

# General report on the projects aided by the PICES/ICES/JSFO fund for fisheries and oceanographic research on the recovery from the Great East Japan Earthquake

*Hiroya Sugisaki* on behalf of *Japanese Society of Fisheries Oceanography*  
 Fisheries Research Agency, [sugisaki@affrc.go.jp](mailto:sugisaki@affrc.go.jp)

Just after the Great East Japan Earthquake occurred on the 11<sup>th</sup> of March, 2011, PICES (North Pacific Marine Science Organization), ICES (International Council for the Exploration of the Sea) offered a donation of CDN\$55100 to a research fund for Japanese scientists. The Japanese Society of Fisheries Science (JSFO), as the secretariat of this fund, added ca. CD\$7400 and accepted applications for research projects and selected 11 projects, mainly from the local institutes and universities of Northeastern Japan (Tohoku area; Iwate, Miyagi and Fukushima prefectures)

Many local institutions of fisheries and oceanography has been damaged by the earthquake and tsunami.



Fukushima Prefectural Fisheries Experimental Station

International Coastal Research Center, Atmosphere and Ocean Research Institute, University of Tokyo

PICES/ICES/JSFO fund supported to recover their scientific activities especially for research on the effect of the fishing villages and ecosystems of northeastern Japan (Tohoku region).

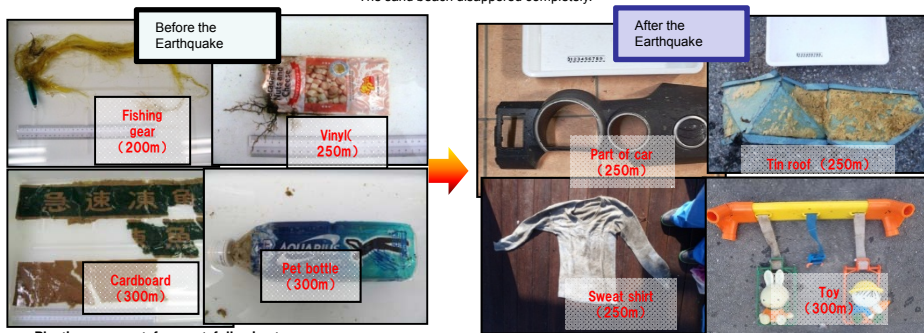
No.	Project Name*	Principal Investigator (Affiliation)	Participated Organizations
1	Impact assessment of the Great East Japan Earthquake on the coastal fisheries of Iwate Prefecture and monitoring of fish stocks for rebuilding sustainable fisheries	Tomooki Goto (Iwate Prefecture Fisheries Technology Institute)	Iwate Prefecture Fisheries Technology Institute
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 recovering	Toshiaki Omura (Iwate Prefecture Fisheries Technology Institute)	1) Iwate Prefecture Fisheries Technology Institute 2) Taro-Cho Fisheries Co-operative Association
3	Studies on the relationship between the occurrence of shellfish poisoning in Iwate Prefecture and the tsunami caused by the Great East Japan Earthquake	Toshiyuki Suzuki (National Research Institute of Fisheries Science)	1) National Research Institute of Fisheries Science, Fisheries Research Agency 2) Iwate Prefecture Fisheries Technology Institute
4	Studies on the impacts of the Great East Japan Earthquake on the fishing grounds along the rocky shore coast of Fukushima Prefecture	Naoe Hirakawa (Fukushima Prefectural Fisheries Experimental Station)	1) Fukushima Prefectural Fisheries Experimental Station 2) Tokyo University of Marine Science and Technology
5	Studies on water quality and bottom sediment in Matsukawa-ura Bay, Soma City, Fukushima Prefecture	Kazuyoshi Takasaki (Fukushima Prefectural Fisheries Experimental Station)	Fukushima Prefectural Fisheries Experimental Station
6	Observation of the larval distribution of Pacific oyster for collecting seed for the oyster farming	Mitsuru Morimoto (Miyagi Fisheries High School)	1) Miyagi Fisheries High School 2) Tohoku University
7	Changes in the community structure of microscopic plankton in Ofunato Bay, Iwate Prefecture - Examination of the growing factors of genus <i>Alexandrium</i> , the causative organisms of paralytic shellfish poisoning	Yuichiro Yamada (Kitasato University)	1) Kitasato University 2) Iwate Prefecture Fisheries Technology Institute
8	Changes in the migration style in amphidromous fishes	Kinuko Ito (Tohoku University)	1) Tohoku University 2) Miyagi Prefecture Fisheries Technology Institute 3) Hirose-Natogawaga Fisheries Co-operative Association
9	Monitoring of the recovery process of the lower trophic production in the surface layer in Onagawa Bay, Miyagi Prefecture	Yoshinari Endo (Tohoku University)	Tohoku University
10	Observation of the drifting and deposited marine debris leaked by the Great East Japan Earthquake	Yuji Miyake (Kitasato University)	1) Kitasato University 2) Japan Agency for Marine-Earth Science and Technology 3) Ehime University
11	Studies on the impact of the tsunami on the ecosystem of Otsuchi Bay, Iwate Prefecture, and its recovery process	Hideki Fukuda (International Coastal Research Center, Atmosphere and Ocean Research Institute, University of Tokyo)	Atmosphere and Ocean Research Institute, University of Tokyo

Monitoring for the damages of landscape, human society and ecosystem by tsunami



Before the earthquake (2007.5.10)

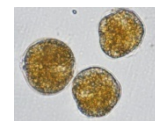
After the earthquake (2012.9.4)  
The sand beach disappeared completely.



•Plastic were most frequent, following to fishing gear and metal.  
•Derived from fishery and our day life.

•Much of debris were derived from Tsunami.

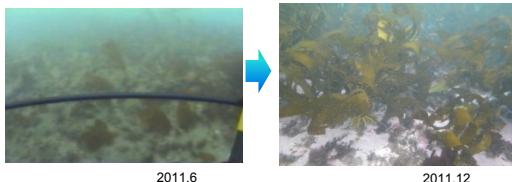
Monitoring on shellfish poisoning and appearance of its causative organisms



Appearance of poisonous ingredient corrected from *A. tamarense* and the mid-gut gland of mussel

Specimens	<i>A. tamarense</i>		Mid-gut gland of mussel	
	4 <sup>th</sup> , May	1 <sup>st</sup> , June	1 <sup>st</sup> , June	11 <sup>th</sup> , June
Sampling date	fmol/cell (mol%)		nmol/g (mol%)	
C1,2	100.1 (15.6)	—	46.0 ± 36.9 (7.3 ± 2.8)	—
GTX1,4	486.8 (75.7)	—	340.8 ± 161.8 (61.9 ± 5.8)	—
GTX2,3	56.0 (8.7)	—	112.4 ± 55.7 (20.8 ± 5.5)	—
dcGTX2,3	— (—)	—	6.3 ± 3.3 (1.1 ± 0.2)	—
neoSTX	— (—)	—	41.5 ± 15.8 (7.8 ± 1.3)	—
dcSTX	— (—)	—	5.8 ± 2.5 (1.1 ± 0.3)	—
STX	— (—)	—	— (—)	—
<b>Total</b>	<b>642.9</b>	<b>—</b>	<b>552.8 ± 251.6</b>	<b>—</b>

Research on the ecosystem change and recovery



Rocky shore of Fukushima pref.

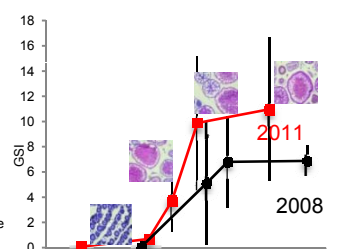


Larval oysters settles on the shell in Miyagi pref.

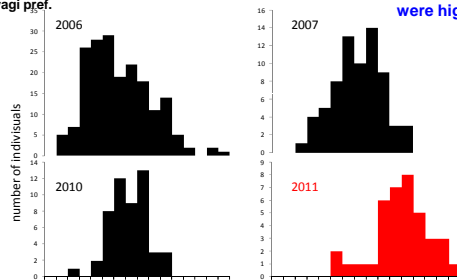
After the earthquake and tsunami, poisonous mussels were highly appeared in Ofunato Bay, Iwate prefecture.



Ayu, *Plecoglossus altivelis*, Osmeridae Amphidromous fish

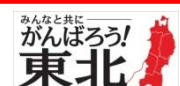


GSI and gonad development of Ayu



Hatch date composition Ayu

We are deeply grateful to PICES, ICES and world's people for their kind support and sympathy.



Let's hang in there together!!