

Case	Yodo River Basin Management Structure		
Water utility	Osaka Water Supply Authority		
General information of the utility (2019) *(w) represents data of wholesale water supply			
Operation type	Public (wholesale & retail supply)	Service area (km ²)	—
Population served	—	Distribution (m ³ /d)	1,487,610 (w)
Service coverage (%)	—	Pipe length (km)	(w)
NRW (%)	0% (w)	Number of staff	547
Number of water sources	Surface water (3), Groundwater (0), Others (0)		
Water rates (JPY)	—	(in case of 10m ³ of water use per month for residential customers)	
Summary	The Yodo River is the source of water supply for the Osaka Water Supply Authority (Authority). The river is constantly under threat of water pollution incidents due to oil and harmful substances, and depending on the nature and scale of water pollution, water intake might get suspended. Therefore, in addition to continuous raw water monitoring, the Authority has a collaborative structure in place to address sudden changes in water quality through close cooperation with related agencies and organizations in the Yodo River basin.		
Current Status & Challenges	Primarily fed by Lake Biwa and joined by three rivers which are Uji, Kizu, and Katsura, the Yodo River has a relatively stable flow conditions as compared with other rivers in Japan and is a source of water supply for approximately 12 million people in the basin (Figure 1). It is a "repeatedly used river" that flows through various urban areas and is constantly exposed to the threat of water pollution incidents due to oil and harmful substances. Therefore, depending on the nature and scale of water pollution, water intake might need to be suspended.		

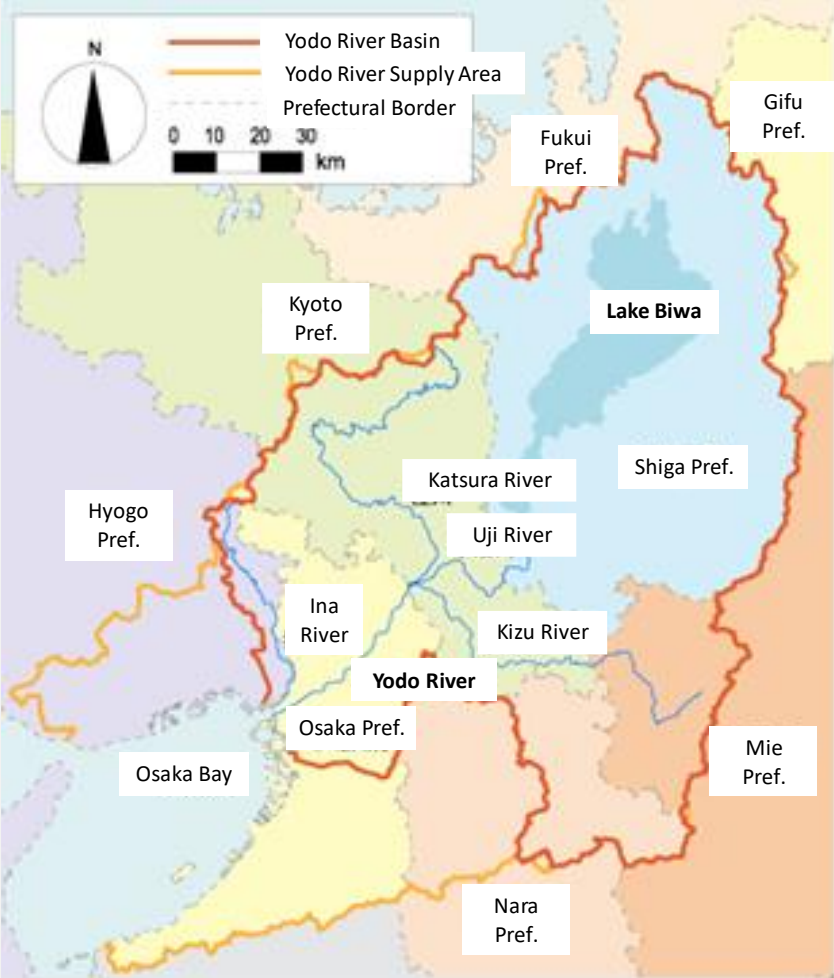
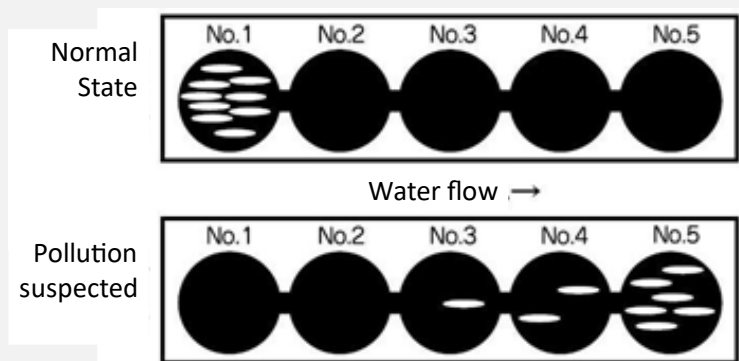
	<div data-bbox="491 136 1329 1111"></div> <p data-bbox="655 1120 1198 1198">Figure 1 Lake Biwa-Yodo River basin (http://www.byq.or.jp/kankyo/k_01.html)</p>
<p data-bbox="188 1487 344 1563">Measures & Solutions</p>	<p data-bbox="408 1240 1107 1272">1. Monitoring of raw water quality at the Authority</p> <p data-bbox="408 1285 1417 1451">Of the tap water supplied by the Authority to all of Osaka Prefecture (excluding Osaka City), about 80% is supplied by the Murano Water Treatment Plant, which takes its raw water from the Yodo River at the Isojima Intake Plant which is approximately 4 km away from the treatment plant.</p> <p data-bbox="408 1464 1417 1809">To supply safe and high-quality tap water, the Authority regularly monitors water sources including the Lake Biwa and Yodo River and tests their raw water quality daily. The Authority also conducts continuous monitoring of raw water at the Isoshima Intake Plant using a carp sensor (a device that can early detect harmful substances through observation of carps behavior) (Figure 2 & 3) and a Yuki sensor (a device that monitors 21 raw water components 24/7, including volatile organic substances such as benzene, which are regulated by the national drinking water quality standards).</p>



Figure 2 | Carp sensor



Pollution suspected if the number of carps combining No.1, No.2 and No.3 is less than No.5.

Figure 3 | Behavioral pattern of carps

2. Cooperation among Related Organizations in the Yodo River Basin

The Lake Biwa-Yodo River water system is one of the largest water systems in Japan, and it is important to take appropriate water quality conservation measures throughout the entire system. For occasions such as when sudden changes in raw water quality take place, for example, it is necessary to work in close cooperation with relevant agencies and organizations in the basin.

(1) Yodo River Water Pollution Prevention Liaison Council

In 1958, the Yodo River Water Pollution Prevention Liaison Council (Council) was established to take emergency measures against anomalous water qualities in the Lake Biwa-Yodo River system. The Council consists of 24 agencies and organizations including the national government, the river's upstream and downstream prefectures, and its downstream water utilization entities.

The objective of the Council is to:

- survey the water quality of the rivers and waterways in the Yodo River system and understand their conditions;
- clarify the mechanism of water pollution in the Yodo River system, and

	<p>to conduct research on water quality management methods and pollution prevention measures in the basin; and</p> <ul style="list-style-type: none"> • improve the water quality of the Yodo River effectively through mutual communication and coordination among the council members. <p>In the event of a water quality incident, the Council members contact with each other via NTT's telephone lines and the Ministry of Land, Infrastructure, Transport and Tourism's dedicated telephone lines, in order to swiftly address the incident.</p> <p>(2) Yodo River Water Quality Council</p> <p>In 1965, the Yodo River Water Quality Council (Quality Council) was established, comprised of seven water utilities (currently nine utilities) that abstract raw water from the Yodo River.</p> <p>The Quality Council aims to:</p> <ul style="list-style-type: none"> • monitor and investigate the river's water quality; • prevent the river's water pollution by negotiating with and communicating related information to the national government and local governments upstream of the river; • establish an emergency communication line so that the member utilities can work together efficiently when sudden water quality incidents occur; and • conduct public outreach about water quality conservation. <p>In recent years, the member utilities have conducted a joint survey on radioactive substances (cesium-134, cesium-137, and iodine-131) at five representative points in the Lake Biwa-Yodo River system, and have published its result.</p> <p>(3) Mutual communication line in the event of water quality incident</p> <p>Figure 4 shows the basic communication line among the Quality Council members in the event of a water quality incident in the Yodo River. In addition, another communication line has also been established to address anomalous water qualities occurring at the water facilities operated by the Quality Council members. These communication lines help efficient coordination among the member utilities and with other relevant agencies and organizations.</p>
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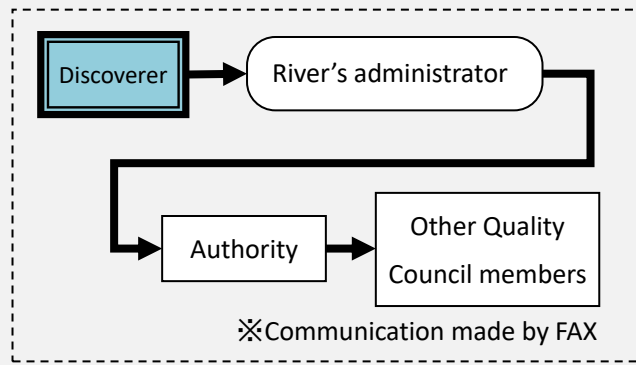


Figure 4 | Basic communication line in the event of water quality incident