

**Water quality conservation technology "Lake Controller" that possesses the functions of supply of oxygen to deep parts of lakes, measures against blue-green algae, and discharge of deep water. Realizes energy-saving without requiring large-scale engineering works.**

## 1. Overview of technology

The idea of "securing an environment (water) that can be left for the future and creating technology that does not require much energy" became connected to the realization of compact lake water quality conservation technology that is superior in energy-saving as compared to the past and that can combat both eutrophication and blue-green algae. Our company's "Lake Controller" is technology that is also registered in the Ministry of Land, Infrastructure, Transport and Tourism's NETIS (New Technology Information System) as technology that prevents eutrophication in dam lakes, etc., and that kills blue-green algae. There are examples of this technology being introduced at dam lakes, etc. in Japan, and there are expectations for this to be low-cost and easily-installable water quality conservation technology at lakes both inside and outside of Japan where eutrophication is a problem.

## 2. Strengths of technology

### "Lake Controller"

- Possesses the 3 functions of deep-layer aeration, countermeasures against blue-green algae, and discharge of deep water

Eutrophication is prevented by pumping deep water, and sending water that contains dissolved oxygen to the deep layer using a microbubble generation nozzle. In addition, it is possible to kill and dissolve blue-green algae by sucking in the blue-green algae on the surface layer and sending it to the deep layer. Material balance is also improved by discharging deep water that contains nutrients in abundant amounts.

- Low initial costs and running costs

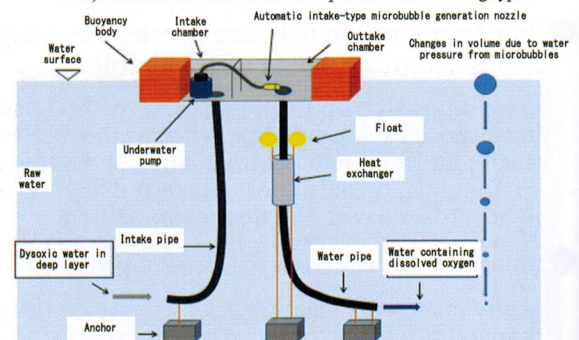
Since a floating structure is used, construction costs are cut back significantly. By applying the principle of siphoning, the pump capacity is also minimized. In addition to miniaturizing equipment (4m x 4m), this also contributes to energy-saving.

- Survey and consulting of the lake environment are also implemented as a set

To ensure optimal operation conditions for the equipment, our company conducts surveys on water quality and bottom sediment beforehand, and proposes technology designs and operation methods for effective operation.



↑ Lake Controller installed in a dam lake (Motobe Dam, Saga Prefecture). The features are that it is compact and of a floating type.



↑ There is a pump and automatic intake-type microbubble generation equipment on the water. Air bubbles are infused into the pumped deep water, and is sent to the deep layer as water that contains dissolved oxygen. Eutrophication is prevented with this.

## 3. Intended uses/Anticipated users

- In closed waters (particularly lakes with a water depth of at least 10m) such as dam lakes, etc. where water is retained, this technology exhibits effects on measures against eutrophication in deep water as well as against blue-green algae. This technology has actually been introduced to lake managers (local public bodies, etc.) that are concerned about foul odors and worsening of water quality.
- Lake purification measures in emerging countries where eutrophication is progressing due to inflow of surplus fertilizer and human sewage from agricultural areas are also anticipated.

### Company data

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#### Message

In order to leave beautiful water, clean air, abundant nature to the future as infrastructures for living organisms, Nature Co., Ltd. is making approaches toward research and development of environmental technology.  
(President Toru Mikoda/Joint Developer Satoru Takamori)



Left: Satoru Takamori,  
Right: Toru Mikoda