

On the Cutting Edge of Environmental Preservation

By Takahiro Takesue

Yoshihiro Fujiyoshi and Shin'ichi Kuroda felt as if they had done a good day's work, and well they might. Fujiyoshi is the research chief of an institute operated by the Aquaculture Cooperative of Lake Saroma; Kuroda is a scallop fisherman. The two were feeling pleased with themselves because they had just succeeded in persuading some local fishermen who wanted to increase the scallop catch from Lake Saroma to maintain the present quota next year. As Kuroda admits, the fishermen had a variety of opinions.

Up north in Hokkaido

Located in the eastern part of Japan's northernmost main island of Hokkaido, facing the Okhotsk Sea, Saroma is a seawater lake covering 151.2 square kilometers. The lake ranks second in Japan in terms of size, but it is actually among the most productive lakes in the world, with an annual catch worth ¥20 billion (\$1.54 billion at the rate of ¥130/\$). Most of the harvest consists of scallops, which are loved so dearly by the Japanese.

The fishermen who earn their living from this lake cling steadfastly to one golden rule: Each one of them obeys the scallop catch quota decided by the cooperative. The fishermen have restricted the scallop catch from Lake Saroma since around 1970, introducing harsh penalties for fishermen who break the rule. They realize only too well that if the balance between Lake Saroma's ecology and their catch goes awry, the lake will perish.

Come June every year, Fujiyoshi has to make the kind of decision that may cause stomach ulcers. It is around this time when the fishermen cast their nets for young scallops, and it is Fujiyoshi's job to decide when this should be done. If his forecast is off the mark even by a single day, the quantity of young scallops caught shrinks immensely. And if they cannot catch the young scallops, the fishermen cannot earn their bread and butter.

"If my forecast were wrong, I would end up floating in the Okhotsk Sea," quips Fujiyoshi. It's a joke, but nonetheless Fujiyoshi knows that he would probably not be able to stay in town if his prophecy was off target.

As well as making the forecast, Fujiyoshi has another important job to do—estimating how many scallops should be cultured each year and calculating the catch quota. A complete stocktaking of the lake is carried out once every 10 years to determine what fish are living there and in what quantity.

Fujiyoshi sees Lake Saroma as a small ecological system in itself. Energy from the sun enables vegetable plankton to flourish, and this is eaten by the scallops and animal plankton. Fish then gobble up the animal plankton, and their discharge becomes a source of food for sea slugs. The small chain of energy keeps the lake alive.

Fujiyoshi determines the quota for the scallop harvest on the basis of this stocktaking. "First of all I calculate how much the vegetable plankton will increase in a year," he explains, "because the quantity of scallops will only grow in step with this increase. If the scallops ate all the vegetable plankton in the lake, there wouldn't be any food left, so the scallops would not be able to grow. In banking terms, it's like leaving the principal as it is and living off the interest. In this way, the ecological system of the lake is not destroyed."

The fishermen of Lake Saroma understand that if they damage the lake, their livelihood will be threatened, so they have steadfastly stuck to the golden rule of planned harvests. This rule, one might say, is a product of their wisdom for survival. Nevertheless, the fact is that the fishermen themselves harbor a variety of opinions. Some of them, quite naturally, want bigger catches and more money. But Kuroda for one thinks enough is enough.

Kuroda, now aged 40, has been working as a fisherman on Lake Saroma for

seven years. He was born and raised in the district but left home to enter a fisheries high school. He also wanted to see the world. After completing high school, Kuroda had no desire to follow in the footsteps of his father as a fisherman, so he entered the civil service. Kuroda, who was living in Sapporo, the capital of Hokkaido, at the time, decided to return home only when his father became ill.

Returning to Saroma, Kuroda felt that something had changed. The water was not as transparent as it used to be, and there were types of fish living in the lake that had not been there before. Things looked pretty much the same, but Kuroda felt that the lake somehow was changing little by little.

"The sea is not only a place for producing food," Kuroda says, almost like a preacher. "It creates all kinds of benefits for us. I think that the scallop catch should be reduced even more than at present. In that way, we would be able to hand on the lake to our children and our children's children."

Lake Saroma, it should be pointed out, is by no means dirty. Surveys of the water have revealed no pollution at all. But there is no guarantee that the water will stay clean in the future.

In the past Lake Saroma was enclosed. An upheaval that began around 4000 B.C. created a sandbank that divided the bay from the sea. At that time the water of the lake contained salt, but of slightly lower density than the sea, and the temperature was higher than the water out in the ocean. Not that the lake was completely closed: Every spring, water from melted snow would flood the sandbank, breaking part of it to form a natural opening. Even so, the circulation of the water was poor, and part of the lake took on a yellowish-brown color.

Lake Saroma took a turn for the better with the creation of an artificial opening in 1929, which enabled the water in the lake and the sea outside to circulate properly. As a result, the yellowish-brown

pigment disappeared, the salt density of the lake's water became the same as that of the seawater, and the temperature dropped.

The first to feel the effects of these environmental changes were the oysters. Though oyster fishing had been popular on the lake, the changes in the water led to their decline. Instead, Lake Saroma became a suitable home for scallops, which promised to bring prosperity to the poor local fishermen.

Over time Lake Saroma has been transformed by environmental changes of a global scale, and 63 years ago it was altered artificially. No doubt human beings will bring further changes to the lake. As far as Kuroda and Fujiyoshi see it, however, the future of Lake Saroma depends on the responsibility of those who live by it and reap its benefits.

Voices from the city

The people who cry out most hoarsely about the need for global environmental protection are those who live in the city. Surrounded on all sides by a concrete jungle, they pine after nature.

Tokyo threatens to be buried under its own garbage. Part of Tokyo Bay has been used as a garbage disposal site, but as everyone knows this place eventually will reach saturation point. When summer



Photo: Mainichi Shimbun

Country people who depend on *satoyama* forests for their livelihood are annoyed when city dwellers urge them not to cut down trees.

comes around, the exhaust from cars, factories, and air conditioners in offices and homes pushes up the temperature in the center of the city to create what has been called the heat-island phenomenon. The filthy air of the city is also damaging children's health.

Given this situation, it is only natural for people living in the city to long for a taste of nature. This longing has led to campaigns to protect our mountains, rivers and sea. But there exists a subtle gap between these city people and those in the provinces who make their living, or part of their living, from nature.

An environmental preservation group recently organized a symposium on the protection of greenery in the mountains. The group invited forestry people living in Okutama in the west of Tokyo as panelists. Tokyo is a huge metropolis, but the Okutama area still boasts abundantly green mountains. In the symposium the foresters explained how they were protecting the forests, then one of them added unforgettably: "Sometimes people living in the city come out to the mountains, marvel at the beauty of nature, and then say that we shouldn't cut down this tree. This annoys me very much, because we make our living from the forests. And when we use a forest, it reproduces itself and goes on living. I wish these people would understand this."

These foresters live in "*satoyama*," which is the kind of place that played an indispensable role in people's lives in the past. In *satoyama*, the fallen leaves from the trees became fertilizer for the fields, and the wood was burned into charcoal and used as fuel. Explained in this way, it seems that the people in the *satoyama* mountains are destroying greenery. But the truth is quite the opposite.

These people do not fell trees wholesale. Instead, they cut only a certain area one year, and then a different area the next. After four or five years the stumps sprout new leaves, and after 15 or 20 years the tree is cut down again in a cycle of reproduction. Most of the greenery in Japan's mountains has been preserved in this way.

If a virgin forest is cut down, it will probably destroy the ecological system.

But it is nonsense to talk about virgin forests and places like *satoyama* in the same breath. *Satoyama* has lived with human beings for a long, long time. City people find it difficult to appreciate this, because they know nothing about nature and the lives of the people who reside in the countryside.

Down south in Okinawa

In the southernmost part of Japan, 429 kilometers to the south of the island of Okinawa, lies Iriomote-jima island. Even Japanese who do not know the name of the island will nod their heads when reminded that it is the home of the Iriomote wildcat (*Mayailurus iriomotensis*), whose discovery in 1965 caused a worldwide sensation among researchers. Iriomote-jima has an area of about 244 square kilometers, 90% of which is covered by a subtropical forest, making it a rare spot in Japan, which mainly falls in the temperate zone.

Many people call for the preservation of the natural habitat on this island, but the islanders themselves turn a cold shoulder on outsiders who wave the flag of environmental protection. Not that the islanders are against the preservation of nature; indeed, the opposite is the case.

Susumu Murata, who moved to Iriomote-jima from Osaka 17 years ago, serves as a bird and animal preserver for Okinawa Prefecture. Recently he attended a symposium on Iriomote-jima held in Osaka. The panelists included university professors, well-known actors and environmentalists, all of whom spoke in favor of protecting Iriomote-jima. Almost all of the participants agreed with their remarks.

When the panelists had finished making their speeches, Murata stood up, took the microphone, and asked: "This meeting is to think about Iriomote-jima, but why is there nobody participating from the island? I have no objection to a meeting like this being held, but what do city people want to tell us about Iriomote when they know nothing about the situation on the island?"

The atmosphere in the hall, which had been harmonious up to that point, sud-



Photo: JTB Photo Library

Iriomote-jima island, located at the southwestern end of the Ryukyu Islands.

denly turned very tense indeed. One of the organizers, a university professor, hit back at Murata. "I cannot agree that we have no right to talk about the nature on Iriomote because we don't live there," he said. "Our desire to preserve the nature on Iriomote is no different from that of the islanders. We have arranged this symposium so that we can cooperate with the local people. It's very strange for a person living in Osaka to criticize this."

The professor thought that Murata lived in Osaka. Certainly he hails from Osaka, but now Murata resides on Iriomote and is one of the islanders. He has even earned the nickname of the "bearded one" among the local people. The professor's polemic was based on a false accusation. Another organizer said, "I think it's falling into self-satisfaction to say that only the islanders should preserve the nature on Iriomote."

Murata realized that there was a large gap between himself and the organizers of the symposium. He had no intention of saying that city people should not think about Iriomote. What he wanted to say was that to protect the environment on Iriomote, people must know about nature and about the lives and thoughts of the local people. Only then is it possible to think about how to protect the environment there. The problem was that none of the symposium organizers had ever set foot on Iriomote-jima.

The gods of nature

Kinsei Ishigaki, whose ancestors crossed over to Iriomote about 300 years ago, makes a living by weaving and farming. Speaking about the islanders and their relationship with nature, he stresses that the islanders have protected the crea-

tures on Iriomote. Three of the creatures—the Iriomote wildcat, a small crowned eagle (*Spilornis cheela*) and a land turtle (*Cistoclemmys flavomarginata*)—have been designated as special protected species. Academically they are very precious indeed, but to the islanders they are sacred.

The Iriomote wildcat is regarded as a god that protects the mountains. During the hunting season on the island, the dogs that accompanied the hunters chasing after wild boars were taught never to attack a wildcat, because it was sacred. The crowned eagle is a god of the fields, which it protects by eating snakes and other pests. And the land turtle, which roams about everywhere on the island, is a god of fortune. When hunters or islanders come across such a turtle on a mountain path, they return to the foot of the mountain and start climbing again, because tradition teaches that meeting the turtle brings bad luck.

These legends, which have been handed down from generation to generation, have forged the way the islanders associate with these creatures. As Ishigaki says, "Nobody lays a finger on a god."

Ten or so years ago, there was an incident that greatly offended the islanders. During the debate on how to protect the Iriomote wildcat, it was suggested that the islanders should move elsewhere. In other words, it was a black-and-white choice between the islanders and the wildcat. The suggestion that they were less important than the wildcat amazed and vexed the islanders. The Iriomote wildcat is certainly a precious animal, but the human beings who have lived on the island for generations are no less valuable. It is not only animals that inhabit Iriomote, but human beings as well. En-

vironmental preservation groups should not ignore this fact.

Murata flew into a rage at the symposium in Osaka because of this incident in the past. He took up the microphone because he did not want the same mistake to be made again. Unfortunately, the symposium ended with the two sides still far apart.

Like his acquaintances, Ishigaki cultivates rice without using any agricultural chemicals, because these would have a harmful effect on both the animals and birds on the island and people themselves. Growing rice without chemicals is a product of their wisdom in finding a way to exist on the island without damaging the habitat of the other creatures there. "I want both human beings and wildcats to continue living on the island," says Ishigaki hopefully.

Discussion of global environmental preservation always focuses on the North-South issue. The industrial countries call on the nations of Southeast Asia and South America to stop destroying their tropical rain forests. But for the countries of the South, which have to support a huge number of poor people, this is nothing more than straightforward opportunism. After all, it is the countries of the North that consume most of the felled timber.

The same applies not only to North and South but also to city dwellers and people who live amid nature. City dwellers talk a lot about the wonders of nature but do not spare a thought for the lives of country people. After getting a taste of nature, these people return to the convenience of the city, where they consume a huge amount of energy.

We must remember that the natural environment is an important common asset of humankind. But at the same time, we must not forget about the lives of the people who live there. After all, they are the people who live and work day by day on the cutting edge of environmental preservation. ■

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