Reconstruction of Fisheries After the Great East Japan Earthquake

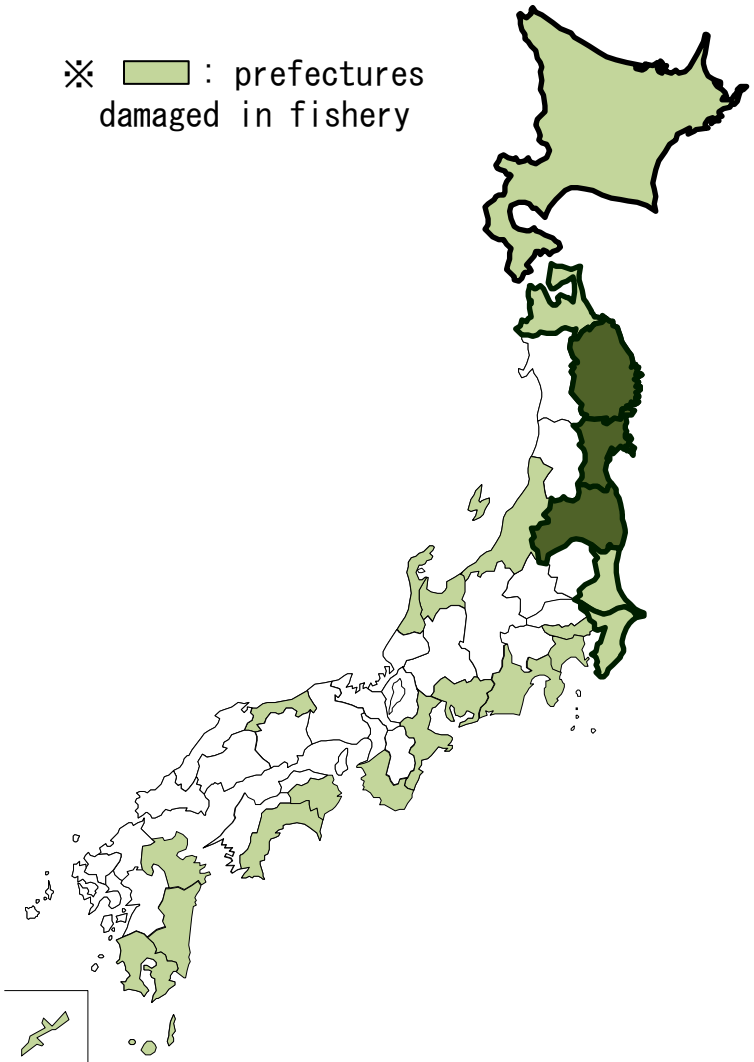
(Preliminary Translation)

Masanori MIYAHARA
Fisheries Agency of JAPAN

Damages in fishery (fishing vessels, fishing ports, aquaculture, and shared facilities)

- Major damage occurred over a wide area primarily in the seven prefectures (Hokkaido, Aomori, Iwate, Miyagi, Fukushima, Ibaragi, and Chiba). Damage in Iwate, Miyagi, and Fukushima was especially severe, where coastal areas were destroyed almost completely by tsunami.

※ : prefectures damaged in fishery



Damages in fishery

Total : 1,263.7 bil yen (15.8 bil USD)
(The 7 prefectures : 1,254.4 bil yen (15.7 bil USD))

Items	Total		The 7 prefectures	
	Number	Value	Number	Value
Fishing vessels	28,612 / 191,574 vessels	182 bil yen (2.3 bil USD)	28,479 / 51,445 vessels	181 bil yen (2.3 bil USD)
Fishing port facilities	319 / 2,914 ports	823 bil yen (10.3 bil USD)	319 ports / 730 ports	823 bil yen (10.3 bil USD)
Aquaculture		134 bil yen (1.7 bil USD)		125 bil yen (1.6 bil USD)
(facilities)		(74 bil yen)		(72bil yen)
(product)		(60 bil yen)		(53bil yen)
Common use facilities	1,725 facilities	125 bil yen (1.6 bil USD)	1,714 facilities	125 bil yen (1.6 bil USD)

＊ Besides damages shown on this table, there is about 160 billion yen damages on fish processing and ice making/refrigeration facilities owned by private companies, according to the fish processing industry

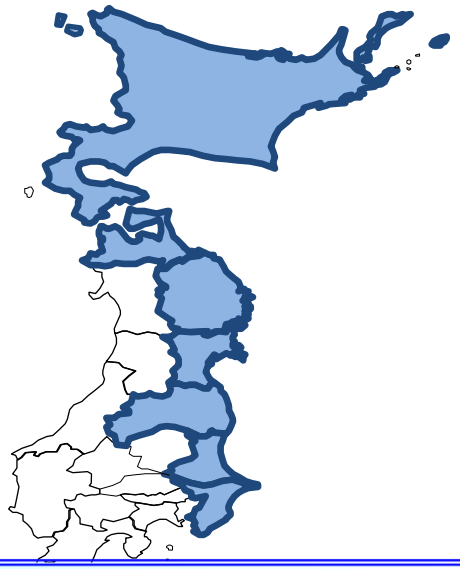
Fishing vessel carried up on Ayukawa Port (Ishinomaki, Miyagi Pref.)

Fish processing facility at Yoriiso Port damaged by tsunami (Ishinomaki, Miyagi Pref.)

Note: Figures of damages are as of 18th April, 2012, and subject to change according to further assessments of the damages.

Major Damage in fishery in the seven prefectures

- The seven prefectures, where major damage occurred, account for 50% of Japan's fisheries production(Hokkaido, Aomori, Iwate, Miyagi, Fukushima, Ibaraki, and Chiba) .



Damages in fishery of the 7 prefectures

Fishing vessels:
- About 28,000 vessels were damaged in the 7 prefectures (total number of fishing vessels covered by vessel insurance was about 51,000 in the 7 prefectures)
- Especially severe damages in Iwate and Miyagi Pref.

Facilities (ports, markets):
- 319 fishing ports, 823 bil yen damage in the 7 prefectures
- Most of the nearby markets were damaged, including 22 completely destroyed markets

Fish processing facilities
- 570 completely destroyed, 113 partially destroyed, 140 flooded, out of 2,108 facilities in 7 pref.

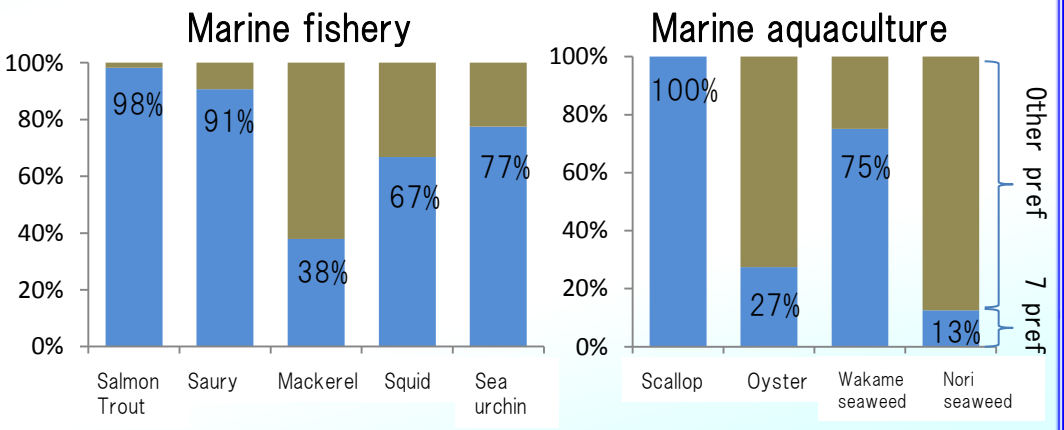
Aquaculture facilities
- 125 bil yen damage in the 7 prefectures (including aquaculture products)

Note: Figures of damages are as of 18th April, 2012, and subject to change according to further assessments of the damages.

Fishery product share of 7 prefectures

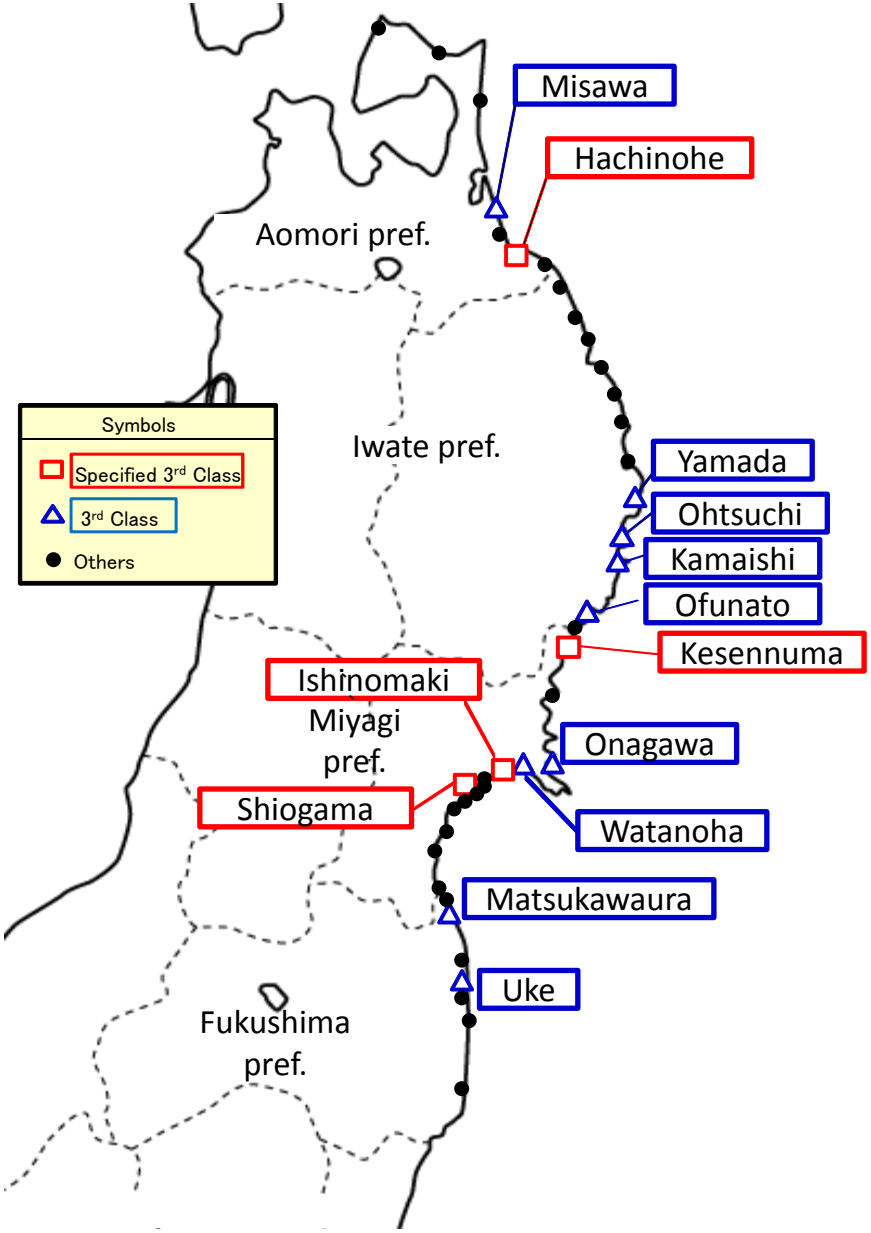
	7 pref.	Japan total	Share of 7 pref.
Marine fishery production (thousand tons)	2,163	4,083	53.0%
Marine aquaculture production (thousand tons)	423	1,109	38.1%
Number of fishing vessels	51,445	191,574	26.9%
Number of fishers	73,948	221,908	33.3%

Note: Hokkaido's number of fishing vessels includes only those vessels operating on the Pacific side of the prefecture



Source: (Production) Statistics of Fishery and Aquaculture Production 2010, (Number of fishers) Fishery Census 2008, (Number of vessels) vessels covered by vessel insurance

Fishing ports damaged by the earthquake (Tohoku region)



Class of fishing ports

- 1st Class : Fishing ports mainly used by local fishing vessels
- 2nd Class : Fishing ports between 1st and 3rd class
- 3rd Class : Fishing ports used by fishing vessels across the nation
  ※Specified 3rd Class: Fishing ports especially important for promotion of Japan's fishery among 3rd Class
- 4th Class : Fishing ports located in remote islands and areas, especially necessary for development of fishing grounds and evacuation of fishing vessels

	Number of fishing ports	Number of damaged fishing ports
Hokkaido	282	12
Aomori	92	18
Iwate	111	108
Miyagi	142	142
Fukushima	10	10
Ibaraki	24	16
Chiba	69	13
Total	730	319

Steps to recover and reconstruct fisheries

【1st Step】 Emergency response

·*Ensure daily lives of residents*
·*Grasp the situation of affected area*

Establishment of the Headquarters of Disaster Emergency Response

1. Fishery patrol vessels provided relief supply and assessed the damages to fishing ports, facilities, etc.
2. Teams of FAJ were dispatched from Tokyo to collect information on and needs of suffered fishermen and their communities, in particular isolated ones.
3. Emergency financial and other assistance measures were also taken.

Carrying relief supplies

【2nd Step】 Restart of fisheries

·*Preliminary support for restart of fisheries production*

Measures by 1st supplementary budget

1. Support fishermen to ensure enough funds to restart fisheries production
2. Support fishermen to rebuild fishing vessels, fishing equipments, aquaculture facilities, etc.
3. Preliminary rebuilding of wholesale markets, fisheries processing facilities, etc.
4. Preliminary recovery of fishing ports, fishing grounds, and fishing villages

【3rd Step】 Reconstruction strategy

·*Reconstruct fisheries in an integrated manner together with other related industries as a whole*

Reconstruction of fisheries in line with "Master Plan for Reconstruction of Fisheries" and "Basic Guidelines for Reconstruction"

1. Reconstruction of Japan's fisheries is promoted taking into account the views of local residents with an eye to various industries constituting fishing industry in line with "Master Plan for Reconstruction of Fisheries (June 28th, 2011)" and "Basic Guidelines for Reconstruction in response to the Great East Japan Earthquake(July 29th, 2011)"
2. Based on the Guidelines, recovery and reconstruction schedule of fishing ports, fishing vessels, aquaculture facilities, fisheries processing facilities, fishing grounds, etc. was made on August 26th and November 29th, 2011
3. More than 800 billion yen (10 billion USD), a total of three supplementary budgets in the fiscal year 2011 and part of the initial budget in the fiscal year 2012, was allotted to recovery and reconstruction of fisheries.

Master Plan for Reconstruction of Fisheries (Summary)

The importance of fisheries in damaged region

○ Iwate, Miyagi, and Fukushima suffered particularly serious damage. The amount of damage in fisheries is more than 1 trillion yen (more than 12 billion USDs)

○ It is very important to reconstruct fisheries of Sanriku region for local economy and infrastructure as well as stable supply of fisheries products to the whole nation.

Principles for Reconstruction

【Fundamental principles of reconstruction】

i)Take the views of local residents sufficiently into account

ii)Fully utilize the local fisheries resources

iii) Ensure stable supply of safe fisheries products to consumers

iv) Implement any measures in view of fishing season

v) Set a goal to construct a new fisheries than just to restore original state

【Basic concept of reconstruction】

Ⅰ Coastal fisheries and regions

・ To enhance cooperative fishing/processing operations through promotion of co-ownership and rationalization of fishing/processing facilities including fishing vessels

・ To promote matching between outside investors and recipients in the local communities towards introduction of private funds to coastal fisheries, and if necessary, to treat private corporations involving local fishermen in granting fishing rights without being inferior to fishery cooperatives.

・ To prioritize reconstruction of fishing ports in consideration of concentration of functions to major ports and their division and carry out the reconstruction based upon the priority and the needs.

Ⅱ Offshore and distant water fishing

・ To promote structural reforms of the fishing industry by the modernization and rationalization of fishing fleets as well as streamlining and upgrading of distribution and processing industries.

・ To reconstruct urgently the major fishing ports and improve their functions of distribution as well as disaster prevention

Reconstruct fisheries in an integrated manner together with other related industries as a whole

Measures for the Nuclear Accident

- Strengthen the monitoring of radioactive materials
- Disseminate the information about the safety of fisheries products

1. Fishing ports

Secure necessary functions of fishing ports for the region as a whole in an early stage by promoting division of roles among fishing ports

i) Core fishing ports which serve as nation-wide bases for production and distribution of fishery products

ii) Fishing ports which serve as local bases for production and distribution of fishery products

iii) Other fishing ports

2. Fishing grounds & Fishery resources

- Provide support to remove debris, starting with the important fishing grounds so that fishing can be resumed promptly
- Conduct monitoring of fishing ground environments continually

8. Fishing villages

- Promote rebuilding fishing villages highly resistant to disasters based upon local residents' views
- Ensure the best performance of disaster prevention depending on the village's situation
- Support effort to create sixth industry and ecological villages

Reconstruction of Japan's fisheries as a whole taking due account of local residents' views with an eye to all the various industry sectors involved in fishery production.

3. Fishing vessels / Fisheries Management

- Promote modernization and rationalization of fishing fleets
- Encourage introduction of shared vessels and cooperative fishing
- Ensure stable supply of fishery products by remedial measures for rising oil price

4. Aquaculture / Cultural fishery

- Encourage joint management, cooperation and incorporation to develop productive aquaculture
- Rebuild seedling production system for salmon and other species

7. Fishery cooperatives

- Reconstruct and rebuild fishery cooperatives to support local fisheries
- Ensure sound prefectural credit federations for fishery cooperative associations by capital infusion.

6. Fisheries Management

- Ensure employment for suffered fishermen through supporting their removal activities of debris
- Promote coordination and matching of local fishery operators in a way to enable them to collaborate with outside private companies

5. Fish processing and distribution

- Promote integration and development of facilities along local residents' views
- Support effort to create sixth industry and improve the quality control and hygienic condition
- Rebuild fish markets coordinating with reconstruction of fishing ports

Picture of Fisheries Reconstruction in line with the Master Plan

Support to immediate restart of fisheries

Support restart of fisheries

- Removing of debris by fishermen

- Provide special interest-free loan with no requirement for gurantors
- Introducing shared fishing vessel

- Recovering set net and aquaculture facilities

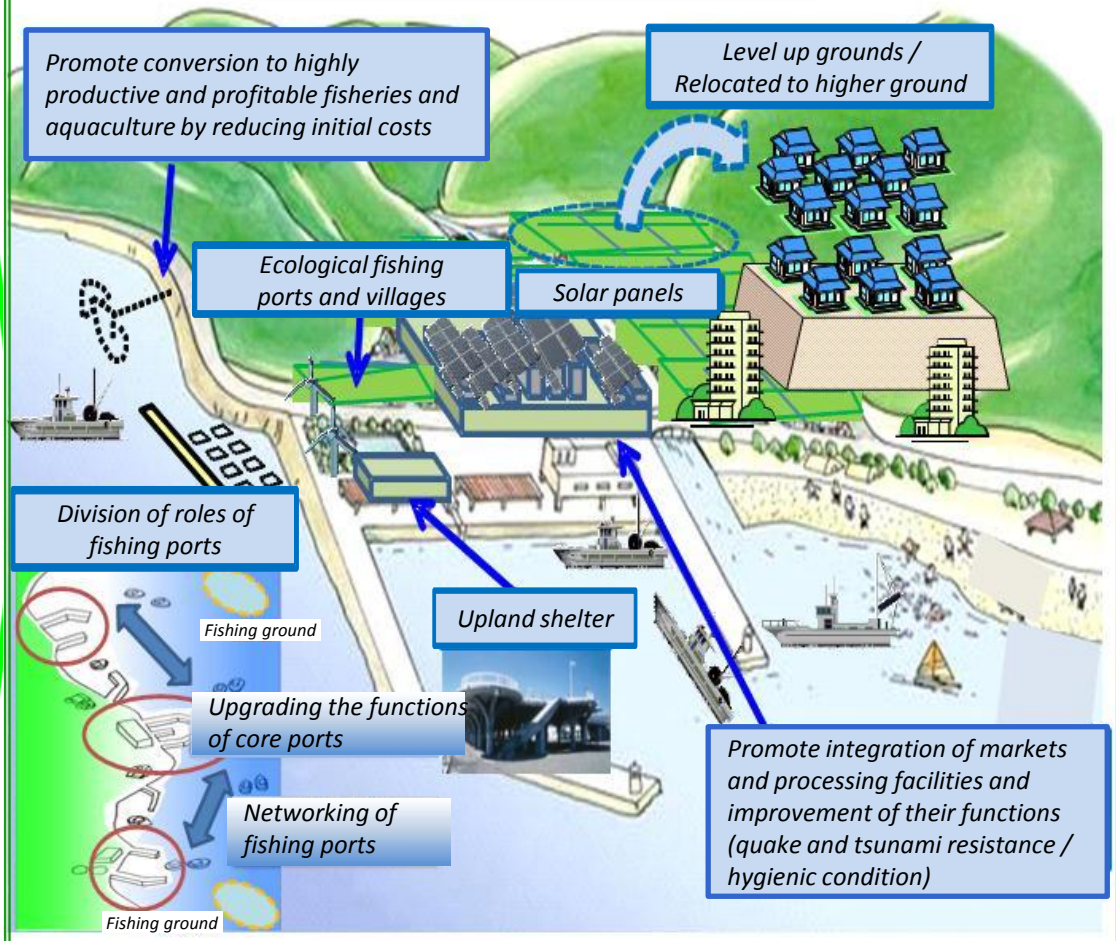
Support recovery and reconstruction of fish processing and distributing facilities

Introducing of freezers / refrigerators

Support recovery and reconstruction of fishing ports and fishing villages

- Removing debris in fishing ports

Support to effort to reconstruction



Restore as Japan's fishing base

Fully utilize the local fisheries resources

Ensure stable supply of safe fisheries production

Concentration and strengthening of the functions of fishing ports

Modernization and rationalization of fishing vessels and farming facilities

Streamlining and upgrading of distribution and processing industries

Strengthening of disaster prevention and promotion of ecological fishing villages

Basic Guidelines for Reconstruction in response to the Great East Japan Earthquake (extract) (July 29th, 2011)

○ The Guidelines clarify an overall picture of the actions of the disaster-afflicted municipalities in formulating their own reconstruction plans and so forth.

Reconstruction of fisheries

⑤ Fisheries

(i) Provide support to restart fisheries management and recover local fisheries through supporting, inter alia, recovery of fishing boats, fishing equipment and aquaculture facility, development of shared facilities such as freezing/refrigerating facilities and removal of debris by disaster affected fishermen.

(ii) Restore fishing grounds and resources by, inter alia, rebuilding seedling production systems for salmon other fishes, development of sea grass beds, tidal flats, etc., monitoring of fishing ground environment utilizing scientific findings and appropriate resource management.

Promote modernization and rationalization of fishing boats and fleet, encourage joint management and cooperation of production activities and strengthen fishing industry, giving due consideration to characteristics of each form of fishery (e.g. aquaculture industry requires a certain period of time after its start of production before it generates income).

(iii) Promote reconstruction of fish processing and distributing industries in an integrated manner together with harvesting industries, with the effort to create sixth industry in perspective, such as new product development in collaboration with oyster farmers. Also, support the reconstruction of related industries such as shipbuilding industry.

(iv) Secure necessary functions of fishing ports for the region as a whole in an early stage, by promoting sophistication of distribution functions and other functions of the core fishing ports, aggregate functions and division of roles among fishing ports.

Strengthen distribution and processing functions of core fishing ports which serve as nation-wide bases for production and distribution of fishery products.

In regards to fishing ports which serve as local bases for production and distribution of fishery products, promote aggregation and strengthening of, inter alia, market facilities, aquaculture-related facilities and other facilities, keeping in mind that those parts complement the functions of surrounding fishing ports.

Implement projects in the order of its necessity, such as securing mooring facilities, for other fishing ports.

(v) Promote coordination and matching of fishery operators in a way to enable them to collaborate proactively with companies with know-how or capital, on the basis of understanding of the community. In necessary areas, create system of special zone where private corporations run by local fishery operators can obtain fishing rights without being subordinated to fishery cooperatives.

Budgets for recovery and reconstruction of fisheries

Total 818.3 bil yen(1st additional budget 215.3 bil yen, 2nd additional budget 19.8 bil yen, 3rd additional budget 498.9 bil yen, 2012 initial budge t for recovery / reconstruction 84.3 bil yen)
(10.2 bil USD) (2.7 bil USD) (0.2 bil USD) (6.2 bil USD) (1.1 bil USD)

Damage in fisheries

damaged fishing vessel

Damaged fishery processing facility

Damaged breakwater

Main measures for recovery and reconstruction

Support for restart of fisheries and farming

- Support for recover of fishing vessels and set nets and restart of fisheries 【72.7 bil yen (0.9 bil USD)】
- Support for recover of farming facilities and restart of farming 【125 bil yen (1.6 bil USD)】
- Support for restoration of fisheries resources by releasing seedling and reconstruction of seedling production facilities 【21.3 bil yen (0.3 bil USD)】
- Support for effort to recover fishing grounds by removing debris 【36.9 bil yen (0.5 bil USD)】
- Monitoring radionuclide levels of fisheries products 【1 bil yen (0.01 bil USD)】

Support for recovery and reconstruction of fishery processing and distributing facilities

- Support for recovery and reconstruction of fishery processing and distributing facilities and for strengthening of their functions 【94.1 bil yen (1.2 bil USD)】

Support for recovery and reconstruction of fishing ports and villages

- Support for recovery and reconstruction of fishing ports and villages and for strengthening of their functions 【321.2 bil yen (4.0 bil USD)】

Other supports: 146.1 bil yen (1.8 bil USD)

Immediate reconstruction of fisheries

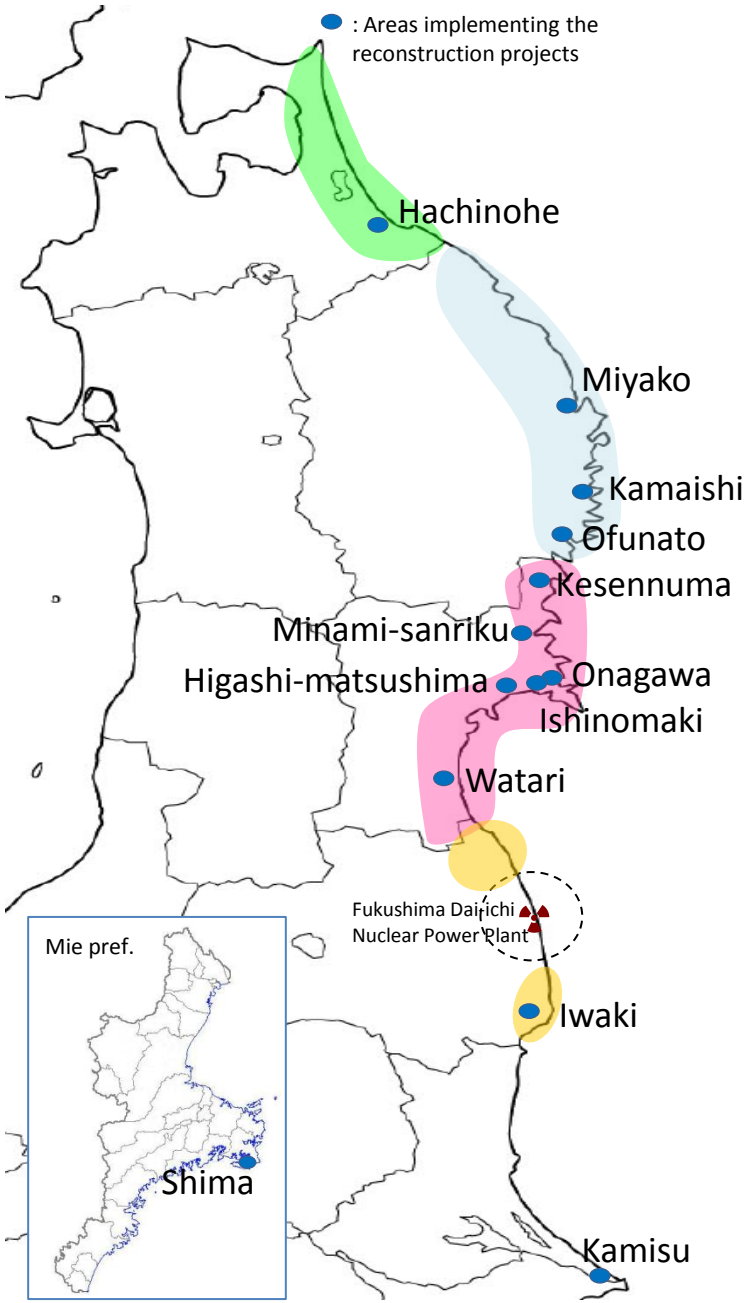
Progress of recovery and reconstruction of fisheries

	Progress situation (%) 0 20 40 60 80 100	Remarks
Landed of Catch	Year on year rate of major markets in Iwate, Miyagi, and Fukushima in March 2011and 2012 Quantity 78% (17 thousand ton) Iwate 75% (8,700t) Miyagi 84% (8,700t) Fukushima 0% (0t) Value 84% (2.2 billion yen (28 million USD)) Iwate 72% (0.6 bil.yen) Miyagi 93% (1.7 bil.yen) Fukushima 0% (0 mil.yen)	[Iwate] Kuji, Miyako, Kamaishi, and Ohfunato [Miyagi] Kesennuma, Onagawa, Ishinomaki, and Shiogama [Fukushima] Onahama (No fish was Landed in March 2012) Catch will increase with restart of fisheries.
Fishing ports	319 fishing ports were damaged. 97% (Landing started in 311 fishing ports partially) Iwate 100% (108 ports) Miyagi 96% (137 ports) Fukushima 70% (7 ports) 232 fishing ports required removal of debris in channels and mooring areas . 100% (All of 232 fishing ports) Iwate 100% (88 ports) Miyagi 100% (106 ports) Fukushima 100% (7 ports)	Landing quays of about 40% damaged fishing ports are planned to recover by the end of March 2013. Core fishing ports are planned to recover by the end of March 2014. (As to particularly damaged core fishing ports and other fishing ports, by the end of March 2016)
Fishing Vessels	About 29,000 fishing vessels were suffered. 70% (8,411 vessels recovered) Iwate 3,696 vessels Miyagi 2,886 vessels Fukushima 189 vessels	At least 12000 fishing vessels are planned to recover by the end of March 2014.(90% of this target is planned to recovere by the end of March 2013

Progress situation of recovery and reconstruction of fisheries

		Progress situation (%) 0 20 40 60 80 100	Remarks
Farming Facilities	Brown seaweed in Iwate (About 12000 facilities before the disaster)	About 50% of facilities recovered (Brown seaweed, in Iwate)	All of fish farmers willing to restart are planing to recover their facilities by the end of March 2013
	Salmon in Miyagi (About 300 facilities)	About 70% of facilities recovered (Salmon, in Miyagi)	
	Brown seaweed in Miyagi (About 24000 facilities before the disaster)	About 60% of facilities recovered (Brown seaweed, in Miyagi)	
	Laver seaweed in Miyagi (About 51000 facilities before the disaster)	About 40% of facilities recovered (Laver seaweed, in Miyagi)	
Processing and Distributing Facilities	34 markets were damaged in the three prefectures	65% (22 markets have restarted) Iwate : 92%(12 markets) Miyagi : 100%(9 markets) Fukushima : 8%(1 market)	All of markets in Iwate and Miyagi are planned to restart in 2012.
	831 fisheries processing facilities were damaged in the three prefectures	50% (417 facilities have restarted) Iwate : 56%(125 facilities) Miyagi : 45%(223 facilities) Fukushima : 60%(69 facilities)	All of fish processors willing to restart are planning to recover and reconstruction by the end of March 2016.
Debris in fishing grounds	Debris spilled out into 958 fishing areas of set net.	92% (Debris was removed in 879 fishing grounds) Iwate : 97%(123 areas) Miyagi : 91%(756 areas) Fukushima : —	The rest of debris in fishing grounds are planned to be removed by the end of March 2013.(If the situation calls for it, it continues for another year.)
	Debris spilled out into 804 farming areas	91% (Debris was removed in 732 farming areas) Iwate : 94%(134 areas) Miyagi : 91%(596 areas) Fukushima : 33%(2 areas)	

Support Project for Reconstruction of Fisheries and Farming with new approaches



Under this support project, fisheries operators trying new approaches can be assisted in initial operation cost necessary for restart of fisheries management (e.g., employment cost, material cost, etc.), which shall be returned from the profit after operation. In case of the red, they can be assisted in a part of the deficit.

【Progress situation】

○Fisheries by vessels (budget：23.8 bil yen (0.3 bil USD))

H23.12.20　1st Central Conference (10 projects were approved)
※Master Plan 1：Large-scale Purse seiners (from Aomori to Chiba)
※Individual Projects 9：Hachinohe (Aomori), Ofunato (Iwate), Kesennuma (Miyagi), Onagawa (Miyagi), Iwaki (Fukushima), Kamisu (Ibaraki)

H24.3.14　2nd Central Conference (4 projects were approved)
※Individual Projects 4：Miyako & Kamaishi (Iwate), Ishinomaki (Miyagi), Onagawa (Miyagi), Watari (Miyagi)

14 projects are now approved (17th April, 2012)
(21 vessels and 8 groups are approved (expected project expense : 15.7 bil yen (0.2 bil USD))

○Farming (budget：56.7 bil yen (0.7 bil USD))

H23.12.26　1st Approval Conference in Miyagi (1 project was approved)
※Higashi-matsushima (Miyagi)
H24. 2. 3　2nd Approval Conference in Miyagi (3 projects were approved)
※Minami-sanriku (Miyagi)
H24. 3.12　1st Approval Conference in Tokyo (1 project was approved)
※Shima (Mie)
H24.3.28-29　3rd Approval Conference in Miyagi (5 projects were approved)
※Ishinomaki and Onagawa (Miyagi)

Scheduled conference in April, 2012　1st Approval Conference in Iwate (2 projects will be judged)
4th Approval Conference in Miyagi (2 projects will be judged)

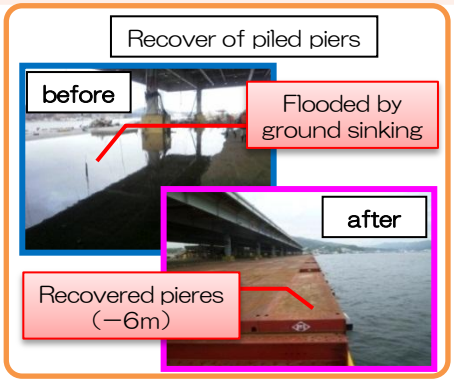
10 projects are now approved (17th April, 2012)
(226 farming managements approved (expected project expense : 4.3 bil yen (0.5 bil USD))

Progress situation of recover constructions on fishing ports

○ Recover constructions of quay walls, port roads, floating piers, shallow draft quays etc., have started in each damaged fishing ports. (It is completed to remove debris in channels and mooring areas by emergency construction in all of 232 fishing ports which required it.)
○ Recover constructions are now underway on 285 fishing ports. At the present moment, catch of fish can be landed in 311 fishing ports if only partially

Pref.	Damaged fishing ports	Recovery construction is now underway	Examples	Catch can be landed if only partially
Aomori	18	18	channel, mooring area, etc.	18（100%）
Iwate	108	97	channel, mooring area, floating pier, port road, etc.	108（100%）
Miyagi	142	126	channel, mooring area, quay wall, port road, shallow draft quay, etc.	137　（96%）
Fukushima	10	7	channel, mooring area, port road, etc.	7　（70%）
Others	41	37	channel, mooring area, breakwater, boat lift yard, etc.	41（100%）
Total	319	285		311　（97%）

※Emergency constructions are completed on all of 253 fishing ports which required them.



Examples of recover constructions (Kesennuma fishing port)

Outline

- Kesennuma fishing port: Specified 3rd class fishing port
  Managed by Miyagi pref.

Emergency construction

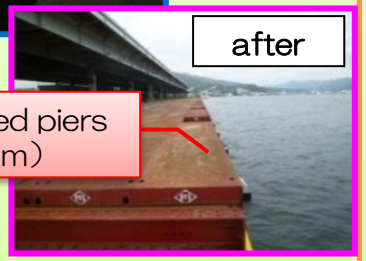
- A huge amount of debris in the channels and mooring areas were removed.
- Because of sinking of quay walls and their hinterlands, fishing vessels could not be moored. Landing piers were, therefore, recovered by emergency constructions so that skipjack bonito could be landed from the beginning of the fishing season of 2011.

Just after the disaster

~Emergency constructions~

Removal of debris in the fishing port

Recover of piled piers



~Restart of fisheries~

Landing of skipjack bonito(28th June)

Examples of recover constructions (Ofunato fishing port)

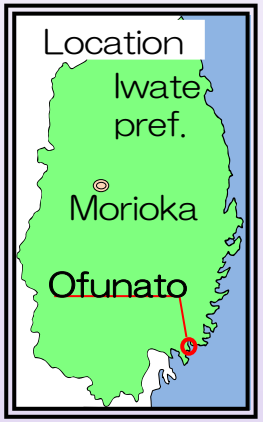
Outline

● Ofunato fishing port: 3rd class fishing port
Managed by Iwate pref.

Emergency construction

● A huge amount of debris in the channels and mooring areas were removed.

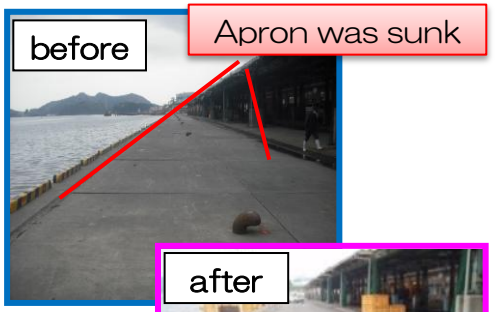
● Because of sinking of quay apron, there was some difficulty in landing. The difference in level on the apron was eliminated with asphalt.



~Emergency constructions~

Removal of debris in the fishing port

Elimination of the difference in level on the apron



~Restart of fisheries~

Landing of fish caught by set net (1st July ~)

Examples of countermeasures against ground sinking of fishing port (Ishinomaki fishing port, Miyagi)

The situation of damage

◆ **Break waters, quay walls, fish market, fisheries processing facilities, etc. suffered serious damage by tsunami.**

◆ Because of sinking of grounds (about 70cm), the fishing port and the area of fisheries processing facilities was flooded with seawater in high tide.

Suffered and sunk fisheries processing facilities

Flooded area of fisheries processing facilities

Countermeasures against ground sinking

1. The level of quays and the area of fishing port facilities were raised so that flood into the area of fisheries processing facilities was stop. (the end of 2011)

The level raising of the area of fishing ports facilities to stop flooding hinterland

2. In addition to level raising of quays and the area of fishing port facilities, the construction of rain drainage measures and level raising of the area of fisheries processing facilities started from March 2012.

◆Destroyed facilities restoration works
【3rd supplementary budget】234.6 bil. yen (29.3 bil. USD)

◆Fisheries infrastructure improvement project
【3rd supplementary budget】20.2 bil. yen (2.5 bil. USD)

The level raising of quays, port roads, the area of fishing port facilities (including the area of fisheries processing facilities), etc. and drainage measures are implemented in an integrated manner together with destroyed facilities restoration works

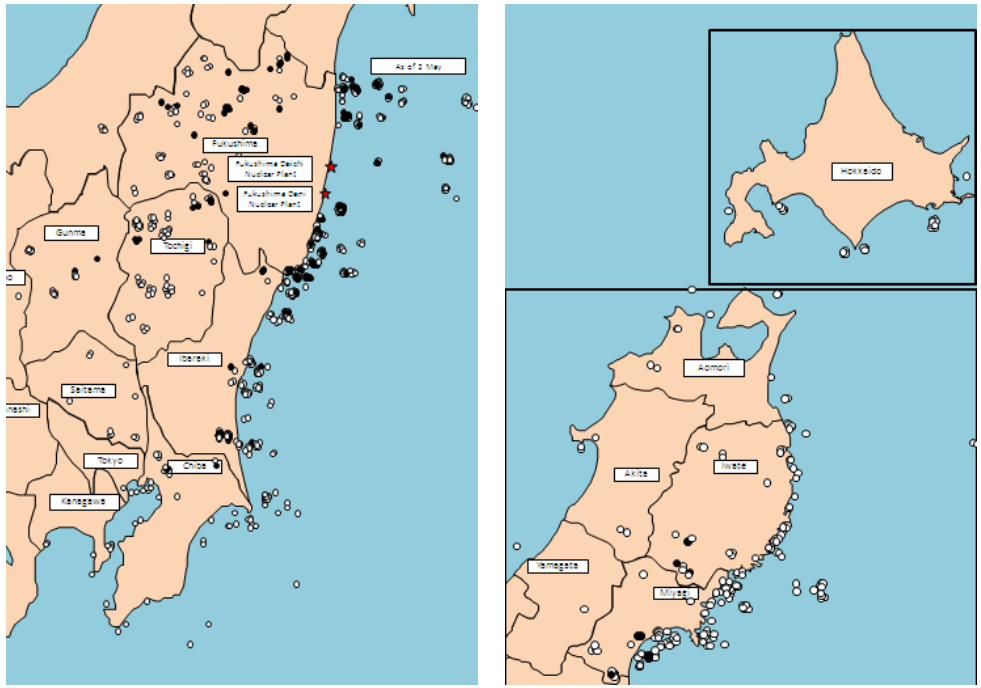
Response to the Nuclear Accident ①

- After the accident of Fukushima Dai-ichi Nuclear Power Plant Station, Tokyo Electric Power Co. INC., exceeding provisional regulation value was detected from some fishery products. For these fish species, either distribution is restricted in accordance with the instruction by the Government of Japan, or the industry and the prefectures concerned voluntarily refrain from relevant fishing operations.
- FAJ notified prefectures of the “Basic Policy for Inspections on Radioactive Materials in Fishery Products”. FAJ will continue inspections on radioactive materials and publication of correct information.

Results of the measurements of radioactivity in fishery products (As of April 18th, 2012)

Items	Number of inspected	Number of exceeding standard limit (100 Bq/kg)
Seawater fish species	6,627 (673)	1,175 (85)
Invertebrata (squid, octopass, etc.)	1,119 (78)	80 (1)
Seaweeds	410 (8)	20 (0)
Processed fishery products	33 (3)	3 (0)
Freshwater fish species	1,285 (147)	312 (28)
Migratory fish species (skipjack, albacore, etc.) (included in above)	733 (39)	0 (0)
Cetacean	34 (0)	0 (0)
Total	9,508 (909)	1,590 (114)

Coastal sampling points since April 2012 (As of May 2nd , 2012)



Note: Figures in brackets are published numbers of inspected and exceeding standard limit since April 2012.

Response to the Nuclear Accident ②

Effort to restart fisheries off the coast of Fukushima

- While cessation of all fishing operations off the coast of Fukushima continues, it is important to make effort to restart fishing on a species by species basis by area after ensuring the safety of fish and proper risk communication with consumers.
- For this purpose, FAJ is working with fishermen and fishery cooperatives concerned to develop special projects for restart of fishing operations.

Countermeasures to harmful rumors and exports

- In order to prevent harmful rumors, it is important to publicize the correct information. Results of the inspections and Q&A about impact of radioactive materials on fish are put on the website to inform accurately.
- The campaign to support reconstruction of suffered regions by willingly consuming agricultural, forestry, and fishery products produced in suffered regions is now held under the catchphrase "Support by eating."
- The Japanese authorities issue the certificates when exported countries ask the certificate of origin or the radiation free certificate
- For foreign countries, information about our measurements are provided through diplomatic channels and results of the inspections and Q&A about impact of radioactive materials to fish are put on the website in English.

Current measures (As of April 18th, 2012)

● Miyagi Pref.

【Distribution is prohibited】

・Seabass (off the coast of Miyagi, south of Kinkazan) (12/4/2012 -)

【Voluntarily restraint of fishing operation】

・Skimming net for Japanese sandlance (off the coast of Miyagi) (21/1/2012-)

【Voluntarily restraint of landing】

・Pacific cod (more than 1kg)
(north of Kinkazan, shallower than 150m) (Sendai-Bay)(30/3/2012-)

・Panther puffer (south of Sendai-Bay)

● Fukushima Pref.

【Distribution and ingestion are restricted】

・Juvenile fish of Japanese sandlance (off the coast of Fukushima) (20/4/2011 -)

【Voluntarily cassation of fishing operation】

・All coastal fishery and trawl fishery (off the coast of Fukushima) (15/3/2011-)

● Ibaraki Pref.

【Distribution is prohibited】

・Rockfish (off the coast of Ibaraki) (13/4/2012 -)

・ Seabass, Nibe croaker and Olive flounder (off the coast of Ibaraki) (17/4/2012 -)

【Voluntarily restraint of distribution and sale requested by the prefectural government】

・Japanese sandlance (except for juvenile fish in north area) (off the coast of Ibaraki) (5/4/2011 -)

・Brown hakeling (off the coast of Ibaraki) (5/9/2011 -)

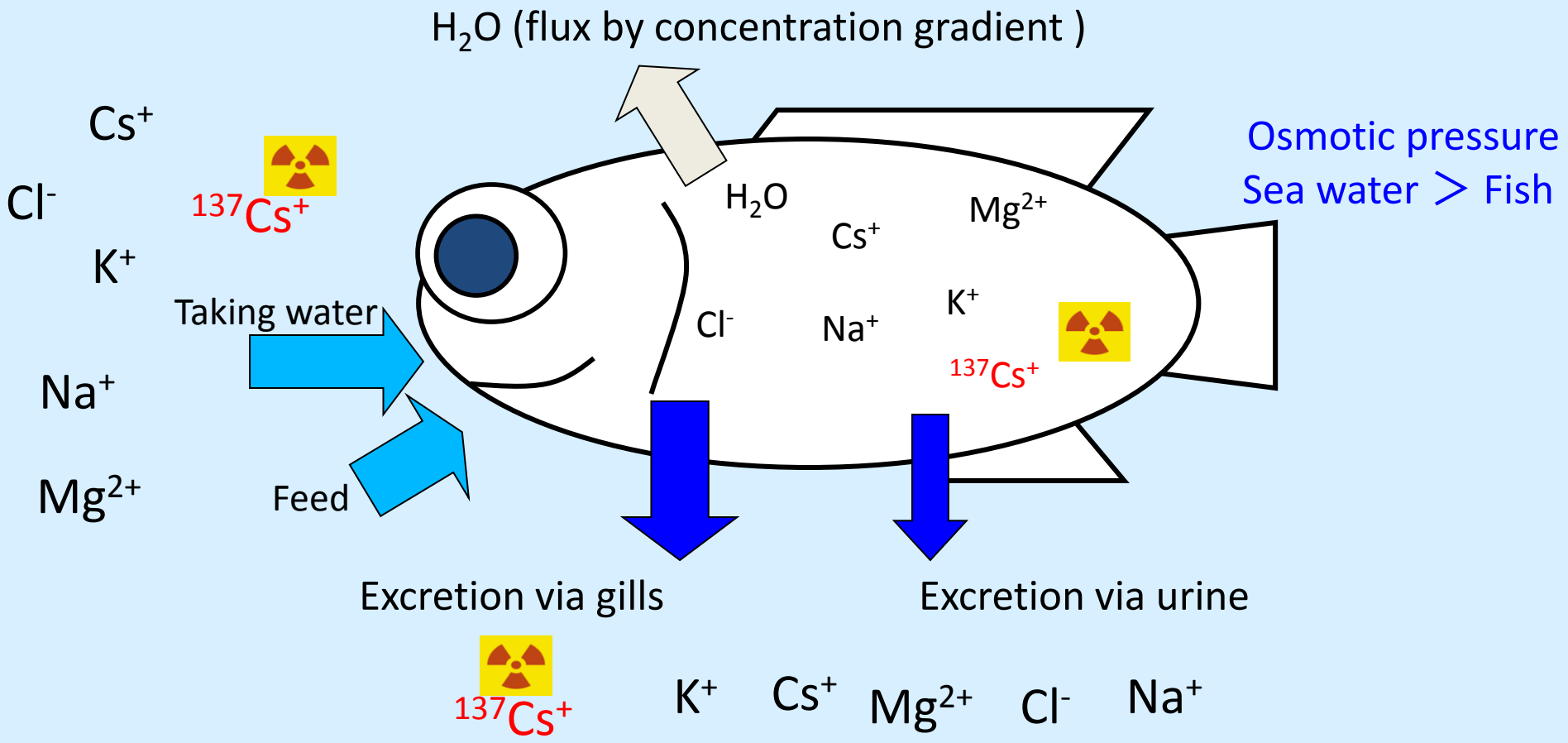
・species over 100Bq/kg since March, 2012(off the cost of Ibaraki) (26/3/2012-)
(Marbled flounder, Pacific cod, Vermiculated puffer, Ocellate spot skate, Finepatterned puffer, Goldeye rockfish and Slime flounder)

【Voluntarily restraint of production requested by the Prefectural Government and the Prefectural Federation of Fisheries Cooperative Associations】

・species over 50Bq/kg since March, 2012 (26/3/2012-)
(Gurnard, Red tongue sole, Panther puffer, Fox jacopever, Fat greenling, Rockfish, Stone flounder, Red stingray)

※ In addition to the above, prohibition of distribution, voluntary restraint of catch and so forth are implemented regarding some freshwater fish species.

◎ The flow of salts in marine fish body



- Fish excretes radioactive substance, not accumulate.
- The concentration in fish depends on the concentration of environmental water .

（Ref：Fundamental physiology of fish Edit. K. Aida)