

The Summary of the 5th Stage



1. Water Quality

- It was confirmed that there are many changes by the effect of TRWKR from the Matsushige Bridge to the Sanage Bridge.

The result was reported following result table based on the status report of the improving area for the water quality (impression and COD), transparency, bubbling and smell.

Especially it was confirmed that there were many changes by the effect of TRWKR from the Matsushige Bridge to the Sanage Bridge.

The Summary of the 5th Stage

1. Water Quality

- It was understood that the water quality from spring to early summer was worse than from fall to early winter.

It was understood that the water quality (impression and COD), transparency, bubbling, smell were different by seasons, when that compared the results of the 1st, 3rd and 5th stage with the 2nd and 4th stage.

For example, it was not good result of the water quality, transparency, and COD, when that compared the results of the 1st, 3rd and 5th stage with the 2nd and 4th stage. And there are many bad smells and bubbling by same result.

These factors are that below.

1. When the water temperature is higher from spring to early summer than from fall to early winter, the organic is solved easily and increased into the water.
2. The low tide in the daytime from spring to early summer is lower than from fall to early winter. The water quality from spring to early summer is affected by tide more than from fall to early winter.

The Summary of the 5th Stage

1. Water Quality

○: Improvements were seen by the 5th stage.

| Items | Method of Evaluation | Shinminato Bridge - Ohseko Bridge | Ohseko Bridge - Matsushige Bridge | Matsushige Bridge - Asahi Bridge | Asahi Bridge - Johoku Bridge | Johoku Bridge - Sanage Bridge |
|-------------------------|-----------------------------|-----------------------------------|-----------------------------------|----------------------------------|------------------------------|-------------------------------|
| Impression of Clearness | Improvements stage by stage | × | × | ○ | ○ | ○ |
| | Improvements by TRWKR | ○ | ○ | ○ | ○ | ○ |
| Transparency | Improvements stage by stage | × | × | ○ | ○ | ○ |
| | Improvements by TRWKR | × | ○ | ○ | ○ | × |
| COD | Improvements stage by stage | × | ○ | ○ | ○ | ○ |
| | Improvements by TRWKR | × | × | × | ○ | ○ |
| Bubbles | Improvements stage by stage | × | × | ○ | × | ○ |
| Smell | Improvements stage by stage | × | × | × | ○ | ○ |

The Summary of the 5th Stage

2. Water Color

■ The water color and the water impression of the Horikawa River was changing day by day.

The color we, HSC could look many times was “⑧pale gray yellowish green”, “⑨gray yellowish green”, ”⑩gray green”.

When we look these “⑧pale gray yellowish green”, “⑨gray yellowish green”, ”⑩gray green”, we felt ④unpleasant or ⑤little unpleasant at rate from 60% to 70%.

When we look the “⑪dirty gray”, we felt ④unpleasant or ⑤little unpleasant at rate to 100%. At the same time there was sludge rising to the surface. This color could be seen at the 3rd and 5th stage (the survey from spring to early summer), we could not see on the 2nd and 4th stage (the survey from fall to early winter).

We need more research and accumulate of the survey date for understanding the influence to the water color, because the water color is influenced from the sunshine and the depth of the river.

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3. Garbage

■ There was a lot of garbage between the Matsushige Bridge and the Oseko Bridge on the 5th stage, but the garbage on the river and street almost decreased the other area on this stage. The garbage decreased in the river.

- It was reported that there was a lot of garbage between the Matsushige Bridge and the Oseko Bridge on the 5th stage. In this area, the garbage of the plastic, can, bottle in the river increased on this stage than the 1st stage. The garbage of the plastic, can, bottle in the river almost decreased the other area on this stage.
- There are many cigarette butts on the street. The garbage of the plastic bag, plastic bag filled with garbage, can, newspaper, empty cigarettes case decreased on this stage.
- It is consider that the movement of cleaning the Horikawa is spreading gradually by the awareness that the citizens who would like to clean up there. And it is considered that garbage was reduced by the influence of social phenomenon, e.g. the charge for plastic shopping bags.

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4. Living Things

■ Many fingerling of mullet ran up in the under the Koshio Bridge

It was reported that many fingerling of mullet have run up between the Habashita Bridge and the Nayabashi Bridge ever. And they ran up there many time in this year. Many fingerling of mullet probably ran up in the Horikawa more.

We, HSC call the fingerling of mullet “Haku”. And it was known that many “Haku” ran up to freshwater. (Information by Hyottokotai Research Group)

■ We could see the Benkei crab around the Nayabashi Bridge.

It was reported that Benkei crab (*Chiromantes Dehaanis*) was founded around the Nayabashi Bridge last September. It was reported that Benkei crab was found around drainage pipe every day from middle of August 2009.

The Summary of the 5th Stage

4. Living Things

- The waterweeds were glowing at the Sujikai Bridge in the 5th stage.

We, HSC were able to see waterweeds were glowing at the Sujikai Bridge in 5th stage. However, the waterweeds decreased in this year. This is the effect of the weather conditions.

We have understood that the a wide variety of living things lives and makes use of the Horikawa river for the habitat, the growing field where the waterweeds were glowing.

The Summary of the 5th Stage

The 2nd and half year of TRWKR

- The water quality is improved in synergy by the recovery of self-purification capacity.

Two and half years have passed since the start of TRWKR.

It was confirmed by this survey report that the water quality (impression and COD), transparency, bubbling, smell was improved by the recovery of self-purification capacity.

We were able to see waterweeds were glowing at the Sujikai Bridge on 5th stage. And many fingerling of mullet ran up in the under the Koshio Bridge. All of them were changing their behaviors around them.

There was a lot of garbage between the Matsushige Bridge and Oseko Bridge on the 5th stage, but the garbage on the river and street almost decreased the other area on this stage.

The Summary of the 5th Stage

The 2nd and half year of TRWKR

It is considered that the water environment in Horikawa for two years was improved directly because of the effect of the water from Kiso river.

And this purification activity like a TRWKR, the recovery of self-purification capacity and improving of consciousness for clean-up the river also improved the water quality.

It is important to carry on and sustainably by TRWKR and activities for clean-up by citizens. We hope that the water quality of the Horikawa will be improved more.



Column - The summary of the 5th stage -

We introduce the clear result by fixed observation on the 5th stage.

The result was reported following result table based on the status report of the improving area for the water quality (impression and COD), transparency, bubbling and smell.

Especially it was confirmed that there were many changes by the effect of TRWKR from Matsushige Bridge to Sanage Bridge. It was understood that the water quality was not better from spring to early summer than from fall to early winter.

The water color and the water impression of the Horikawa River was changing day by day. The color we could look many times was “⑧pale gray yellowish green”, “⑨gray yellowish green”, ”⑩gray green”. When we look these “⑧pale gray yellowish green”, “⑨gray yellowish green”, ”⑩gray green”, we felt ④unpleasant or ⑤little unpleasant at rate from 60% to 70%.

The color we could look sometime was “dirty green”. When we look the “⑪dirty gray”, we felt ④unpleasant or ⑤little unpleasant at rate to 100%. At the same time there was sludge rising to the surface.

There was a lot of garbage between the Matsushige Bridge and Oseko Bridge on the 5th stage, but the garbage on the river and street almost decreased the other area on this stage.



Many fingerling of mullet ran up in the under the Koshio Bridg.

It was reported that Benkei crab was founded around drainage pipe every day from middle of August.

The waterweeds were glowing at the Sujikai Bridge in 5th stage.

Two and half years have passed since the start of TRWKR.

It was found that the Horikawa River change by the season, the weather condition and the tide day by day. It was found that this purification activity like TRWKR, the recovery of self-purification capacity and improving of consciousness for clean-up the river also improved the water quality by many field surveys.

We were able to see waterweeds were glowing at the Sujikai Bridge in 5th stage. Many fingerling of mullet ran up in the under the Koshio Bridge. We have understood that the living things change their behaviors around them. The garbage of the plastic, can, bottle in the river almost decreased the other area on this stage.

It is consider that the water environment in Horikawa River for two years was improved directly because of the effect of the raw water from the Kiso river.

And this purification activity like a TRWKR, the recovery of self-purification capacity and improving of consciousness for clean-up the river also improved the water quality.

It is important to carry on sustainable TRWKR and citizens' cleaning activities of the river. We hope that the water quality of the Horikawa River will be improved more.