

# Active learning event for children to get nature experiences and research about environmental issues by university students around Lake Biwa, Japan

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Active learning event for children to get nature experiences and research about environmental issues by university students around Lake Biwa, Japan

# Nice to meet you All!



**Arika Tanabe**



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IVUSA(International Volunteer University Student Association)  
- Student Volunteer Group in Japan

First of all, nice to meet you all. We come from Japan.  
I'm Saeko Ito and she is Arika Tanabe.  
We both are senior students at Kyoto University of Foreign Studies.





0.01%

of ALL WATER on the earth

What do you think 0.01% of all water on earth is?





# Lake Biwa

called 'Mother Lake' in Shiga prefecture, Japan

This is the percentage of freshwater that is said to be readily available for human use. In order to use the many services obtained from lakes in a sustainable way, it is necessary to view them through the entire watershed, including forests, fisheries resources (fish), how water resources are used (water treatment plants), and how people live (traditions and culture).

# Water



Showa era (more than 40years ago)



# People

In Japan, where we live, there is one of the largest lakes in Japan, Lake Biwa, affectionately known as "Mother Lake". It is an important water resource that supports living and drinking water in the Kansai area.

Let's take a look at the connection between Lake Biwa, water resources, and people, by comparing the past and today.

In the past, people in Shiga Prefecture used water from Lake Biwa directly and groundwater. Nowadays, with the construction of water purification plants and water supply systems, clean water is delivered to each household through water pipes. Today 99.7% of Shiga Prefecture residents use tap water.



# Water



## Fisheries Resources

Lake Biwa was also rich in fishery resources, with endemic fish species, and fishing used to be prosperous. However in recent years, alien fish have been breeding in the lake and the number of endemic fish has been decreasing. There are efforts to protect native fish by holding fishing contests (with the participation of local residents).  
Then the number of endemic fish is recovering.

# Forests



## Sustainable Living

Furthermore, Shiga Prefecture is blessed with forest resources, with approximately 50% of its land area covered by forests. We are also working to preserve the forests.

Rain that falls on the forests becomes rivers, groundwater, and spring water. In some areas, spring water is used as water for daily life, and in some areas, a sustainable lifestyle for water resources has been passed on as part of the culture.

Forest conservation is important to protect rivers and people's water use.





**However...**

**the decrease in opportunities  
to realize the value of water resources**

**the decrease in the number of native fish**

**the lack of care for forests due to the  
decreased use of wood**

However, there are of course challenges, such as the decrease in opportunities to realize the value of water resources, the decrease in the number of native fish, and the lack of care for forests due to the decreased use of wood.



# Background to this event

The regional urbanization and river modifications have led to decreasing the opportunities for children to play in river and Lake Biwa

**Decreasing interest in the Lake Biwa environment**



## **Be a Researcher tour in Lake Biwa!**

Lake Biwa has been closely connected to our daily lives, but the regional urbanization and river modifications have led to decreasing the opportunity for children to play in the river and Lake Biwa.

And, which in turn has reduced their interest in the Lake Biwa environment for children. So, we planned this "Be a Researcher Tour" to create an opportunity where children, who will be responsible for the next generation, can learn and think about Lake Biwa's environmental issues with university students.

# Target and details of 'Be a researcher tour'

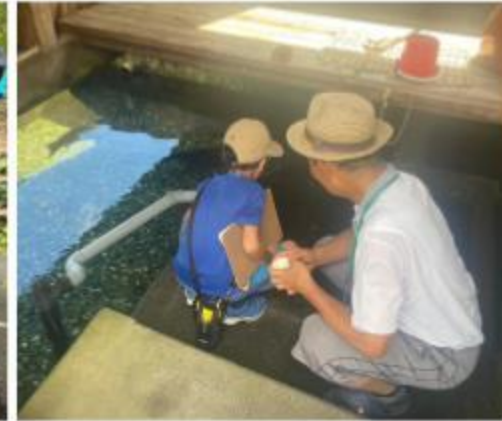
Target : Elementary school / junior high school students

Tap water

River and Lake

forest

Spring water



Experiment & Field work

**Providing opportunities that lead to loving and protecting Lake Biwa!**

This be a researcher tour's target is elementary and junior high school students.

This tour is a workshop in which children and university students will work together on fieldwork and experiments related to the theme, focusing on familiar water sources such as tap water, rivers, and lakes, as well as forests and spring water in their water basin.

By researching about Lake Biwa while having fun, we provide opportunities for children to become aware of the value of water resources, exploring them on their own, and loving and protecting Lake Biwa.



# ①Tour to think about water purification



Date: March 20, 2022

Keywords:

Tap water, water purification

Contents:

- Slow filtration experiment
- Rapid filtration experiment
- Presentation

Stakeholders:

- Water purification plant
- Shiga prefectural government

**The children were able to appreciate water and water purification plant by understanding how water is purified.**

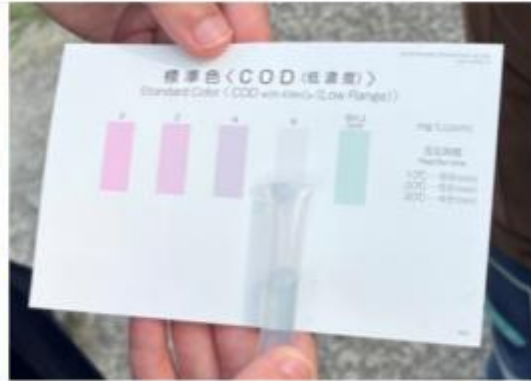
This be a researcher tour has been conducted three times since 2022.

We usually get clean water from the tap. This is because water purification plants and water pipes have been constructed.

The first time, in order to learn about "water purification", a mechanism to clean water, children were given filtration materials such as stones, sand, tissue and other materials, and were challenged to recreate a water purification system by combining them together to clean dirty water.

Staff from the water purification plant also helped us to explain the experiment and teach them about the latest chemical filtration system. The children were able to build their own filtration systems and realize how grateful they are for the tap water they have taken for granted through the tour of the water purification plant.

## ②Tour to think about what clean water is



Date: October 30, 2022

Keywords:  
Water quality, creatures

Contents:  
• Water Quality Inspection  
• Creature Survey  
• Eating an endemic fish  
• Presentation



Stakeholder  
• Fishermen  
• Traditional fish restaurant  
• Environmental Research Institute  
• Shiga prefectural government

**The children thought about what clean water is not only for humans but also for living things.**

The second tour, with the theme of "water quality and living creatures," we measured the water quality of the river at each point and surveyed the living creatures living there, with fishermen also taking out their boats to help us think about what clean water means to living creatures.

By comparing water quality and the creatures that live there at each point, the children were able to think about "clean water" from multiple perspectives. They also had a lunch of lake fish dishes, which showed the bounty of Lake Biwa, with the fisherman's explanation.

The fisherman eager for children to eat endemic fish from Lake Biwa.

The children's desire to eat endemic fish from the Lake Biwa will lead to conservation of Lake Biwa's water quality and fishery resources.



### ③Tour to think about forests, spring water and people's lives



Date: August 25, 2023

Keywords:  
Forest, spring water

Contents:  
▪ Guide of the spring water  
▪ Exploring the Forest  
▪ Experiment on reproduction of forest soil  
▪ Presentation

Stakeholders:  
▪ Spring water guide  
▪ Forest park  
▪ Shiga prefectural government

**The children were able to feel the connection between the forests, the spring water, and people's lives.**

The third tour, the theme of the third session was "Relationship between forests, spring water, and people's daily lives," and children researched the forest and conducted experiments to learn how spring water is produced by peering into the lives of people who use spring water and tracing the source of the spring water.

The spring water users guided us through the town, and the forest and its creatures were explained by the staff members who are familiar with the forest.

The children were able to experience the flow and mechanism of spring water, which they could not see with their own eyes, and as a result, learn about the relationship between forests, water, and daily life, as well as the connection with Lake Biwa.

# Effects of implementing the tour

## ①Intellectual curiosity/inquiry



## ②Regional revitalization



## ③Environmental awareness improvement



Through these tours, the children had the opportunity to imagine and think for themselves and develop the ability to think independently. (Intellectual curiosity and inquisitiveness)

For example, when making a filtration device, they tried to figure out which materials should be combined in order to make the water clean.

In addition, having the fishermen explain to us at lunch during the tour and tasting native lake fish dishes, a blessing of the lake, helped us learn about and enliven the traditional fishing industry. (Community Revitalization)

And we have been able to conduct the tours so far with the cooperation of many stakeholders such as Administration, Water Treatment Plant staff, Fisherman, forestry officials, and parents. Therefore, not only the children but also everyone involved in the event had an opportunity to learn and review the Lake Biwa environment. (Raising environmental awareness throughout the community)



An aerial photograph of Lake Biwa, a large blue lake in Japan, surrounded by green fields and some urban areas. The sky is blue with some light clouds.

## Messages that we strongly tell the world through this tour learning from us

- Learning through "experience" is a major motivation for interest exploration.
- Not only children has the learning opportunity, but it also provides the opportunity for those who organize the tour to learn Lake Biwa's environmental situation and take other actions.
- Connection between children and the local community has a positive impact on both sides.

**This tour is 'LEARNING with NATURE tour'**

Through planning and achieving this tour past 3 times, we summarized the message for all those involved in lake environment activities.  
We have 3 points.

One is that learning through 'experience' is a major motivation for interest exploration.

Second is that not Only children have the learning opportunity, but it also provides an opportunity for those who organize the tour to learn about Lake Biwa's environmental situation and take other actions.

Last is that connections between children and the local community have a positive impact on both sides.

In Japan, we take water for granted, but in order to preserve a sustainable water environment, we need to have the opportunity to reconfirm and learn the value of water resources around us.

However, as you can see, this 'Be a researcher tour' is not only about learning as a study, but also about learning together with nature.



Thank you for listening.



That's all our presentation. Thank you for listening.



# Reference List

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