



# OPRT

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FOR CONSERVATION AND SUSTAINABLE USE OF TUNAS

### Tuna Farming Management

## Device developed to count swimming tunas accurately —Expectations are high to improve management of tuna farming—

A device to measure accurately the number and size of tunas swimming in the cages has been developed, attracting attention from those involved in tuna farming. The feature of this device is that it can carry out measurements regardless low transparency and turbidity of water as well as during the nighttime. Expectations are high among those engaged in fish aquaculture that “the new technique can be applied not only to tuna farming but also to other forms of fish aquaculture.”

The device consists of an acoustic camera which can photograph objects in a certain range (horizontal visibility of 30 degrees, vertical visibility of 14 degrees, with maximum 40 meters of photographing distance) by irradiating supersonic waves (1.1-1.8 megahertz). Notably, the camera has the capability to capture the presence of tunas swimming at night or in the water with lower transparency - a technique that cannot be achieved by ordinary optical cameras.

The device can also count the number of individuals passing through the targeted range, and measure the size of each tuna. When the supersonic waves are raised to the level of 1.8 megahertz, it can observe fish schools as far as about 40 meters ahead.

The Fisheries Agency and the National Research Institute of Fisheries Engineering of the Fisheries Research Agency carried out verification tests of the acoustic camera at tuna farming sites of Taiyo A&F Co. in Kashiwajima, Kochi Prefecture, western Japan.

Experiments on this device had been partially conducted for farmed tunas in Mexico, but informed sources say that this was the first full-scale experiment.



In the experiment, a tunnel of 10 meters wide and 8 meters high was installed between cages (each with a diameter of 60 meters) with the aim to observe the movements of tunas.

The photos shot by the camera were projected on the display of a personal computer. The state of tuna, seen from above water, could be observed on the display, grasping in white color the streamline figure of tunas swimming at a rapid speed between the cages. By using special software installed in the personal computer, the number of moving tunas was counted.

In case a large number of tuna schools passed at one time, the accuracy of measurement was reduced, but this issue was resolved by making special arrangements, such as narrowing the width of the tunnel. It is possible to calculate automatically the size of tunas instantaneously. In the future, the development of means is expected to enable accumulation of basic data, which would serve as benchmark for such a calculation.

Says Noriaki Yamazaki, manager of Taiyo A&F's Tuna Farming Group, who cooperated in the experiment: “I find a great attraction

in that the number of fish can be measured accurately in the part of water with lower transparency.”

“I look forward to the future development, although there remain some issues before the technique is applied in the actual situation of farm sites,” he added.



The Fisheries Agency indicated that it will continue experiments and observation for species other than tunas in the days ahead. The Agency hopes to launch, with cooperation from related organizations, the measurement of total volume of fish species, such as yellowtail, with the aim to further improve experiment techniques and enhance the precision of measurement regarding the total harvest volume.

With respect to the possibility of accurately counting the number of tunas, Yuichiro Harada, Managing Director of the Organization for the Promotion of Responsible Tuna Fisheries, commented: “Expectations for the device capable of accurate measurement of farmed tuna are high because transparency with regard to the number of tunas put into farming cages is now an issue at the International Commission for the Conservation of Atlantic Tuna (ICCAT). We hope that the device will be put to practical use as soon as possible to make tuna farming a responsible tuna fishing practice.”

#### IFF4

### The need to prevent increases in tuna fishery capacity is urged.

#### The 4th International Fisheries Forum

The Fourth International Fisheries Forum (IFF4) was held on November 12-14, 2007 at Puntarenas, Costa Rica, by the U.S. Western Pacific Regional Fishery Management Council and the Costa Rica Fisheries and Aquaculture Institute. Dr.

Peter Miyake participated in the Forum, representing OPRT. Following is a summary of his report on the results of the meeting, especially focusing on the aspect of the fishing capacity issue.

Fishers, management authorities, seafood marketing industry, experts in fishing technology and marine ecology, fisheries scientists and other interested parties from 35 countries participated in the meeting and shared the information and experience on (1) sustainable fishery practices; (2) approaches to prevent or mitigate interactions with sea turtles, seabirds, sharks and marine mammals in fisheries, and (3) promotion of sustainable fishery through using market incentives, etc.

Dr. Miyake chaired the session entitled “Proposals of the Industrial Fishing Sector on Management Options to Improve Longline Sustainability.” During the session, the following points were confirmed in regard to fishing capacity.

(1) Continued increase in fishing capacity in the Pacific is observed. It was recognized that non-control of increasing fishing capacity prevents effective fishery control and management for sustainability.

(2) Difficulty to prevent capacity growth is recognized under the current situation that fair solution is not found for sharing available resources among nations.

(3) Need to introduce capacity management control was recognized, especially with respect to large-scale purse seine fishing with fish aggregating devices that are known to have very large catches of juvenile yellowfin and bigeye tuna.

IFF4 closed its session, with the adoption of the 11-point Puntarenas Declaration. Among the 11 points, the important point regarding the fishing capacity is as follows. **“We, fishers, urge our governments and other interested parties to support implementation of the actions agreed to at the Joint Meeting of Tuna RFMOs that was held in Japan in early 2007, including performance reviews to evaluate the effects and effectiveness of the RFMOs against the common benchmarks, and to report the results of those evaluations”.**

OPRT recalls that first joint meeting of Tuna RFMOs held in Kobe last January agreed to address the overfishing capacity

problem as one of the course of actions adopted. We hope the actions be properly addressed as soon as possible with support of all parties concerned, so that sustainable tuna fisheries may be ensured.

## Topics

### Shipping of the world's first fully-cultured juvenile bluefin tuna

The Fisheries Research Laboratory of Kinki University has recently shipped to a tuna farmer in Japan 1,500 juveniles of the third-generation (fully cultured) bluefin tuna as seed for farming. The tunas have been hatched and raised artificially at the university's laboratory.

It is the first time in the world that juveniles of fully-cultured bluefin were sold as seed for farming. It seems that the way was opened for supply of bluefin tuna to consumers without the risk of reducing the wild fish.

Regarding the sale this time, a laboratory spokesman said the conditions for shipments have been satisfied as production of fully cultured tuna increased, the number to be shipped outside the laboratory was secured, and the technology has been developed to reduce the risks such as mortality due to the changes in the environment in the course of transportation and in the places where the juvenile tunas were transported.

Special arrangements for walls and lighting were made so as to prevent the juveniles from crashing to death into the wall of the fish tank during transportation.

The laboratory will continue the research in various areas with the aim to expand production of fully-cultured Kinki University-brand bluefin tuna. Specifically it will improve further the survival rate of juveniles in the future from the current 93.8% at the time of shipment, and reduce costs in production. (\*\*\*)

### High interest observed in sashimi tuna in inland China —Crowds of people watch tuna show —

A show to cut a bigeye tuna into smaller pieces in front of the crowd was carried out during the opening events of a new outlet of Ito Yokado, a major Japanese

supermarket chain, in Chengdu City in Sichuan Province in China on December 23, 2007.

Chengdu, the capital of the land-locked province located in western China, has a population of over 10 million.

Many people watched with great interest the process of a whole tuna being cut in front of their eyes.



The show, originally planned for December 22, was postponed by one day as the store was overcrowded with about 100,000 people gathering on the opening day.

A great number of people flocked to the show site when cutting of a 50 kg bigeye tuna brought from Japan started.

They watched attentively the process: first cutting of head and tail, followed by cutting into three major portions and then further into four large blocks.

The tuna was exposed to curious gazes of the people living in inland China, who are said to have admiration toward marine fish.

The tuna, cut into smaller pieces, were offered for sampling and sales as sashimi, and sold like "hotcakes" on the spot, showing a strong interest of the Chinese people in sashimi tuna. (\*\*\*)

### Hong Kong sushi restaurant chain won the highest-price bluefin tuna in 2008

One of the bluefin tunas that fetched a five year's high in this year's first auction at Tokyo's Tsukiji fish market on January 5 was shipped to a sushi restaurant chain in Hong Kong. "I have never heard that the tuna given the highest rating in the year's first auction in Tokyo



immediately went overseas,” says a wholesaler at Tsukiji. Market participants were astounded that Japanese buyers were outbid by the foreign market in the auction at Japan’s largest fish market.

This 276-kilogram bluefin tuna caught off Oma in Aomori Prefecture was sold for 6.07 million yen (22,000 yen per kg).

The purchase was made on the order placed by a sushi restaurant owner in Hong Kong having 10 outlets in that city. This restaurant chain has been increasing purchase of high-grade tunas caught in Japan’s near-shore area, such as Oma, since about six months ago. Prior to the auction, the owner asked the wholesalers to secure the top-quality tuna for him.

In Hong Kong, where the sushi boom has reached a point of maturity, popularity is said to be shifting from farmed tunas to wild tunas harvested in Japan.

“The first auction at Tsukiji, where especially high-quality tunas are placed for bidding, has naturally attracted the attention of buyers in Hong Kong as well,” says a wholesaler.



Against the brisk demand for seafood from overseas, the predominant view in the Tokyo market is that procurement from such places as Hong Kong and Singapore will become further active in the days ahead.

Some in the market commented that it is as if the waves of strong seafood demand in China are now arriving in the Japanese market. (\*\*\*)

(Note: The bluefin tuna, caught in waters close to the coast, off Cape Oma facing the Tsugaru Strait at the northernmost tip of Japan’s main island, has become the best-quality bluefin tuna brand in Japan. Earlier in 2001, a 202-kg bluefin tuna from Oma

fetched 20.2 million yen (100,000 yen per kg) at the year’s first auction in Tsukiji. This generated wide-spread mass media reports and thus guaranteed the Oma-produced bluefin tuna as the established top brand since then.)

**(\*\*\*)The articles are based on the reports of the SUISAN-KEIZAI)**

### OPRT News

#### **WFOA becomes the first foreign supporting member of OPRT**

OPRT has so far been inviting supporting members only in Japan, aiming to increase public awareness about the status of tuna resource and the need to promote responsible tuna fisheries as well as OPRT’s activities. For the first time, an organization outside Japan became a supporting member of OPRT on 10th January 2008. Kentaro Tabata, Head of OPRT Secretariat, said: “It is our great pleasure to enroll the Western Fishboat Owners Association (WFOA) as our supporting member and work together to ensure sustainable tuna resources through promoting responsible tuna fisheries. I am glad to know that there are many people who share the philosophy of OPRT.”

Wayne Heikkila, Executive Director of WFOA, commented: “Western Fishboat Owners Association very much appreciates the opportunity to become a supporting member of OPRT. WFOA is based primarily on the west coast of the United States. Our membership consists of about 400 family owned troll and pole and line albacore vessels that fish primarily on North Pacific albacore tuna. WFOA has been involved in the international management process for many years leading to WFOA’s position, that we are supportive of all legal commercial fisheries and their ability to supply consumers with a healthy, sustainable food source. We also support sound science and fair management of the resource and promote cooperation amongst user groups and gear types.”