

Beyond the Terrible Disaster of the Great East Japan Earthquake

by Yasunori Sakurai, Tokio Wada and Satoshi Katayama

Ten months have passed since the terrible disaster of the Great East Japan Earthquake in the Tohoku region of Japan on March 11, 2011. We are very thankful for the many consoling and encouraging words from PICES and ICES members. The fishing industry in the Tohoku region was destroyed and damage to the coastal fishery and aquaculture industry is immeasurable. Rebuilding these industries will require huge financial investments and many years. A serious situation continues in the aftermath of the nuclear accident in Fukushima Prefecture. Some radioactive contamination has been observed in the vicinity of the nuclear power plant. Fortunately, tests for contamination of fish and shellfish were mostly negative or remained at an extremely low level.

We would like to express again our hearty thanks for the financial donation from PICES and ICES. The Japanese Society for Fisheries Oceanography (JSFO) used the donation to establish a fund to support fisheries and

oceanographic research in the areas affected by the earthquake. The Fund name is “*PICES/ICES/JSFO fund for fisheries and oceanographic researches on the recovering from the Great East Japan Earthquake*”. The outline of the fund operation is as follows:

- *Qualifying topics:* Fisheries and oceanographic research related to the Great East Japan Earthquake (e.g., assessment of the effect on fisheries and marine ecosystems, mitigation and restoration of damaged coastal fishing grounds, developing fishing and aquaculture technologies, developing recovery plans for fisheries and fishing villages) and holding workshops associated with these topics.
- *Eligibility:* Research institutes, universities and colleges, and other public institutions which undertake fisheries and oceanographic research and development in the disaster areas (especially Iwate, Miyagi, and Fukushima Prefectures) and their staff (JSFO membership is not essential).



Great damage (photos taken in April 2011).



Great recovery (photos taken in September 2011).

- *Award amounts:* Up to 500,000 JPY per project.
- *Schedule, etc.:* A call for proposals was issued in late May, with the deadline for receiving proposals in late June. Selection/adoption of proposals was completed by mid-July, with a distribution of grants by the end of July. The selection and adoption of projects in 2011 based on written proposals was made by a special committee organized by the president, vice-presidents, and some officers of JSFO. The results of this research will be presented at a topic session at the 2012 PICES Annual Meeting in Hiroshima, Japan.

JSFO funded the following 12 projects:

1. Impact assessment of the Great East Japan Earthquake on the coastal fisheries of Iwate Prefecture and monitoring of fish stocks for rebuilding sustainable fisheries.
2. Investigation of the impact of the Great East Japan Earthquake on the fisheries resources in the rocky shore of Iwate Prefecture and monitoring of their recovery.
3. Studies on the relationship between the occurrence of shellfish poisoning in Iwate Prefecture and the tsunami caused by the Great East Japan Earthquake.
4. Studies on the impacts of the Great East Japan Earthquake on the fishing grounds along the rocky shore coast of Fukushima Prefecture.
5. Studies on water quality and bottom sediment in Matsukawa-ura Bay, Soma City, Fukushima Prefecture.
6. Observation of larvae distribution of Pacific oysters for collecting seeds for oyster farming.
7. Changes in the community structure of microscopic plankton in Ofunato Bay, Iwate Prefecture – Examination of the growing factors of genus *Alexandrium*, the causative organisms of paralytic shellfish poisoning.
8. Changes in the migration style in amphidromous fishes.
9. Monitoring of the recovery process of lower trophic production in the surface layer in Onagawa Bay, Miyagi Prefecture.
10. Monitoring of the recovery process of lower trophic production in the surface layer in Onagawa Bay, Miyagi Prefecture.
11. Observation of the drifting and deposited marine debris leaked by the Great East Japan Earthquake.
12. Studies on the impact of the tsunami on the ecosystem of Otsuchi Bay, Iwate Prefecture, and its recovery process.

A JSFO symposium entitled “*Subjects of the fisheries oceanography for revival and recovery after the disaster at the Tohoku coast, Japan*” (co-convenors: Satoshi Katayama, Sei-Ichi Saitoh and Tokio Wada) was held on November 13, 2011, in Hakodate, Japan. This symposium sought to discover the problems that fisheries and fishing communities are facing, and to examine the evolution, since the earthquake, of the oceanography, marine living resources, fishing, aquaculture, seafood processing and supply-chain. A brief summary of the reports made at the symposium is included below.

Landings of Pacific saury and bonito at damaged harbors have recovered relatively smoothly, but returns of salmon were low. The price of walleye pollock remains low because the processing plants in Ishinomaki, a major food processing area in the Tohoku district, had not been restored. In the aquaculture sector, production will decrease from previous years, but seed collection and preparation of oyster, wakame- and nori-seaweed has progressed. It was noted, however, that scallops may remain at a low level of seed collection in 2012.

In rocky areas, inner bays and open water, red tide and oligo-hypoxia were generally not found. Although there was no significant change in water quality, muddy

deposition and suspending silts were a concern for production of benthic resources in rocky areas and the sea floor. From the viewpoint of whole fisheries systems, including supply-chain, processing, and consumption (including exports) under current conditions, fisheries economic activity was slowed and depressed by the slow redevelopment of infrastructure in the fisheries community.

The symposium inspired a proposition to examine “issues of fisheries oceanography based on the fisheries field”. Although there was agreement toward the flag mark of the fishery that substantial cooperation of each field of oceanography and fisheries biology, supply-chain and processing is indispensable, there was no consensus for extracting a concrete subject. For that purpose, planning and the sharing of research results among the relevant researchers in the field is needed. On that basis, with insight into problems that prevent the revival of fisheries, fisheries oceanography should meet the challenge to overcome it.

Finally, we wish to thank PICES members again for their consoling and encouraging words. We promise to support the recovery toward healthy coastal marine ecosystems and sustainable fisheries in the local communities of the Tohoku region to reach beyond the terrible disaster of the Great East Japan Earthquake.



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Dr. Tokio Wada (wadat@affrc.go.jp) is Director General of the National Research Institute of Fisheries Science at the Fisheries Research Agency of Japan. His specialty is population ecology of small pelagic fishes, especially sardine. He has been leading various projects on fish stock assessment and fisheries management conducted by the Government of Japan. In PICES, Tokio served as a founding member of the Fisheries Science Committee (FIS) and co-chaired the Working Group on Small Pelagic Fishes (WG 3), which was one of the first working groups of PICES. He was the Chairman of PICES from 2007 to 2010.

Dr. Satoshi Katayama (skata@m.tohoku.ac.jp) is a Professor at the Faculty of Agriculture, Tohoku University in Sendai, Japan. Satoshi is studying coastal fisheries biology and its relationship with environmental conditions in an attempt to reveal the fluctuation mechanism of coastal resources and to theorize the fisheries management for them. He has been a member of the Executive Board since 2005 and a senior editor of the Bulletin of the Japanese Society of Fisheries Oceanography (JSFO) since 2009.