

**CONTRIBUTIONS OF RESPONSIBLE FISHERIES TO THE UN MILLENNIUM
DEVELOPMENT GOALS (MDG) FOR 2015**

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ABSTRACT

The UN MDG of 2000 include poverty eradication, protection of our common environment, and human rights, democracy, and good governance. Fisheries have been expected to contribute to meet these goals, especially after the UNCLOS III. As a result, many developing countries have over-invested in fisheries with environmental degradation by industrial development and population increases and faced reconsideration of fisheries. On the other hand, concepts of responsible fisheries have been popular among governments since the FAO Code of Conduct for Responsible Fisheries was adopted in 1995. The next 10 years are the time for the action at civilian levels to meet these goals with responsible fisheries, including aquaculture, processing, marketing, other related industries and consumers. Fisheries resources are changed from free gift to scarce and vulnerable resources. These contribute to develop a recycled society affording fish for the future if we manage wisely while these create conflicts at sea if not. If we manage fisheries wisely, we can take advantage of much more benefits than the sustainable level. Under good management, illegal actions, over-fishing, ghost fishing, aquaculture-based pollution will be no longer acceptable. The primary importance is the development of community-based fisheries (and/or agriculture/tourism) co-management bodies with sound leaders in which both governments and the local resource users/community work together with respective responsibilities and right persons are worked at right places for the right time. This paper discusses the potential from the Japanese experience in which the fisheries cooperative association (FCA) plays an important role.

Keywords: UNMDG, UNCLOS, responsible fisheries, community-based fisheries, co-management, FCA

STATE OF THE WORLD

Food Self-sufficiency Rate

The self-sufficiency rate of basic needs (food, clothes, and housing) is the most important indicator of independent nations. However, most of member countries of the United Nations are in the state at very low self-sufficiency rates less than 60 % today. For example, the self-sufficiency rate of Japan as a member of OECD is about 40% in 2003. World populations have been estimated as 7.2 billion in 2015, 7.9 in 2025 and 9.1 in 2050 as compared to 6.1 in 2000 (UN, 2005). On the other hand, world food production has increased to 1.884 million tons of grain, 179 million tons of meat and 100 million tons of fish in 2000, but there will be less food security in the future due to the incapability of current ways of agriculture and fisheries production and life style changes from developing country style to American style which accelerate food consumption.

Maximum Population on Earth

Maximum population on earth fed by the current level of food production are estimated as 3.4 billion assuming American style, 8.7 billion people assuming Japanese style and 13.4 billion people assuming Indian style as compared to 5.5 billion in 2000 (Nagasaki, 1999).

Increasing Competition between Fisheries and Whales

All or nothing approach has been popular. However, this approach is not always good. The example is the continuation of the current commercial whaling moratorium at International Whaling Commission (IWC). It is estimated that whales eat 3-5 times more marine food resources than are fished for human consumption. (Fisheries Agency, undated) The number of whales seems to be increasing since the moratorium and their stranding cases are also increasing. 14 sperm whales more than 40 tons each were stranded in Kagoshima, where I lived, on January 22, 2002. This was the first time I saw it in my lifetime.

The UN Millennium Declaration of 2000

The UN adopted the UN Millennium Declaration in 2000, consisting of 8 chapters: 1) Value and principles; 2) Peace, security and disarmament; 3) Development and poverty eradication; 4) Protecting our common environment; 5) Human rights, democracy and good governance; 6) Protecting the vulnerable; 7) Meeting special needs of Africa; 8) Strengthening the United Nations (UN, 2006a). As compared to the preamble to the Charter of the United Nations written in 1942 (UN, 2006b), the state of the world is getting worse and we cannot help questioning the commitment of the so-called world leaders and the UN member governments during the last half of the 20th century, using a lot of taxed money. Something is definitely wrong.

UNCLOS

United Nations Convention on the Law of the Sea (UNCLOS) provides a framework of world ocean management, including rights, jurisdictions and duties of the coastal states in the Exclusive Economic Zone (EEZ) (Article 56); rights and duties of other states in the EEZ (Article 58); conservation of living resources (Article 61), utilization of the living resources (Article 62); stocks occurring within the EEZ of two or more coastal states or both within the EEZ and in an area beyond and adjacent to it (Article 63); highly migratory species (Article 64); marine mammals (Article 65) ; anadromous species (Article 66); catadromous stocks (Article 67); rights of geographically disadvantaged states (Article 70); enforcement of laws and regulations of the coastal states (Article 73); delimitation of EEZ between states with opposite or adjacent coasts (Article 74); cooperation of states in conservation and management of living resources (Article 118) and conservation of the living resources of the high seas (Article 119) (UN, 2006c).

All of these provisions emphasize duties and responsibilities of coastal states as well as other states and international cooperation, regarding to marine living resources management in both within and outside of EEZs. Establishment of EEZ is the unprecedented unique characteristics of UNCLOS and provided a great opportunity for the coastal states with international cooperation. As a result, many countries took various expansion policies in fisheries. However, these resulted in development of IUU (Illegal, Unregulated and Unreported) fishing at high seas, over investment and resource depletion together with environmental degradation due to industrial and urban development domestically. This necessitated the discussion of responsible fisheries.

FAO CODE OF CONDUCT FOR RESPONSIBLE FISHERIES

Principles

The code is voluntary though certain parts are binding with obligatory legal instruments and global in scope including all fishing entities and persons related to fisheries including fishers, aquaculturists, processors, marketing people, related industries people, and other users of the aquatic environment in relation to fisheries. The code provides principles and standards applicable to conservation, management and development of all fisheries. The important principles include government approach, voluntary in nature, and sustainable fisheries with ecosystem approach (FAO, 1995).

Issues

Issues on government approach include 1) membership problem in the United Nations, 2) Limitation of top-down approach in fisheries, 3) Limitation of jurisdictional approach in marine affairs; 4) development of bureaucracy, 5) development of corruption and 6) nature of the hydrosphere in which objects like fish are not easily sensible unlike land-based objects, resulting in fisheries as the most complicated, difficult and frontier industry with high uncertainty. Issues on voluntary actions include no force, low levels of commitment and financial base. Issues on sustainable fisheries are controversial. In fact, fisheries are sustainable without government intervention. Fishers enter into and exit from fisheries at their own risk without government intervention. Only when governments wish to develop fisheries like agriculture from hunting stage to farming stage and increase its productivity far exceeding the current level, tax money use by government intervention will be justified. Fisheries resources fluctuate greatly. It is difficult to control population dynamics, but there is a room to change such fluctuation wisely under appropriate management. The current goals of fisheries are too low without consideration of resource enhancement. Sustainable fisheries development is not mono-species resource management but means development of healthy fishing communities contributing to the society in terms of bridge between sea and land; food, environmental and national securities; income and employment opportunities in rural societies; cultural enhancement and bases for recycled society in the 21st century.

Fisheries have been suffering from Interactions with other sectors. In particular, land-based pollution problems have been obvious. Destruction of spawning and nursing grounds by reclamation of coastal seas and wetlands for other industrial and urban development has been critical. Further, local fishers consisting of the majority of fishers in the world, face a marketing problem which makes them price takers always under the auction system prevailing in the society. Values of fish depend on preference as well as demand and supply, not the qualities like animal protein, unsaturated fat and rich minerals. Due to the perishable and remote production areas, special marketing channels develop and keep the fishery production sector as poor as possible. The current globalization trends based on technological/financial development and free trade provide opportunities for further development of mass consumption and convenience, credit society, capital intensive economic activities and life style change, but did not solve the problems of the world but further higher risk to the society. Rural economies and community-based fisheries have been suffering from such trends.

Limitation of capital intensive approach in fisheries is also a serious problem. This is because of behavior of capital. That is, capital is for profit, not for community. Capital tends to move wherever and whenever gives them better investment opportunities with high risk. Their interest is short-term, not long-term. Thus, capital intensive industrial fisheries have been short-lived while any rural community must sustain forever. There is no mobility. A fishing community must live with the place and nature. Their interest is short/medium/long terms. Fisheries are core economic activities in rural fishing communities, having been expected to provide income and employment opportunities for years.

WHAT IS FISHERIES MANAGEMENT?

This question has been raised many times. Sustainability of fisheries is secured by any management scheme with or without government intervention. However, the sustainability is low without government intervention though the level could be increased double or so including commercial whaling and with government intervention currently though it requires very high MCS (Monitoring, Monitoring and Surveillance) cost. At present, fisheries and whales are competing each other at sea under the world pressure against commercial whaling resulting in high social cost (Fisheries Agency, Government of Japan, undated). Thus, current government interventions are not justified.

If governments seriously think of fisheries management, the goal is not just sustainability of fisheries but real everlasting development of fisheries and rural fishing communities with high potential with low administrative cost in such a way of co-management between government and fishers where both play their respective roles in fisheries management at reasonable administrative cost. Japan is a unique country to adopt this philosophy and have practiced for a long time. This is because the people respect the roles of fisheries/fishing communities in the nation such as bridge between sea and land, food, environment and national security, cultural enhancement, income and employment opportunities in rural communities and know that fisheries are more difficult than any other industry. In fact, objects for fisheries are different from other industries which are based on sensible lives and non-lives at one atmosphere so that one can touch, smell, see, hear and taste. Fisheries species living in hydrosphere are not easily touch, smell, see, hear, taste and count. Fisheries are an oldest industry living with nature and will be a most reliable sustainable industry in the future if we manage it wisely. Working at seas is different from any other land-based industry. Fisheries offer various opportunities to solve global problems such as food, environmental, rural economic development and culture creation problems as well as poverty alleviation. Thus, fisheries are too diverse and wide to manage under the top-down management with reasonable cost. However, time for free gifts is over in fisheries so that conditions for fishers now include responsible fishing including prevention of over fishing and illegal actions as well as cooperation with management bodies. The following sections deal with the Japanese case.

COMMUNITY-BASED FISHERIES CO-MANAGEMENT IN JAPAN

Organization of Fisheries

In fisheries, 6 distinct stakeholders exist. These are 1) governments (National, Prefectural, and Local Governments), 2) Fishers (Fishers, Fisheries Cooperative Association and Fed. of FCA), 3) Sea Area Fisheries Adjustment Committee (SAFAC), 4) Infrastructure (hard: construction; soft: legal supports), 5) Outsiders backed up by governments and other industries, and 6) Fishing village residents. These organizations are supported by the Legal Framework of Fisheries based on the FCA Law of 1948 and the Fisheries Law of 1949. These laws are complemented by 1) Public Waters Reclamation Law of 1912, 2) NORINCHUKIN Bank Law of 1913, 3) Fishing Vessel Law of 1950, 4) Fishing Ports/Grounds/Village Construction Law of 1950, 5) Marine Resource Conservation Law of 1951, 6) Small- and Medium-scale Fisheries Credit Guarantee and Insurance Law of 1952, 7) Japan Agriculture, Forestry and Fisheries Credit Fund Law of 1952, 8) Fisheries Damage Compensation Law of 1964, 9) Marine Resource Development Law of 1971, 10) Fishing Ground Enhancement and Development Law of 1993, 12) Basic Law of Fisheries Policy of 2002, and 14) Civil Law. Fisheries Cooperative Associations (FCAs) is a core organization for fisheries management. The design principle of the FCAs is one for all and all for one. The objective of FCAs is to contribute to the national economy by increasing fisheries productivity and improving the economic and social status of fishers and fish processors through the

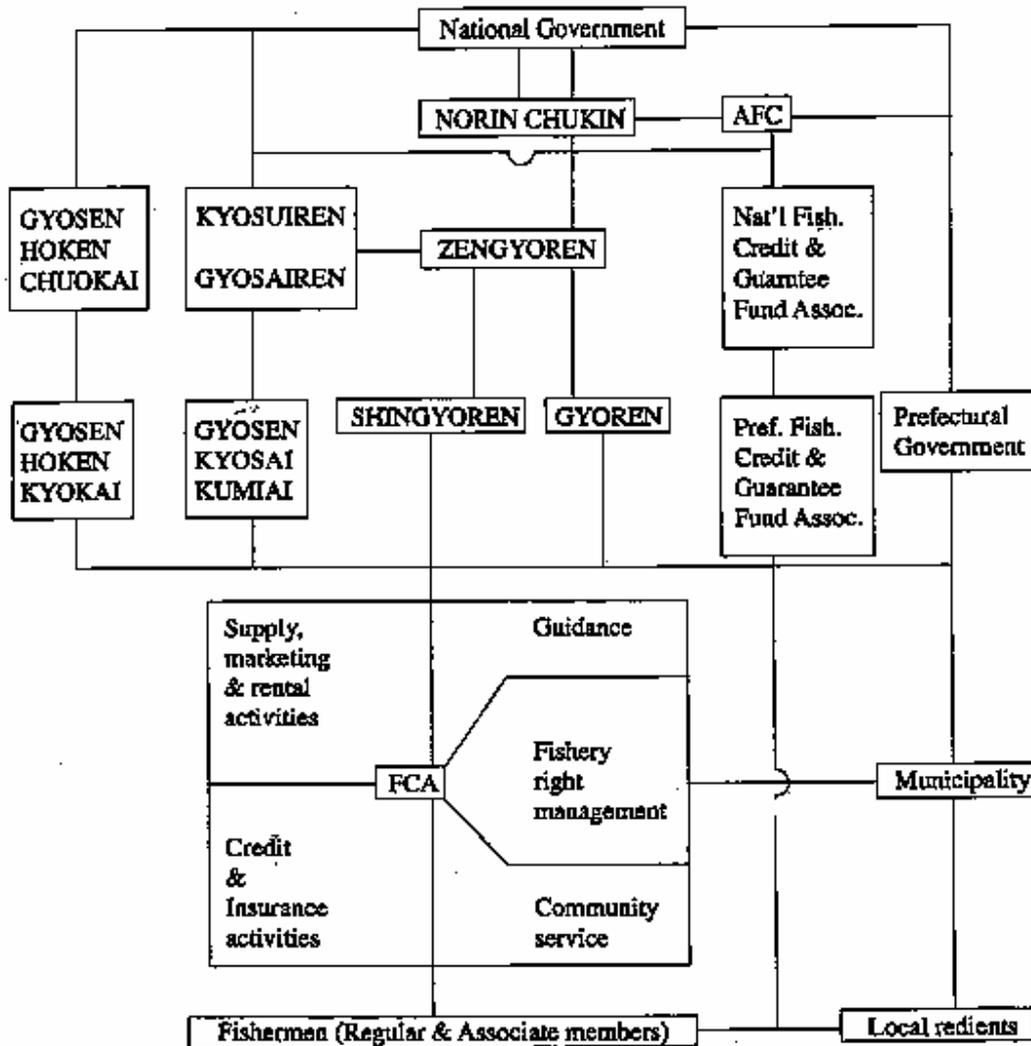


Figure 1. Flow of Interaction among Constituents in the Japanese Fisheries Sector

Source: Matsuda, 1998.

Note: NORINCHUKIN (Central Cooperative Bank for Agriculture, Forestry and Fisheries); AFC (Agriculture, Forestry and Fisheries Finance Corporation of Japan); ZENGYOREN (National Federation of FCAs); KYOSUIREN (National Insurance Federation of FCAs); GYOSAIREN (National Federation of Fishery Mutual Insurance Associations); GYOSEN HOKEN CHUOKAI (Central Society of Fishery Vessel Insurance Associations); GYOSEN HOKEN KYOKAI (Fishing Vessel Insurance Association); GYOGYO KYOSAI KUMIAI (Fishery Mutual Insurance Association); SHINGYOREN (Prefectural Credit Federation of FCAs); GYOREN (Prefectural Federation of FCAs) and FCA (Fisheries Cooperative Association)

development of FCAs. FCAs as a juridical persons are non-profit organizations and include Fishers' Cooperative Association, Fishers' Production Association, Federation of FCAs, Fish Processors' Cooperative Association (FPCA), Federation of FPCAs, and Mutual Aid Federation of FCAs. FCAs have administrative, economic, and educational functions shown in Fig. 1 (Matsuda, 1998).

Japan surrounded by sea stretches 3,000 km from North to South with 35,000km of coastline equivalent to 85% of one round of the earth and 4.47 million square kilometers of EEZ. In each 5 km of coastlines there are fishing villages with different environment. Except for port areas, all coastlines are demarcated to common fishing right areas managed by the co-management scheme between government and fishers. Fig. 2 shows an example. The figure shows common fishing right areas, set net fishing right areas and aquaculture areas. Each local FCA is responsible for the management of fisheries and all commercial fishers must be members of local FCA at resident areas. Even offshore and distant water-fishers under licensing fisheries must be members of local FCA at resident areas so that FCA effectively handle all issues related to fisheries.

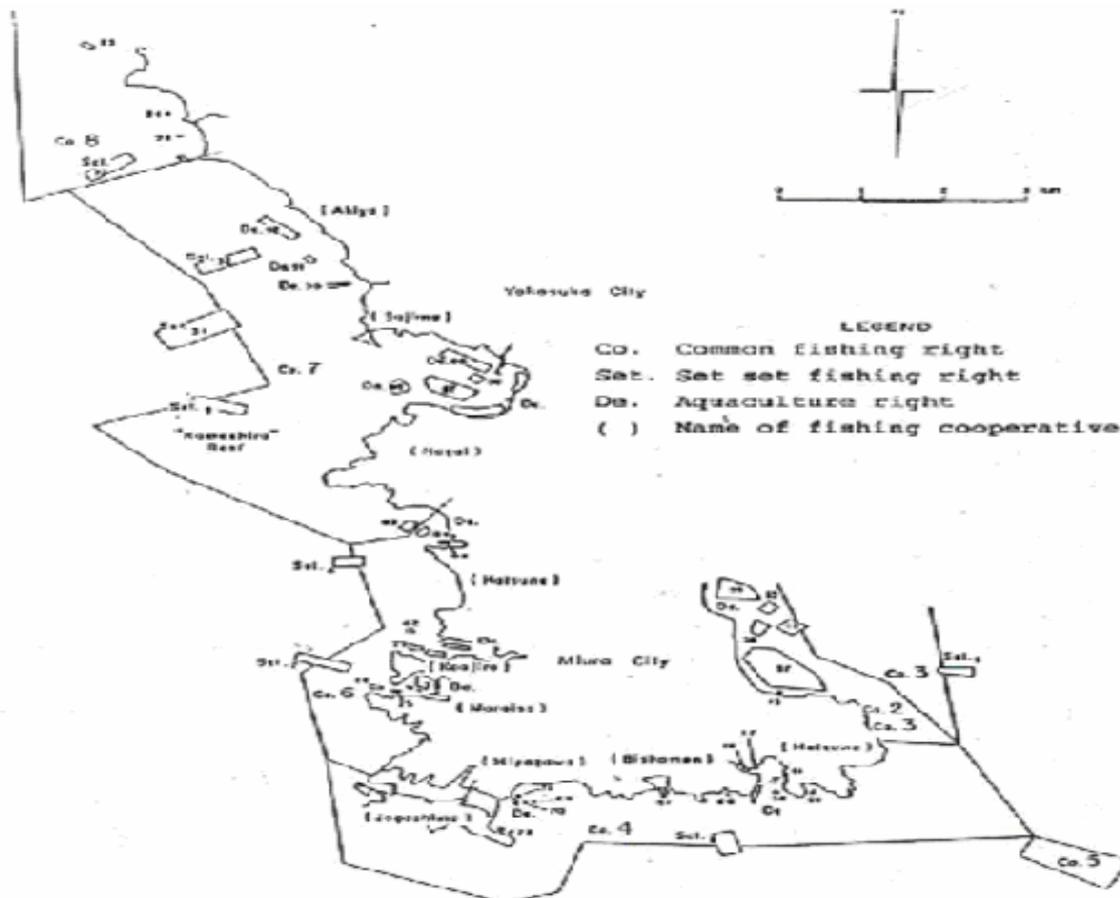


Fig.2. Fishing Right Systems on the West Coast of Miura Peninsula

Case of Sarufutsu Village, Hokkaido, Japan

Sarufutsu coasts facing the Sea of Okotsk were famous for scallop fishing .However, the resource was depleted under open access. In the 1960s, the numbers of fishers were only 64 and all fishers were part-time fishers who work there at scallop and salmon fishing seasons. Under the leadership of Mr.Ohta, President of Sarufutsu Village FCA, those part-time fishers and villagers

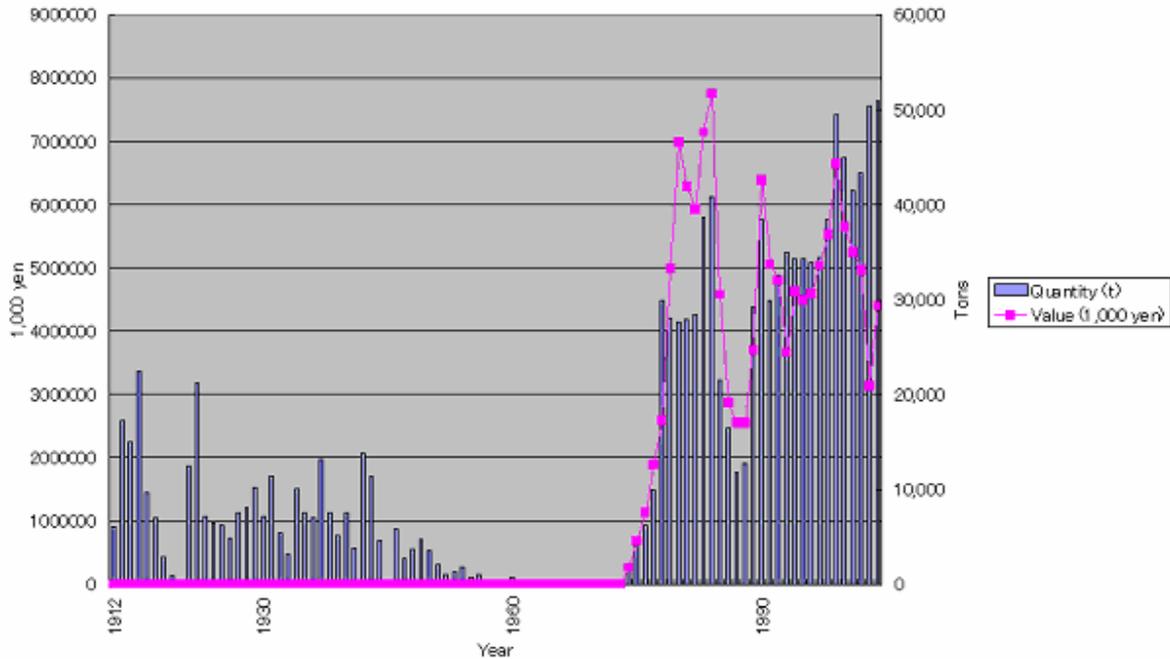


Fig. 3. Scallop Landings in Sarufutsu Village in Hokkaido: 1912-2004

Source: Sarufutsu Village FCA, 2005. Compiled from Resource Materials.

Table 1. The Scallop Marine Ranching Project									
Category	unit	1971	1972	1973	1974	1975	1976	1977	1978
Fishing grounds improvement cost	1,000 yen	6,460	7,777	7,476	7,068	14,983	0	2,596	4,124
No. of vessels used	No.	18	17	18	18	23	23	31	31
Seeds cost	1,000 yen	37,957	107,818	89,265	115,573	105,658	152,605	135,256	124,657
No. seed shells	10,000 seeds	1,400	6,000	6,000	6,000	6,000	7,000	6,000	5,000
Transportation cost	1,000 yen	1,240	5,386	3,404	5,045	5,868	8,283	10,438	9,150
Releasing cost	1,000 yen	-	1,209	2,843	3,238	1,780	2,922	2,706	2,004
Research cost	1,000 yen	679	685	955	595	592	-	685	1,000
Total cost	1,000 yen	45,336	122,875	103,943	131,519	128,881	164,495	151,681	140,935
Borrowed money	1,000 yen	25,200	86,200	94,400	124,000	100,000	100,000	-	-
Hokkaido	1,000 yen	-	-	-	600	1,800	-	-	-
Sarufutsu Village	1,000 yen	8,800	22,800	3,500	3,900	3,200	-	-	-
Sarufutsumura FCA	1,000 yen	11,336	13,875	6,043	3,019	23,881	64,495	151,681	140,935
Production									
Yields in tons	ton	-	-	-	1,674	4,328	6,124	9,891	16,438
Yields in 1,000 yen	1,000 yen	-	-	-	264,458	689,052	1,134,104	1,892,210	2,591,768
Category	unit	1979	1980	1981	1982	1983	1984	Total	
Fishing grounds improvement cost	1,000 yen	2,000	4,000	-	-	-	-	55,484	
No. of vessels used	No.	31	31	-	-	-	-	-	
Seeds cost	1,000 yen	99,131	0	-	-	-	-	967,920	
No. seed shells	10,000 seeds	3,500	2,700	-	-	-	-	-	
Transportation cost	1,000 yen	10,440	0	-	-	-	-	59,254	
Releasing cost	1,000 yen	1,772	0	-	-	-	-	18,474	
Research cost	1,000 yen	6,890	13,226	-	-	-	-	25,992	
Total cost	1,000 yen	120,233	17,226	-	-	-	-	1,127,124	
Borrowed money	1,000 yen	-	-	-	-	-	-	529,800	
Hokkaido	1,000 yen	-	-	-	-	-	-	2,400	
Sarufutsu Village	1,000 yen	-	-	-	-	-	-	42,200	
Sarufutsumura FCA	1,000 yen	120,233	17,226	-	-	-	-	552,724	
Production									
Yields in tons	ton	27,837	26,509	27,826	28,461	38,818	40,986	228,892	
Yields in 1,000 yen	1,000 yen	4,984,040	5,781,313	6,301,475	5,928,646	7,156,223	7,758,919	44,482,208	

Source: Sarufutsumura FCA, "Jii-kyoshin", 1999. (In Japanese)

united in the 1960s and 1970s. Whole community committed herself to scallop marine ranching in the 1970s and revived the scallop fishery. Fig. 3 shows the scallop landings in Sarufutsu Village from 1912 to 2004. The population of Sarufutsu Village was 4,800 people in 1965 and started 5% savings from landing values for a large scale scallop marine ranching with a 4 year rotating crop system starting in 1971 (Table 1). In 1973, Asahi-maru of 12.87GT, an aquaculture management vessel was constructed and the FCA had a research capability by herself. The first landings of scallops were in 1974 and the result was successful. They found natural spawning at sea so that they stopped the release of scallop seeds from 1980 to 1984. As a result, scallop landings decreased drastically in 1985. Accordingly, the FCA restarted the release of scallop seeds in 1985 and the resources recovered since 1989. The village changed from subsistence to a rich village in one generation (Sarufutsu Village FCA, 2006).

Case of Yuhiko FCA, Shizuoka Prefecture, Japan

Yuhiko FCA is famous for stardust shrimp fishery. However, its resource management is difficult, with advises of Shizuoka Prefecture Fisheries Experiment Station which has worked hard with the resource assessment and other ecological studies of the shrimp. Thus, fishers have to know the fact that population dynamics of the shrimp are uncontrollable and cost for product has been increasing. To cope with these problems, an integrated management scheme was adopted and taking advantage of a brand development. The management scheme include 50% reduction of fishing efforts, an integrated fishing, and pooled landings of 3 FCAs concerned (Yuhiko FCA, 2006). Fig.4 shows such an efforts and results.

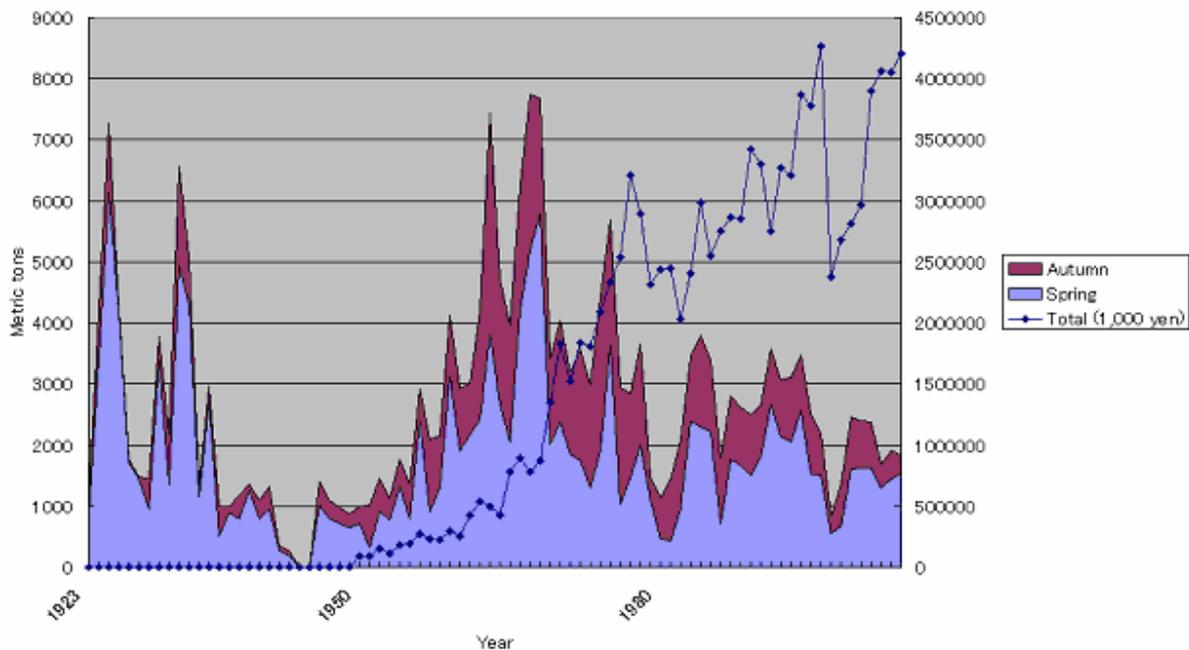


Fig. 4. Annual Landings of Stardust Shrimp, *Gegia Lucens*, Hansen, in Suruga Bay: 1923-2004

Source: Yuhiko FCA, 2005. Compiled from Resource Materials.

Case of Azumacho FCA, Kagoshima Prefecture, Japan

Azumacho is another example of FCA brought up from subsistence fishing FCA to a rich fishing FCA in the last quarter of the 20th century. In Azumacho, the FCA plays important roles with administrative functions. When Mr. Uto became the president of the FCA in 1970, Azumacho was a part of island and fishing villages were hamlets with subsistence fishing. He started a yellowtail culture experiment at the FCA and promoted aquaculture. In 1974, a bridge between the island and main land Kyushu was constructed and made transportation of landings easy. In addition, sardine catch increased in Kyushu since early 1970s and continued until early 1990s. This helped the FCA by supplying cheap feeds for fish culture. The FCA changed the products from one year old Hamachi to two year old yellowtail and adopted iron net cages instead of nylon net cages. As a result, they were free from TBT problems. In 1977, Kagoshima University Faculty of Fisheries constructed a laboratory in Azumacho and the FCA have had a close relationship with the University. Dissolved Oxygen Map developed by the laboratory is known as Aquaculture Weather Map in Aquaculture News issued by the FCA every month. This information has been integrated with feeding at aquaculture farms (Azumacho FCA, 2006). Fig. 5 shows the rough

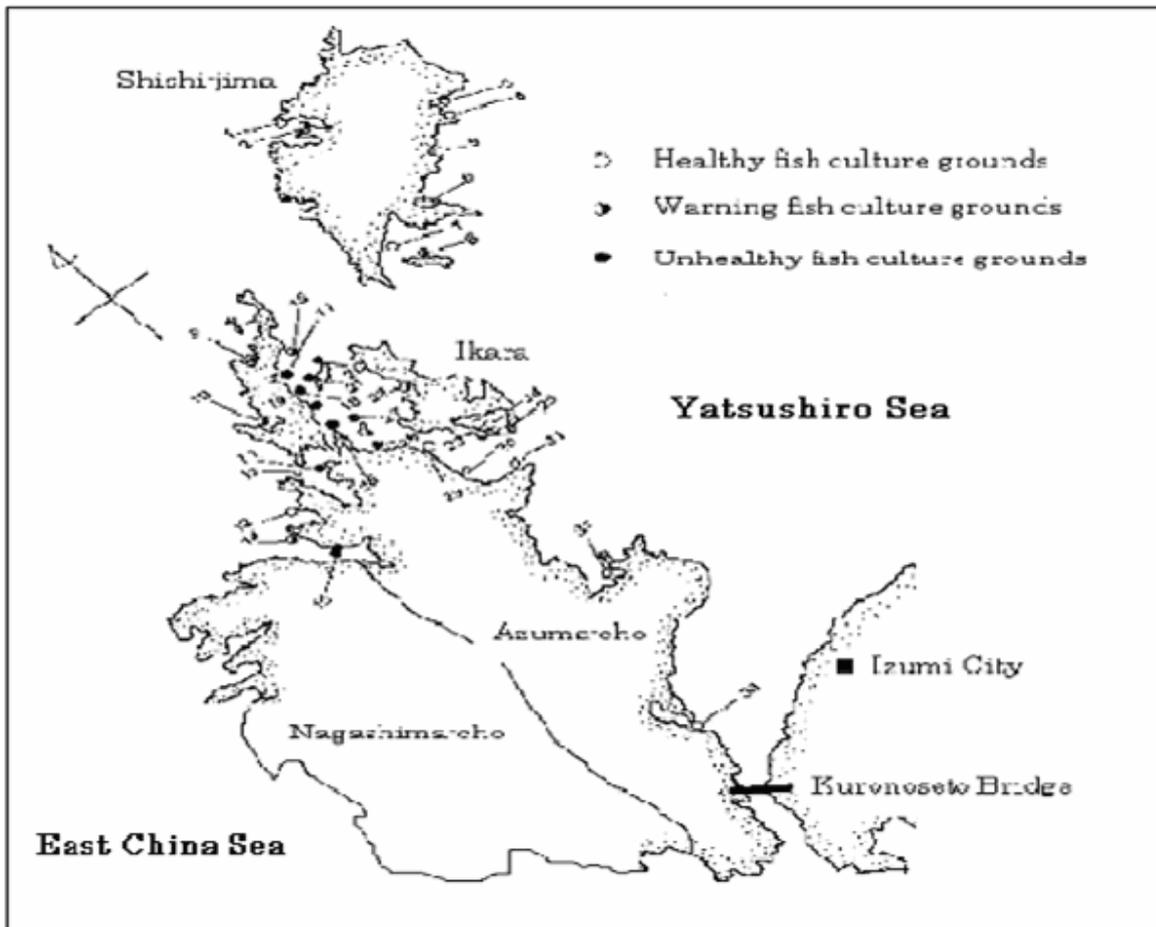


Fig. 5. Map of Azumacho FCA's Aquaculture Grounds in Kyushu, Japan

Source: Kadowaki, S., 2004. Environmental Management and Protection of Shallow Sea Fish Culture Grounds Vol.20, 40pp.

aquacultural environmental conditions in Azumacho. Numbers shows fish culture grounds. Healthy fish culture grounds are more than 5.7 ml/l of dissolved oxygen and less than 0.2 mg/g of total sulphide in dry mad. In 1989, The FCA's gross production value reached 10 billion yen for the first time. With promotion of seaweeds culture, eco-system aquaculture in the FCA became famous and cultured yellowtail are sold 10 % higher prices than others. This scheme includes an equi-area culture of fish and seaweeds.

Table 2 shows the budget for guidance activities at the FCA in the year 2004. FCA and individuals spend nearly 70% of expenses for the guidance activities which are parts of administration. The FCA

Table 2 The budget for guidance activities at the Azuma-cho FCA, Kagoshima Prefecture, in the fiscal year 2004*

Category	Amount	Breakdown	FCA	Individual
	Yen	Subsidies		
Education				
Youth fishers' group	1,520,000	0	1,120,000	400,000
Women's group	1,085,000	0	400,000	685,000
Participation in events	180,000	0	180,000	0
Presentation in meetings	200,000	0	200,000	0
Participation in meetings	642,800	402,800	240,000	0
Training	420,000	0	320,000	100,000
Meeting	550,000	0	400,000	150,000
Resource enhancement				
Mine ranching	23,000,000	13,229,000	9,074,000	697,000
Fishing grounds management				
MCS	9,025,000	0	9,025,000	0
Fish disease/pollution countermeasure	1,000,000	0	750,000	250,000
Cooperative research	1,500,000	0	1,500,000	0
Other studies	1,096,000	823,500	274,500	0
Guidance				
Fish culture group	2,320,000	0	1,600,000	720,000
Purse seine group	350,000	0	100,000	250,000
Small trawl group	1,532,543	0	480,000	1,052,543
Pearl mother shell culture group	1,040,000	0	240,000	800,000
Octopus pot group	734,579	0	480,000	254,579
Beach gillnet group	896,796	0	240,000	656,796
Marine letaceculture group	1,895,773	0	240,000	1,455,773
Promotion of eating fish	500,000	0	500,000	0
Electric marketing	2,850,000	2,850,000	0	0
Rescue				
Rescue	1,100,000	100,000	500,000	500,000
Home economics				
	1,000,000	0	500,000	500,000
Total	54,020,491	1,720,5300	28,343,500	8,471,691
*: beginning April 1				
Source: the 58th General Meeting Resource Material, Azuma-cho FCA, 2004				

receives total levies of 1,616,500yen from 25 fisheries (Table 3) and fishing fees of 2,086, 550 yen from 22 fisheries and 18 villages (Table 4). These revenues total 3,703,050 yen, very small as compared to their spending for the guidance activities of 54,020,491 yen.

CONCLUSION

The current problems are due to mismanagement attributable to lack of responsible commitments of stakeholders concerned. To improve the situation, the primary importance is the development of responsible fisheries, whaling and community-based fisheries (and/or agriculture/ tourism). It is essential to develop co-management bodies with sound leaders in which government and the local resource users/communities work together with respective responsibilities and right persons are allocated at right places for the right time.

With a participatory approach, administration must be transparent and accountable. All participants must involve in decision making process, enforcement and surveillance processes, and monitoring on commitments of each key persons in the organization in a responsible manner to seek for much wiser use of the sea, resulting in prosperity in the society.

Table 3. Revenue from Levy at Azumacho FCA in 2004

Fishery	Unit	Levy per unit	Total (Yen)
Levy			
Purse seine fishery	5	36,000	180,000
Small trawl fishery	70	6,000	420,000
Squid basket fishery	3	2,000	6,000
Puffer fish basket fishery	2	2,000	4,000
Diving fishery	7	2,000	14,000
Lift net fishery	5	10,000	50,000
Fixed gillnet fishery	9	1,500	13,500
Bottom driftnet fishery	6	2,000	12,000
Boat seine fishery fo sandlance	3	5,000	15,000
Pair boat seine fishery	2	5,000	10,000
Beachy gillnet fishery	195	1,000	195,000
Mullet basket (hoop) net fishery	55	500	27,500
Brush basket net fishery	54	500	27,000
Squid basket fishery	1	500	500
Small trawl fishery	66	5,000	330,000
Shrimp gillnet fishery	20	1,000	20,000
Squid drive-in-net fishery	25	1,000	25,000
Miscellaneous fish drive-in net fishery	14	1,500	21,000
Banded blue sprat gillnet fishery	3	500	1,500
Flounder gillnet fishery	8	1,000	8,000
Mullet beach gillnet fishery	4	500	2,000
Japanese ivory shell basket fishery	1	500	500
Tounguefishes gillnet fishery	20	1,000	20,000
Octoous pot fishery	103	2,000	206,000
Beach seine fishery	8	1,000	8,000
Total	689		1,616,500
*: fiscal year beginning April 1			
Source: The 56th General Meeting Material, Azuma-cho FCA, 2004			

Table 4. Revenue from Fishing Fee by Gear and Village at Azumacho FCA in 2004

Fishery	Unit	Fee per unit	Total (Yen)	Local fishery	Total (Yen)	Grand total (Yen)
Fishing fee				Fishing fee per village		
Beach gillnet fishery	195	1,500	292,500	Tari	4,200	
Mullet basket (hcop) net fishery	55	500	27,500	Hincura	2,200	
Brush basket net fishery	54	500	27,000	Sanmonrya	800	
Squid basket fishery	1	500	500	Kaseco/Umenokiyama	3,700	
Small trawl fishery	66	3,000	198,000	Mak/Ichikasaki	3,700	
Shrimo gillnet fishery	20	1,500	30,000	Wekasaki/Shiosako/Akasaki	4,200	
Squid drive-in-net fishery	25	1,500	37,500	Miyonoura	2,200	
Miscellaneous fish drive-in-net fishery	14	1,500	21,000	Ikara	7,500	
Banded blue sprat gillnet fishery	3	500	1,500	Usu	6,000	
Flounder gillnet fishery	8	1,000	8,000	Mifune	6,200	
Mullet beach gillnet fishery	4	800	3,200	Fukunoura	2,200	
Japanese ivory shell basket fishery	1	500	500	Shirase	4,200	
Tonguefishes gillnet fishery	20	1,000	20,000	Honura	3,000	
Octopus pot fishery	108	2,000	206,000	Kuzuo	8,200	
Beach seine fishery	8	3,000	24,000	Kataura	4,500	
Fish culture (15 cages or more)	53	3,000	159,000	Yunokucni	3,000	
Fish culture (less than 15 cages)	112	2,000	224,000	Hirano/Goshicura	9,700	
Laver culture	12,213	50	610,350	Hegushi	6,200	
Wakame culture	4	2,000	8,000			
Pearl mother oyster culture	13	2,000	26,000			
Scallop culture	20	2,000	40,000			
Abalone culture	20	2,000	40,000			
Total	13012		2,004,350	Total	37,700	3,703,050

Source: The 56th General Meeting Resource Material. Azumacho FCA, 2004.

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