

Management of Community-Based Unrestricted Fisheries : Key Conditions for the Sustainability of Self-Imposed Management in the Alfonsino Fishing Grounds off Katsuura, Chiba Prefecture, Japan

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Management of Community-Based Unrestricted Fisheries: Key Conditions for the Sustainability of Self-Imposed Management in the Alfonsino Fishing Grounds off Katsuura, Chiba Prefecture, Japan¹⁾

Yoshihiro Kuronuma *

Abstract

This paper aims to analyse and elucidate key conditions for the sustainability of community-based fisheries management (CBFM) on unrestricted fisheries in Japan. It re-examines more than 50 years' worth of empirical evidence regarding the outcomes of the socio-economic rationality of the self-imposed management of common property, with particular reference to splendid alfonsino (*Beryx splendens*) fishing grounds off Katsuura, Chiba Prefecture, and the Small-Type Coastal Fishing Vessel Fishery Cooperative (STCC) there. It shows that the exclusive use of fishing grounds and other factors, including communal solidarity and a social milieu advocating fishermen's protection of fishing grounds observed roughly 20 years ago⁽³⁾, have for more than 50 years continuously existed as conditions necessary to establishing sustainable CBFM in unrestricted alfonsino fisheries using waters off Katsuura. At present, however, it should be recognised that the resource management of alfonsino as a migratory species would be required with different types of fishery operations in fishing grounds other than STCC's operation near Katsuura. To resolve this issue, a co-management system involving a resource management plan and fisheries risk management plan under the fraternal insurance of the fishery was recently introduced in collaboration with the Japanese government, Chiba's prefectural government, and the STCC. As a type of adaptive fisheries management system in Japan, this co-management system would play an important role in securing key sustainable conditions for CBFM in unrestricted, self-managing fisheries in alfonsino fishing grounds off Katsuura, Japan.

Key Words : Unrestricted Fisheries (自由漁業), Community-based Fisheries Management (CBFM:地域に根ざした漁業管理), Alfonsino Fisheries (キンメ漁業), Common Property (共有資源), Adaptive Fisheries Management (順応的漁業管理), Co-management (共同管理)

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1. Introduction

This paper primarily seeks to analyse and elucidate key conditions for the sustainability of community-based fisheries management (CBFM) in unrestricted fisheries in Japan. It re-examines more than 50 years' worth of empirical evidence regarding the outcomes of the socioeconomic rationality of self-imposed management of common property in reference to the vertical longline fisheries near splendid alfonsino (*Beryx splendens*) fishing grounds off Katsuura, mainly by the Alfonsino Division of the Chiba Prefecture Small-Type Coastal Fishing Vessel Fishery Cooperative (STCC). Though Kuronuma ⁽¹⁻⁴⁾ investigated this case in the period up to the early 1990s, the alfonsino fisheries under STCC received no legal administrative support at that time. Furthermore, though recent research by Hamada ⁽⁵⁾ and Torii ⁽⁶⁾ has summarised alfonsino resource management and its marketing issues in the Kanto region, including Katsuura, no research has focused on the self-imposed management of fishing grounds off Katsuura after administrative support with the resource management plan commenced in 2007, or the 2011 implementation of administrative safety net support for insurance for fishermen's income plan under an adaptive fisheries co-management system in cooperation with STCC and legal support from the prefectural and national governments. To rectify such oversight, Section 2 of this study presents an overview of alfonsino fisheries and their resources, after which Section 3 relates a brief history of the STCC and its self-management. Section 4 then focuses on the content of self-imposed management in 2013 and its situation in respect to the fisheries. Lastly, Section 5 offers concluding remarks regarding necessary internal and external conditions, as well as identifies elements crucial to the sustainability of CBFM in managing common property alfonsino resources in fishing grounds off Katsuura.

2. Alfonsino Fisheries and Resources

The splendid alfonsino is a demersal fish species typically found at a depth of 300–1,500 m in seas with rocky bottoms. With a floating period of 150 to 300 days, some stock stays at the sea bottom, while others migrate across a wide range of the Pacific Ocean after several years of living at the sea bottom; their maturation begins at age 4, and their lifespan can exceed 26 years ⁽⁷⁾. According to Kase ⁽⁸⁾, alfonsino concentrate at the sea bottom during daytime, yet move to sea mountains at night. The alfonsino spawning season lasts from June to October, in areas from Sotobou (near Chiba Prefecture) to Sagami Bay, the Izu Islands, Shikoku, Kyusyu, and even the Ogasawara (Bonin) Islands. In all, the species is distributed at the sea bottom of an extensive area ranging from the Pacific Ocean at the southern end of Aomori Prefecture and the Sea of Japan south of Niigata Prefecture to Australia and New Zealand ⁽⁹⁾. DNA analysis results show that alfonsino caught in the area of the Emperor seamount chain were all splendid alfonsino (*Beryx splendens*). However, the detailed reproductive behaviour and migratory patterns of alfonsino remain largely unclarified ⁽¹⁰⁾. Figure 1 shows the main alfonsino fishing grounds of Japanese fisheries.

More specifically, Figure 2 shows the main

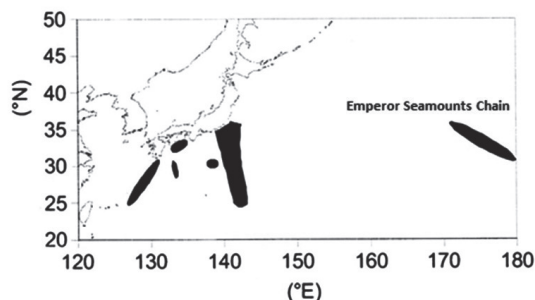


Figure 1 Main Alfonsino Fishing Grounds of Japanese Fisheries

Source: National Research Institute of Fisheries Science (2013-b) ⁽¹¹⁾ p.5

alfonsino fishing grounds in Chiba Prefecture, including those off Katsuura, which as shown in Figure 2 comprises roughly 600 km² from latitude 35° 05" north of the Pacific side of Chiba Prefecture, to longitude 140° 20" east, latitude 35° 52" north, and longitude 140° 35". In another sense, it is about 10–26 km from Katsuura Lighthouse. A total of 16 groups of approximately 250 fleets of small-type, coastal alfonsino fisheries from Katsuura to Emi—a distance of about 40 km—currently use these fishing grounds. Kuronuma ⁽⁴⁾ pointed out that one reason why fishermen from Katsuura to Emi use the fishing ground off Katsuura, as shown in Figure 2, on a basis of self-imposed management is its geographical location, which is difficult for fishermen of other prefectures to access.

Figure 3 shows catches of alfonsino among relevant fisheries in urban areas and prefectures from 1977 to 2012. As the figure shows, catches in Chiba Prefecture were second in quantity during the past 20 years, as well brought in 29% of the total catch (1,410 tonnes) of all prefectures in 2012. According to the National Research Institute of Fisheries Science ⁽¹¹⁾, alfonsino resource conditions were middling from 2002 to 2011 and low in 2012, with a declining trend.

Figure 4 shows the total harvest of alfonsino in Chiba Prefecture, including the fishing ground off Katsuura, from 1969 to 2013. A rapid growth in catches can be observed from 1971 to the mid-1980s, after which a declining trend emerged that persisted until 1998, when off Katsuura, total catch was 268 tonnes. After this time, alfonsino resource conditions in Chiba's fishing grounds were at far higher levels until 2009, when another decline emerged in 2010. In 2013, nearly 60% of the total catch in Chiba occurred in fishing grounds off Katsuura.

In the 1992 season—during which the alfonsino season spanned from November to June—the landing value of the fishing ground stood at ¥0.9 billion, with a landing volume of 853 tonnes. By

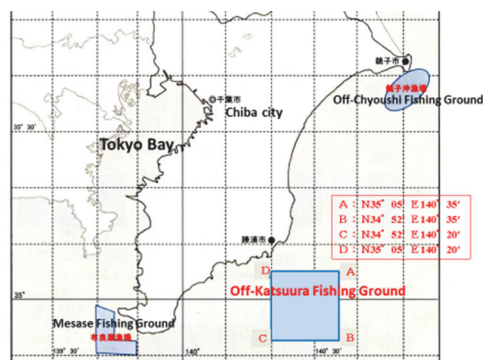


Figure 2 Alfonsino Fishing Grounds, Chiba Prefecture

Source: Chiba Prefecture (2014)⁽¹²⁾p.1

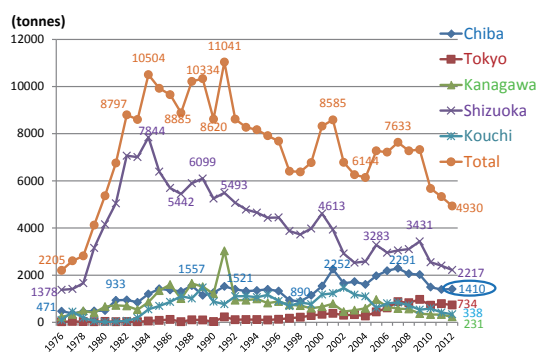


Figure 3 Catches of Alfonsino Among Related Metropolitan & Prefectures (1976-2012)

Source: National Research Institute of Fisheries Science (2013-b)⁽¹¹⁾

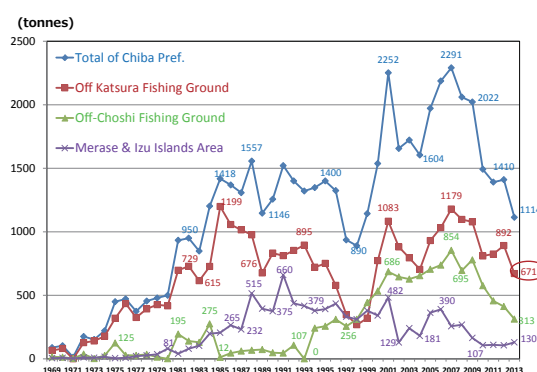


Figure 4 Catches of Alfonsino: Chiba Prefecture (1969-2013)

Source: Chiba Prefecture (2014)⁽¹²⁾p.86

contrast, during the 2012 season—during which the alfonsino season spanned from October to June, a period introduced by the STCC in 1996—the landing value was ¥1.39 billion, with a landing volume of 892 tonnes (Figure 5). A reason for such constancy in tonnage, yet such change in value can be clearly observed in Figure 6, which shows the average price of alfonsino during the past 20 years, during which time the market price of alfonsino caught in fishing grounds off Katsuura increased from nearly ¥1,050/kg in 1992 to ¥1,880/kg in 2012.

According to Chiba Prefecture ⁽¹²⁾, from 1993 to 2012 STCC membership decreased from 609 to 380—that is, by roughly 40%—while the number of boats in fishing grounds off Katsuura during the same period dropped 17%—from 300 boats in 1993 to 249 boats in 2012—as shown in Figure 7 (survey and interview data from Kanetaka, 2014). As these trends clearly suggest, alfonsino fishing in fishing grounds off Katsuura among STCC members is highly important.

Alfonsino fishing vessels leave port at around 2:00 a.m. After roughly 90 min, they arrive at the fishing grounds off Katsuura. Casting begins at 4:00 a.m. and lasts until 6:00 a.m., though timing varies according to season. The latest operation hour occurs sometime between 8:00 a.m. and 10:00 a.m., in order to meet seasonal regulations allowing a maximum operation of four hours for each boat in each operation day. The vessels generally return to port between 10:00 a.m. and noon.

Tables 1 and 2 show fishing operation patterns of small boat fisheries in the Sotobou region in the early 1990s and in 2014, respectively. Operation by any 1–10 tonne class fishing vessel—most of which are 4–5 tonnes—does not target alfonsino alone, but also various species according to the season, which can be observed in both tables. In the early 1990s, the combination of operations mostly consisted of vertical longline alfonsino fishing from November to

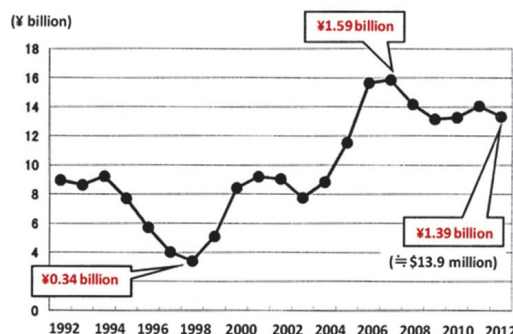


Figure 5 Gross Revenue of Alfonsino (Off-Katsuura Fishing Ground)

Source: Chiba Prefecture (2014)⁽¹²⁾

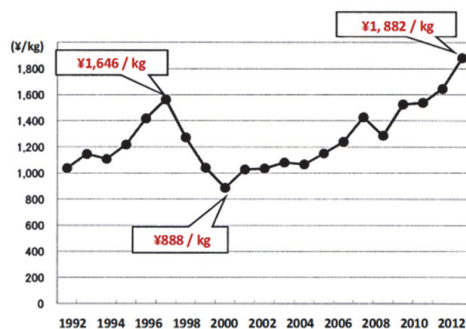


Figure 6 Average Price of Alfonsino (Off-Katsuura Fishing Ground)

Source: Chiba Prefecture (2014)⁽¹²⁾

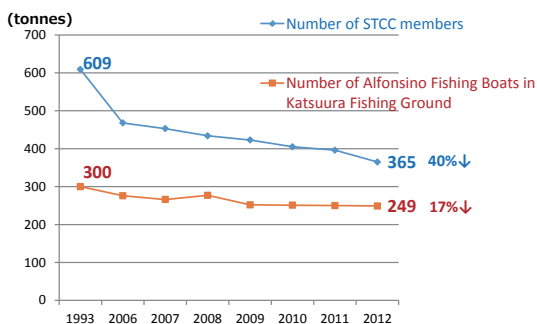


Figure 7 STCC Members & Numbers of Alfonsino Fishing Boats

Source: Chiba Prefecture (2014)⁽¹²⁾p.88 & alfonsino boats data by S.Kanetaka(2014)

Table 1 OPERATION PATTERN OF SOTOBOU REGION in early 1990s

Main target Species	Fishing method	Entry ratio (%)	Operation patterns												Average	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Fishing days	gross revenue (¥million)
Alfonsino	Vertical line	100	▽	▽	▽	▽	▽	▽					▽	▽	62	262
Squid	Angling	91						▽	▽	▽	▽	▽	▽	▽	57	204
Skipjack	Trolling line	84			▽	▽	▽								21	243
Marlin	Long line	17	▽	▽	▽										16	273
Mackerel	Angling	22												▽	9	18
Japanese bluefish	Vertical line	7					▽	▽	▽	▽	▽	▽			33	103
Abalone	Diving	22						▽	▽	▽	▽				25	168
Prawn	Gill net	26								▽	▽				14	44
Octopus	Octopus pot	7	▽	▽	▽	▽									20	159

Source: Chiba Prefecture (1993)⁽¹³⁾ p.12

Table 2 OPERATION PATTERN OF SOTOBOU REGION in 2014

As of May 25th 2014

Main target Species	Fishing method	Entry ratio (%)	Operation patterns												Average	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Fishing days	gross revenue (¥million)
Alfonsino	Vertical line	—	▽	▽	▽	▽	▽	▽				▽	▽	▽	—	—
Squid	Angling	—						▽							—	—
Skipjack	Trolling line	—			▽	▽	▽					▽			—	—
Marlin	Long line	—	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	▽	—	—
Mackerel	Angling	—	▽	▽	▽								▽	▽	—	—
Japanese bluefish	Vertical line	—													—	—
Abalone	Diving	—					▽	▽	▽	▽	▽				—	—
Prawn	Gill net	—						▽	▽	▽	▽	▽			—	—
Octopus	Octopus pot	—													—	—

No Fishing Operation

Some Operation in early 1990s

▽ Fishing Operation

▽ No Operation in early 1990s

Source: random sample investigations by Kuronuma (2014)

June, squid angling from June to December, marlin longline fishing from January to March, skipjack trolling from March to May, and abalone diving fishing in some areas from May to September⁽⁴⁾. In 2014, despite a general similarity of combined operations, as shown in Table 2, some changes are clear, including the abandonment of squid angling due to the product's rapidly decreased market price. Alfonsino vertical line fishing season will start one month earlier in 2014 than in the early 1990s, since the STCC set the alfonsino season to span from October to June in 1996. These changing situations indicate the increased importance of alfonsino fisheries for the fisheries business management of STCC members in Sotobou.

Regarding the age structure of fishermen, in the early 1990s, roughly 30% of fishermen were aged less than 40 years, 30% were in their 40s, 30% were in

their 50s, and about 10% were aged at least 60⁽⁴⁾. In 2014, for another example, 29 small-scale fishing vessels were operated by 41 fishermen in Amatsu; about 10% were aged less than 40 years, about 17% were in their 40s and 50s, and 73% were at least 60 years old (interview with Kanetaka in May 2014). For these 29 vessels, 18 were operated by fishermen older than 60 years who had no heirs to their fisheries. A similar trend can be observed in many areas in Sotobou. With these figures, it is easy to conjecture that membership among in STCC fisheries will rapidly decrease in the near future. Though the alfonsino fisheries as a whole differ in their fishery management from area to area, their clearly observed dependency on alfonsino has increased the importance of the species for their business management in general. In fact, nearly half of STCC vessels of Amatsu depended on it in 1994,

while nearly all vessels depended on it in 2014 (Kuronuma ⁽⁴⁾ and interviewed with Kanetaka in May 2014).

Kuronuma ⁽⁴⁾ pointed out that, since alfoncino fisheries are line fisheries using vertical longlines, they are categorised as unrestricted fisheries that do not belong to fisheries with fishing rights in the context of Japanese fishery legislation—a circumstance that remains unchanged. Unrestricted fishery activities themselves are thus characterised by lacking any legal right, including in the case of alfoncino fisheries under STCC. It is generally considered that unrestricted fisheries tend to find themselves in weaker legal positions given the lack of support during conflicts with other legally backed fisheries, such as licensed fisheries and fishing-right fisheries, over a species or fishing ground. However, unrestricted fisheries nevertheless occur within a legal framework in which they are not identical to free fisheries in a strict sense of the word *free fisheries* in the context of the Japanese fisheries legal system ⁽²⁻⁴⁾. In this context, the self-imposed management among alfoncino fisheries off Katsuura presents an extraordinary case of adaptive fishery management in Japan.

3. A Brief History of the STCC and Its Management

Table 3 shows key events in the history of Chiba Prefecture's STCC, self-imposed management by the STCC, and related administrative issues of the national and prefectural governments from 1949 to 2013. A putative origin of the STCC occurred in the establishment of a small-type coastal fishing vessel cooperative in Isumi in March 1949, which primarily aimed to negotiate for compensatory fishing ground in the drilling area of Sotobou with the U.S. Air Force after World War II ^(1,4). The arbitrary organisation of this cooperative obtained registration approval from

Chiba Prefecture in March 1966 and changed its name to the currently used STCC. The precedent of this approval condition emerged with regards to adjusted operation disputes over purse-seine mackerel fishing ground in Tonegawajiri since 1964 ^(1,4). Purse-seine fishing in the area south of the eastern line of the island's lighthouse, including the current alfoncino fishing ground off Katsuura, was placed under the control of the STCC and secured as a fishing ground for line fishing since a 1967 memorandum on adjusted operations with large-, medium-, and small-type purse-seine fisheries ⁽⁴⁾. The cooperative became the main negotiator of small-type coastal fishing vessels in matters related to compensation for the US Air Force drilling area, as well as for Tonegawajiri's mackerel fishing ground. Solidarity among fishers formed over these fishing ground issues, and as Uemura ⁽¹⁴⁾ mentioned, the negotiation processes cultivated STCC fishermen's preference of discussing all issues concerning self-imposed management (Table 3) until a final agreement is reached among all STCC members. Formal operation rules in the STCC, including alfoncino operation rules, were endorsed in September 1978 (Table 3).

Though details of provision revisions since 1978 are not as relevant to the present paper, it is worth pointing out that, during the 45 years since documentation commenced in January 1969 until September 2013, as many as 32 revisions were made to the provisions. They resulted in the speedy application of fishing ground management that met requirements each time, which was made possible by the nature of unrestricted fisheries ⁽⁴⁾. Fishermen united to protect their fishing practices as a sector of fisheries, which developed into a division of the STCC. The alfoncino division was formalised in October 1977 (Table 3). As of June 2014, STCC has seven divisions—the alfoncino division, the demersal fish division, the squid division, the swordfish

Table 3 Historical Vicissitudes of STCC, Self-Imposed Management, and Administrative Issues

Year	STCC	Self-Imposed Management on Resource & Fisheries	Administrative Issues
1949	Small-type coastal fishing vessel cooperatives established in Isumi as pre-STCC organisations.		
1955		Kanagawa vessels exceeding 7 tonnes, and night operation prohibited as a result of negotiations with Kanagawa fishermen.	
1966	Chiba Prefectures Small-Type Coastal Fishing Vessels Fishery Cooperative(STCC) established.		Registration approval to the STCC by Chiba Prefecture.
1967		Input control limit of 200 hooks introduced among STCC members.	
1969	Self-Imposed management of arbitrary consultations off Katsuura fishing ground documented in writing.	Input control limit of operation hours (i.e., from sunrise to sunset), and self-imposed measures for the restriction of fish-gathering lamps introduced.	
1972		Input control reduction of the number of hooks to 180 on a nominal basis introduced.	
1977	Alfonsino Division under STCC established.	Further measures regarding operation procedures, fishing season (i.e., 1 Nov.- 15 June), non-fishing days (first and third Saturdays each month), and prohibition of access of recreational fishing boats enacted.	
1978	Formal operation rules regarding alfonsino in the STCC endorsed.		
1980 – 1989		Further limitation of the fishing season (1 Nov.-30 June) established; self-imposed prohibition of continental shelf area enacted in 1980; marking and releasing begun by Kominato fishermen in 1984; number of automatic winch in 1981 and 1987.	
1990		Prohibition of continental shelf area during off season introduced.	Policy for promoting Pacific middle block stock management introduced by Chiba, Kanagawa, Shizuoka, and Tokyo.
1992	STCC recognised for excellent fisheries resource management by the Fisheries Agency of the Japanese Government.		Recognition of STCC for excellent fisheries resource management by the Fisheries Agency of the Japanese Government.
1993		Further limitation of operation hours (< 7 h/day), and off Katsuura fishing ground defined as shown in Figure 2.	Policy to promote extensive stock management in Chiba Prefecture preceded by Chiba Prefectural Government.
1994		Release rule of alfonsino aged 1 year (less than 18cm and 120g) enacted.	
1995			Policy plan of extensive migratory stock (alfonsino) management in Chiba Prefecture approved; Chiba's Fishermen's Resources Management Consultation Party organized to support fishermen's self-management.
1996 – 2003		Revision of fishing season (1 Oct.-15 June) with an additional non-fishing day (all Saturdays except the first and third in December) made in 1996; reduction in the number of hooks to 150 for first line and 50 for second added in 2003; Otakane fishing ground added as a protected zone in 2003.	
2004	Resource management monitoring started.	Prohibition of market sale of alfonsino less than 200g and 25cm introduced.	
2007			Resource recovery plan for alfonsino in southern Japan's Pacific region unveiled by the Fisheries Agency of the Japanese government, in collaboration with the Tokyo Metropolitan, and the prefectures of Chiba, Kanagawa, Shizuoka, and Kochi; plan accomplished in 2011.
2010		Further limitation of operation hours (< 6 h/day to < 5 h/day) enacted.	
2011	New plans for resource recovery and insurance for business such as Shin-Katsuura cooperatives.		New plan for resources recovery and safety net insurance plan for fisheries business management started with administrative support.
2013		Further limitation of operation hours (< 5 h/day to < 4 h/day) enacted.	

Source: Kuronuma (1997)⁽⁴⁾, Uemura(2004)⁽¹⁴⁾ pp.5-6 Table 2-1, Chiba Prefecture(2014)⁽¹²⁾ p.123 Table 2

longline division, the skipjack division, the sardine division, and the recreational fishing vessel division—and has consisted of five regional fisheries cooperatives and cooperation members—namely, Onjyuku-Iwawada, Shin-Katsuura, Katsuura, Higashi-Awa, Kamogawa, as well as other cooperate members ⁽¹²⁾.

Instances of administrative assistance with(out) legal support for alfonsino fisheries under the STCC are shown in Table 3. Registration approval was given to the STCC by Chiba's prefectural government in 1966, given the aforementioned dispute concerning Tokegawajiri's mackerel fishing ground. In 1990, a policy for promoting Pacific middle block stock management by Chiba, Kanagawa, Shizuoka, and Tokyo commenced under the guidance of the Fisheries Agency of the Japanese government and in collaboration with JF-Zengyoren (National Federation of Fisheries Co-operative Associations). In 1995, the policy resulted in the Policy Plan of Extensive Migratory Stock Management in Chiba Prefecture (PEMSM) by Chiba Prefectural Fisheries Co-operative Association (CPFCA), including an alfonsino management plan, after which the Fishermen's Consultation Party of Chiba Prefectural Resources Management (FCPCP) was organised to support self-management by fishermen. The FCPCP is currently active and plays a central role in the adaptive management system of alfonsino resources and fisheries. Until these self-management policy movements in 1995, there were neither legal nor financial support from national and prefectural governments. As such, up to this point, alfonsino fisheries management can be characterised as having pure self-management by fishermen in order to improve their business by resource management.

In 2007, the Resource Recovery Plan (RRP) for alfonsino in the southern area of the Japanese Pacific was formulated by the Fisheries Agency of the Japanese government in collaboration with the

governments of Tokyo Metropolitan and the prefectures of Chiba, Kanagawa, Shizuoka, and Kochi. The alfonsino division of the STCC under FCPCP plays a central role in the consultation of fishing grounds management for waters off Katsuura, Choshi, and Merae (Figure 2). A revised RRP and Insurance for Fishermen's Income Plan (IFIP) were introduced in 2011; the purpose of the revised RRP is to accomplish the urgent recovery of low stock level resources ⁽¹¹⁾. Under this RRP policy, fishermen retain self-imposed management, yet both national and prefectural governments are responsible for fishermen's self-management with both legal and financial support. These circumstances differ from those brought about by PEMSM in 1995, as previously discussed. The safety net of IFIP works when fishermen cannot earn income similar to that of the previous year, by which they can receive up to 90% of the previous three years' average income within last five years, including the highest and lowest income years. In 2011, 83 members of Shin-Katsuura Fisheries Cooperatives initiated fisheries cooperative insurance, and 65 of the 83 members entered the IFIP, 37 of whom received insurance payment ⁽¹²⁾. Though these fishermen must pay certain amount of insurance premium, they can avoid business risks when needing to manage alfonsino resources based on the revised RRP. Here, an adaptive fishery management system involving co-management among alfonsino fisheries can be clearly observed.

As for fishing grounds management, as noted by Kuronuma ⁽⁴⁾, the prefectural and national governments do not directly give exclusive use rights to fishery groups, yet also does not prioritise agreements made between fishery groups that resulted from past conflicts. Also, fishing area regulations have been attached as collateral conditions for round haul net permits. This exclusive use is "exclusive use resulting from experience" ⁽⁴⁾ and thus not supported

by law, which indicates that rights are not directly given for alfonso vertical line fishing. However, support is given in that self-management of the fishing grounds off Katsuura is prioritised and that other fisheries are regulated ⁽⁴⁾. In this sense, fisheries other than those prohibited by law in permit conditions can freely enter the fishing grounds off Katsuura. However, other fisheries should consider that no entry to fishing grounds off Katsuura should be taken into account, given governmental recognition of high-grade self-imposed fishery management by the alfonso division of STCC ⁽⁴⁾—a situation that has not changed much in past 20 years. In this case, the situation can also be considered part of adaptive management system.

4. The Content of Self-Imposed Management in 2013 and the Current Situation of the Fisheries

The Provision for Operations in Fishing Grounds off Katsuura (POKF), as revised on 25 September 2013, consists of 16 points: 12 items, plus a supplementary four items, as well as appendices for three items ⁽¹²⁾. Generally, the POKF stipulates operation methods and other conditions in order to ensure the conservation of alfonso resources and to categorise the fishing grounds off Katsuura as sustainable production grounds, as Item 1 states. Item 2 states that, in 2013, the fishing season is set to start on 1 October 2013 and end on 30 June 2014, while Item 3 measures the position of fishing grounds off Katsuura to be about 600 km², as shown in Figure 2. Provisions regarding operations and operation methods in Items 4–7 are designed to respond to actual requirements, including the maximum fishing time of four hours thought to best meet the seasonal conditions and the limitation of fishing gear and methods. Item 8 stipulates the adjustment and allocation of harvests in the case of line entanglement based on year-long experiences, while Item 9 provides

prohibitions of some fishing gear and non-fishing days—all Saturdays except the first and third Saturdays in December—as a measure to preserve the fishing ground and promote family services. Penalties listed in Item 10 include one operation day off by all members of the fishing vessels group of the region if any member violates any items of the provisions. Supplementary measures include the prohibition of operations during the closed season (1 July to 30 September) in the continental shelf area of fishing grounds off Katsuura; the restricted access of recreational fishing boats to the fishing grounds off Katsuura; and the corresponding Ootakane fishing ground provision of 2003. As an appendix, it includes a measure to protect age-1 juvenile fish less than 200 g and 25 cm. In 1994, these standards were less than 180 g and 18 cm ⁽⁴⁾.

As of September 2013, the provision of alfonso fishing grounds off Katsuura have been improved, with 32 revisions over a span of more than 45 years since documentation began in 1969. It has functionally succeeded in protecting the fishing grounds off Katsuura by excluding other fisheries and fishing methods and due to fishermen's efforts toward self-imposed management. As background to the initial condition, it should be noted that the settlement of competition and disputes with mackerel purse-seine and line fisheries were external conditions that induced the protection of the fishing ground ⁽⁴⁾.

Fishing days in fishing grounds off Katsuura increased from 105 days/year in 1992 to 164 days/year in 2012 ⁽¹²⁾. In 1992, these fishing days constituted 44% of the alfonso fishing season at the time, which rose to roughly 60% in the 2012 season. These shifts also indicate the importance of alfonso fishing for business. Catch per unit of effort (CPUE), on the other hand, decreased from 41 kg/day per boat in 1992 to 29 kg/day per boat in 2012, to

produce a 20-year average of CPUE of 36 kg/day per boat ⁽¹²⁾. This decrease may indicate a decreased stock level of alfonsino, suggesting the need to manage this migratory stock with the cooperation of related fishermen and governments.

5. Concluding Remarks

This paper has sought to identify conditions crucial for the sustainability of CBFM in unrestricted fisheries in Japan. It has re-examined more than 50 years' worth of empirical evidence about the outcomes of socioeconomic rationality in the self-imposed management of common property of alfonsino fishing grounds off Katsuura by the STCC. Its observations show that the exclusive use of fishing grounds and other factors, such as a communal solidarity and social milieu dedicated to protecting the fishing grounds among fishermen during the past 20 years ⁽³⁾, have continuously been necessary conditions for sustainable CBFM in unrestricted fisheries of alfonsino fishing grounds off Katsuura for over 50 years. Observations also reveal that adjustments of fishery operations and other matters have also been necessary, based on the establishment of an organisation of fishing ground users ^(3,4). As such, management by the local community of fishermen of the fishing grounds off Katsuura and its resources could fit Ostrom's ⁽¹⁵⁾ alternative management method of common property resources and its eight conditions. Though this is an issue reserved for future research, the case of alfonsino fisheries has been categorised as an "effective utilization of fishing ground" by Hasegawa ⁽¹⁶⁾. From this, it is clear that the number of alfonsino fishermen in the future is also an important factor for sustainable CBFM, due to sharp decrease in young fishermen.

During observations made during the past 20 years, including those of reduced alfonsino stock in

2013, we have noticed that the resource management of alfonsino as a migratory species could have been required by different types of fishery operations in fishing grounds other than those off Katsuura. In response, a co-management system was recently introduced with the cooperation of the Japanese government, the Chiba prefectural government, and the STCC that includes a resource management plan and fisheries risk management plan under the fraternal insurance of the fishery. This so-called co-management system, as one type of adaptive Japanese fishery management system, could be significant for key sustainable conditions for CBFM of unrestricted fisheries with self-imposed management in the alfonsino fishing grounds off Katsuura, Japan.

Note

- 1) This paper is a revised and full version of the paper presented at the IIFET 2014 Australia Conference (Proceedings of the 17th Conference of the International Institute of Fisheries and Economics and Trade 2014 Australia) .

References

- (1) Kuronuma, Y. 1996a. Self-imposed fisheries management in alfonsino fishing ground off Katsuura, Chiba Prefecture [in Japanese]. *Newsletter of National Research Institute of Fisheries*, Yokohama, 12: 9-13
- (2) Kuronuma, Y. 1996b. Fishing ground management and its exclusive use under unrestricted fishery [in Japanese]. *Proceedings of Fisheries Economics Society of Japan 1996 in Tokyo*, p.6
- (3) Kuronuma, Y. 1996c, Key conditions for community-based fisheries management: A case study on self-imposed management in

- alfonsino fishing ground off Katsuura, Japan. *Proceedings of 2nd World Fisheries Congress 1996 in Brisbane*. volume 1: 146.
- (4) Kuronuma, Y. 1997. Japan: Part II. Case study of fishing ground management in unrestricted fisheries: Self-imposed management of vertical long line fishery in alfonsino fishing ground off Katsuura, Chiba Prefecture. *Towards Sustainable Fisheries: Issue Papers* OECD/GD (97)54, Paris, pp.357-369
- (5) Hamada, T. 2008. Resource management and marketing: Considerations on new developments in the alfonsino case [in Japanese]. *Shigenkanritaisei: Kinou Kyouka Sougou Taisaku Jigyuu: Kanren Sangyousya Ishikicyousa in 2007*, JF-Zengyoren [National Federation of Fisheries Co-operative Associations], Tokyo, pp.2-52
- (6) Torii, T. 2014. Present situation and issues on alfonsino fisheries management and targeting of higher market price [in Japanese]. *Shigenkanrikeikau nadono Suishintaisei: Fukyu Keihatsu Jigyuu*, JF-Zengyoren [National Federation of Fisheries Co-operative Associations], Tokyo. pp.1-29
- (7) National Research Institute of Fisheries. 2013a. *A Report of Research on Alfonsino Resources in Fiscal Year 2012* [in Japanese]. Fisheries Agency, Tokyo. pp.1-2
- (8) Kase, K. 1979. Alfonsino fisheries [in Japanese]. *Survey Report on the Actual Situation of Basic Coastal Fisheries (1)*. National Federation of Fishery Cooperatives (Zengyoren), Tokyo, pp.97-157
- (9) Chiba, Tokyo, Kanagawa, and Shizuoka Prefectures. 1993. Policy for alfonsino stock management. *Policy for Promoting Pacific Middle Block Stock Management* [in Japanese]. *Taiheiyou Naka-burokku Shigen Kanri Suishin Shishin*. Taiheiyou Naka-burokku Shigen Kanrigata Gyogyou Suishin Kyougikai pp.1-32
- (10) Yanagimoto, T. 2012. Alfonsino species discernment by DNA analysis. *Information on Fisheries Research Results* [in Japanese]. National Research Institute of Fisheries HP. http://fra-seika.fra.affrc.go.jp/~dbmngn/cgi-bin/search/search_detail.cgi?RESULT_ID=4148&YEAR=2012. (Last accessed 8 Aug 2014).
- (11) National Research Institute of Fisheries. 2013b. *A Summarized Report of Research on Alfonsino Resources in Fiscal Year 2012* [in Japanese]. Fisheries Agency, Tokyo. pp.1-15
- (12) Chiba Prefecture. 2014. Information on alfonsino resource management off Katsuura [in Japanese]. Division of Fisheries Resources, Chiba Prefecture. pp.1-138
- (13) Chiba Prefecture. 1993. Policy to promote extensive stock management in Chiba Prefecture [in Japanese]. Chiba-ken Kouiki Shigen Kanri Suishin Shishin. Chiba Prefecture.
- (14) Uemura, T. 2006. For sustainable use of alfonsino resources: Protected by fishermen for over 50 years [in Japanese]. *Chiba-ken Suisangyou Seisyonen Jyosei Katudou Jisseki Happyou Taikai*, pp.1-11.
- (15) Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press, New York.
- (16) Hasegawa, A. Japan: Part I. Various forms of fishery management. Japan: Self-management and co-management of coastal fisheries in Japan. *Towards Sustainable Fisheries: Issue Papers* OECD/GD (97)54, Paris, pp.270-293

自由漁業による漁場管理

千葉県勝浦沖キンメ漁場における自主管理の持続条件

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要 約

千葉県勝浦沖におけるキンメダイ (*Beryx splendens*) 一本釣り自由漁業の自主管理は、漁業者が自主的に漁業を指導する同業種組合として設立した千葉県沿岸小型漁船漁業協同組合 (STCC) が中心となった活動を半世紀にわたり継続している点にその特徴がある。この自主管理は地域漁業者による適切な管理のもとで漁場を排他的に利用してきた経緯があることは20年ほど前に拙稿⁽³⁾で明らかにした。本稿では当該漁業における勝浦沖漁場の自主管理の現状を再び整理・分析し、持続的な管理が継続している要因を抽出しつつ、存続のキーとなる条件を検討する。その結果、自主管理のもとで漁場の排他的利用が継続していることが再確認できた。加えて、対象資源にかかわる科学的知見が十分に解明されたとは言えないものの、回遊魚としての性質を持つことが次第に理解されてくる中で、STCC以外の漁業による他の漁場や異なる漁法による漁獲が、勝浦沖漁場資源にも影響する可能性が考えられるため総合的な資源管理が不可欠であること、さらに小型漁船経営の主な対象魚種がキンメに大きく依存してきている経緯も観察され、漁業保険の新たな取り組みによる共同管理への可能性も含めて、漁業経営をいかに安定させることができるのかという資源面に加え経営面からの存続条件も重要になっていることを明らかにした。

Key Words : Unrestricted Fisheries (自由漁業), Community-based Fisheries Management (CBFM: 地域に根ざした漁業管理), Alfonsino Fisheries (キンメ漁業), Common Property (共有資源), Adaptive Fisheries Management (順応的漁業管理), Co-management (共同管理)