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Sankaido Bldg. (9th Floor)
1-9-13 Akasaka, Minato-ku, Tokyo, Japan
107-0052
Tel: 03-3568-6388; Fax: 03-3568-6389
Website: <http://www.oprt.or.jp>

FOR CONSERVATION AND SUSTAINABLE USE OF TUNAS

Seafood safety after the reactor accident

Interview with Dr. Morita, Fisheries Agency's Senior Research Coordinator

Consumers are now embracing grave anxiety over the safety of fishery products in the wake of the accident of Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Plant, triggered by the great earthquake and tsunami that devastated the Pacific coast of northeastern Japan on March 11 this year. OPRT interviewed Dr. Takami Morita, Senior Research Coordinator of the Fisheries Agency, the Government of Japan, regarding the possible influence of radioactive materials on fishery products.

Q: What kind of radioactive materials were released by the accident of the nuclear power plant?

MORITA: Most of the radioactive materials released as a result of the accident are radioactive iodine (iodine-131) and radioactive cesium (cesium-134 and cesium-137). The physical half-life period of iodine-131 is about eight days, and that of cesium-134 is about two years and that of cesium-137 is about 30 years. For this reason, it is radioactive cesium, notably cesium-137, that requires long-term monitoring.

Q: Consumers are worried about the safety of fishery products as radioactive materials flowed into the ocean after the accident at the Fukushima nuclear power plant. Is it better not to consume fish until the problem of the nuclear reactor is resolved?

MORITA: No fishing activities are now taking place in the sea near the Fukushima Daiichi Nuclear Power Plant. In other prefectures adjacent to Fukushima, fishery activities are expected to be resumed only after the inspection of radioactivity level is carried out and safety is confirmed by relevant local governments. For this reason, there is no chance for the fishery products with the radioactive values beyond the provisional regulation level under the Food Sanitation Law to be distributed in the market. Further, it is possible to confirm that certain fishery products were shipped from safe areas because labeling of fished areas is required for fresh fishery products, and consumers can refer to the published data such as inspection results and shipment-regulation areas.

You might probably know that radioactive materials that exceed the provisional regulation values have been detected from juvenile Japanese sand lance caught in Fukushima and Ibaraki prefectures. Those samples were collected on an experimental basis to confirm the safety of fishery products, and, in these sea areas, no fishery activities are now conducted with the aim to distribute the catch in the market. Please visit the homepage of the Fisheries Agency where inspection results are made public and updated on a day-to-day basis both in Japanese and English.

Q: Among marine fishery species, Japanese sand lance caught in the area off Fukushima showed high radioactivity levels. Fishermen are now suspending their fishing operation. Why did only Japanese sand lance show such high radioactivity levels?

MORITA: It was unfortunate, but levels surpassing the provisional regulation values were detected not only in sand lance but also in whitebaits, Mediterranean mussels and wakame seaweed. Fish such as sand lance and whitebait are found in the sea strata very close to the surface, and, as you know, Mediterranean mussels and wakame are found in very shallow part of the sea. As a result of the accident of the nuclear power plant, the radioactive materials released into the atmosphere fell onto the sea surface, and the polluted water discharged directly into the sea stayed in the upper strata of the sea because the polluted water has low salinity and is lighter than the seawater and remain near the coast without being sufficiently mixed. For these reasons, we consider that these species came to be exposed more intensely to the impact of radioactive materials, and the values in excess of the provisional regulation levels were detected.

Q: Does the impact of radiation differ according to fish species?

MORITA: We do not know any fish species that concentrates radioactive cesium in a very high concentration level. The indicator showing the degree of concentration level as compared to that in the seawater is called concentration factor. In the case of cesium, the concentration factor for marine fish species is 5 to 100 times. This is conspicuously low as compared with the concentration factor for PCB and other pollutants. The determinant of the radioactive concentration in the fish is the concentration level in the seawater and the concentration level in feed organisms. After all, the concentration level of radioactive materials in the sea water becomes the determinant because the concentration level in the feed organisms depends on the level in the seawater. The concentration level in the sea water differs according to the depth of water. For this reason, the inspection on

radioactive materials in fishery products is carried out by collecting samples by stratum, i.e. surface stratum, mid-layer stratum and bottom stratum.

Q: There is a concern that radioactive materials might concentrate through the food chain. Is it better not to eat large-size fish?

MORITA: Even for large-size fish which are in the upper class of the food chain, the concentration level of radioactive cesium in the body is up to about 100 times. If the concentration level in the seawater returns to normal, cesium will never continue to accumulate at high concentration level within the fish body over a long span of time (the concentration level of cesium in the fish body is reduced by half in about 50 days). This is because cesium, like potassium (element found abundantly in vegetables and fruits), enters into the fish body from the mouth of fish and tends to be emitted from the body through the gills or in the form of urine.

Q: Does radioactive materials taken into fish body continue to stay there?

MORITA: As I said earlier, cesium, like potassium, enters from the mouth of fish and is emitted from the body through the gills or as urine. For this reason, even for tunas having a long life span, radioactive materials do not stay within the body and come to have higher concentration levels.

Q: There is a concern that radioactive materials released into the sea will continue to adversely affect fishery resources. What do you think of this concern?

MORITA: The determinant of radioactivity concentration level in fish body is the radioactivity concentration level in the seawater. In other words, if the concentration level of radioactive materials in the seawater is reduced, then the level in fishery products also decreases. The radioactive materials released into the sea are dispersed and diluted because there is an enormous volume of seawater and there are sea currents. Further, when massive amount of radioactive materials enter into the sea water, they are accumulated on the sea bottom after being condensed and sinking or attaching to suspended matters. For this reason, the concentration level in the seawater is gradually reduced, giving lesser impact to fishery products.

Q: What kind of measures is the Japanese government taking to ensure the safety of fishery products against radioactive materials?

MORITA: The government is sorting out the species subject to inspection, by taking the situation of fishing ground formation into consideration, and is conducting inspection once in a week as a general rule at major landing ports. The results of the concentration level measurement of radioactive materials are made public from time to time. In the days ahead, fishing grounds will be formed in the area off Fukushima, along with the northward movement of fish schools in the offshore area. The government and fishermen's association will carry out inspection in these areas before the fishing operation starts, and the association will begin fishing activities only after confirming the safety. Further, in case inspection

results that exceed the provisional regulation values are obtained, the government will request related fishers to refrain from fishing for some time in the relevant fishing grounds near the area where such results were obtained. In this way, the government will ensure the safety of fishery products in the future, by carrying out radioactive inspection of fishery products and implementing restraint of operation when necessary.

Q: To conclude this interview, is it all right to say that we can consume safely the fish now being sold in the market?

MORITA: As I have stated in the foregoing, we can consume fish safely because no fishery products having values surpassing the provisional regulation levels are distributed in the market.

[Dr. Morita specializes in marine biology and environmental radioactivity. He worked on these fields in National Research Institute of Fisheries Science, Fisheries Research Agency of Japan, Scripps Institute of Oceanography University of California San Diego and Oregon Health and Science University. Based on his knowledge and experience, he is now at the front line to cope with the accident in Fisheries Agency.]

(Note) Provisional Regulation Values:

For the purpose to ensure people's health, the Ministry of Health, Labour and Welfare established the indicator values provided by the Nuclear Safety Commission as Provisional Regulation Values (PRVs). The Japanese government is extending the administrative guidance regarding the sale of the foods exceeding PRV levels so that they may not be consumed.

Editor's comment

On March 11, 2011, the Great Earthquake occurred along the Pacific coast of Northeastern Japan – commonly known as Sanriku region, which has one of the richest offshore fishing grounds in the world. With bountiful marine resources, fisheries have naturally developed to become an important industry for the region. The earthquake subsequently triggered massive tsunami. Fishing ports, fishing vessels and aquaculture facilities were swept away by the giant waves, and land-based processing plants and markets and other distribution centers were completely destroyed.

Even a more serious problem is the outbreak of accident at the nuclear power plant. It became impossible to cool off the nuclear reactor as all the electric power sources were cut off by the quake and tsunami, and radioactive substances leaked into the surrounding environment, including the sea. Every effort is now being made to cope with the problem caused by the crippled nuclear power plant in Fukushima. It will certainly move toward a resolution as the wisdom and technology of the world, including the United States and France, are mobilized

Resource management

Can tuna resources in Western and Central Pacific be recovered?

Tightening of FAD regulations is much desired

Dr. Ziro Suzuki, Tuna Scientist

The state of the stock of bigeye tuna has not been improving in a desired way. The principal cause of this situation is that the catch of bigeye by purse-seine fishing vessels has not been reduced. It was in 2009 that the Western and Central Pacific Fisheries Commission (WCPFC) launched on regulations of fishing, centering on the restriction of purse-seine operations using the Fish Aggregating Devices (FADs), and reduction of catch by longline fishing vessels. The prohibition period of the use of FADs was set for two months in 2009, the first year of the introduction of the regulation. It is to be extended to three months in 2010-2011. But the catch of bigeye by purse-seiners outside the FAD prohibition period remained the same as in the period before the introduction of the measure. As a result, no effects of the regulation have been obtained.

In the regulation of bigeye catch by purse-seine vessels, member countries are entitled to choose from either (1) no-fishing during the FAD prohibition period or (2) the regulation to reduce their catch. All members except Japan and the Philippines chose no-fishing during the FAD prohibition period. Japan chose the reduction of catch by 30%, which ensures the reduction of catch volume because Japan has a sampling system designed to grasp accurately the catch volume of juvenile bigeye caught incidentally in purse-seine operations. From 2011, however, all the countries agreed to take concerted actions to comply with the 3-month prohibition of FADs as regulations of purse-seine fishing. With respect to longline fishing, on the other hand, the regulation is designed to reduce the catch by 30% by gradual steps over a span of three years. In this regard, regulations are at least being complied with.

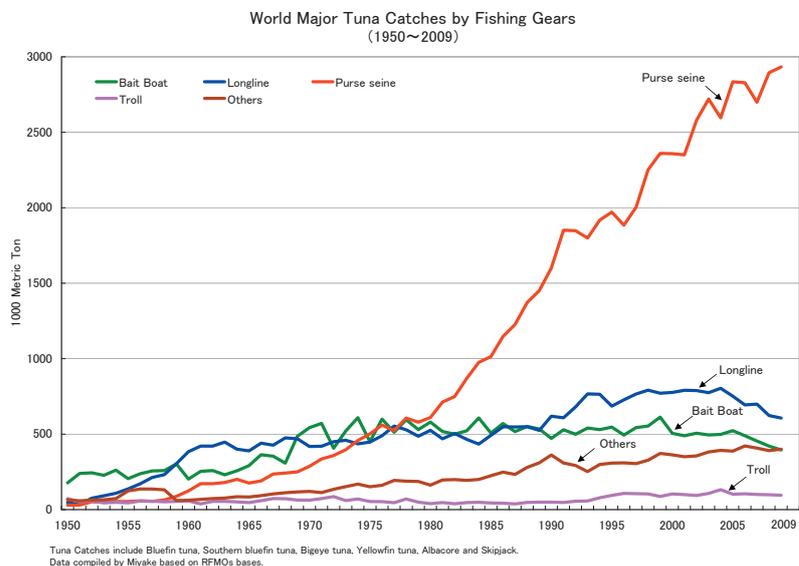
Japan is abiding by the established catch regulations both for purse-seining and longlining. But FAD regulations for purse-seine fishing by other countries did not generate the anticipated effects. FAD operations have high fishing efficiency, and the efficiency has been enhanced year by year. Even if prohibition is enforced for a few months, no limit has been imposed on catching bigeye outside the prohibition period. As the catch of small-size tunas cannot be curtailed, there is no benefit for longline fishing that catches large-size fish. Rather, longline fishers alone are put at a disadvantage because their catch quotas are even more reduced. FAD fishing operation is primarily aimed at catching skipjack, but at the same time it catches incidentally the immature bigeye and yellowfin tunas.

To the present, efforts have been made to explore ways to reduce the catch of immature fish of these two species, without reducing the catch of skipjack. But no effective methods have been found.

In part of the purse-seine industry, there appears to be a move to level up the discovery rate of fish schools not aggregating around floating objects, etc. (called "sumure in Japanese) by using a helicopter in anticipation of reinforcement of FAD regulations in the days ahead. It seems that the right course to be taken is to advance toward enhancing the rate of successful catch in fishing targeting schools not aggregating around floating objects in the future. Drastic extension of FAD prohibition period, including total prohibition of the use of FADs, will become a central agenda at the WCPFC meetings in the future.

It should not be overlooked here that overcapacity, especially overcapacity of purse-seine fishing, exists in the background of this issue. Present potential capacity of purse seine catch exceeds grossly the current catch that should be reduced. While the need to reduce the overcapacity is seriously debated on one hand, purse-seine fishing efforts are actually increasing, on the other.

Japan's proposal to freeze the number of purse-seine fishing vessels, tabled at the WCPFC annual meeting last year, gained considerable number of supporting views as a general approach, but at the same time, a number of issues were raised in relation to its implementation. It was unfortunate that the proposal was not adopted because time for debate ran out. The solution of the issue of overcapacity has a basic importance, and the reinforcement of FAD regulation can be viewed as an issue derived from it.



OPRT News

**OPRT Business Plan for 2011
Focusing on the issues of Over
Fishing Capacity and IUU Fishing**

O PRT held its General Meeting on May 18th, 2011, in Tokyo and adopted the Business Plan for 2011, focusing on the issues of over fishing capacity and IUU fishing. The Secretariat reported that OPRT members increased to 24, with new members from Tuvalu, Kiribati, and Marshall Islands which joined during 2010.

With a view to ensure the promotion of sustainable use of tunas and to contribute to the development of tuna fisheries complying with international and social responsibility—which are OPRT’s two stated missions, OPRT will carry out the following projects (a gist of major projects only) in the coming year ;

(1) Promotion of responsible tuna fisheries

- (i) Promotion of control of excessive fishing capacity;
- (ii) Elimination and prevention of IUU fishing activities;
 - Monitoring of Positive Lists of RFMOs
 - Survey of market distribution of tunas which are subject to regulations
 - Implementation of DNA inspection
- (iii) Monitoring of the international transactions of second-hand tuna longline fishing vessels
- (iv) Reduction of bycatch.
 - Measures to reduce bycatch of seabirds, sea turtle and sharks
- (v) Cooperation with World Tuna Purse Seine Organization (WTPO) in purse seine matters.

(2) Promotion of the use of tunas caught under appropriate stock management

- Campaign for sashimi tunas caught by longlines
- Assistance to restoration from the damage of the East Japan Earthquake/Tsunami

(3) Research and studies on management, trade and market of tuna resources.

- Monitoring of the trend of tunas imported to Japan's sashimi market, etc.

(4) Promotion of international interchanges and cooperation among fishers regarding management and utilization of tuna resources;

(5) Promotion of, and education on responsible tuna fisheries

(6) Management of the fund for FOC vessel scrapping project

Tsutsumi named new OPRT President

O PRT elected Yoshio Tsutsumi as its President at the Extraordinary Board Meeting on May 18, 2011, following the resignation of his predecessor Toshiro Shirasu.



Tsutsumi, born in 1947, graduated from the Law Faculty of the University of Tohoku in 1970, and joined the Central Co-operative Bank of Japan for Agriculture, Forestry and Fishery in the same year. In 2005, he was appointed as President of the Agriculture, Forestry and Fisheries Credit Foundation.

In his inauguration speech, Tsutsumi expressed his hearty gratitude to the donation and generous messages provided to OPRT by its members as well as the parties related to OPRT for the victims of the Earthquake and Tsunami that hit Eastern Japan.

He stated: "Tuna can not be managed by any single nation alone. International cooperation including private sectors is essential for the effective conservation and management of tuna because of its highly migratory nature. I am pleased to work together with all OPRT members in the world toward ensuring sustainable tuna resources through promoting responsible tuna fisheries. I will do my best as President"

DNA test for prevention of IUU fishing

O PRT has been conducting tuna DNA test together with National Research Institute of Far Seas Fisheries, entrusted by the Fisheries Agency of Japan, in order to verify tuna species and the areas of catch.

The project will be carried out this year, with the participation of Tokai University as a project partner, and an increased number of frozen tunas will be inspected. Testing of processed frozen tunas shipped by container vessels will be reinforced. DNA testing and analysis at the time of landing will have an effective role in preventing imports into Japan of tunas caught by illegal, unregulated and unreported fishing activities.

