

Rethinking the Sea as Commons -from a Case of the “Coral Sea” of Kashiwajima Island, Kochi, Japan-

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Abstract

Located in Sukumo Bay at the southwestern end of Shikoku, Kashiwajima Island is at the junction of the Kuroshio Current flowing northward and the current in the Bungo Channel running south. The waters surrounding Kashiwajima are among the most important in Japan, where about 1,000 species of temperate, tropical and subtropical fish live together. In this sea area having ample resources of a rich variety of fish, diverse types of fisheries have been carried out from of olden times. The island and its environs have experienced depopulation and population aging but have recently come to be widely known as diving spots, and many divers have visited this area from Kochi Prefecture and other regions. As a result, various problems have arisen, including the negative effects of diving activities on marine biota and conflicts between fishers and divers. In this paper, taking Kashiwajima as an example, the author sheds light on the sea from the viewpoint of the theory of the commons, 1) the development of diving business from the early 1990s and discord between diving agents and fishers, 2) the impact of diving activities on the natural and social environment, including coral reefs; 3) the scope of fishing rights and the process of negotiations about diving spots between fishers and diving agents, 4) the formulation of rules comprehensively governing the use of the entire sea areas, and 5) the process of the formation of fishing rights and changes in fishing methods from a historical aspect. The author then considers the problems of establishing a mechanism for the joint management of natural resources.

Introduction:

From the sea of Kashiwajima Island

Kashiwajima Island, located in the mouth of Sukumo Bay at the southwestern end of Shikoku, is a small island having an area of 0.57km² and a perimeter of 3.9km (Photo 1). The land area of the island and its surrounding sea are included in the Ashizuri-Uwakai National Park. Administratively, Kashiwajima Island belongs to the Town of Otsuki, Hata County, Kochi Prefecture. The population reached 1,346 persons and 259 households in 1950 but decreased thereafter to only 544 persons (of whom 221 were those of 65 years and up) and 227 households as of the end of 2003, suggesting that depopulation and aging became more serious in these years. Oshima Jyouji (1965) emphasizes the remoteness of the island, stating that the island is at the end of a peninsula and is an isolated and closed community.

However, it is also true that Kashiwajima was

long regarded as an important place because of its location. For example, in the Sengoku (Civil War) period (1467-1568), the Chosokabe Family put the entire island under their direct control and put fishermen in the island under an obligation to serve in the army. Yokokawa Suekiti (1961) points out that the fishermen in Kashiwajima were also shipping agents and transported products by sea from the Hata area to the markets in the Kochi plains. These historical facts (amongst others) suggest the importance of Kashiwajima from the perspectives of military, transportation, and commerce in these early-modern times. (Compilation Panel for History of Otsuki Town, 1995; Nakata, 1957)

Another characteristic of Kashiwajima is the great biodiversity in the surrounding sea areas. Because of its location, the sea around the island is affected both by the Bungo Channel and by the Kuroshio Current, and although it is situated in the temperate zone, tropical and subtropical fish can coexist with temperate species. Communities of hermatypic coral develop widely in this area, and their scale is among the largest along the

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coasts of Japan, except in the areas south of the Tokara Islands and in the Ogasawara Islands. According to the investigation by Hirata *et al.* (1996), as many as 143 families and 884 species of fish have been confirmed in Kashiwajima waters; if the 42 families and 103 species, whose description has been reserved because they are unrecorded or recorded first in Japan, are added to these, the total number of fish species living in this area reaches almost 1,000. This is one-fourth of the fish species now confirmed in Japan totaling to about 3,600 species, and it is no exaggeration to say that the Kashiwajima area has the greatest diversity of fish in Japan.

The marine resources are abundant, too, and as described later, diverse types of fishery have been practiced in this sea. A lot of rare fish, such as so-called Japan Pigmy Seahorse (*Hippocampus sp.*) so-called Harlequin Shrimp (*Hymenocera picta*), *Siphamia tubulata* and species nova (at Kashiwajima) of Yellownose Goby (*Stonogobiops pentafasciata*), can be seen here, too; because of this, Kashiwajima sea areas have recently become famous as scuba diving spots, and many divers have come from everywhere in Japan. But this has caused some problems, including adverse effects on the biota of the sea and conflicts arising between fisherman and divers/diving guide business. In this paper, I would like to examine the problems of Kashiwajima from the viewpoint of the theory of the sea as commons.

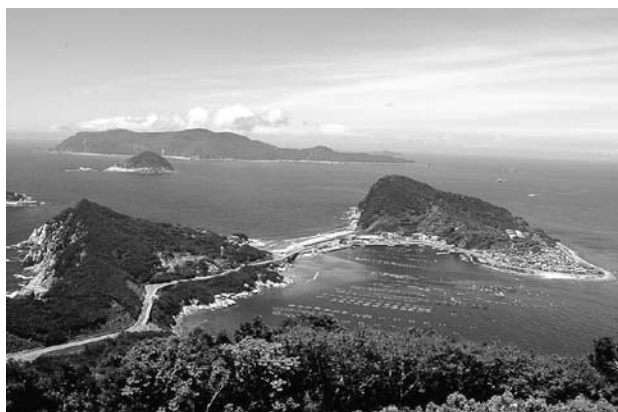


Fig. 1 Panoramic landscape of Kashiwajima Island connected with Otsuki Peninsula by two bridges (Photo by Y. Itabashi)

1. Theory of the “sea as commons”

According to Tabeta (1990), Tamanoi (1985) was the first to propose regarding the sea extending in front of the community as the commons. While living in Okinawa for seven years in the latter part of his life, Tamanoi came to know the custom of local people catching fish, shellfish and seaweed in lagoons sur-

rounded with coral reefs, known as “ino” in Okinawan dialect (in Japanese), to get their daily food and saw there the “sea as commons.” Taking an example from Ishigaki Island, Tabeta (1990) pointed out that since the age of the Kingdom of Ryukyu, the sea out of coral reefs has been opened to all specialized fishermen but “ino” has been monopolized by the community as a field in the sea and has been used exclusively by the members of the community as an important place for getting food for their own consumption. On the basis of their arguments, Nakamura and Tsurumi (1995) collected cases both at home and abroad and joined in the debate about the sea as commons. I do not discuss the details of the arguments here, but we should pay attention to the fact that in mainland Japan the theory of the “sea as commons” has been talked of in connection with the common rights of the fishing community, the so-called “Gyogyo (fishery) Iriai” in Japanese.

The term “commons” originally referred mainly to the pastureland having the right of common usage in the U.K. This word began to attract attention globally when Hardin (1968) presented the “tragedy of the commons” model in which commonly used resources would always be used excessively and deteriorate ultimately becoming unusable. The scenario put forward by Hardin is as follows: suppose villagers put cattle out to graze in the pastureland that is jointly owned by the village and which every villager can use. If each villager increases the number of cattle little by little for a better profit, the additional profit from each head of cattle added is brought to the owner, but the additional loss from overgrazing has to be absorbed by all the villagers collectively. The profit of individual villagers and that of the entire village begin to diverge from each other, which makes it reasonable for individuals to continue increasing the number of their cattle rapidly. But if cattle are increased in this way, the pastureland will turn into sterile wasteland as a result of overgrazing. By extending this argument to the whole global environment, Hardin gave a warning to the world.

This paper had many responses, and one important argument was that commonly used resources are no equivalent to open access to the resources from a historical perspective; there is a community that owns the resources and controls their use; thus it is often possible to realize the sustainable use of resources, and there are many cases evidencing this all over the world. Feeny *et al.* (1990) surveyed these arguments 22 years after Hardin and cited the cases of common forests, so-called “Iriai rinya” in Japanese, and the fishing rights of coastal fisheries in Japan.

The system of fishing rights in Japan is said to have its origin in the custom of fishing grounds exclusive to the village, so-called "Isson Senyou Gyojyou Kankou" in Japanese, established during the Edo period (1603-1867). In those days, it was said that "Coastal waters belong to the village, and offshore waters are open to all of those with the right of common." Coastal waters, where the end of the oar could reach the bottom of the sea, were designated as the fishing grounds which the nearest fishing village could use exclusively, while offshore areas beyond coastal waters were open to free fishing activities and were unable to be monopolized by any village. According to this general rule, the "Isson Senyou Gyojyou Kankou" was used only by fishermen in the village by the rules adopted by the consensus of villagers (e.g., the time when the permitted fishing season started and ended, and fishermen's turns to catch fish).

Hamamoto Kousei (1997) says that the "Isson Senyou Gyojyou" (fishing grounds exclusive to the village) represent the right of common usage of the sea itself and are the areas controlled and used by the fishing village, which is the "possession" ("Syoji" in Japanese) of fisheries by the village (the areas jointly owned by the people of the fishing community and managed by the entire community = the community's common areas). But this custom of "Isson Senyou Gyojyou Kankou" was changed by the Fisheries Law enacted in 1901, restricting rights to the fishermen's union, organized by the fishermen in the community, to fish in the sea adjacent to the community, or into a sort of a fishing license. It is thus considered that the aspects of the rights of common usage and ownership to the sea in the premodern years disappeared. This was why the Fisheries Agency of Japan's government issued a notification in August 1993 that the granting of fishing rights is an approval to exclusively practice a prescribed type of fishing by those with fishing rights in a prescribed sea area for a prescribed period of time and is in no way meant as an approval for any exclusive and monopolistic use of the sea for all purposes by the fishermen having the fishing rights.

As noted, due to the changes of the Fisheries Law in the Meiji period (1868-1912) and after, fishing rights at present have a different form, at least officially, from that of the ancient "Iriai" custom of village communities regarding the sea. However, there is also a strong argument, as presented by Ikeda (1997), that the "the 'Iriai' custom excluding the business right" (the right to the sea in front of the community) is still legally valid unless it offends against public order and morals. At any rate, we should bear in mind that the custom of "Isson Senyou Gyojyou" provided the origin of the image of the "sea as

commons" in mainland Japan.

2. Problems of the sea around Kashiwajima Island

It was around 1992 that the diving business started in Kashiwajima and that diving guide shops came to this island from other areas on a large scale. An examination of the lists of diving guide shops associating themselves with the trade associations which were formed several times and other related data shows that the number of the shops using diving points around Kashiwajima was five (one of them was a shop operating off-island in Otsuki Town) in 1994 but increased steadily to ten (three off-island) in 1997, to 15 (three off-island) in 2000 and to 20 (five off-island) in 2003, and was 22 (eight off-island) as of January 2004. It is difficult to precisely know the number of divers who visited Kashiwajima annually but an estimate puts the figure at about 3,000 in 1994 (data of the Otsuki Town Office). According to the opinions of most people concerned, visiting divers reached nearly 25,000-30,000 in the peak years and are now on a 10,000-15,000 level a year (unit: the total number of man-days/year).

As stated above, a large number of scuba divers began to come to Kashiwajima, and as a result, a variety of problems started to arise. The first problem that came up was the friction between local fishermen and divers. At first, fishermen showed a generous attitude to divers but later, as the number of divers increased rapidly, fishermen began to make complaints about them; they said, for example, that fish fled because divers used the fishing grounds and that it was dangerous for divers to use the sailing routes of fishing boats. Other inhabitants also complained about the litter, illegal parking and noises caused by divers (or other tourists). They also said that they were unable to excuse the divers who wastefully used water, traditionally valuable to islanders (because from ancient days they always used to use water with great care in their lives on the water-limited island!), and that divers were loitering half-naked in the island corrupted public morals.

Dr. Kanda, head of the local NPO of Kashiwajima, the Kuroshio Zikkan Center ("Zikkan" means actual sensation in Japanese), also pointed out some problems: because diving boats often anchor carelessly near coral communities, coral is broken by the anchors and ropes; and the act of letting divers watch rare species in the sea is adversely affecting their ecosystem.

To cope with these problems, the Otsuki Town Office took the initiative, in 1995, to establish an associa-

tion of diving shops (called “Kashiwajima Scuba Diving Jigyou Kumiai.” “Jigyou Kumiai” means Business Association in Japanese.), the first one in the town, which provided a place for consultation on the rules of diving between these shops and the fishermen’s cooperative. At the same time, the town installed buoys for mooring diving boats at the Ushiro-no-hama and Ryu-no-hama Beaches with a subsidy from Kochi Prefecture.

Before the creation of the association, diving had been carried out at many points within the areas where the Kashiwajima Fishermen’s Cooperative had fishing rights. Consultation was held regarding the use of these diving points, a system for reporting diving activities to the cooperative, control of the diving method and diving business’ contribution to the local economy of the area. In 1995, the cooperative requested diving shops to prohibit diving at any other points than those on the Ryu-no-hama and Ushiro-no-hama Beaches. In 1996/1997, diving businesses began to voluntarily cease diving activities at all other points.

Subsequent consultation was mainly on the conditional opening of these closed points. However, some of the prohibited points were important to the business of diving shops and so despite the rules diving activities continued in these areas. Moreover, diving agents were unable to unite as one entity for negotiation and were thus not readily recognized by the cooperative as reliable partners for talks. Because the cooperative stuck obstinately to their opinions, too, the negotiation was very difficult. After that, the association of diving shops became defunct due to many problems, including the withdrawal of some members who lost patience with the situation where sea areas were not opened to diving. After several trials to start again, the association was divided into two; “Otsuki Tiku Diving Gyosya Bukai”(this means the Otsuki Area Section of Diving Agents in Japanese.) composed of the shops operating on Kashiwajima and “Otsuki Sensui Bukai” (this means the Otsuki Diving Section in Japanese.) composed of the shops operating from other neighboring settlements in Otsuki Town.

At present, the Ushiro-no-hama and Ryu-no-hama Beaches are the only points opened for diving around Kashiwajima. Because Ryu-no-hama Beach is for beginners, the Ushiro-no-hama Beach is now the most important location. Thus in the busy season, such as on consecutive holidays, ten-odd diving boats are moored at the ten buoys installed over a width of 500m on the Ushiro-no-hama Beach, and the bottom of the sea is crowded with over 100 divers at a time (Fig. 2). The authorities including Dr. Kanda have pointed out not only the danger to scuba divers by the congestion in the

sea, but also the possibility that this heavy “diving pressure” may have adverse effects on coral and other marine ecosystems.



Fig. 2 Diving boats concentrated around a limited diving point on the Ushiro-no-hama Beach in front of Kashiwajima Island (Photo by Masaru Kanda)

Diving shops in Kashiwajima run business at diving points off other beaches outside of the fishing right zones of the former Kashiwajima fishermen’s cooperative, too, and these other points seem to have become more important recently. According to the website of the diving business, the points are extended to Tachibana-ura, Amaji, Issai, Komame, Kashino-ura, Suwogata, Nishidomari and Ooura. The “Otsuki Tiku Diving Gyosya Bukai” has agreed on the diving rules with the fishermen’s cooperatives in Issai, Amaji and Tachibana-ura and operates diving business according to the agreed rules. The “Otsuki Tiku Diving Gyosya Bukai” aims at reaching a similar agreement in Kashiwajima, too, but partly due to the circumstances in the past, they have not yet been able to agree on any written rules and are unable to realize the opening of any closed points. But in September 2005, a diving committee was created by the directors of the Kashiwajima, Issai, Amaji and Tomari-ura branches of the Sukumo-Wan (“Sukumo-Wan” means the Sukumo Bay in Japanese) Japan Fishermen’s Cooperative as members. (All 16 fishermen’s cooperative in Sukumo-bay Area except for the Tachibana-ura fishermen’s cooperative joined together to form cooperative in January, 2001. But even now, each branch has the fishing right for the sea extending in front of each settlement), and it was decided that this committee would take charge of subsequent talks with diving shops. Considering that there wasn’t even any formal place for negotiation in the past, this can be regarded as a big step forward.

If talks are successful and an agreement is reached on comprehensive rules for diving in the sea around Kashiwajima, that will have an important impact not merely on the profit of diving business but on the revi-

talization of the local economy and on the conservation of the marine environment as well. Regarding conservation, the concentration of divers on the Ushiro-no-hama Beach has seriously impoverished the coral community's ecosystem at this point, as noted already, and there is an urgent need to move part of diving activities to other points and lighten the load on the ecosystem. In addition, there will be the need to close some diving points for several years to allow the ecosystem to "take a rest" as done at the Zamami Island (in the Kerama Island of the Okinawa Prefecture) and to do this, an agreement should be reached among diving shops. To bring about an agreement like this, it is a prerequisite to offer alternative diving points, and it will be essential to establish rules for comprehensively coordinating the use of the entire sea area.

3. From the history of fishery in Kashiwajima

Recently the population of fishermen in Kashiwajima is steadily decreasing. Kuroiwa Tsune's paper shows that the number of households in Kashiwajima in 1889 was 146 (total population: 729) and that most of them were engaged in fishery, with specialized fishing families totaling to 89. The Kochi Prefectural Fisheries Association reported that the number of households in 1928 was 247 (population: 1,189) and that the members of the fishermen's cooperative in Kashiwajima totaled to 236 (This figure can be considered to be the number of fishermen's families because the cooperative in the island has adopted the one-household one-member system). As these figures suggest, Kashiwajima was a fishery area in and after the Meiji period, but from the period of rapid economic growth onward, the population of fishermen has been decreasing, as is the case all over Japan. The Fishery Census shows that the number of fishery establishments (mostly full-time and part-time fishermen) was 88 in 1973 but decreased to 55 in 1998. The latest Fishery Census in 2003 says that this figure fell to only 39, which means that fishery establishments more than halved in the last 30 years. The business report of the Kashiwajima Fishermen's Cooperative also states that the amount of sales on consignment, an indicator of fish catches, decreased from ¥463 million in 1973 to ¥120 million in 1998 on a nominal basis, suggesting that the sales fell to about one-tenth during these years if inflation rate are taken into consideration.

The consultation process regarding the use of the sea for diving between fishermen and diving shops discussed in the previous section gave us the strong impres-

sion that fishermen had a lot of influence. Legally this can be explained by the fact that fishermen have the right to exercise their fishing right. But as stated previously, the fishing rights do not allow fishermen to "exclusively and monopolistically use" the sea and give only the right to conduct the prescribed fishing acts licensed. Insisting that diving obstructs fishing, fishermen will be able to adjust their use of the sea in advance and to demand compensation for damage beforehand or after the fact. But naturally, it cannot be inferred from the letter of the law that they have the right to totally prohibit diving activities in a specific sea area. Despite this, the argument of fishermen was accepted as a matter of course by the local community, and diving shops had to respect their opinion in the form of voluntary control. What is the source of this power of fishermen?

The sociological jurists will consider that this is just an expression of the authority established by the traditional custom of the right of common usage, "Iriai" descended from the system of fishing grounds exclusive to the village during the Edo period. Article 3 of the Act on the General Rules of Application of Laws (called "Hō no Tekiyō ni Kansuru Tsūsokuhō" in Japanese) provides that customs which are not against public order and morals shall have the same validity as a law regarding things that are not provided for in any law or ordinance. Thus it may be said that the authority of the fishermen has, in a sense, power beyond laws and their economic position in the community.

As noted above, Kashiwajima was long an important place in military affairs and transportation as the area where people from Kyushu arrived by sea, and many people on the island were said to have done military service and to have been engaged in maritime transportation. Then what was the situation of fishery? "Sukumo Bay is the hardest used fishing ground in Japan," says Kameo Yuzo, former president of the Kashiwajima Fishermen's Cooperative. The author is not sure whether this statement is true or not but when considering the history of fishery in this area what he means can be understood. In short, fishery in this area was integrated into the commodity economy already in the Edo period and was relatively-large scale fishery that aimed at commodity production. Advanced fishing techniques were introduced, excessive fishing was often carried out and fishing disputes arose frequently. It will be possible to reexamine fishery in Kashiwajima from these viewpoints.

For reasons of space, I cannot mention the historical literature in detail here, but records do say that in Kashiwajima, fishery was an important part of the commodity economy already in the Edo period in the form of

bonito fishing, net-fishing, shipping and so on. From the viewpoint of the theory of the right of common, bonito fishing is a free fishing form where fishermen from multiple villages and areas fish together in offshore areas. Net-fishing is probably done mainly within the area of so-called “Isson Senyou Gyojyou (fishing grounds exclusive to the village).” It can naturally be considered that small-scale, non-commercial fishery was also carried out mainly in the coastal waters. But we should bear in mind the fact that while it had this non-commercial function as its basis, fishery on the island was largely a commercial activity for a considerable number of years.



Fig. 3 Small net cages of aquaculture for bluefin tuna (round cages at the front), sea bream, and other finfish in the bay between Kashiwajima Island and Otsuki Peninsula (Photo by the author, August 2006)

In the Meiji period and after, fishing techniques continued to develop in Kashiwajima, which included the introduction of stick-held dip net fishery, triangular set net fishery, banded-blue-sprat net fishery, net fishery using night firelight and yellowtail angling fishery by aid of baiting, and improvement in bonito angling fishery. The data from the investigation in 1928 suggest that bonito angling fishery declined, while other types of angling and net fisheries were expanded. The dynamic changes in fishery in Kashiwajima continued in the post-war period, too. Due to changing technology and social situations, fisheries profitable in Kashiwajima changed, too. In the 1960s, as aquaculture began to flourish all over Japan and young yellowtail culture was started, the collection and sale of “mojako” (juvenile yellowtail) boomed. When the price of young yellowtail dropped as a result of increasing production districts, the fish for aquaculture was changed to yellowtail, sea bream, grunt, greater amberjack, yellow jack and other finfish. In the first half of the 1980s, bluefin tuna culture was commer-

cialized in Kashiwajima, a first in Japan.

In the 1980s when sport fishing became popular and a lot of anglers began to visit Kashiwajima, some of fishermen started services guiding anglers to fishing spots by boat and fishing boat service. Diving guide business developed in the 1990s, and we should pay attention to the fact that half of the managers of these business are now those born on the island (Fig. 4).



Fig. 4 The staff of a diving guide shop take leisure divers to the diving point by their diving boat (Photo by the author, August 2007)

Conclusion:

A perspective of the theory of the sea as commons

The history of fishery in Kashiwajima we have examined above shows us the conditions of the fishermen in the island as follows: while they have been integrated into the commodity economy and have been at the mercy of changing economic situations, they have continually introduced or have developed new techniques and have lived making the most of the ocean resources in the sea surrounding the island. Readers will notice that a situation like this greatly differs from the image of the simple theory of the “sea as commons” based on the idea of fishery as a bread-and-butter job. Is the theory of the “sea as commons” invalid, then?

The theories of the commons after Hardin have not only shown the effectiveness of the customary systems in traditional communities for using and managing natural resources but have also described the situation where some of these systems collapsed in various ways. The community succeeded in the management of their common resources in some cases but failed in others. What are the differences between these cases and how can we manage our common natural resources in a sustainable way? As for these questions, Inoue (2004), for example, proposed a concept of “cooperative management (a mechanism whereby the central government, local government, inhabitants, NGOs, NPOs, global citizens and various other entities (stakeholders) collabo-

rate with one another in the management of resources),” which can be called participatory management of the commons. Akimichi (2004) also advanced an idea of “creating eco-commons laying emphasis on the continuity and circulation function of the ecosystem and implementing various programs.” These and many other theories of commons are oriented toward the revival of traditional methods for managing natural resources in the context of the present age. Just as Confucius refined all of the past spiritual legacies to high moral standards and attributed the standards to the achievements of Zhou Gong, the father of tradition, instead of talking of them as his own thought, we tend to attempt to find new plans to jointly manage natural resources in tradition. In this sense, “commons” are what we should “re”construct newly for the future.

The argument as discussed in section 3 that fishermen and diving shops should discuss and agree on rules for comprehensively adjusting the use of the entire sea area so as to manage the coral ecosystem well to avoid its deterioration can be seen as an attempt to realize an effective use of natural resources by cooperation between and joint management by the traditional community and new entities. In a sense, this can be regarded as a strategy like one based on the theory of the commons. The marine ecosystem, mainly reef-building coral, is now the resource that directly brings economic profit, too (for example, Cesar and van Beukering (2004) or Shinbo (2007) evaluated the actual economic value of coral reef). As evident from the history of fishery in Kashiwajima discussed in section 3, the type of resources changes as technology, socioeconomic conditions, people’s preference, etc. change. Therefore, it will be necessary for us to change the joint management system of natural resources according to these changing situations.

(This paper is revised considerably and translated Shinbo *et al.* 2005)

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