

Water Environment Administration of Lakes in Japan

Seiji Tsutsui
Director, Water Environment Division
Ministry of Environment



Lakes are an important water resource for drinking and household water use, industrial and agriculture use, and also for fisheries and flood control. In Japan, the preservation of water quality is pursued through environmental quality standards (EQSs) set up for each river, lake, and sea area. While EQSs are well achieved for rivers, they are poorly achieved for lakes due to the enclosed nature of lakes.

Regarding the history of lake environmental administration in Japan, in 1970 the Water Pollution Control Act was established and uniform national wastewater standards were introducing. And various more stringent standards were also introduced by the prefectural government as bylaws. In 1982, EQSs for nitrogen and phosphorus for lakes were introduced. The Lakes Act was established in 1984 and was revised in 2005. In 2015, the Act for the Conservation and Restoration of Lake Biwa, a special law for the restoration of Lake Biwa, was established.

Regarding water quality conservation policies for lakes in Japan, the national government sets the environmental water quality standards based on the Basic Environmental Law. Measures for industrial wastewater and domestic wastewater are regulated by effluent standards established in the Water Pollution Control Act. More stringent effluent standards and regulations are enacted by prefectural governments. The prefectural government oversees the activities of the industries and private companies. The industries and private companies invest in their pollution control facilities and also human capacity development. For domestic wastewater management, the Sewerage Act was introduced to set a legal framework regarding construction and management of sewerage systems, and Jokaso Act was introduced to set a legal framework regarding construction/installation and management of individual household wastewater treatment systems called “Johkaso”. Based on these policies and acts, the Lakes Act was established to develop a water quality conservation plan for each designated lake.

In regard to the lake basin configuration, both point and nonpoint pollutants and nutrients such as nitrogen and phosphorus from various sources flow into the lake. They cause both organic pollution and eutrophication in the lake in a short time. To address these issues, the national government formulated a basic conservation policy for water quality, while the prefectural governments formulated lake water quality conservation plans which contain a) pollution load regulation, b) implementation of infrastructure construction, c) regulation of small-scale animal husbandry and aquaculture, d) guidance to other agents than regulated facilities, and e) promotion of research and development of technologies and so on. As a result of these measures, the pollution load flowing into lakes is decreasing, however, the COD level is almost the same. It is difficult to restore the good lake water quality once it is polluted.

A recent problem is invasive alien species of fish and plants. The prefectural governments have made major efforts to reduce them. The national government supported the efforts by local governments by enacting a special law and best policy and also by subsidizing, financing, and leading coordination among concerned stakeholders.

The future direction of conservation of lakes in Japan is as follows: 1) Implementation of lake basin water quality/environment management, which includes management of basic data regarding pollution load

and water quality, integrated approach to effluent regulations and public works construction, and enhancement of measures for non-point pollution, 2) Tailor-made target setting including easy to understand indicator (such as DO in the bottom layer, transparency, etc.) based on the unique characteristic of each lake, 3) Promotion of collaboration between the local governments and stakeholders by continuous engagement. Keywords for implementation of lake basin management are: "Responsibilities of the national and local governments", "Philosophy, policies and countermeasures", "Coordination between parties concerned", "Development of science and technology", "Reporting on the measures taken", and "Financial initiatives".