

Implementation by Nagoya City

Measures to make Horikawa River Limpid



2022.10.15

Summary meeting for the 31st stage

Nagoya City

Greenification & PublicWorks Bureau River Planning Div.

Waterworks and Sewerage Bureau Sewerage Planning Div.

Environment Bureau Local environmental measures Div.

Implementation by Nagoya city Greenification & PublicWorks Bureau

① Flood control and Removal of sludge



② Use of shallow groundwater

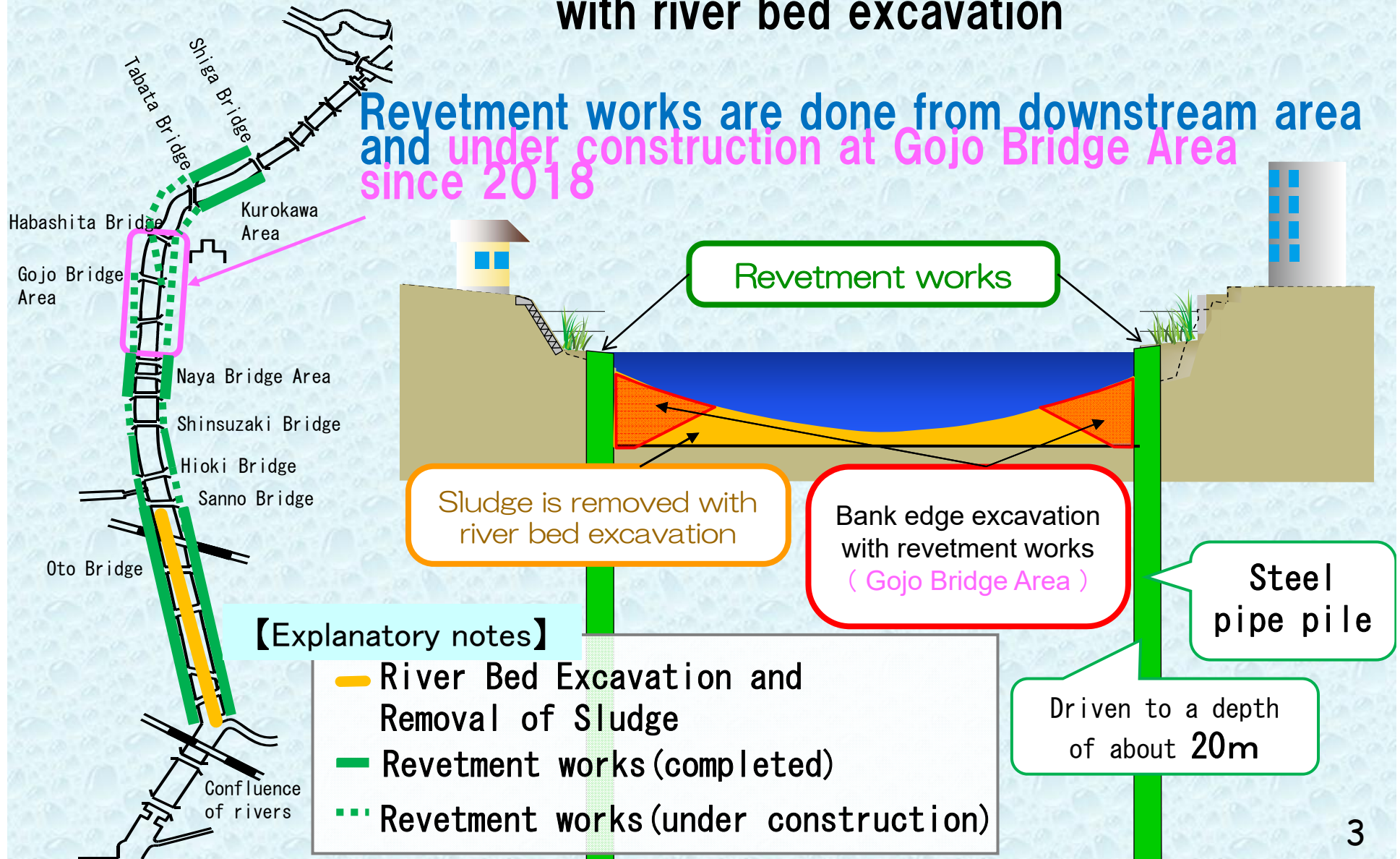
③ Shaping of Rapids and Pool

④ Removal of floating pollutants

◆ Removal of Sludge in Horikawa *End of march 2022*

Revetment works → After revetment works, sludge is removed with river bed excavation

Revetment works are done from downstream area and under construction at Gojo Bridge Area since 2018



◆ Removal of Sludge in Horikawa

【Hioki Bridge Water Park】 (Upstream of Hioki Bridge)

Maintenance status of
Seawall and Water park

Water Park has been completed on Hioki Bridge **left bank**(July.2022)

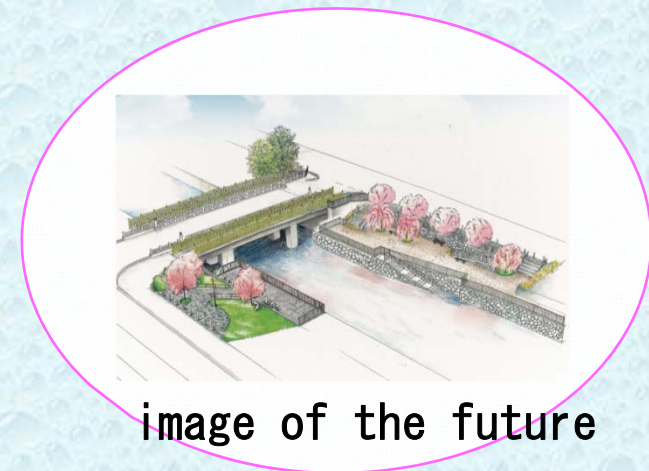


image of the future

Implementation by Nagoya city Greenification & PublicWorks Bureau

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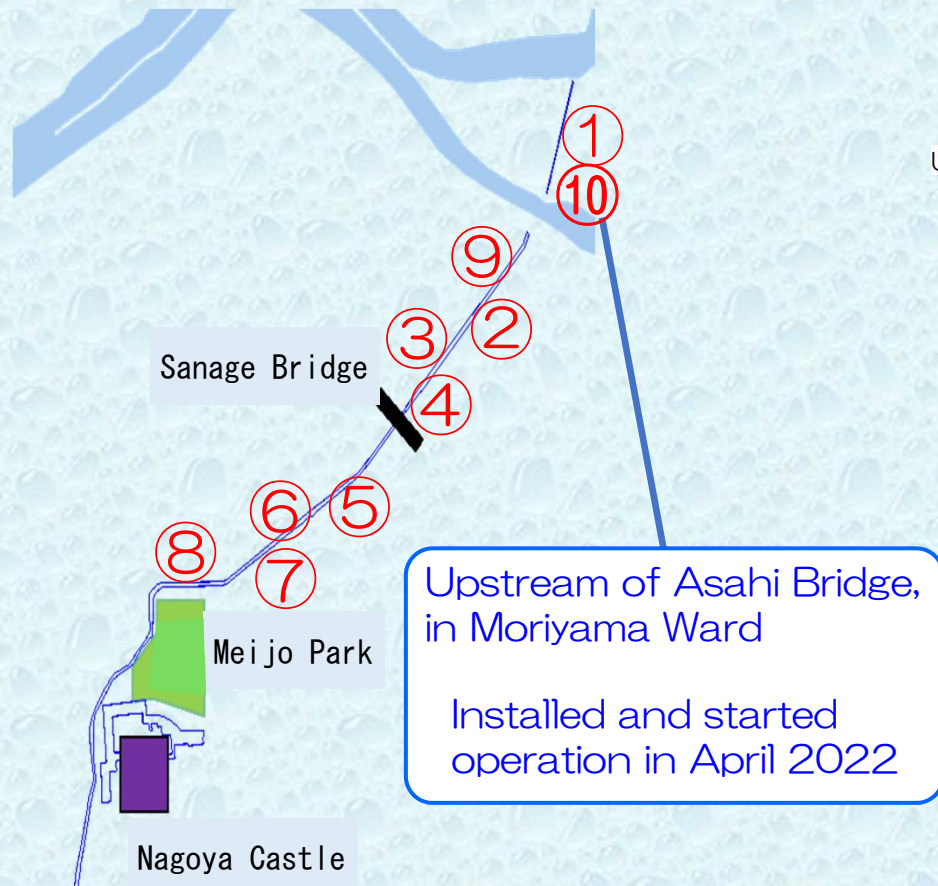
③ Shaping of Rapids and Pool

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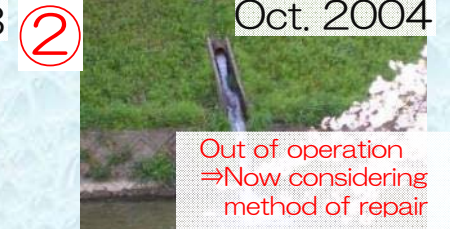
◆ Use of shallow groundwater

1 Wells

In FY2021, 10th well was installed in Moriyama Ward



Total volume of discharge of 10 wells
0.083m³/s



◆ Use of shallow groundwater

2 Maintenance of the well

Iron of well water adhere to tubes and pumps → Discharges decrease.

Washing tubes and pumps and removing iron, to be good condition.

(2019~sequentially executing)

Upstream well of Shiga Bridge
R3 Maintenance



adhesion in the tube



Before maintenance
(Use for 6yrars)



After
maintenance

Implementation by Nagoya city Greenification & PublicWorks Bureau

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◆ Shaping of Rapids and Pool

Upstream of Horikawa River
(Sanage Bridge~Meoto Bridge)

Artificially create fast and slow points to change the flow of water



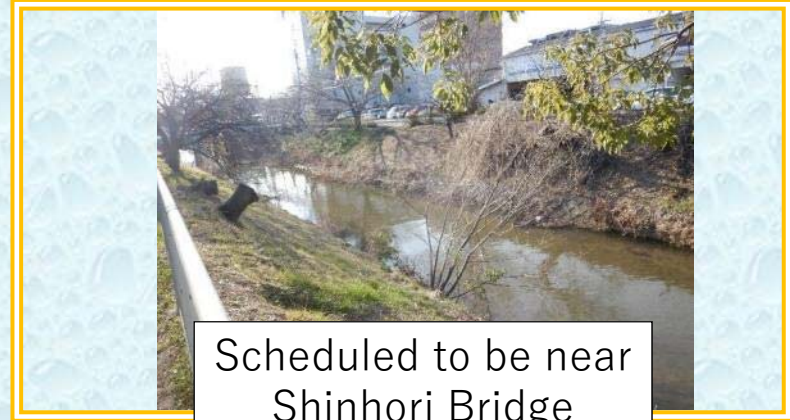
Improving the river's ability to purify itself while encouraging plant growth



Conservation and creation of habitats for diverse organisms

Recent location Downstream of Shinhori Bridge
(2020)

2020...We plan to install in one new location



Scheduled to be near
Shinhori Bridge

Examples of creatures seen in the upper stream of Horikawa River



◆ Effects of installation

- Increase in types and numbers of fish (Pale chub etc.)
- Increase in benthic organisms (Palaemon adspersus etc.)
- Plant growth was encouraged

Implementation by Nagoya city Greenification & PublicWorks Bureau

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② Use of shallow groundwater

③ Shaping of Rapids and Pool

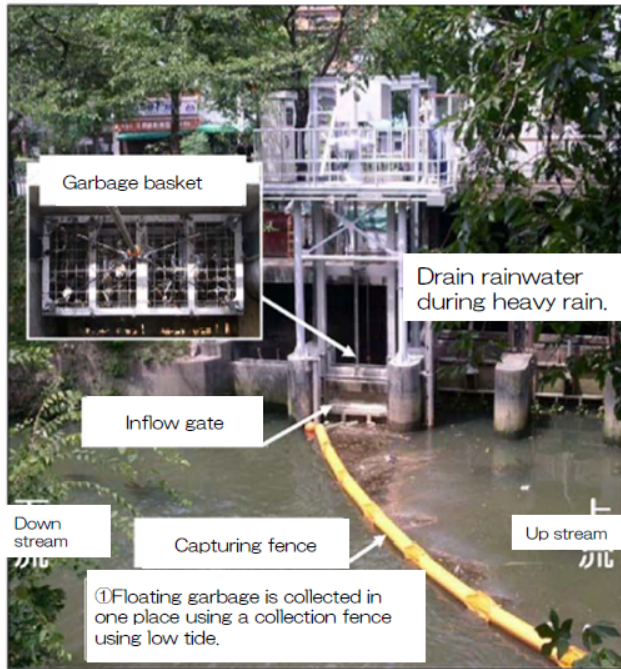
④ Removal of floating pollutants



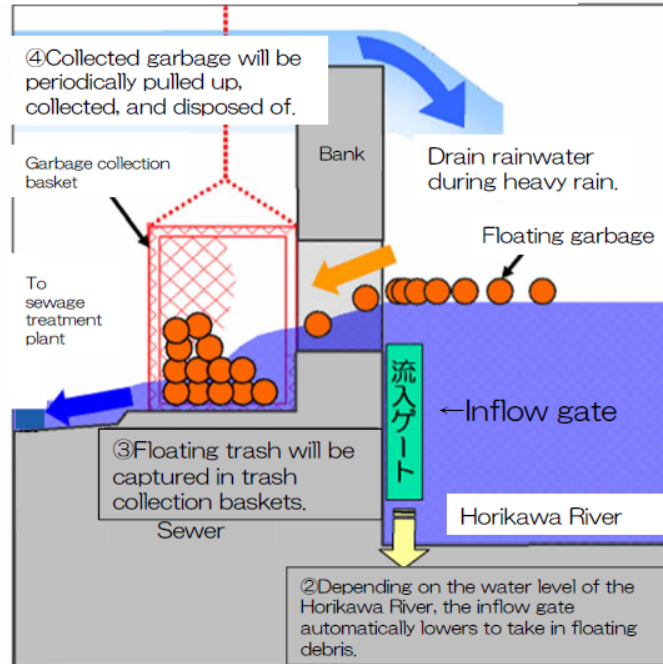
Removal of floating pollutants

1 Garbage Catcher (Near the Johoku Bridge) From 2006

☆The sewer storm drain was modified and an inlet gate and garbage collection basket were installed.



Installation situation



Cross section

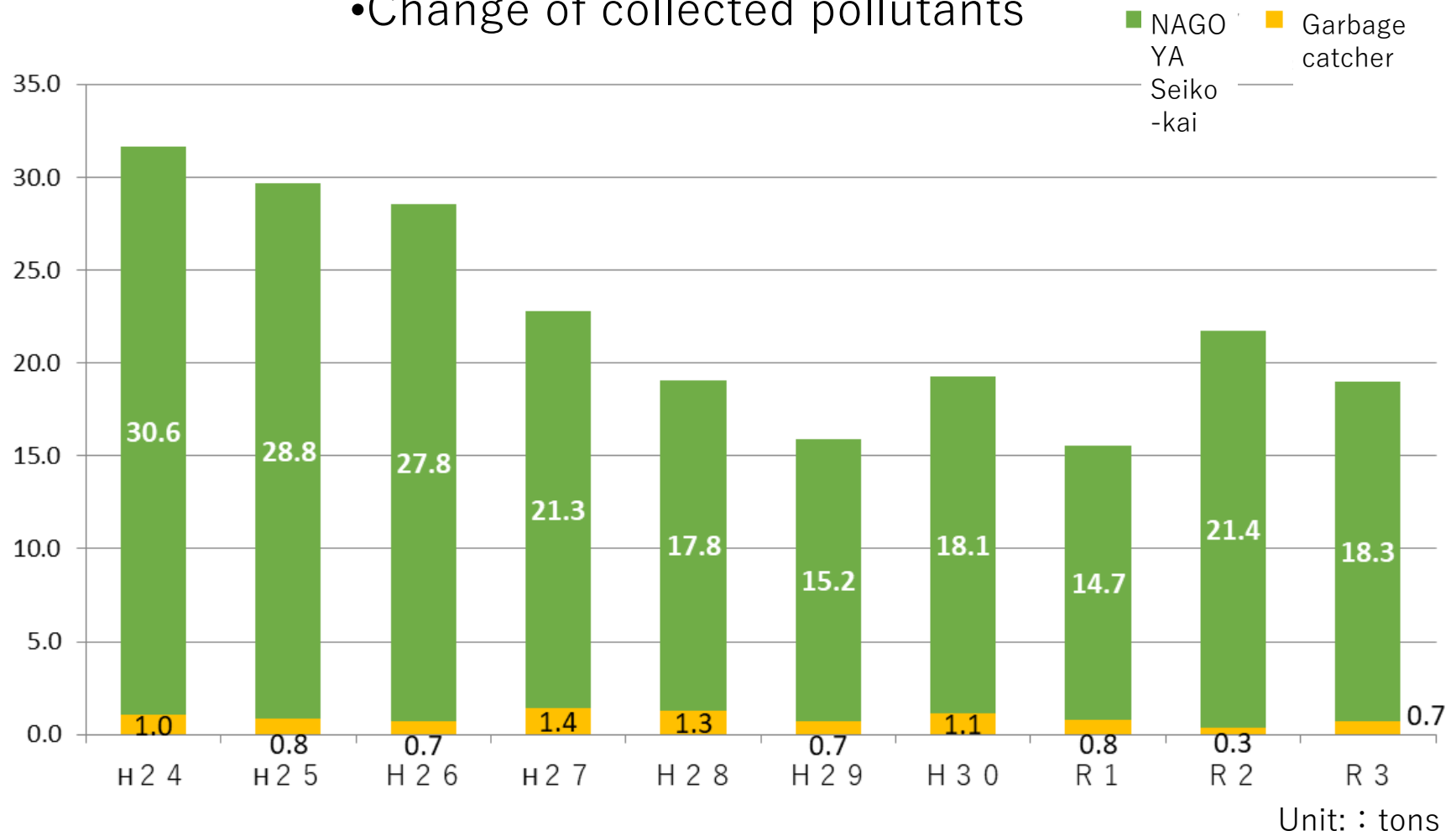


2 Cleaning by Seiko Party



Removal of floating pollutants

Change of collected pollutants



•Temporary value

Removal of floating pollutants



3 Hatch Technology NAGOYA

2022FY Support for Social Demonstration of Advanced Technology Problem-Solving Support Programs

(Startup Support Office, Bureau of Economic Affairs)

⇒ Agency applied for and was accepted!

Social Issues [Greening]

○Title of a subject

We want to eliminate litter floating in the Horikawa River!

Elucidation of the mechanism of river litter and demonstration of countermeasures

(River Planning Division, Greenification & PublicWorks)

○Demonstration project

Collection of floating pollution by marine drone

○Problem to be solved

We want to eliminate garbage, which is one of the causes of environmental degradation, for the restoration of "Horikawa, the mother river of Nagoya!"

○Demonstration company

Hiraizumi Yoko Corporation (Taito-ku, Tokyo)

○Details of the Demonstration :

Demonstration of collection of floating debris by the automatic operation of the JELLY FISH BOT and collaboration with citizens' activities.

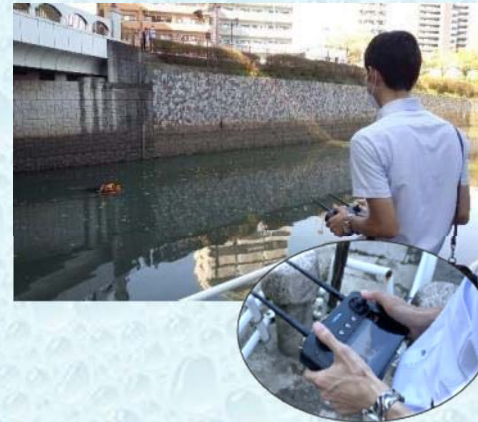


**implementation block
Near Kitashimizu
Shinsui Plaza**

Implementation period
September to
February
(scheduled)

Removal of floating pollutants

- Demonstration Project Collection of floating debris by marine drone
- September 26, 2022: Trial run (in front of Kitashimizu Shinsui Plaza)
Osamu Hayashi's Nagoya Karuta: October 30, 5:25pm-30pm



Greenification and Public Works Bureau

■ **The other** Toward reclamation and clarification of Horikawa

Cleaning up of banks, Trimming off reeds

With Clean Horikawa Campaign in spring, we cleaned banks and cover at the waterside. (April 16th in 2022)



About Kinjo Brg.



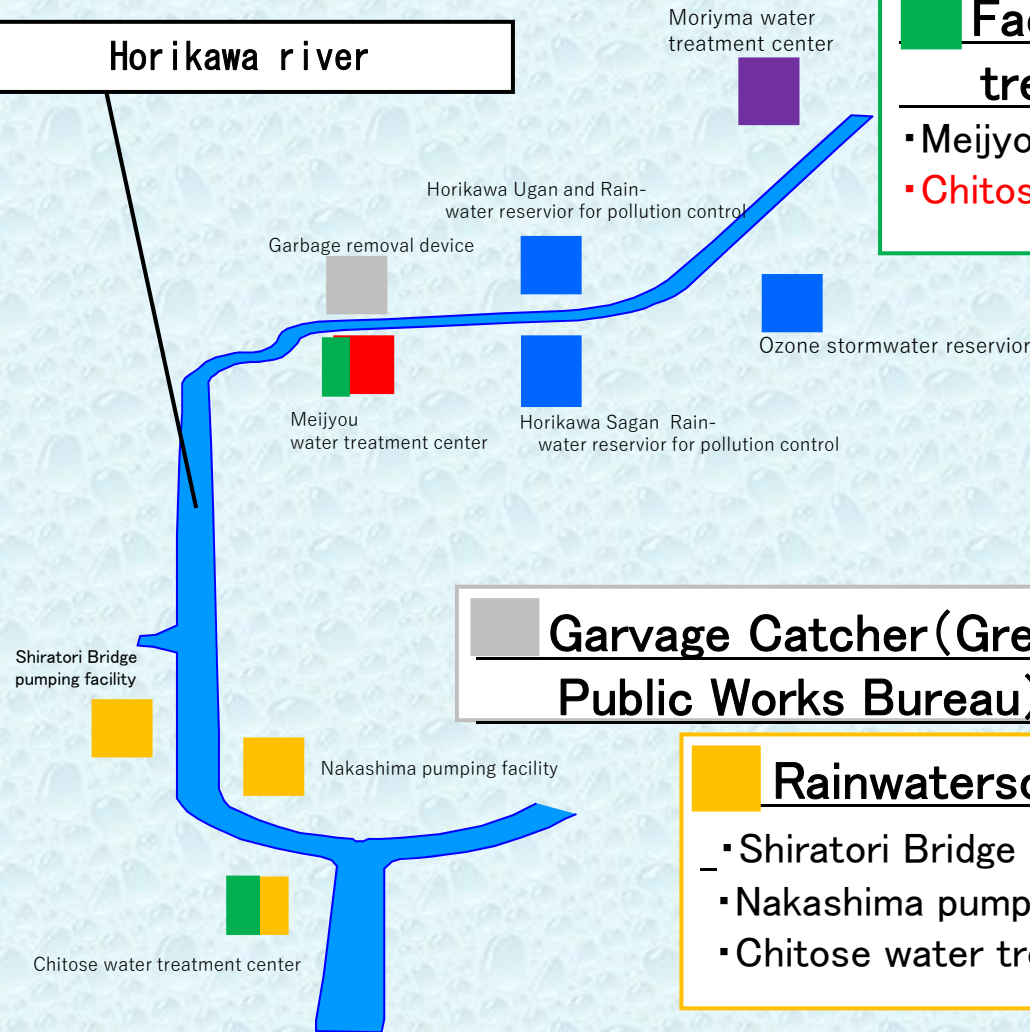
Trimming off Reeds in upstream(Kita Ward)
We will practice in late November.

Implementation by Nagoya City Waterworks and Sewerage Bureau

**Initiatives for clarification
of
*Horikawa River &
Shin-Horikawa River***

Initiatives for clarification of Horikawa River

Horikawa river



Advanced water treatment
Meijyou water treatment center (Diskfilter)

Facility for advanced primary treatment

- Meijyou water treatment center
- Chitose water treatment center (construction)

Rain-water Reservoir for pollution control

- Ozone stormwater reservoir
- Horikawa Ugan and Sagan Rain-water reservoir for pollution control

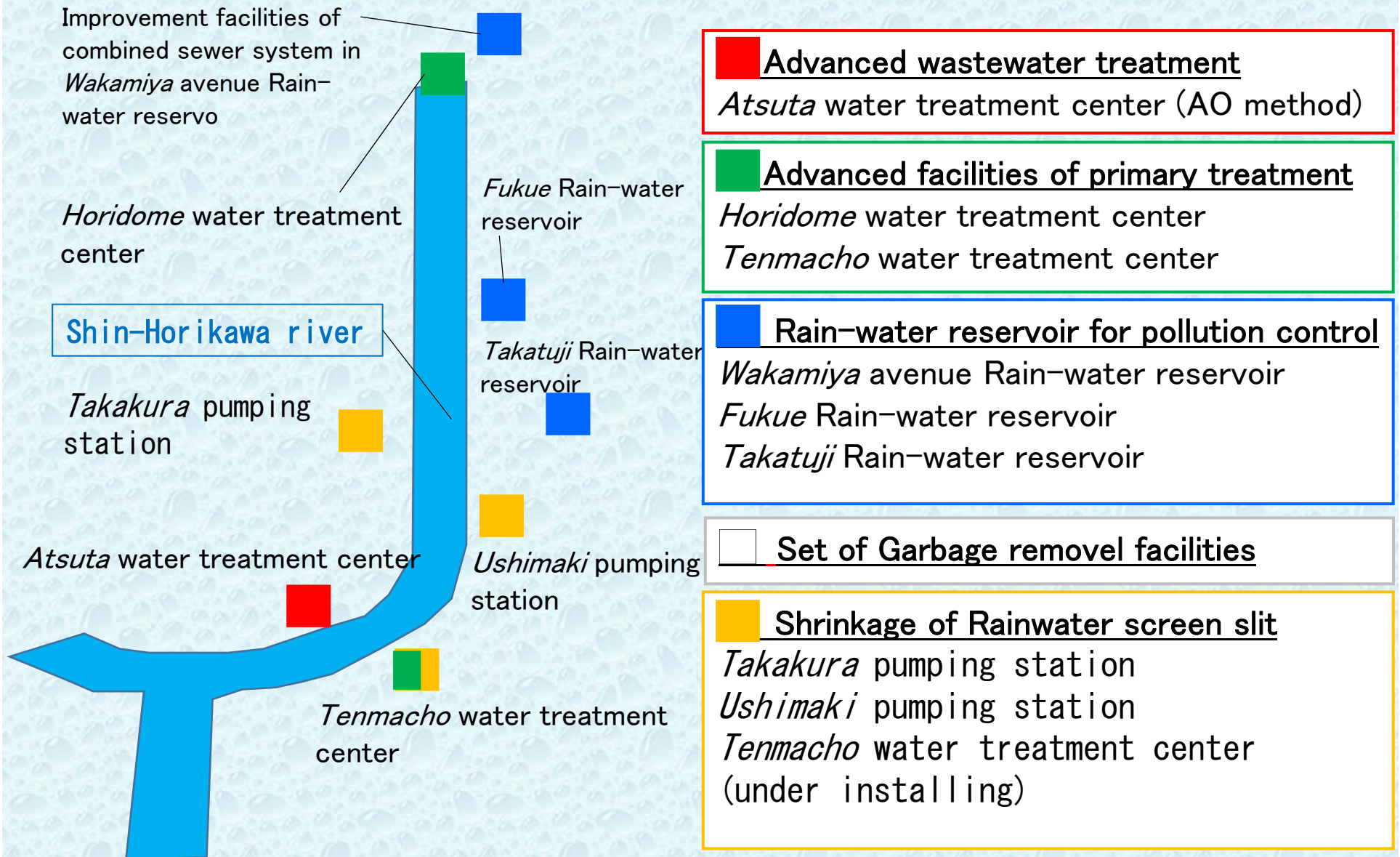
Garvage Catcher (Greenification & Public Works Bureau)

Rainwaterscreen's pupil width reduction

- Shiratori Bridge pumping facility
- Nakashima pumping facility
- Chitose water treatment center

Water supply of reclimed wstewater
Moriyma water treatment center

Initiatives for clarification of *Shin-Horikawa River*



***About repair of
Simpleadvanced
wastewater treatment***

About repair of Simpleadvanced wastewater treatment

Last year, filter media leaked from the facility for Simpleadvanced wastewater treatment in the Tenma-cho Water Treatment Center.

The facility was renovated, including to prevent recurrence. All systems have been in operation since April 2022.



After facility renovation

■ Regarding collection of filter media

< Continuing collection of filter media >

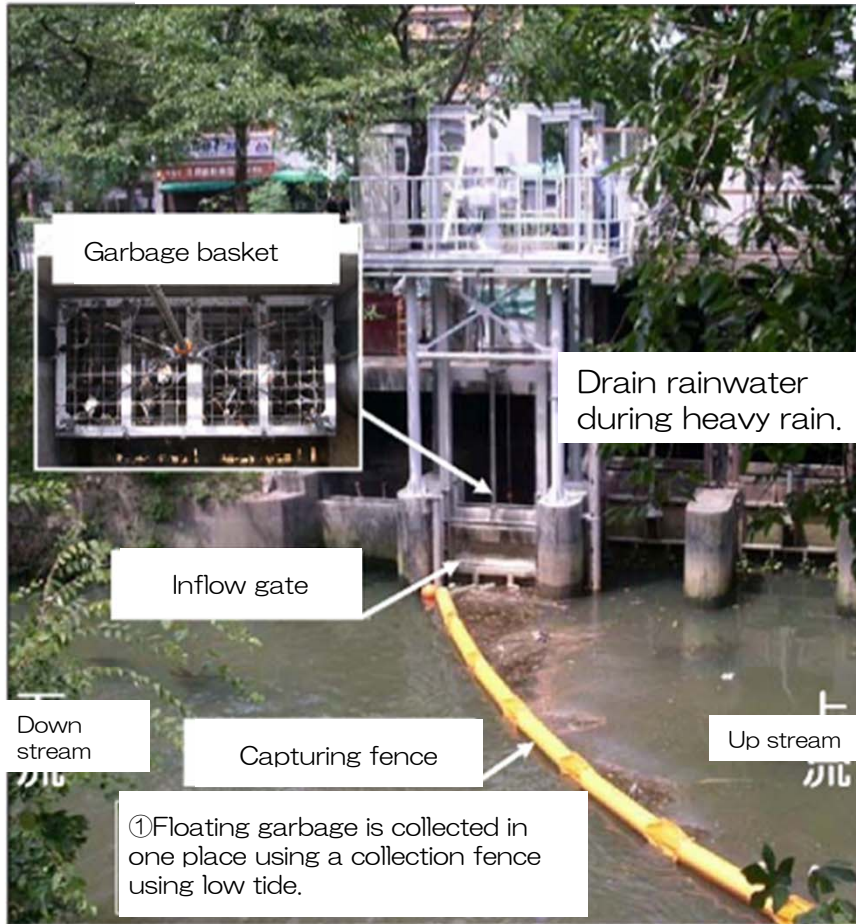


September 13th collection work

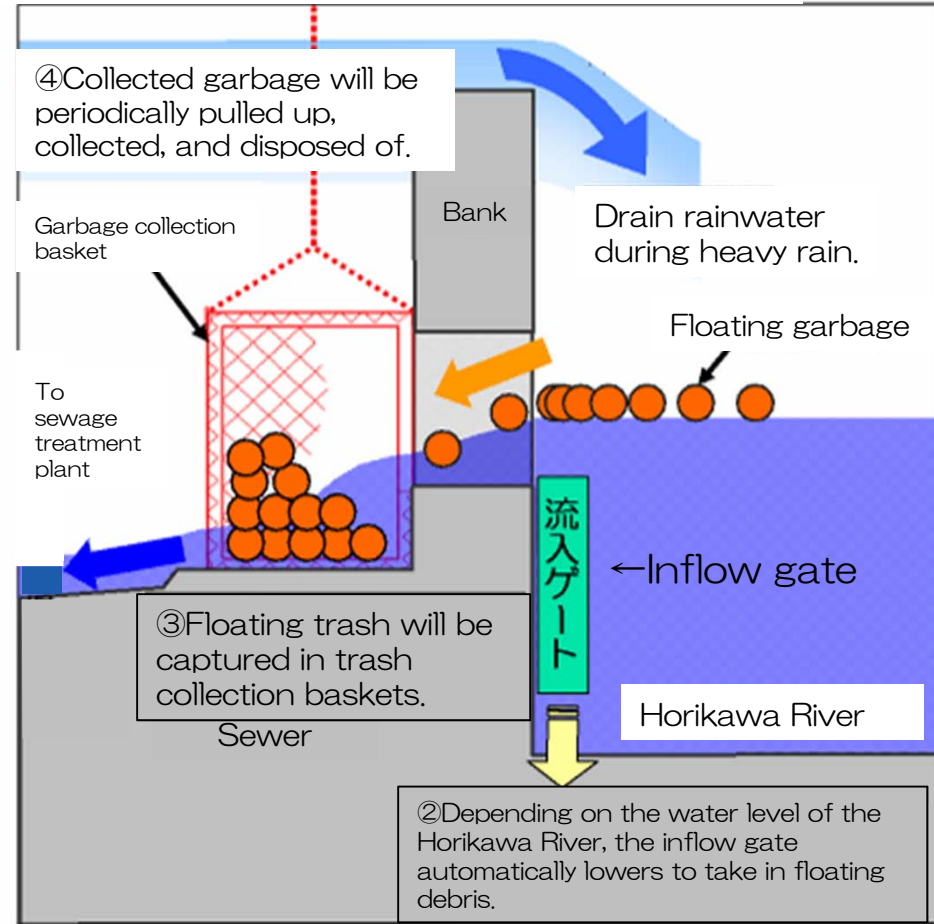
About operation of garbage catcher

How the garbage catcher works

☆The sewer storm drain was modified and an inlet gate and garbage collection basket were installed.



Installation situation



Cross section

■ Details of trial operation

Conventional : Up to 1 operation per day

New Trial : Up to 2 operations per day

■ Results

Number of operations increased by approx. 30%

Debris collection increased by approx. 15%

Increasing the frequency of operation of the Garbage Catcher will bring river water into sewerage, which will have risks in terms of flood control and impact on downstream sewerage facilities.

Therefore, we will continue the trial operation while checking these side-effects.

***Implementation by
Nagoya City
Environment Bureau***

Groundwater use in Shin-Horikawa River in FY2020

□ In order to discharge groundwater to the bottom layer of the Shin-Horikawa River, we are surveying and designing the construction of wells, etc.

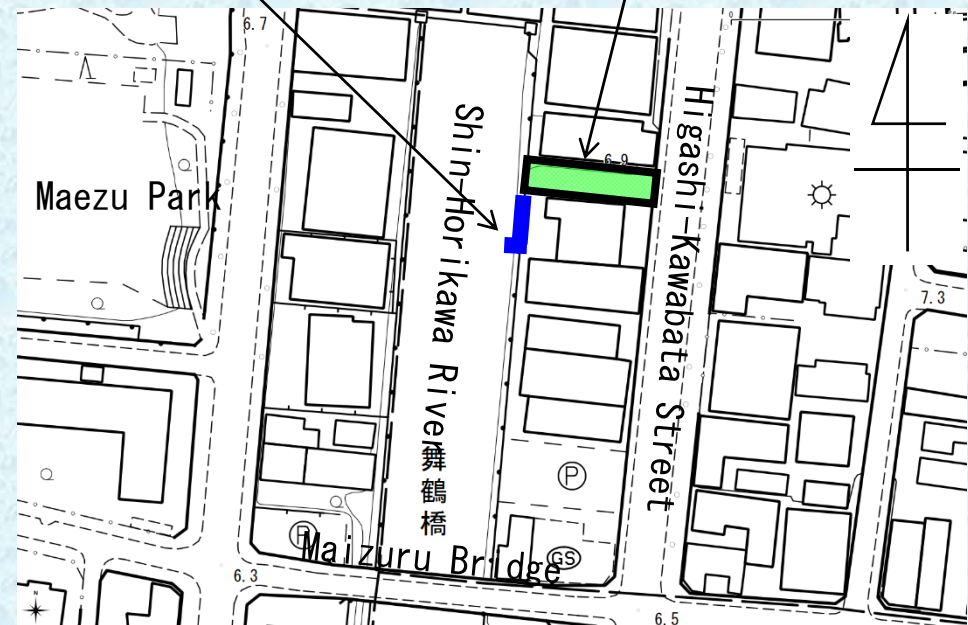
➤ Planned location for well installation
City-owned land on the left bank upstream of Maizuru Bridge.

➤ Well strainer depth (assumed)
-22.5m to -33.5m from the ground

Planned location for well installation

Discharge pipe (draft)
Outlet: 50 cm above the riverbed

(Width approx. 7m,
depth approx. 27m)



We will make steady progress toward improving the DO of the Shin-Horikawa River bottom layer.



Installing water facilities, etc. T. P. 6.9m

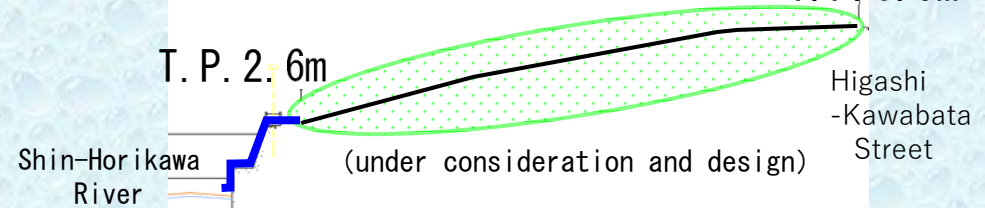


Fig. Cross section

Thank you for your attention

