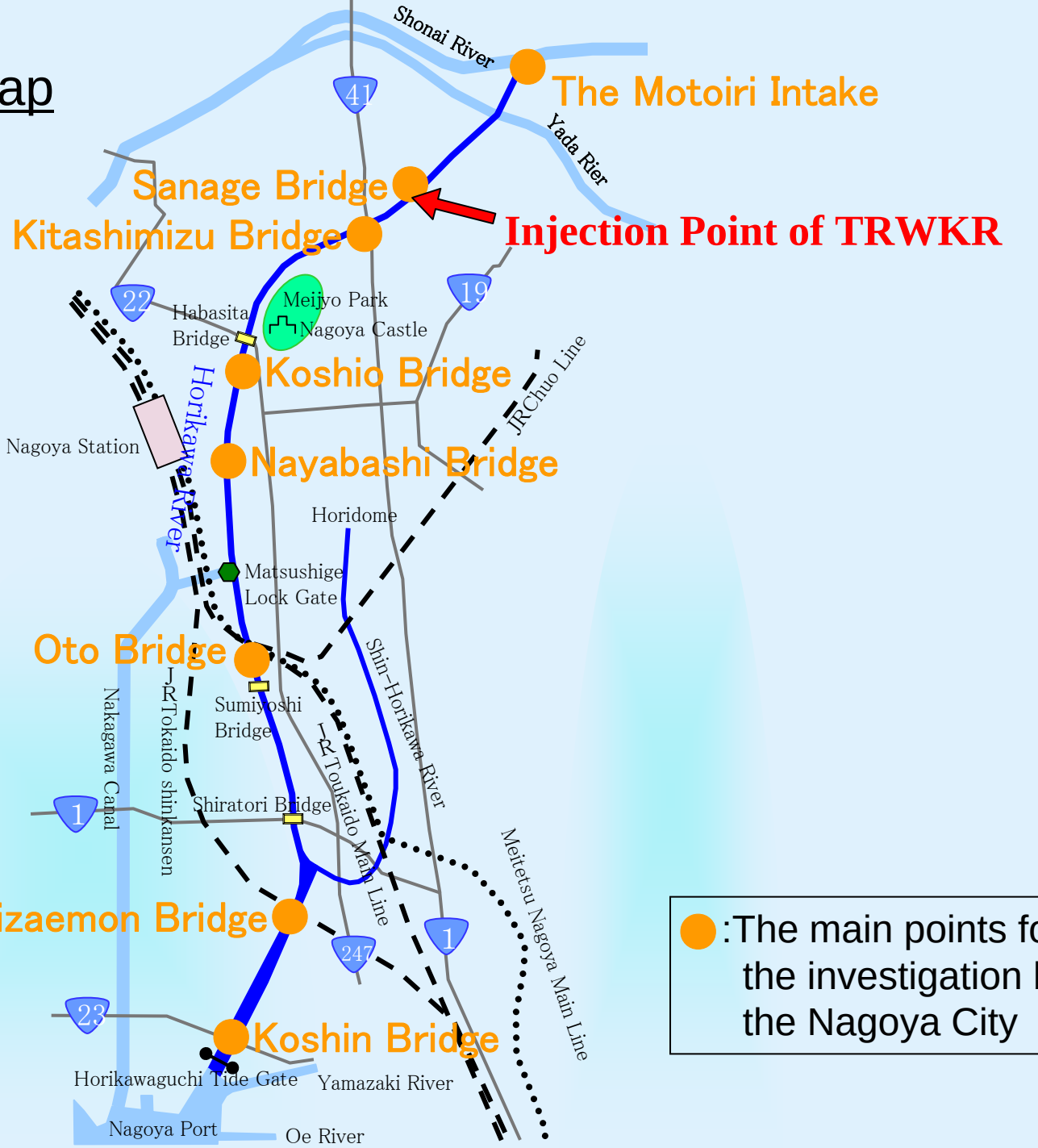
The Pilot Project for the Horikawa River Clarification

- **Result of the survey by the Nagoya City**
- **Result of the increase of transmission of raw water from the Shonai River**

Horikawa General Improvement Office
Rivers Department, Greenification & Public Works Bureau
The Nagoya City

Horikawa River Map

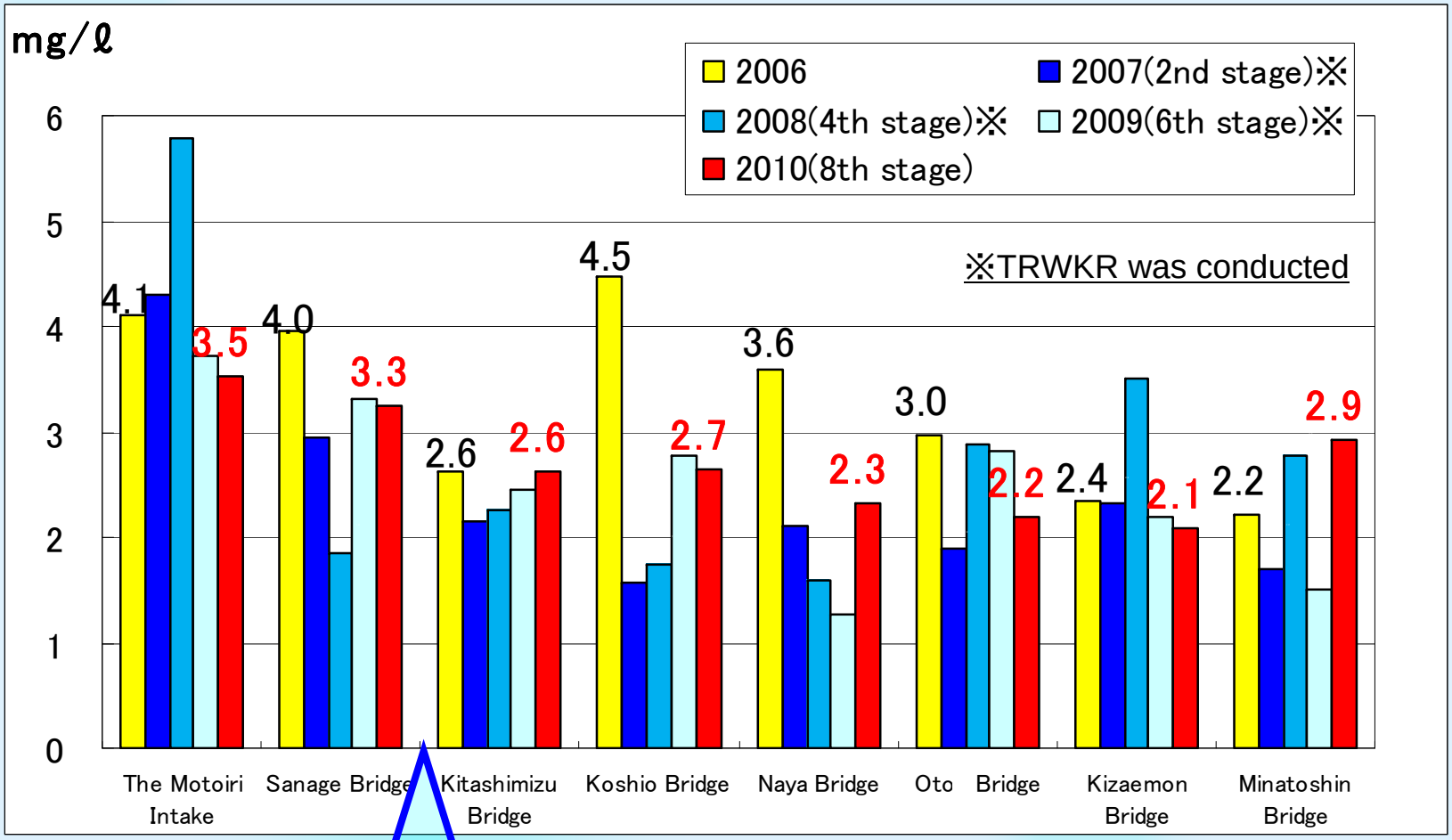
Investigation by the Nagoya City



●:The main points for the investigation by the Nagoya City

Result of the survey of BOD(Biochemical Oxygen Demand)

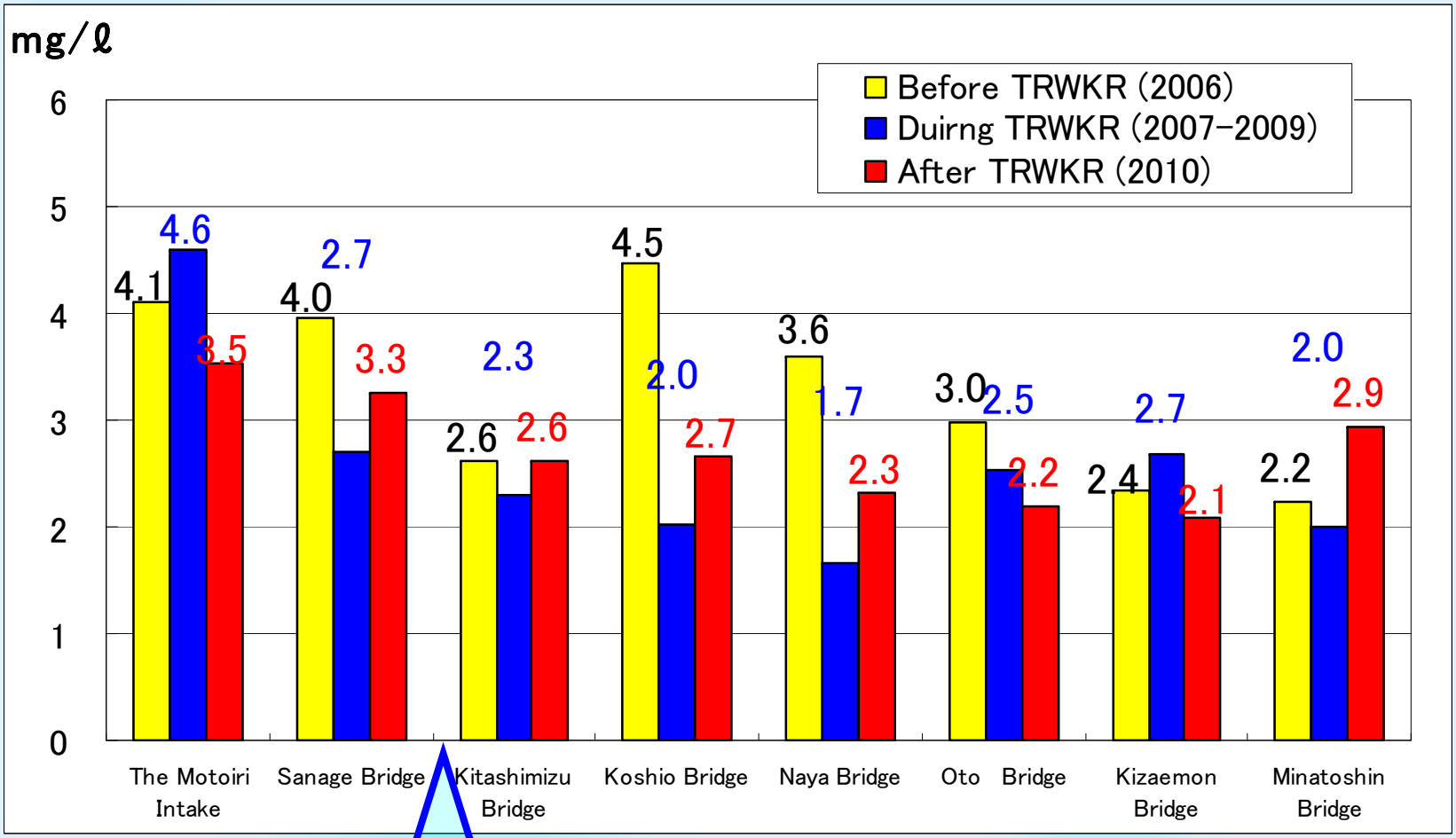
（Mean value from September to December）



◆Every water survey was conducted at the ebb of the neap tide.

Result of the survey of BOD(Biochemical Oxygen Demand)

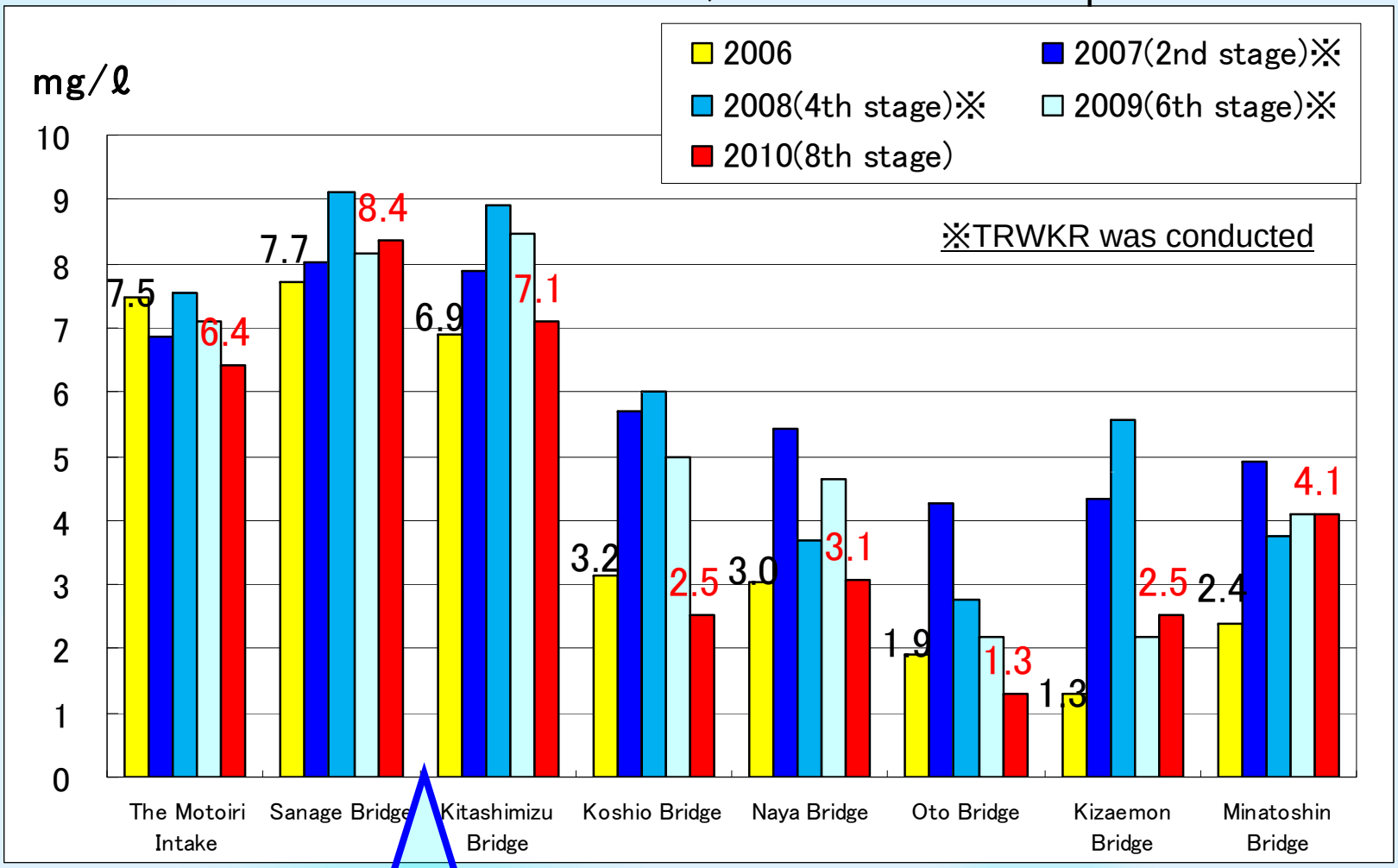
（Mean value from September to December）



◆Every water survey was conducted at the ebb of the neap tide.

Result of the survey of DO （Dissolved oxygen）

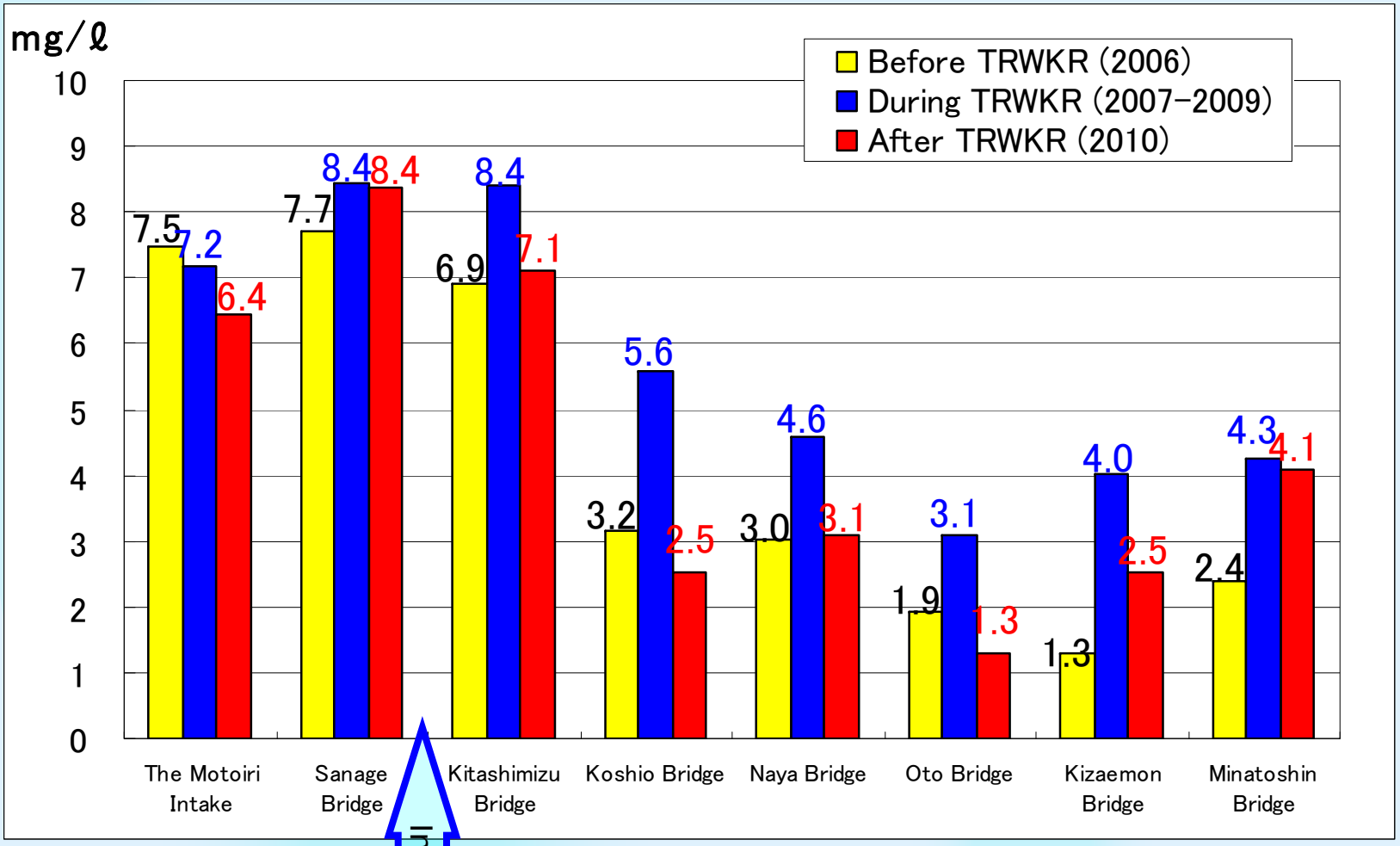
（Mean value from September to December）



◆Every water survey was conducted at the ebb of the neap tide.

Result of the survey of DO （Dissolved oxygen）

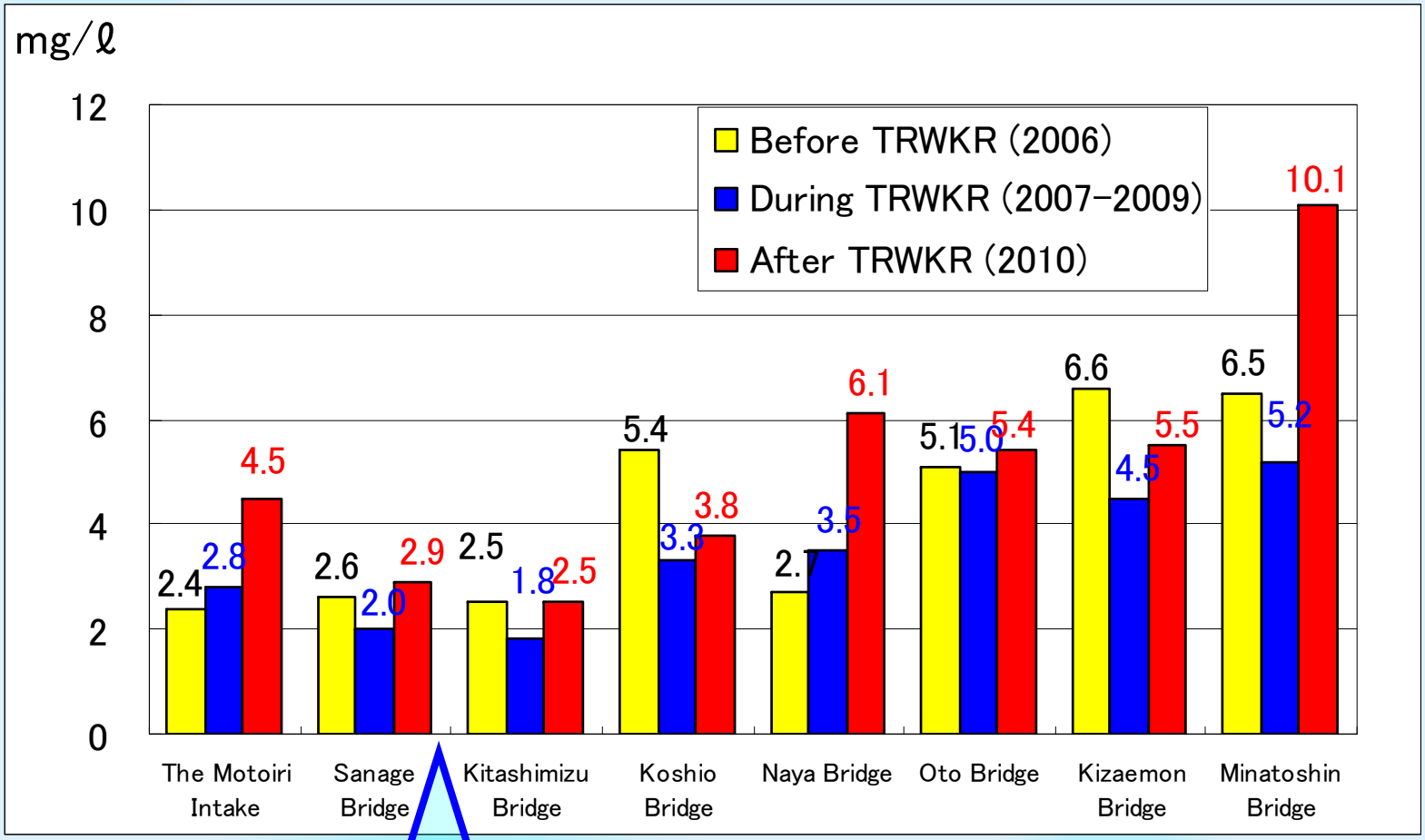
（Mean value from September to December）



◆Every water survey was conducted at the ebb of the neap tide.

Result of the survey of BOD(Biochemical Oxygen Demand)

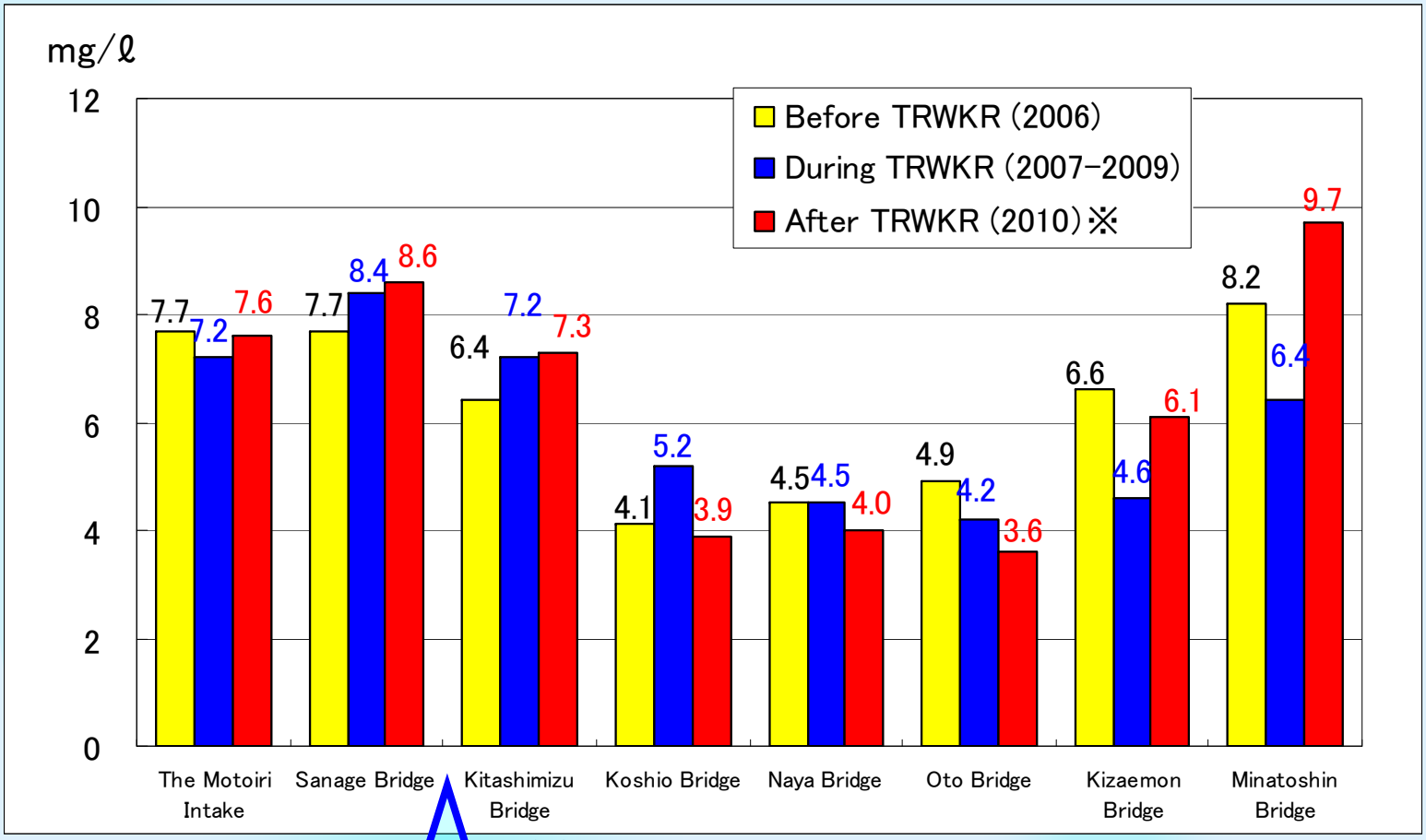
(Mean value from April to June)



◆Every water survey was conducted at the ebb of the neap tide.

Result of the survey of DO （Dissolved oxygen）

（Mean value from April to June）



※Each of 2010 are the mean value of Apr. and May, not including June, because of red tide occurrence caused by abnormal growth of phytoplankton in June 2010

◆Every water survey was conducted at the ebb of the neap tide.

Extra Experiment of Increase of Raw Water Transmission Volume from the Shonai River

The tenth meeting of the Conference of the Parties (COP 10 for convention of the biodiversity) was held in Nagoya, Aichi Prefecture, Japan, from 18 to 29 October 2010.
Usually, raw water from the Shonai river is transmitted to the Horikawa river. The amount of the raw water transmission was increased as the temporary experiment around the period of COP10 when about 6 months have passed since the transmission of raw water from the Kiso River (TRWKR) was stopped in Mar. 2010.

1. Experiment Period: Oct. 1st – Dec. 31st 2010
2. Period of Increased Raw Water Transmission Volume:
   Oct. 5th 10am–Nov. 2nd 3pm
3. Source of Water: The Shonai River
4. Route of Transmission: Headgate of the Shonai Ditch
   → Motoiri Intake → The Horikawa River
5. Raw Water Transmission Volume:
   Usual : Max. 0.3m3/sec
   Increased : Max. 0.7m3/sec (usual volume +0.4m3/sec)

Extra Experiment of Increase of Raw Water Transmission Volume from the Shonai River

6. Conditions to increase raw water transmission volume:
   Raw Water Transmission from the Shonai River should be done keeping in mind of the volume and the water quality, and influence to the upstream and downstream of the Horikawa River.

Raw Water Transmission from the Shonai River should be stopped under the any of the following conditions.

- Flow rate of the Shonai River at Biwajima is under 5m^3/s.
- When the Shonai River Administrator orders the Nagoya City to stop.
- Heavy rain or flood warnings are issued in west Aich Pref. or east Owari area, and also total rainfall at the Headgate of Shonai Ditch reaches 9mm since hourly rainfall exceeds 3.5mm.
- Total rainfall at the Headgate of Shonai Ditch reaches 15mm since hourly rainfall exceeds 5.5mm.
- Heavy rain or flood advisories are issued in west Aich Pref. or east Owari area.

Extra Experiment of Increase of Raw Water Transmission Volume from the Shonai River

○Increased Volume: 887,000m^3
Total Raw Water Transmission Volume: 1,587,000m^3

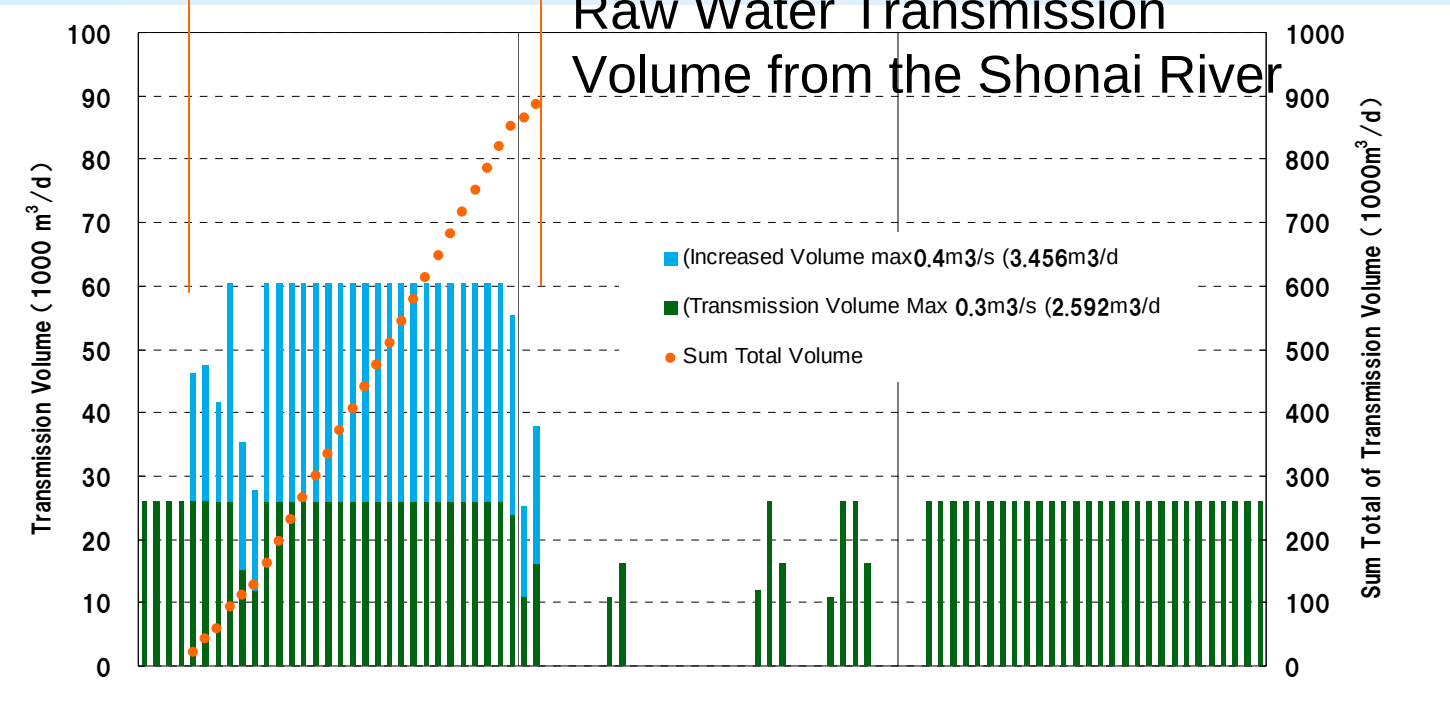
○Increasing Time: 616hours (25.7days)
Not Increasing Time: 61hours (2.5days)
- Oct. 6,7 : Nature Walk Event was held
- Oct. 9,31: Rain

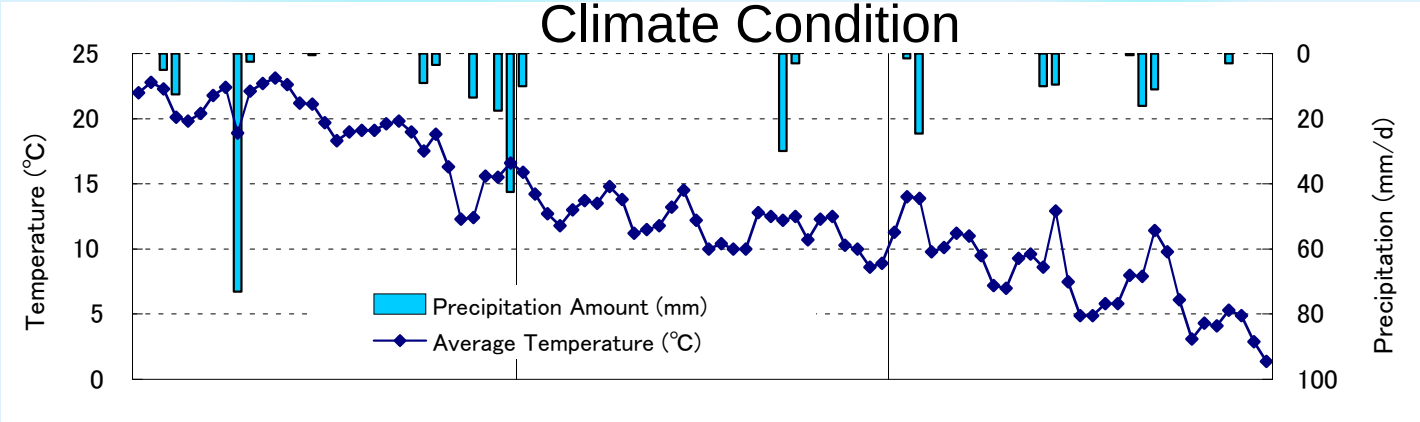
○Ratio of Increased Period
91.1% ・・・25.7days／28.2days＊100

It was confirmed that DO of surface of the Horikawa River was improved between Kitashimizu Bridge and Shinsuzaki Bridge.

Period of Increased Raw Water Transmission Volume

Oct.5th – Nov. 2nd





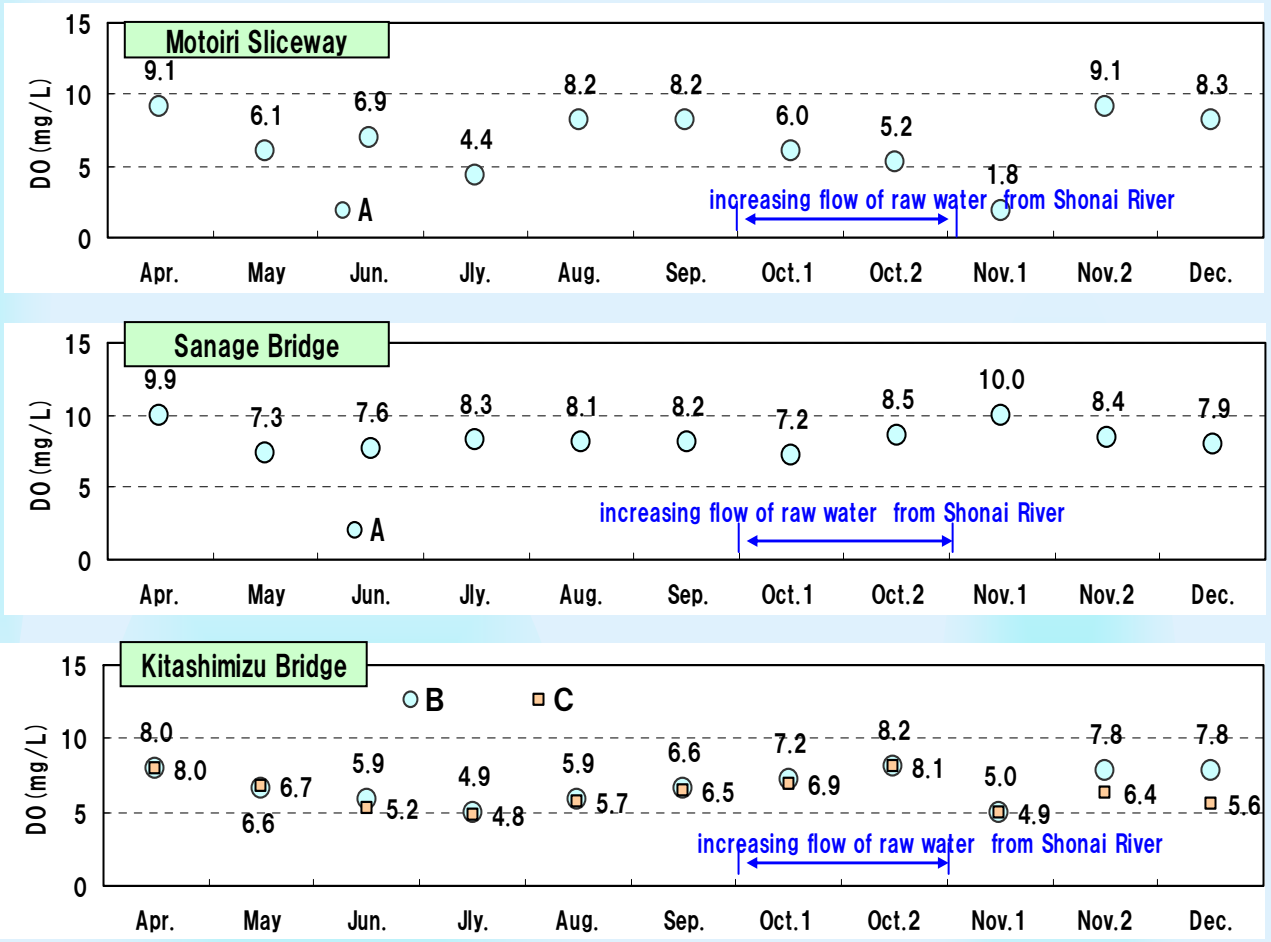
Days of Raw Water Transmission from the Shonai River

	Days				Ratio		
Month	Oct.	Nov.	Dec.	Total	Oct.	Nov.	Dec.
No Transmission	0	19	3	22	0%	63%	10%
Usual Transmission	4	9	28	41	13%	30%	90%
Increased Transmission	27	2	0	29	87%	7%	0%
Total	31	30	31	92	100%	100%	100%

Hours of Raw Water Transmission from the Shonai River

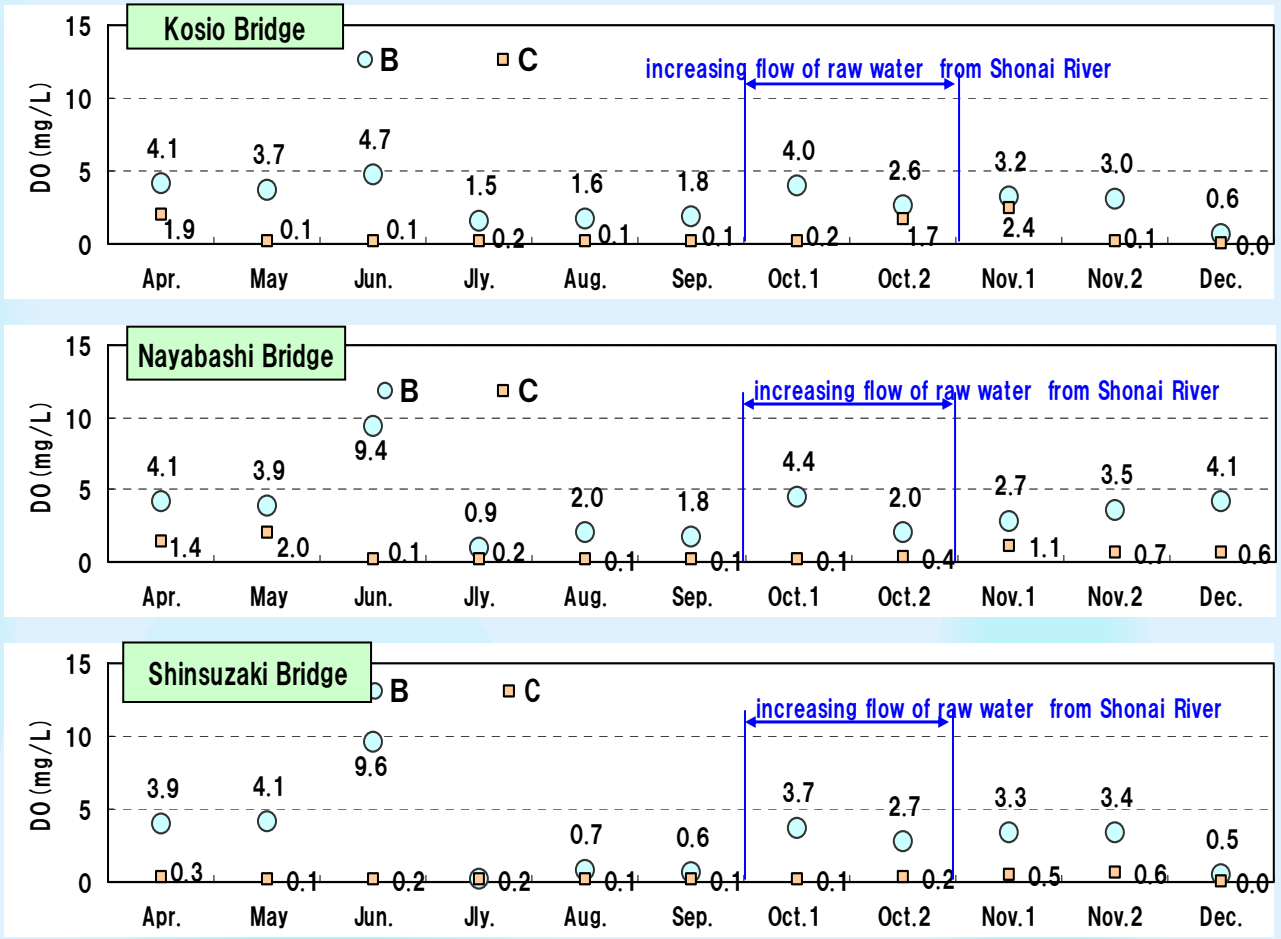
	Hours				Ratio		
Month	Oct.	Nov.	Dec.	Total	Oct.	Nov.	Dec.
No Transmission	25	547	72	644	3%	76%	10%
Usual Transmission	128	148	672	948	17%	21%	90%
Increased Transmission	591	25	0	616	80%	3%	0%
Total	744	720	744	2208	100%	100%	100%

DO （1/3）



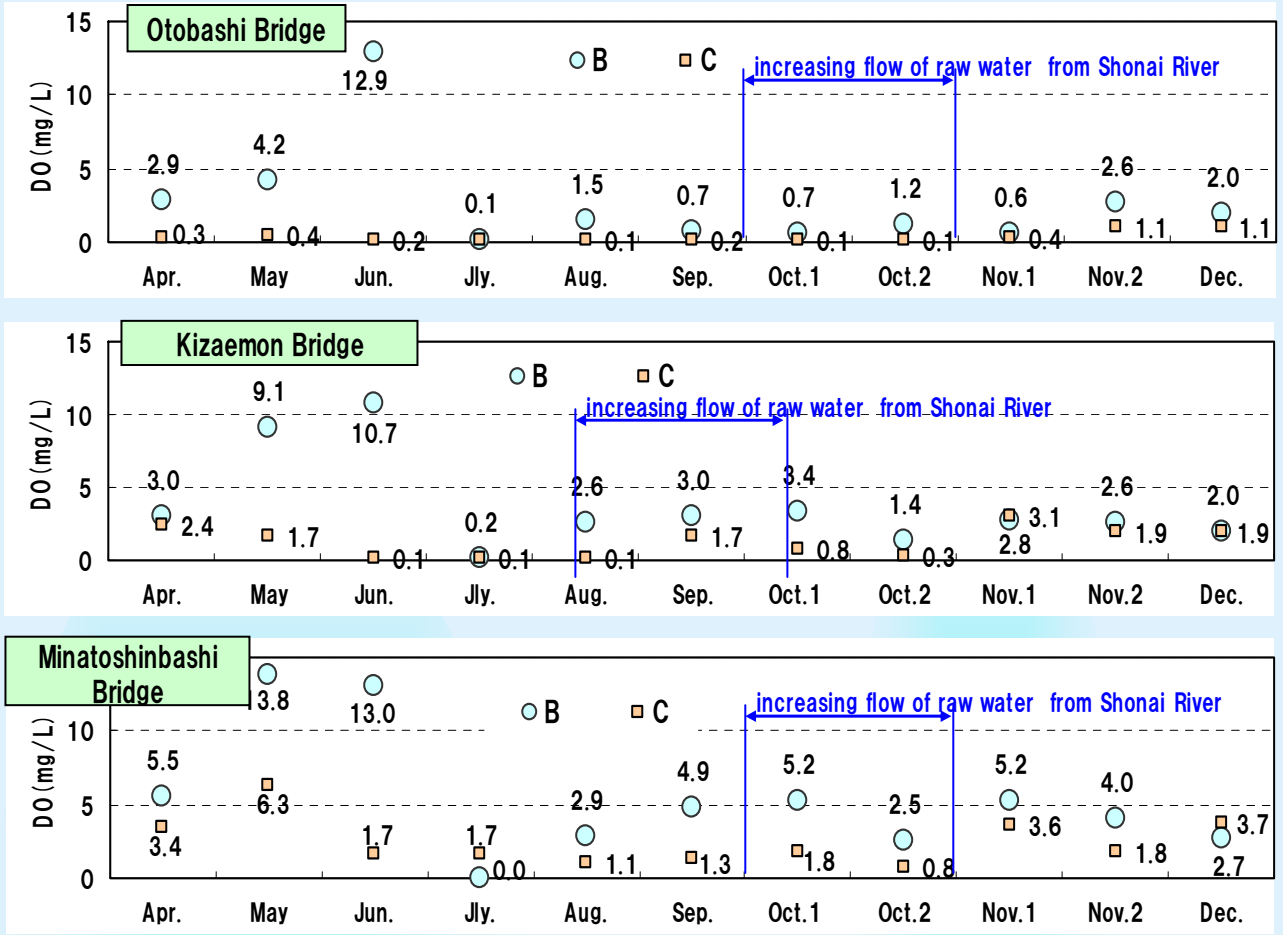
DO increased a little.

DO （2/3）



DO on the surface increased a little.

DO （3/3）


Otobashi Bridge
DO (mg/L)
15
10
5
0
B
C
increasing flow of raw water from Shonai River
12.9
2.9
4.2
0.1
1.5
0.7
0.7
1.2
0.6
2.6
2.0
0.3
0.4
0.2
0.1
0.2
0.1
0.1
0.4
1.1
1.1
Apr.
May
Jun.
Jly.
Aug.
Sep.
Oct.1
Oct.2
Nov.1
Nov.2
Dec.
Kizaemon Bridge
DO (mg/L)
15
10
5
0
B
C
increasing flow of raw water from Shonai River
9.1
10.7
3.0
2.4
1.7
0.1
0.2
0.1
2.6
0.1
3.0
1.7
3.4
0.8
1.4
0.3
3.1
2.8
2.6
1.9
2.0
1.9
Apr.
May
Jun.
Jly.
Aug.
Sep.
Oct.1
Oct.2
Nov.1
Nov.2
Dec.
Minatoshinbashi Bridge
DO (mg/L)
10
5
0
B
C
increasing flow of raw water from Shonai River
3.8
13.0
5.5
3.4
6.3
1.7
1.7
0.0
2.9
1.1
4.9
1.3
5.2
1.8
2.5
0.8
5.2
3.6
4.0
1.8
3.7
2.7
Apr.
May
Jun.
Jly.
Aug.
Sep.
Oct.1
Oct.2
Nov.1
Nov.2
Dec.

Pilot project and extra experiment of Horikawa River clarification (increasing fiow of raw water transmission from Shonai River)

Continuous survey DO October 26th - November 9th in 2010