

# Kamaguchi Water Gate

1st "Kamaguchi Water Gate"  
Completed in 1936  
(Maximum discharge 200m<sup>3</sup>/s)



Current (2nd) "Kamaguchi Water Gate"  
Completed in 1988  
(Maximum discharge 600m<sup>3</sup>/s)

## The history of Kamaguchi Water Gate

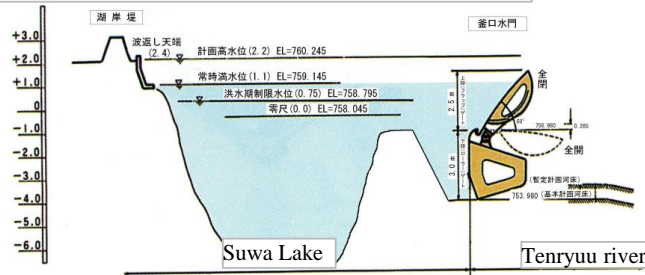
31 rivers flow into Suwa Lake, and only the Tenryu River flows out. For this reason, Suwa Lake has been repeatedly flooded since long ago.

Since the Edo period (1603-1867), work has been done to widen the outlet to the Tenryu River (Kamaguchi), and in the Taisho period (1912-1926), excavation work was done from Kamaguchi to about 1.5 km downstream of the outlet.

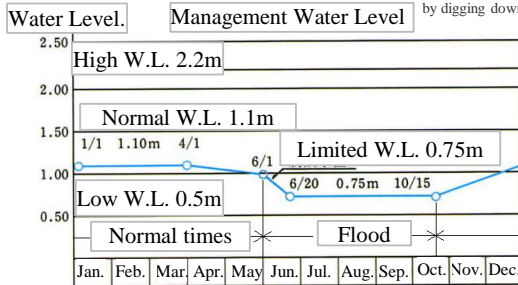
Due to the continued flooding of Suwa Lake in the Showa period (1926-1989), the 1st "Kamaguchi Water Gate" was constructed in 1932 to prevent the decrease in water level of Suwa Lake as the result of excavation of the Tenryu River at the same time. However, flood damage continued to occur after that, with major damage in 1950 and 1961.

In 1973, the flood control plan for the entire Tenryu River system was reviewed, and it was decided to build 2nd "Kamaguchi Water Gate" with a large discharge capacity about 80 m upstream of the 1st

## Longitudinal section image of Suwa Lake



※ The current Kamaguchi sluice gate was installed by digging down about 3m from lake bottom.



## The role of Kamaguchi Water Gate

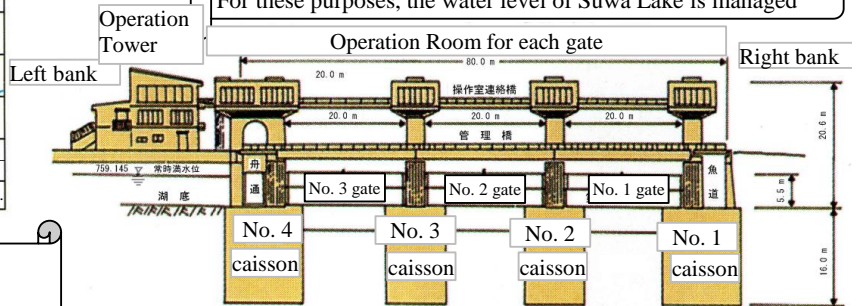
(1) Flood control

In the future (after the Tenryu River revetment is completed), 1,000m<sup>3</sup>/s of flood control discharge (Max discharge 600m<sup>3</sup>/s) will be implemented against 1,600 m<sup>3</sup>/s of design inflow at Suwa Lake. For a while, considering the status of Tenryu River improvement, Max discharge 430 m<sup>3</sup>/s will be implemented to prevent flood damage around the lake and downstream.

(2) Maintaining the normal function of running water

Replenish vested water supply for the downstream Tenryu River coast.

For these purposes, the water level of Suwa Lake is managed



## Facilities of Kamaguchi Water Gate

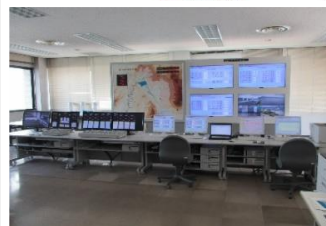
<Total cost 10.2 billion yen>

Construction 1978 ~ July, 1988

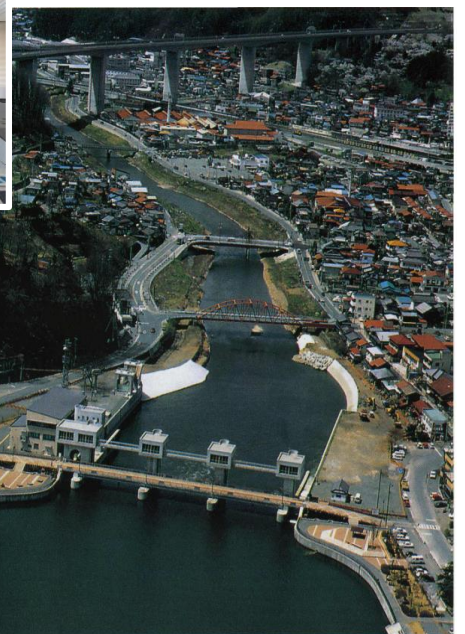
- Foundation construction: 4 caissons
- 3 Gate (Upper: flap type, Lower: roller type)
- 1 boat-way (left bank side)
- 1 fish-way (right bank side)

Management facilities

- Operation Tower (RC structure, 535.3 m<sup>2</sup>)
- Telemeters (7 rainfall stations, 9 water level stations)
- Discharge warning device: Sirens and speakers 32 stations (33 km)
- Control equipment (Construction 1988 ~ 1993)
- Surroundings improvement River park 16,400m<sup>2</sup>



3Floor Operation Room



Seen from the sky  
Kamaguchi Water Gate

## Outline of Suwa Lake

Elevation	759m (Ref.: Nagano City 362m, Matsumoto City 592m)
Area	13.3km <sup>2</sup> Circumference 15.9km
Max depth	7.2m Average 4.7m
Storage Capacity	61,904,000m <sup>3</sup>
Stagnation time	39days (Ref.: Biwa Lake 2,000days, Kasumigaura Lake 200days)
inflow river	31 (Class A river 15, Law applicable river 5, Ordinary river 11)
Basin area	531.2km <sup>2</sup>
Normal water level	759.145m
8th period Target Water Quality	COD 4.7mg/l total nitrogen 0.62mg/l Maintain current level of total phosphorus, Transparency over 1.3m (2021 Quality COD 5.5mg/l total N 0.62mg/l total P 0.041mg/l Transparency 1.2m)



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