observation tours throughout the year.

Closing Times: 2nd and 4th Tuesday in the month
(Every Tuesday, October to March)
December 31st until January 3rd

Admission Fees: Adult (over 18's) 300 yen (250 yen)
Child (under 18's) 100 yen (50 yen)

※( ) group rate for over 15 persons.

5-2 Aza Nishi, Ogata Village, Akita,
〒010-0445
Tel : 0185-22-4113
Fax: 0185-22-4115
URL: http://ac.ogata.or.jp/museum

Guided Tours Around Ogata Village

Members of the Ogata Village Volunteer Guide Group provide museum and Geosite tours by appointment. If you would like a guided tour, please contact the museum at least 1 week in advance of your visit.

A new display featuring soil monoliths came to the museum in February 2013. Take a look at a part of Ogata Village you usually don't get to see, especially the fossilized shells.

Shellfish Fossils Collected in Ogata Village

The soil in Ogata Village contains many shellfish fossils. The variety of shellfish is due to fluctuations in water depth. It reveals that the environment of Lake Hachirogata changed considerably over millennia.

Shellfish Representative of Each Era

8000 years ago
Pacific oysters, Cockles

6000 years ago
Rock shells, Soft-shell clams also Kagami-gai, Chirimen-gai (species of Venus clam)

4000 years ago
Chiyonohana-gai (a species of Venus clam)

2000 years ago
Asian clam


Pacific oyster

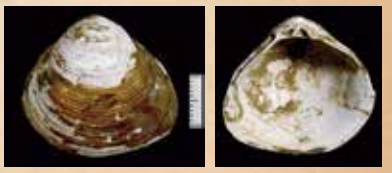

Soft-shell clam


Rock shell

Chirimen-yukigai (Meropesta Capillacea)

Chirimen-yukigai mainly inhabits tropical and subtropical waters. They live in the Ariake Sea and a corner of the Inland Sea of Japan, but may already be extinct from the latter.
The fact that 6000 year-old Chirimen-yukigai shells have been found here suggests that Lake Hachirogata had a warm climate then. Ogata Village is the only place on the Japan Sea where Chirimen-yukigai have been found to date.

Even now, the shells of Asian clams can be seen scattered across the fields of Ogata Village. The existence of these shells proves that Lake Hachirogata was a brackish lake before reclamation. Seashells have also been found on the roadside on rare occasion. Seashells are usually found deep in the soil of Ogata Village, but these shells may have been unintentionally scooped up with lakebed sand used for road construction during the reclamation.

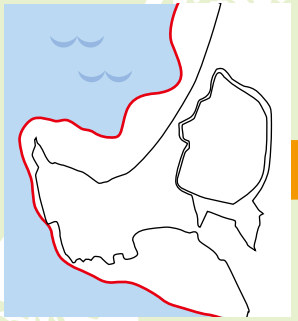

Asian clam


Shells in a rice field


Asian clams found among the roots of a windblown tree

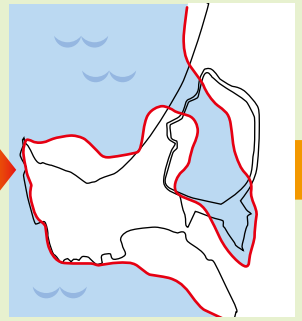
The History of Lake Hachirogata

Lake Hachirogata, a brackish lake created by the rise and fall in sea level due to global climate change over a 10,000 year period.



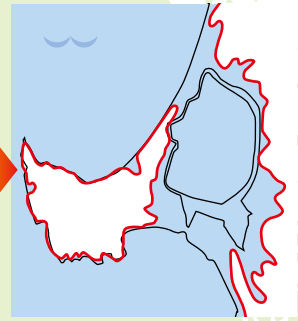
Ⅰ. About 10,000 years ago

Average temperatures of 10,000 years ago were lower than the present day.
Sea level was also about 30 meters below current levels. During this period, Hachirogata was dry land with marshland in places.



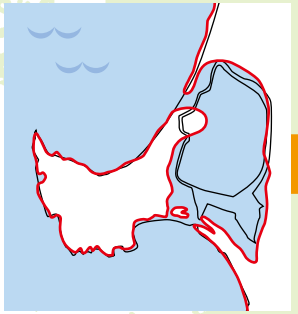
Ⅱ. About 8,000 years ago (Pacific oyster and bay period)

A period of global warming to near present conditions caused a rise in sea level. Hachirogata became a deep bay with an opening on the north side.



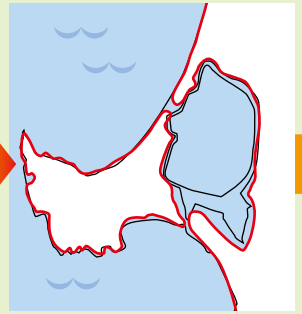
Ⅲ. About 6,000 years ago (Goisagi-gai [Macoma tokyoensis] and bay period)

The climate was warmest about 6000 years ago. Sea levels were 2 to 3 meters higher than the present day. As a result, the southern area of land was also submerged and Hachirogata became a shallow inland sea between Oga and the mainland.



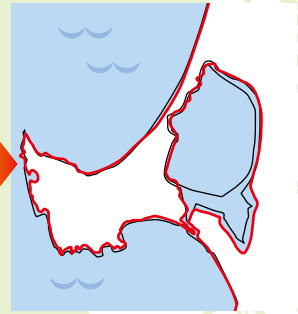
Ⅳ. About 4,000 years ago (Chiyonohana-gai [Raetellops pulchella] and bay period)

A minor fall in sea level around 4,000 years ago formed sandspits in the shallowest areas on the north of south sides. The sandspits limited water flow between the Japan Sea and the shallow inland sea.



Ⅴ. About 2,000 years ago (Early corbicula and lake period)

By 2000 years ago, the continued growth of the sandspits had narrowed down the tidal inlets on the north and south sides. Hachirogata saw a decrease in salinity levels.



Ⅵ. Before reclamation (Corbicula and lake period)

The northern tidal inlet was eventually blocked by sand. The only connection with the Japan Sea was by a narrow waterway on the south side. The creation of Lake Hachirogata was almost complete.

* A sandspit is a landform created by sand deposits from water currents.
*The years indicated above are approximate.

Reclamation Project History

Why was the reclamation project conducted?

There were two main reasons for the reclamation of Lake Hachirogata. The first reason was to resolve post-war food shortages. The aim was to create new farmland and boost food production by reclamation. The second reason was to protect lakeshore areas that suffered from flooding on a regular basis. The lake had a depth of around 4 to 5 meters at that time which made conditions favorable for reclamation. As a result, the reclamation works were planned and then implemented.

The government backed "Hachirogata Reclamation Project" began in 1957. Construction work proceeded smoothly and the main reclaimed area was completely drained by May 1966. "Hachirogata New Farm Village Construction Project" was launched in 1965.
The arrival of settlers began in 1967 and 589 people from all over the country were settled in all.
The largest government project of the century, which demanded 20 years and the enormous sum of approx. 85.2 billion yen was completed in March 1977. The bed of Lake Hachirogata was transformed into 17,299 ha of newly created land, of which 15,666 ha is Ogata Village.

Summarized Chronological Table of the Reclamation of Hachirogata and about Ogata-Village

1825	Bunsei 8	Onomatsu Watanabe reclaimed about 400 ha of land on the west bank of Lake Hachirogata. He also made the Hachirogata canal plan.
1923 ~ 1948		Preparation of plans for Hachirogata's reclamation (Kachi plan, Kanamori plan, Morooka plan, Kano plan)
1952	Showa 27	Ministry of Agriculture, Forestry and Fisheries (MAFF) established the Hachirogata Reclamation Surveying Office (Akita City) and started work on the reclamation plan.
1954	Showa 29	Prof. Jansen and Engineer Volker came to Japan to inspect Hachirogata.
1957	Showa 32	MAFF completed "The Hachirogata Reclamation Project Plan". Hachirogata reclamation construction work began. Hachirogata Reclamation Project Office was created. (Renamed as Hachirogata Reclamation Office later.)
1958	Showa 33	Ground-breaking ceremony for the Hachirogata reclamation project was held.
1959	Showa 34	Construction work began on the dikes surrounding the central reclaimed area, the South Pumping Station and the Tidal Gate.
1961	Showa 36	Completion of the Tidal Gate.
1963	Showa 38	Completion of the South Pumping Station. Completion of the central area dikes. Draining begins.
1964	Showa 39	"Ogata Village" was chosen as the name for the new village. Land drying ceremony was held. **Birth of Ogata Village.**
1965	Showa 40	"Hachirogata New Farm Village Construction Agency" was inaugurated.
1966	Showa 41	Total drying of central reclaimed area.
1966 ~ 1974		Settler application, selection and training carried out before settlers could move to the village. Settlement commences.
1977	Showa 52	Construction works of the National Hachirogata Reclamation Project and the Hachirogata New Farm Village Construction Project were completed.

Watermark monument

Geosite ②

Watermark monument and Hachirogata Reclamation Monument

Hachirogata Reclamation Monument

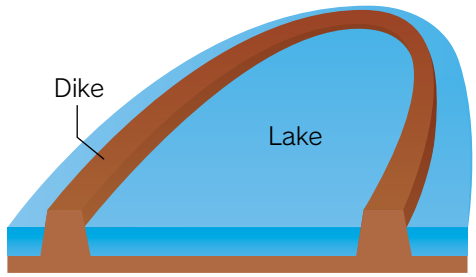
The dikes and pumping stations were completed in 1963. Draining commenced soon afterwards. By the following year, approx. 5,500 ha of the shallowest lakebed had appeared in the western part of Hachirogata. In September 1964, the reclaimed land was opened to the public and a land drying ceremony was held. Hachirogata Reclamation Monument was built on the ceremony site and a watermark showing the former water level stands at the entrance.

The Reclamation (Empoldering) Process

Reclamation work can be simplified into a 3-stage process.
①Dike construction
②Digging of drainage channel network and drainage
③Desalination of residual lake by tidal gate construction

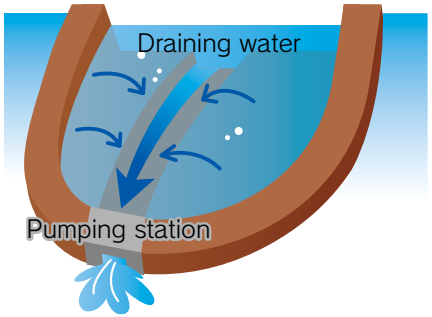
① Dike Construction

Sand scooped from the lake bottom was transported to the dike construction site and piled up. The dike was covered with asphalt and large rocks placed over it for erosion protection. For soft soil conditions, the surface ground layer was removed and replaced with sand before embankment work began.



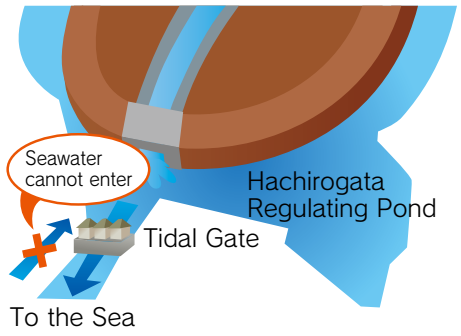
② Drainage Network Creation and Drainage

A wide central drainage channel was dug through the middle of the reclaimed area, with a network of branch channels connected to it. Water within the dike area then flowed into the central drainage channel and was removed by pumping stations at the end of it.



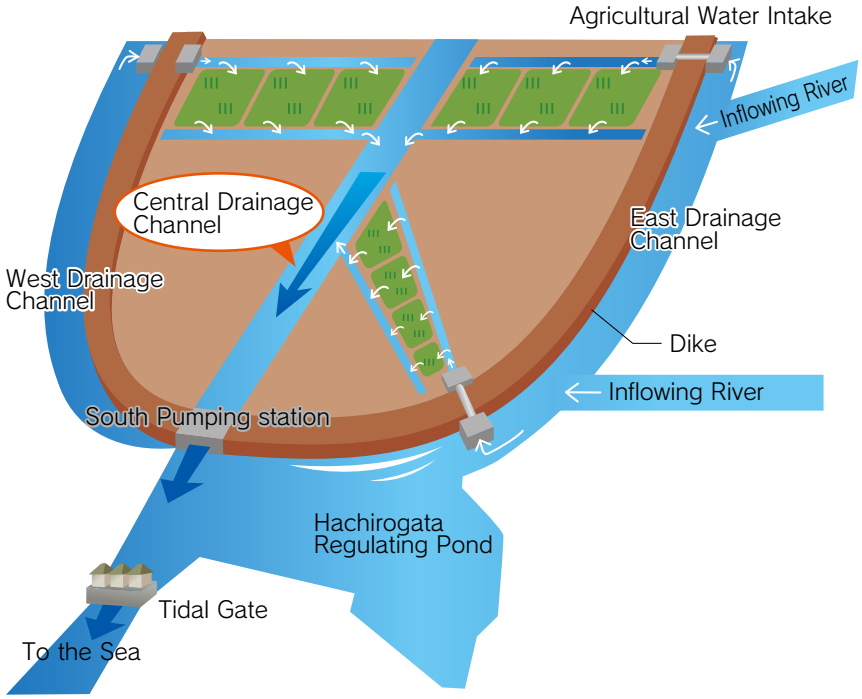
③ Desalination of Hachirogata Residual Lake by Tidal Gate Construction

A tidal gate was constructed to shut off the lake from the Japan Sea. This enabled the residual lake to be used as a freshwater regulating pond for agriculture. Also, the once windy Funakoshi waterway was rebuilt straight in order to carry large volumes of excess water safely from the lake to the Japan Sea.



Water Flow and its Management in Ogata Village

Water management is of vital importance if stable agriculture is to be carried out on reclaimed land below sea level. Infrastructure such as the dikes, central drainage channel, pumping stations, tidal gate and agricultural water intake facilities all play a fundamental role.



Agricultural water for use within the polder is extracted from channels and the regulating pond by intake. All water within the polder except domestic wastewater flows into the Central Drainage Channel and is pumped out into the Regulating Pond. Finally, the water flows out to the sea through the Tidal Gate.

Geosite ③

Water Management Facilities

Agricultural Water Intake

There are 19 agricultural water intakes in total. 12 of them operate on a "siphon" system in the Regulating Pond and East Drainage Channel. This design was adopted because the dike is constructed on softer ground and maintaining its strength is a priority.
Since the dike of the West Drainage Channel is built on stable sandy ground, the other 7 intakes use an "underdrain" system. Intake pipes run through the dike and a water gate regulates the volume of water taken.


Siphon-type Intake


Underdrain-type Intake

Polder Dikes

Ogata Village is surrounded by approx. 51.5km of polder dike. This dike protects the village and keeps unwanted water out.

Main Drainage Channels

There are two large drainage channels. The shorter one is 6.9 km long and runs in an east/west direction. The Central Drainage Channel is 15.7 km long and runs almost at right angles to the above. The total length of all branch lines and drains connected to these main drainage channels is 620.7 km. The Central Drainage Channel also doubles as a rowing course and boat race venue.

South Pumping Station

Water is pumped out of the polder at the South, North and Hamaguchi Pumping Stations. The South Pumping Station is the largest of the three and pumps out water from the Central Drainage Channel. The water level of the West Drainage Channel is also regulated here. You can also enjoy a fantastic view of the polder from the observation room of this facility.

Tidal Gate

The 370-metre long Tidal Gate prevents seawater from entering Hachirogata Regulating Pond via the Funakoshi waterway. It also discharges excess water from inflowing rivers and controls the water level of the regulating pond.

The facilities listed above are maintained by Ogata Village Land Improvement Office and others.

Geosite ④ Ogata Fuji and Lake Hachirogata Water-level Commemorative Monument

Ogata Fuji stands 3.7m tall and is 1/1000th the size of Mt. Fuji at 3776 m. The peak of Ogata Fuji rises to 0m and said to be the lowest mountain in Japan. Ogata Fuji was created in 1995 to commemorate the 20th anniversary of the Akita Survey and Planning Association. The adjacent Lake Hachirogata Water-level Commemorative Monument depicts the former water level of the lake. At the same height as Ogata Fuji, the center of the sphere depicts sea level.

Geosite ⑤ Latitude and Longitude Intersection Monument

Ogata Village was born on reclaimed land at the point where Latitude 40° North and Longitude 140° East intersect. Ogata Village is the only place where points on the 10th degree meet on Japanese soil. This tower stands at Latitude 40° North and Longitude 140° East according to the Japanese geodetic system, the measurement standard at the time. However, the point of intersection according to the current measurement standard, the world geodetic system is approx. 400 m southeast of this point.

Geosite ⑥ Windbreak Forest

The vast expanse of Ogata Village lies between 3 and 5 meters below sea level and is exposed to strong winds, especially during winter. Windbreak forests protect crops, fields, buildings and private property from blizzard and snow damage. Japanese black pine, willow, poplar and other species have been planted along roadsides and in built-up areas. You will find that all of these trees lean in the same direction. It is an indication of wind strength and the important role these forests play in protecting the village.

Japanese reed bunting

Japanese marsh warbler

Flock of geese

Geosite ⑦ Ogata Grassland Wildlife Conservation Area and Observation Station

Ogata Grassland Wildlife Conservation Area was nationally designated in 1977. The area has 135ha of natural habitat, of which 48 ha of rare habitat is listed as a special conservation area.

The Japanese Ministry of Environment 'Red List' shows the following species as under threat: Japanese marsh warbler (endangered), the Eastern marsh harrier - a rare Japanese bird of prey (endangered) and the Japanese reed bunting (vulnerable). There are confirmed sightings of many other rare birds too. Please use the observation station from which to bird-watch at your leisure.

Eastern marsh harrier

Ogata Village, Akita Prefecture

Access Information

By Train

- Tokyo to Akita (approx. 3hrs 45min)
- JR Ou Line Akita to Hachirogata (approx. 23min)

By Plane

- Haneda Airport (Tokyo) to Akita (65min)
- Chubu Airport (Nagoya) to Akita (85min)
- Osaka International Airport (Osaka) to Akita (85min)
- Shin-Chitose (Sapporo) Airport to Akita (55min)

By Car

- 90 min from Akita Airport
- 20 min from JR Hachirogata station
- 20 min from JR Funakoshi station
- 60 min from JR Akita station
- 20 min from JR Kado station

For further information please contact ▶ **Polder Museum of Ogata-mura**

5-2 Aza Nishi, Ogata Village, Akita, 〒010-0445

TEL:0185-22-4113 FAX:0185-22-4115

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Produced by the Polder Museum of Ogata-mura