

# Implementation by Nagoya City

## Measures to make Horikawa River Limpid



**2022.03.19**

**Summary meeting for the 30th 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

- ◆ Measures to make **Horikawa** River Limpid
- ◆ Measures to make Shin-**Horikawa** River Limpid
- ◆ Others

# Implementation by Nagoya city Greenification & PublicWorks Bureau

① Development of Bank Protection  
& Removal of Sludge



② Use of shallow groundwater

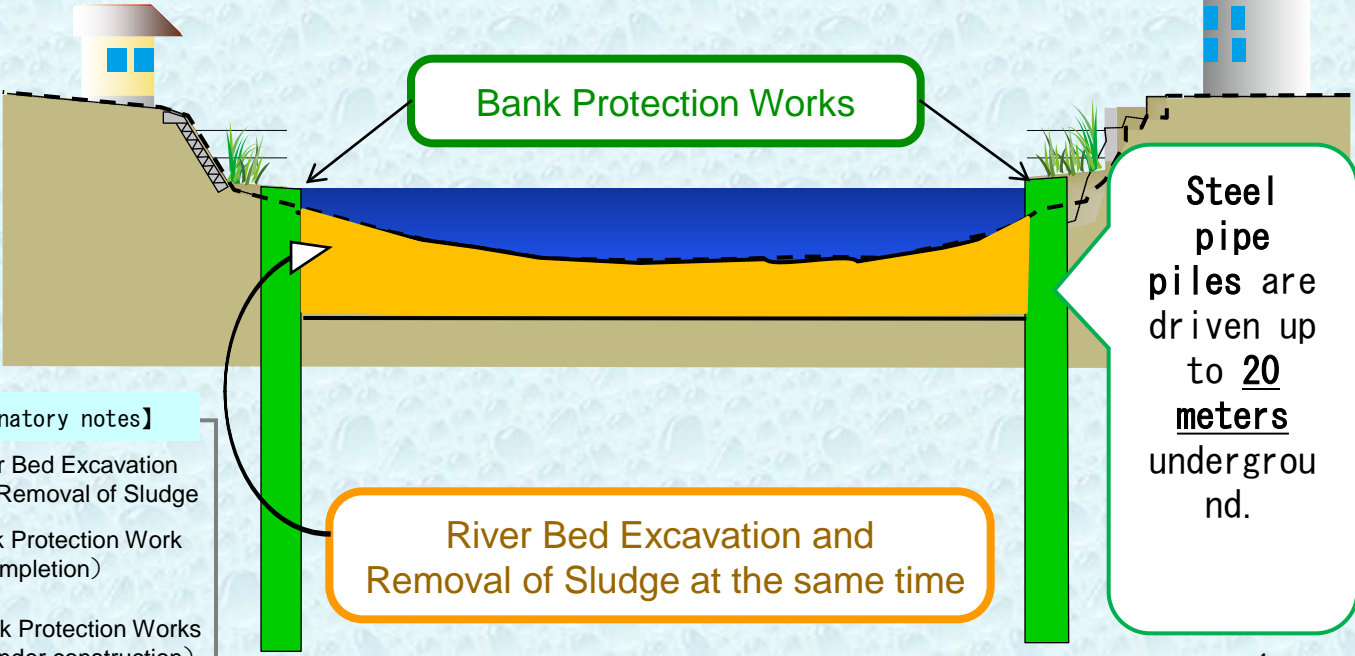
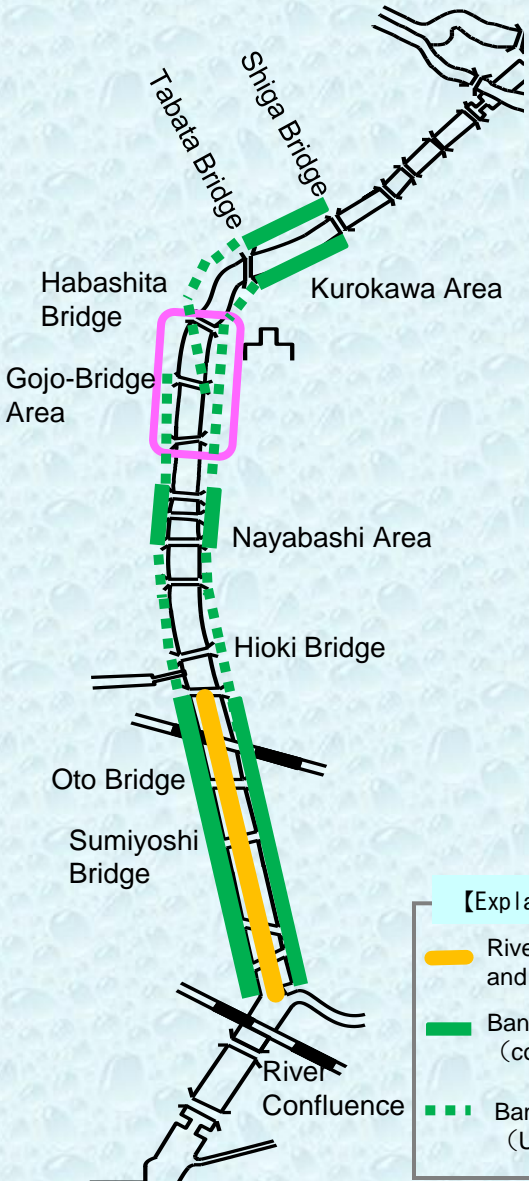
③ Developments of Shallows and Depths

④ Collection of pollutants

# ◆ Removal of Sludge in Horikawa River End of 2022.03

## • Development of Bank Protection in River management project

→ • After Bank Protection Works, River bed Excavation and **removal of sludge** are implemented at the same time



# ◆ Sludge removal from the Hori River **Status of Seawall and Waterfront Plaza Improvement 1**

## ① 【 Hioki Bridge Water Park 】 ( Upstream of Hioki Bridge )

**In service since October 2021 !**



panoramic view

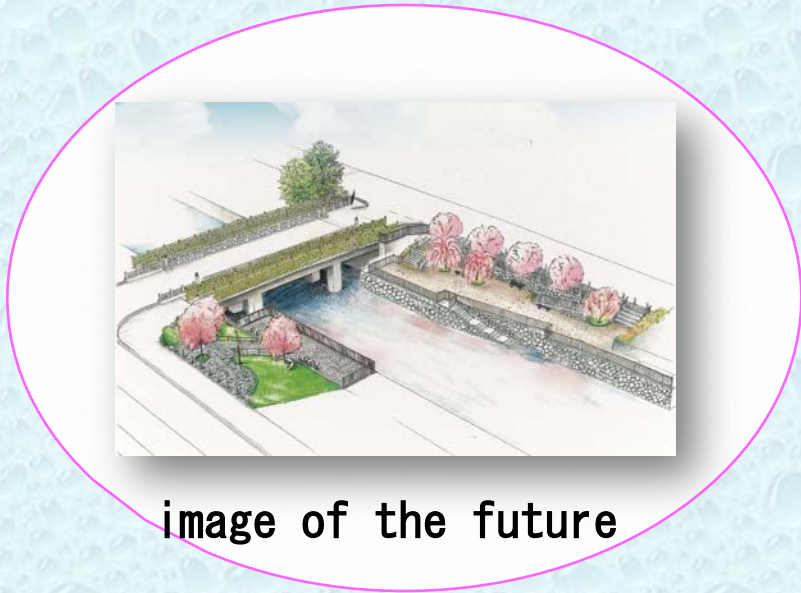


image of the future

**March 2022** **Cherry trees** were planted.

## ◆ Sludge removal from the Hori River

## Status of Seawall and Waterfront Plaza Improvement 1

### ② 【 Ogashibashi Bridge Water Plaza 】 ( Ogashira Bridge downstream )

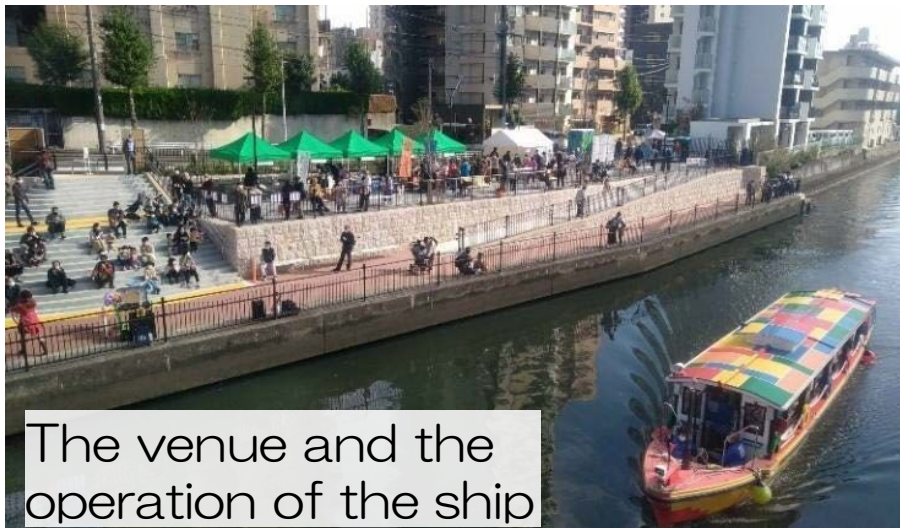
**In service since September 2021 !**

Food, drink, and customer-attraction events were held as a social experiment.

## Event Details

- (1) Bread market (27 stores in total)
- (2) Boat operation (small houseboat)
- (3) Street performances, etc.

## View of the event



The venue and the operation of the ship



Aichi Sengoku Himeitai also visited the event.

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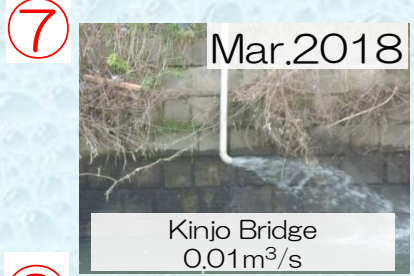
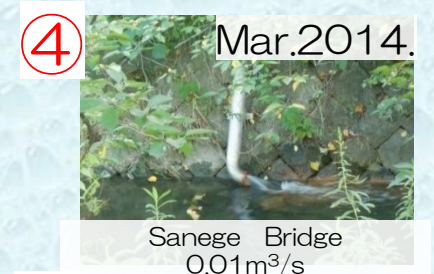
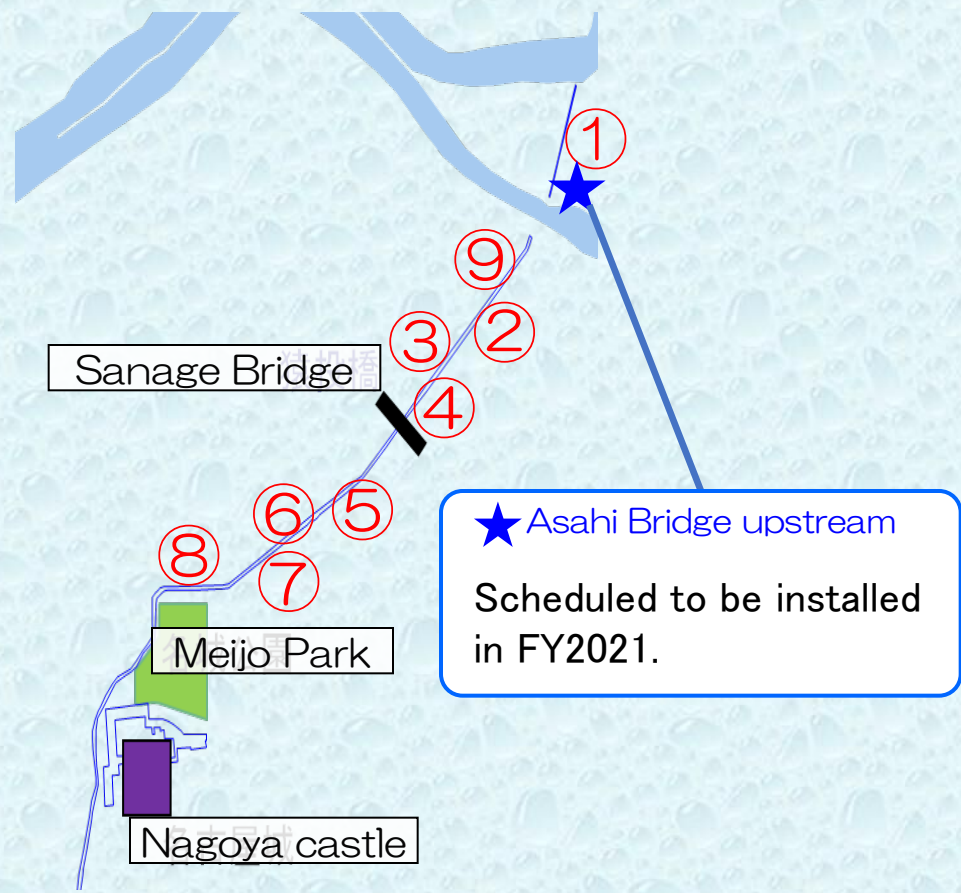
③ Developments of Shallows and Depths

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# ◆ Use of shallow groundwater ①

▪ Scheduled to be installed in Moriyama Ward in FY2021.

(★ in the following map )



※The well of ③ has been repaired and are in operation

※The well of ② are broken.  
⇒We are studying to repair



# Implementation by Nagoya city Greenification & PublicWorks Bureau

① Development of Bank Protection  
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# ◆ Installation of rapids and pools

Horikawa Kamaribe (Sarutobashi  
~ Husband and wife Hashima)

Artificially create fast and slow flow areas to vary the flow of water



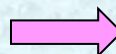
Improving the river's ability to purify itself while encouraging plant growth



Conservation and creation of habitats for diverse organisms

**One new location to be established in FY2022**

Recently installed  
locations  
Downstream of  
Shinbori Bridge  
(2020 fiscal year)



Examples of organisms found in the upper reaches of the Horikawa River



- ◆ Effects of installation
- Increase in the number and variety of fish species (e.g., *Oryzias latipes*)  
(Increase in the number and variety of fish species (e.g., giant cuttlefish, etc.))
- Increase in the number of benthic organisms  
(Increased number of benthic organisms (e.g., threadfin shrimps, etc.))
- Growth of plants was promoted.

# Implementation by Nagoya city Greenification & PublicWorks Bureau

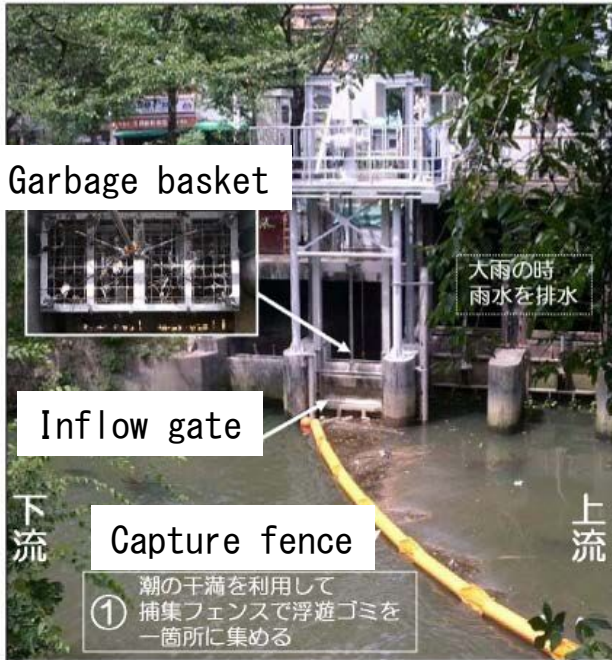
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- ③ Developments of Shallows and Depths
- ④ Collection of pollutants



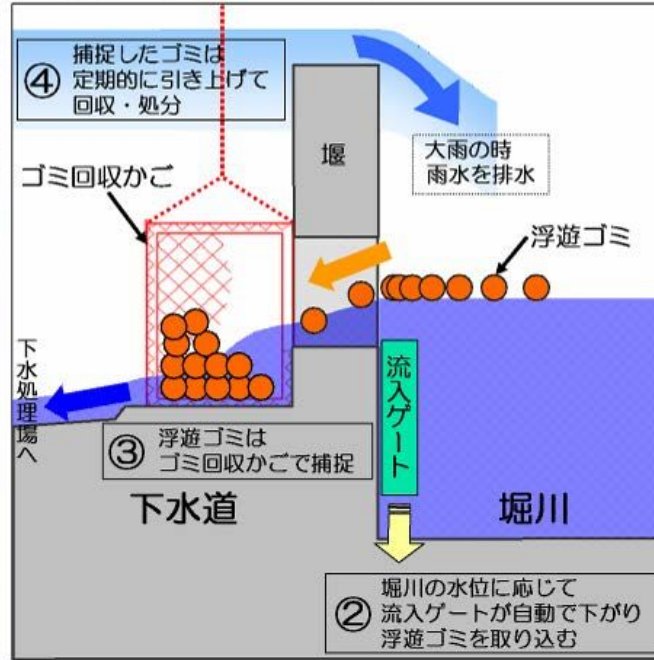
# Removal of floating pollutants

## 1 Garbage catcher ” Near Johoku Bridge” since FY 2006

☆下水道の雨水吐き（堰）を改造して流入ゲートとゴミ回収かごを設置



The exterior Garbage catcher



Cross Section

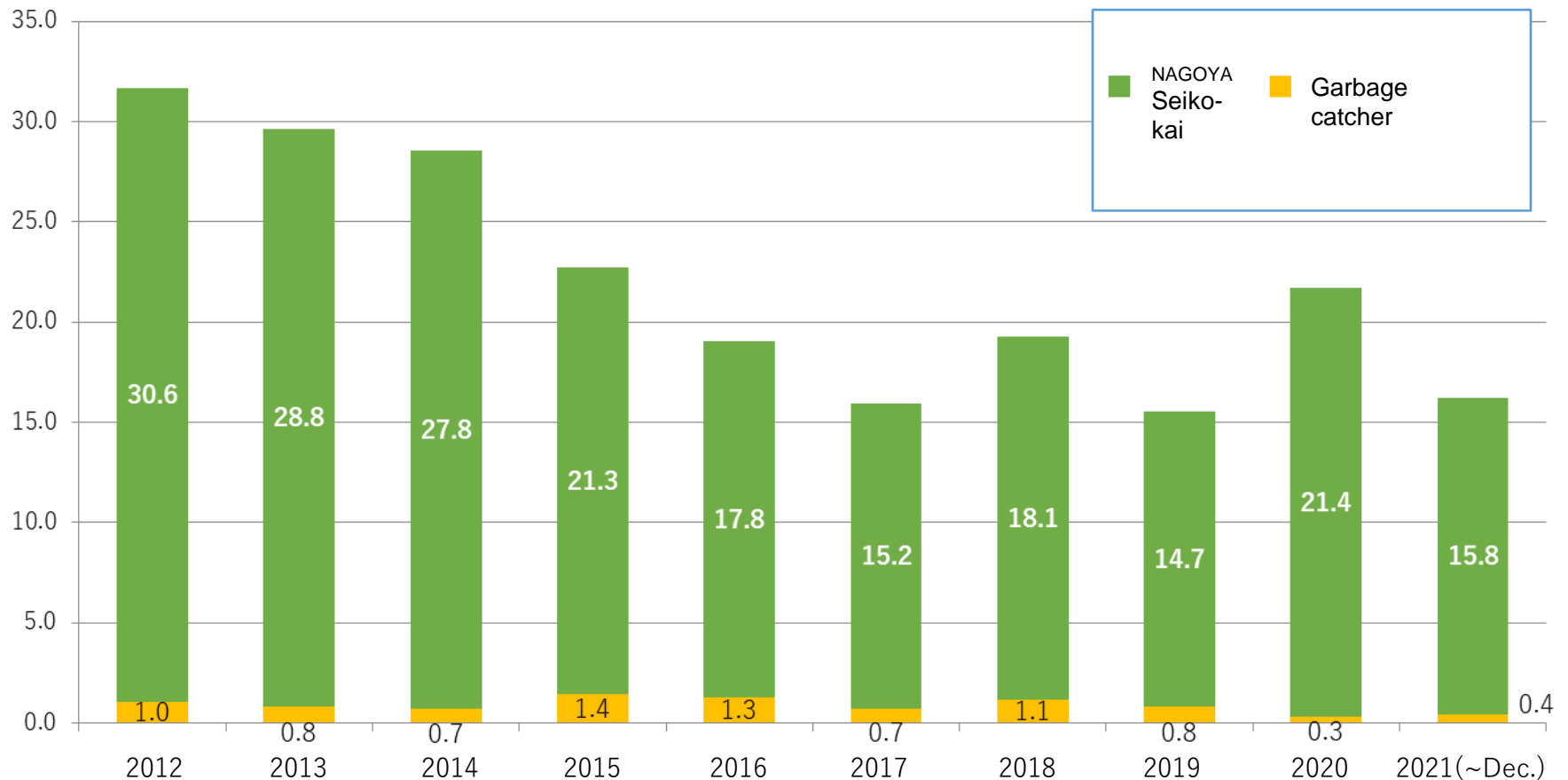


## 2 Cleaning by NAGOYA Sieko-kai



# Collection of pollutants

## Change of collected pollutants ( t )



※temporary value

# Nagoya city Greenification & PublicWorks Bureau

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

# Efforts to improve the water environment of the Shin-horikawa River (FY2021)

## Formulate a purification policy with the opinion of experts

① Install a **separate sewer system** that reduces the pollution load as wide as possible.

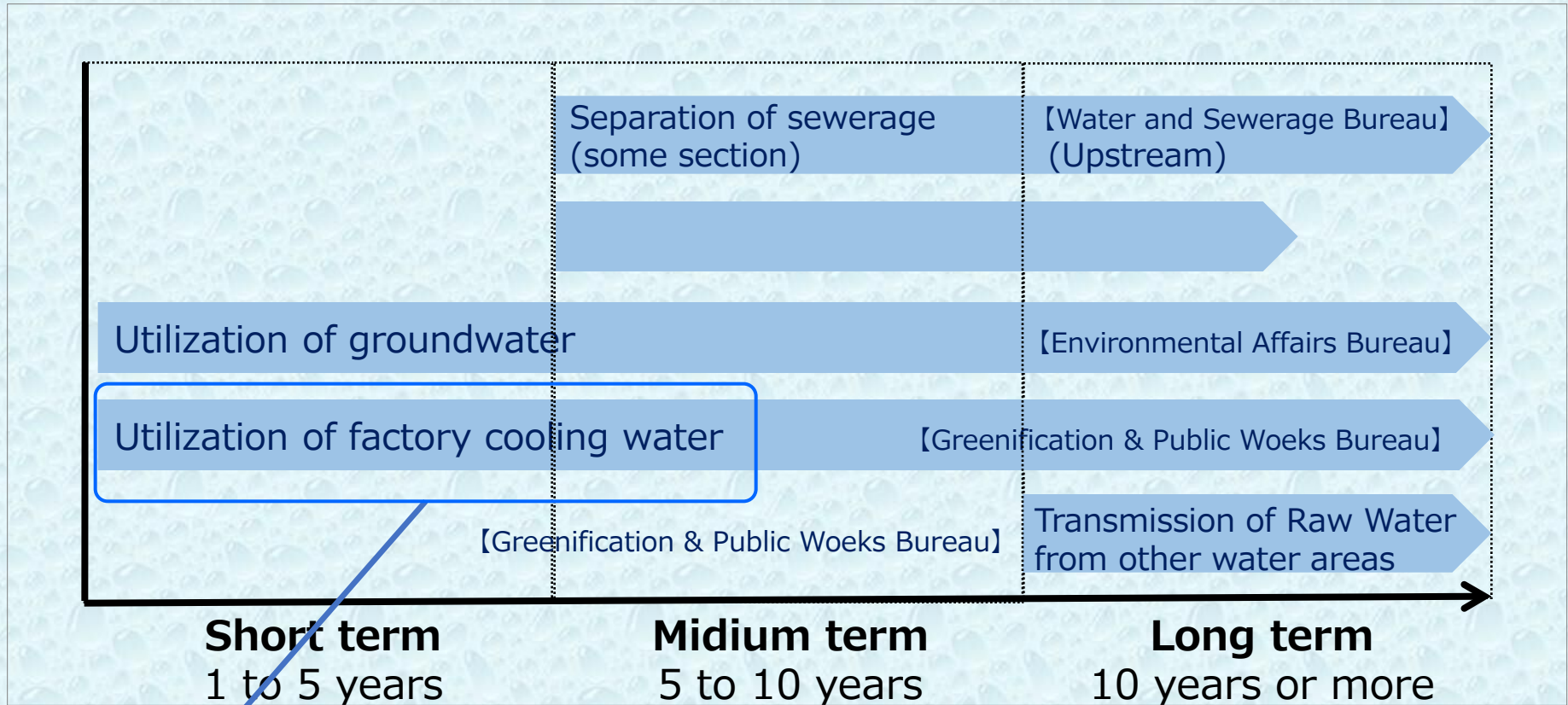
Working on sewerage measures, like **construction of stormwater reservoir**, that will be effective early.

② **Discharging groundwater and factory cooling water** that supplies oxygen for the bottom of water.

③ Steadily proceed with measure ① and ②, and confirm the effects.

**Transmission of Raw Water from other water areas** according to the improvement of water quality at the intake place.

# Survey and examination for improving the water environment of the Shin-horikawa River <Assumed schedule>



Conducted an interview survey with riverside operators regarding the amount and quality of discharged water in FY2021.  
Continue making adjustment to potential operators in FY2022



## ■ Cooperation with Nagoya Chamber of Commerce (Shin-Horikawa River Future Vision Study Group)

Purpose: Nagoya Chamber of Commerce calls Horikawa River, Nakagawa Canal, and Shin-Horikawa River as "Nagoya-3 Rivers".

And also "Nagoya-3 Rivers" attractiveness improvement project" is one of the priority initiatives for community development. Since Shin-Horikawa River is the least utilized in "Nagoya 3-Rivers", we are working to formulate a vision with academics, citizen groups, riverside companies, etc.

Composition	
Committee member	Professor Hideshima, Nagoya Institute of Technology, HSC Secretary General Hattori Riverside companies, etc.
Observer	Environmental Affairs Bureau -Regional Environment Policies Division Housing & City Planning Bureau -Community Development Planning Division Greenification & Public Works Bureau -River Planning Division Waterworks & Sewerage Bureau -Sewerage Planning Division
Secretariat	Nagoya Chamber of Commerce

# ■ Cooperation with Nagoya Chamber of Commerce (Shin-Horikawa River Future Vision Study Group)

Schedule :

Orientation cruise in Shin-Horikawa River (May 2021)

Review meeting (The 4th meeting was held in February 2022)



Release of Shin-Horikawa River Future Vision  
(scheduled for late March 2022)



Orientation cruise (May 28)



First Meeting (July 27)

# Greenification & Public Works Bureau

## Others

Regeneration and Purification of Horikawa River

## Completion of new enlightenment goods February Reiwa 2

### Drainer bag

- Put garbage etc.

By reducing moisture, we can reduce the amount of garbage.

- Reduce the generation of plastic waste

Recently, in order to reduce the generation of plastic waste, Nagoya City has been promoting initiatives to reduce the use of plastic as much as possible in enlightenment goods.

The goods created this time are also based on this purpose.

### Bookmark made of wood

- Two versions: the Horigon version and the Nayabashi Bridge version
- Using domestic cypress

We aim to remind you that in the past, Horikawa was used as an important transportation route for timber and goods, including "Kiso cypress".

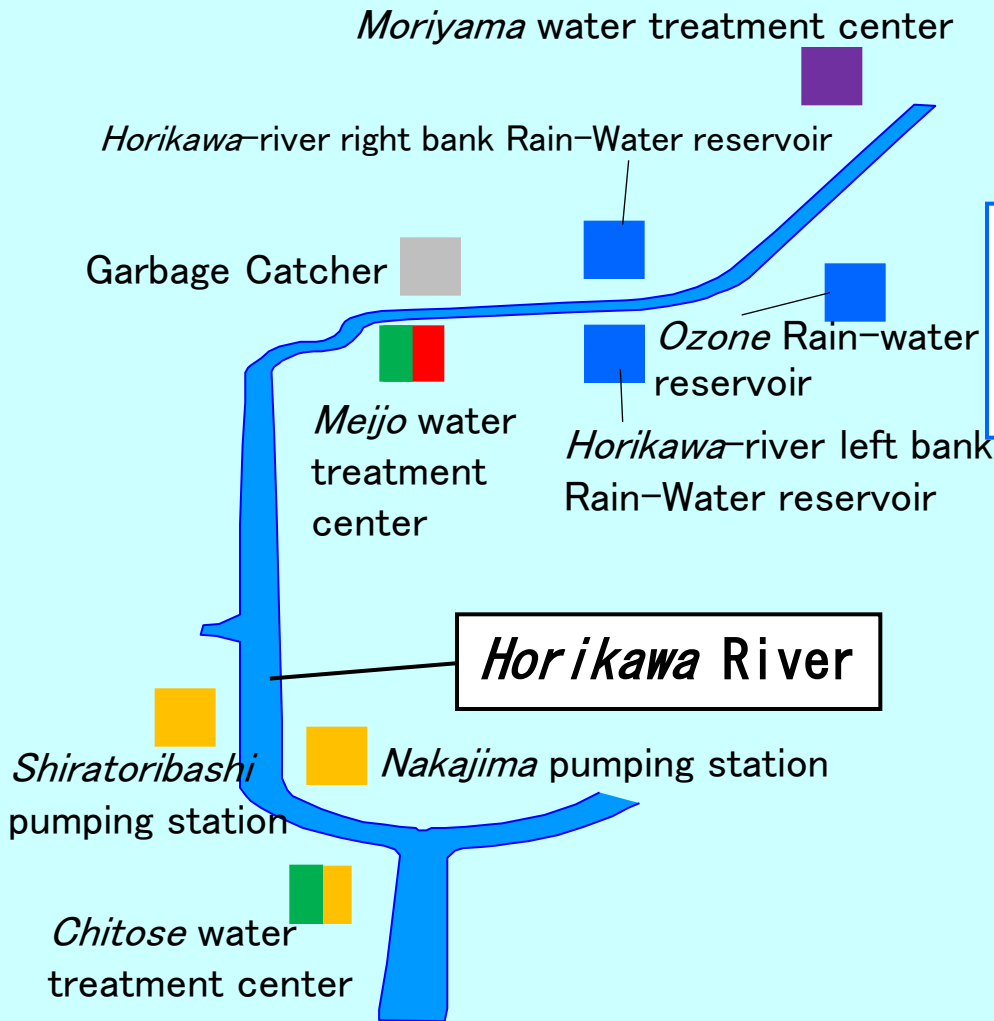
★We plan to distribute it at future events, etc.★



Implementation by  
Nagoya City  
Waterworks and Sewerage Bureau

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

# Initiatives for clarification of Horikawa River



**Advanced wastewater treatment**  
*Meijo* water treatment center (disk filter)

**Advanced facilities of primary treatment**  
*Meijo* water treatment center  
***Chitose* water treatment center (Under construction)**

**Rain Water reservoir for pollution control**  
*Ozone* Rain-water reservoir  
*Horikawa*-river right bank Rain-Water reservoir  
*Horikawa*-river left bank Rain-Water reservoir

**Set of Garbage removal facilities**

**Shrinkage of Rainwater screen slit**  
*Shiratoribashi* pumping station  
*Nakajima* pumping station  
*Chitose* water treatment center

**Reclaimed wastewater supply**  
*Moriyama* water treatment center

**Garbage Catcher (Corporation with Greenification & PublicWorks Bureau)**



# Initiatives for clarification of *Shin-Horikawa River*

Improvement facilities of combined sewer system in *Wakamiya* avenue Rain-water reservo

*Horidome* water treatment center

**Shin-Horikawa river**

*Takakura* pumping station

*Atsuta* water treatment center

*Tenmachi* water treatment center

*Fukue* Rain-water reservoir

*Takatuji* Rain-water reservoir

*Ushimaki* pumping station

**Advanced wastewater treatment**  
*Atsuta* water treatment center (AO method)

**Advanced facilities of primary treatment**  
*Horidome* water treatment center  
*Tenmachi* water treatment center

**Rain-water reservoir for pollution control**  
*Wakamiya* avenue Rain-water reservoir  
*Fukue* Rain-water reservoir  
*Takatuji* Rain-water reservoir

**Set of Garbage removal facilities**

**Shrinkage of Rainwater screen slit**  
*Takakura* pumping station  
*Ushimaki* pumping station  
*Tenmachi* water treatment center (under installing)



# Advanced Facilities of primary treatment (Improvement of combined sewer system)

We changed the primary treatment of rain water from Settling treatment to Filtration treatment , remodeled the part of existing first settling basin and installed advanced facilities of primary treatment in the water treatment centers.

## <Effect>

◆Removal Rate of BOD 20%–30% ➡ **50%–60%** Improvement

## <Horikawa river basin>

**Meijo Water Treatment Center** (about 99,400m<sup>3</sup>/day)

Started operation in 2019

**Chitose Water Treatment Center** (about 84,900m<sup>3</sup>/day)

Construction started in 2021

## < Shin-Horikawa river basin >

**Tenmachi Water Treatment Center** (about 168,000m<sup>3</sup>/day)

Started operation in 2011

**Horidome Water Treatment Center** (about 277,200m<sup>3</sup>/day)

Started operation in 2018



# ***Outflow of filter material***

# ■ Outflow of filter material

<Details >

- There was a report that the filter material was floating in the Shin-Horikawa River , etc.
- Emergency inspections were carried out at all water treatment centers that have facility for advanced primary treatment.
- We confirmed the outflow of filter material from the facility for advanced primary treatment in Temmacho water treatment center.

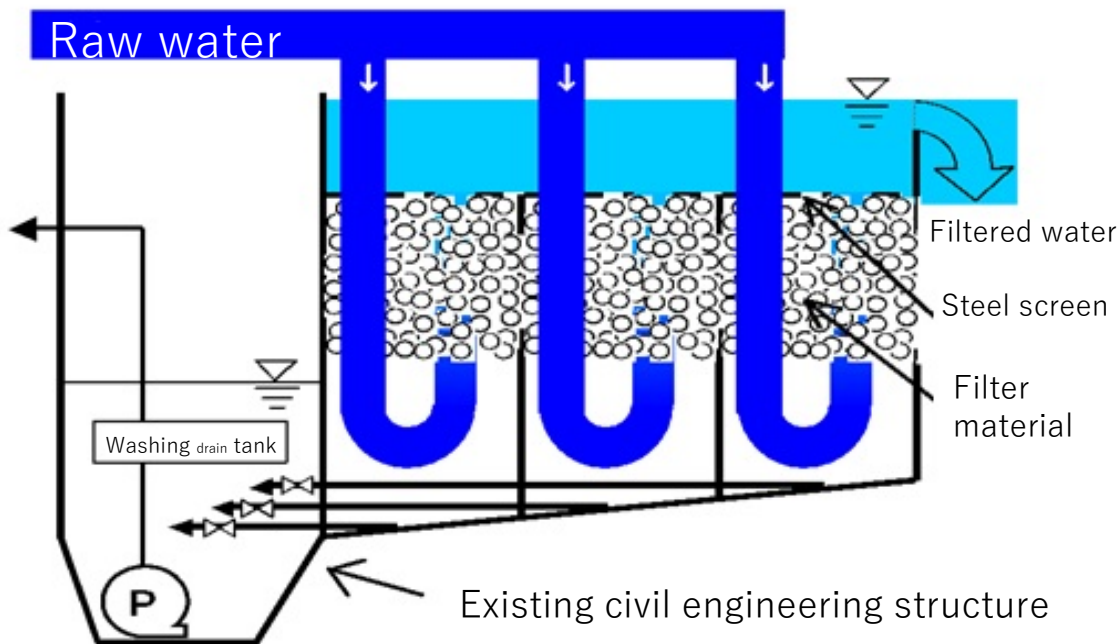


Floating filter material

# ■ Outflow of filter material

< Cause >

○ The steel screen that holds down the filter material was deformed and a gap was created, causing a part of the filter material to flow out.



Lifting of steel screen

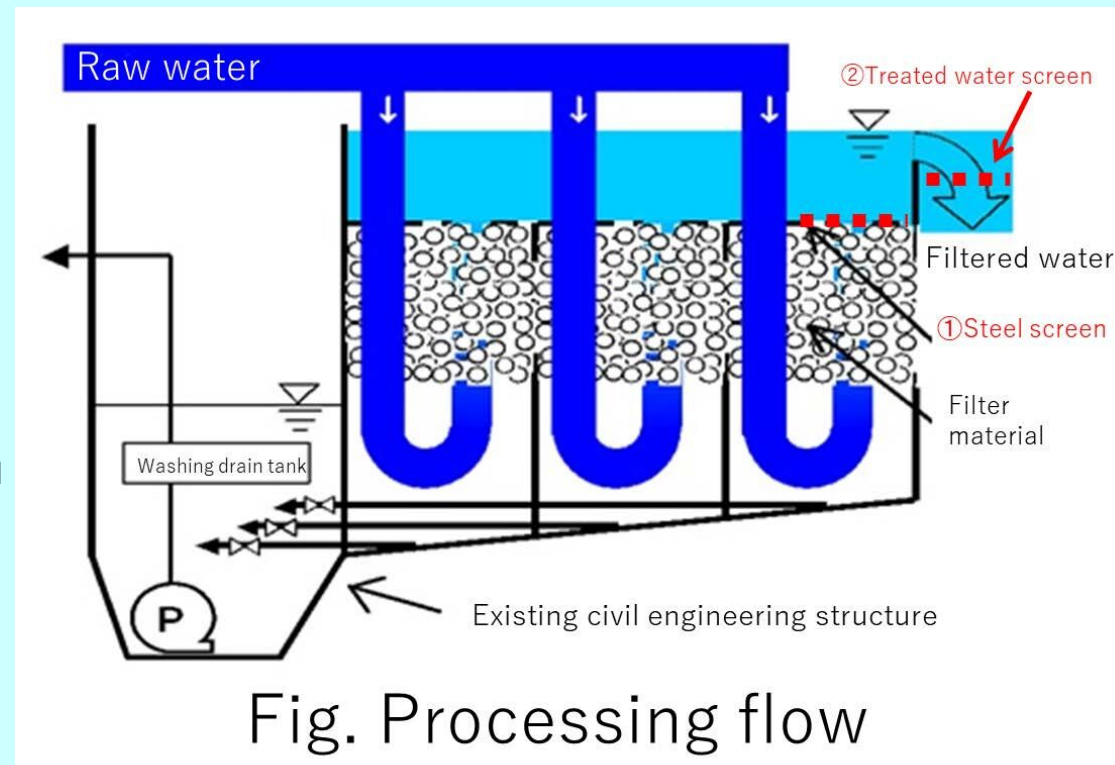
Fig. Processing flow

# ■ Outflow of filter material

<Countermeasure>

▪ The facility is being renovated and inspected to prevent recurrence.

- ① Implementation of steel screen renovation
- ② Implementation of treatment water screen
- ③ Implementation of strengthened inspection



# ■ Outflow of filter material

< Recovery of filter material >



Collection work on October 19th

Implementation by  
Nagoya City  
Environment Bureau

# Investigation about using ground water in Shin-Horikawa(2021)

In 2021, we are investigating Geological features in the riverside area of Shin-Horikawa.

## Investigation result

- Aquifer : 21.5~33.5 from the ground surface.
- Groundwater level : near 3.5m from the ground surface.
- Under groundwater quality : satisfy environmental standards.

We will continue to investigate the water level etc.



## Investigation spot



# ◆Topic

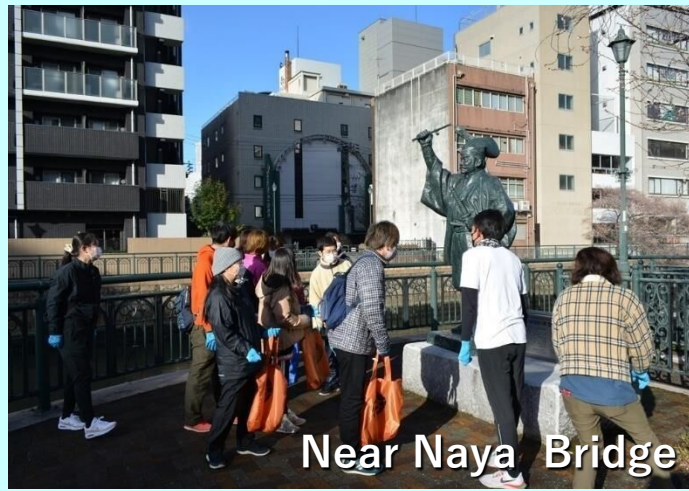
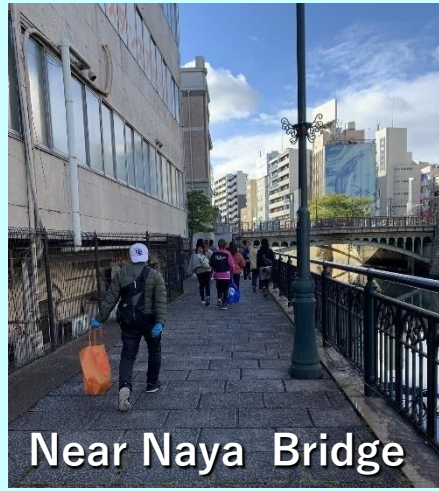
## Hold Plogging Tour in the riverside area of Shin-Horikawa.

Plogging is fitness from Sweden what combines PlockaUpp and Jogging.

In Nagoya, Environment Bureau holds in cooperation with General Incorporated Association Plogging Japan.

Dec 18<sup>th</sup> ,2021(sat)

### Plogging Tour NAGOYA 2021 in Horikawa



Feb 5<sup>th</sup>,2022(sat)

### Plogging Tour NAGOYA 2022 in Endouji · Shikemichi





**Thank you for your attention**

