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FOR CONSERVATION AND SUSTAINABLE USE OF TUNAS

Adding new value to dark-colored tuna meat[1]

In Miura City, Kanagawa Prefecture, a major base for distant-water fisheries, efforts have begun to create new value for previously unused dark-colored tuna meat and revitalize the region. The Research Group on Mibyo[2] Improvement Effect of Tuna established at the Miura Chamber of Commerce and Industry is playing a central role, and efforts are being accelerated through collaboration between industry, academia, and government. We interviewed the chairman of the group, Mr. Koji Yamamoto (President of Hayuka Sohonten Co., Ltd., Miura City, Kanagawa Prefecture) about the research group's activities and the impact on the tuna industry that can be expected from the use of dark-colored meat.

Interviewer: Please tell us about Hayuka Sohonten.

Mr. Yamamoto: In Miura City, Kanagawa Prefecture, which is a base for distant-water fisheries, we process and sell marlins pickled in miso and kasu (sake lees) as our main products. We celebrated our 100th anniversary in 2023. Since we began processing fish, we have continued to pursue the fundamentals of "discerning high-quality fish and "processing techniques that bring out the flavor," while valuing the creation of products that suit the dining table of each era. I was born into a family of fishermen in Shin-hidaka, Hokkaido, a town famous for producing Hidaka kelp. After working for a trading company in Tokyo for 10 years, I joined Hayuka Sohonten, where my father-in-law was the president, and am currently the fourth generation president.

Interviewer: Please tell us about the Research Group on Mibyo Improvement Effect of Tuna.

Mr. Yamamoto: It was established in July 2023 as a research group of the Miura Chamber of Commerce and Industry. Selenoneine, which is found in abundance in the dark-colored meat ("chiai" in Japanese) of tuna and marlins (black marlin and blue marlin), has been confirmed to be effective in improving lifestyle-related diseases and slowing aging when eaten on a continuous basis. We aim to propose new value for "Misaki Tuna" and promote its recognition and branding, leading to regional revitalization. This is a collaborative effort between industry, government, and academia, with support from local seafood wholesalers, Miura-based distant-water tuna longline fishing vessel owners, Miura City, and Kanagawa Prefecture. Additionally, the Kanagawa Prefectural Fisheries Technology Center, the Japan Fisheries Research and Education Agency, and the Institute of Medical Science, St. Marianna University are conducting research on selenoneine.

Interviewer: Why were you, as someone whose main business is marlin, elected as the chairman?

Mr. Yamamoto: Well, I think that the reason I was elected was that I am not a pure tuna businessman. Until now, tuna chiai in Miura City was only handled by a few restaurants and processing companies, and most of it was thrown away. The reason is that the color changes and quality deteriorates quickly due to oxidation. The dietary habit of eating chiai has not been established, and the price per kilo remains at around 50 yen. Therefore, we must not only develop and sell products, but also create solid value in the region. Our company has a track record of not only developing processed products, but also cultivating sales outlets and creating products in collaboration with the Kanagawa Prefectural Marine Science Senior High School. Furthermore, since I am an "immigrant" myself and have come from a different industry, I believe that I can use my broad perspective to help the research group's activities without being bound by preconceptions.

Interviewer: Please tell us about the specific activities of the research group.

Mr. Yamamoto: Last November, we held a kick-off event titled "Discovering the new appeal of tuna: Learning about and eating selenoneine." First of all, we would like to make people aware of the effects of selenoneine and expand the use of tuna chiai. The Kanagawa Prefectural Fisheries Technology Center and the Japan Fisheries Research and Education Agency have announced that research results confirm that selenoneine has a strong antioxidant effect, and prevents colorectal cancer and reduces oxidative stress, which is a cause of aging. A tasting event was also held on the day of the event, where visitors were treated to dishes made by local restaurants and processors, including "Chiai Sashimi," "Chiai Steak Escargot Style," and "Misaki Kushikatsu." These dishes were well received and we made a good start.

Interviewer: What kind of reaction do local tuna people have regarding the use of chiai?

Mr. Yamamoto: Local people are also aware that scientifically it is good for the body, but they still have a strong negative perception of it. This is because chiai is a part that has rarely been used until now, so it is

[1] All the articles in this issue are translations from OPRT Japanese newsletter No. 125 issued in April 2024, with slight modifications.

[2] "Mibyo" is a Japanese word meaning a condition that is not diagnosed as a disease but still causes someone to be unwell.

poorly recognized as a food ingredient. Even though it is understood that with a simple twist, it can be transformed into a delicious ingredient, such as the dishes served at the kick-off event, this has not become widespread. In addition to seafood wholesalers, processors, and restaurants, we must change the perceptions of consumers. To achieve this, it is necessary to take time to establish the taste of Misaki. In addition to providing it to children in school lunches, we believe it is important to make it a part of citizens' diets, such as by using it in hospital meals at Miura City Hospital as part of promoting good health among citizens.

Interviewer: Please tell us about the future activities of the research group.

Mr. Yamamoto: First of all, we need to solidify our supply-side systems, such as seafood wholesalers. Actually, there was previously a project in Misaki to commercialize tuna tail meat, but the level of quality that would be expected to be popular could not be secured, and within a year, supply became tight. To prevent this from happening, we, as wholesalers, who are in charge of the raw material procurement function, would like to establish a system that allows us to secure inventory and deliver fresh raw materials to restaurants through speedy primary processing. We aim to achieve a quality that allows chiai to be served as "raw food." Next, we plan to create quality control standards and a certification system for restaurants and processors so that we can provide high quality chiai dishes to consumers. In addition, in order to refresh the image of chiai, we are calling for potential new names for chiai until September of this year. We plan to announce the selected new name at the Misaki Port Town Festival, an event to be held at the end of October.

Interviewer: It sounds like the value of "Misaki tuna" is expected to improve.

Mr. Yamamoto: "Misaki Tuna" was made into a brand thanks to the middlemen's highly praised discerning ability. However, the question remains as to how well it is recognized by today's general consumers. In the future, we would like to position chiai as one way to rebuild the Misaki Tuna brand. I would like to suggest to consumers that if they come to Misaki, they can eat not only delicious tuna, but also chiai rich in selenoneine, which they would not normally have the chance to do.

Interviewer: What kind of impact do you think there will be on the tuna industry as the use of chiai becomes more widespread?

Mr. Yamamoto: From the perspective of food loss, it is very important to use chiai as an ingredient. Our company mainly processes marlin. In terms of black marlin, out of 100 kg of fish processed, about 20 to 30 kg is produced as chiai, which is a considerable amount. In addition, it takes a certain amount of time for seafood wholesalers and processors to remove chiai during the initial processing. If chiai is traded at the same price as red meat due to its increased value as a food ingredient, the income will be commensurate with the effort and sales will increase. I hope that Misaki will establish this as a pioneering example and that efforts to utilize chiai will spread throughout the country. I would be happy if the consumption of tuna increases and the industry is revitalized as a result.

The discussion of allocations in tuna regional fisheries management organizations

by Shingo Ota (OPRT Managing Director)

One of the issues that is becoming contentious at tuna regional fisheries management organizations (RFMOs) in recent years is allocation. These are directly linked to a country's interests, so it is difficult to reach an agreement between countries as they cannot easily reach a compromise. In this article, I would like to review the discussions regarding allocations for Atlantic bigeye and Atlantic bluefin tunas at the International Commission for the Conservation of Atlantic Tunas (ICCAT), in which I have been involved for many years, and consider future directions.

The total allowable catch (TAC) and allocations[3] for bigeye were first introduced in 2004. 81,400t out of the TAC (90,000t) were distributed among six members. Since then, the stock has deteriorated, and the annual TAC for 2016-19 was reduced to 65,000t, of which 57,762t were allocated to seven members. However, as there were no restrictions on the catch of other members, the total catch exceeded the TAC every year, and together with the high catch of small bigeye by purse seine fishing operations using fish aggregation devices (FADs), the bigeye stock further deteriorated.

To resolve this, the TAC was lowered to 62,500t from 2020 and the number of members receiving allocation was increased from 7 to 16, but due to resistance from members, the sum of the allocations became 65,143t, exceeding the TAC. In addition, there were still members who were not subject to allocation. For this reason, ICCAT has been discussing this issue since 2021 in an effort to reach an agreement on a new allocation scheme, but no agreement has been reached, and there is no prospect of an agreement this year either. Fishing activity had decreased significantly due to the COVID-19 pandemic since 2020, and the total catch had been below the TAC since 2020. However, as fishing activities resume after the pandemic has subsided, an increase in catch is expected and this is a matter that needs to be urgently resolved.

Why can't we reach an agreement? The stock has been on a recovery trend since the amount of fish caught has declined in recent years, and many believe that the TAC can be increased from the current 62,000t to around 73,000t. There are 42 members involved in bigeye, but the

[3] Strictly speaking, the system applied for Atlantic bigeye is catch limit, not allocation. It is said that the difference between allocation and catch limit is that in the case of the former, the sum of all the allocations is equal to the TAC, whereas in the latter case, the sum of catch limits is not equal to the TAC. Both concepts tend to be perceived as the right to catch fish even though there are limits. In this article, the term "allocation" is used since many ICCAT members do not necessarily distinguish between these two concepts and many members want to have the right to fish.

total amount of allocations for the top six members is 50,848t, and if you add the total amount given to the other nine members (13,295t), it becomes 64,143t. Therefore, even if the TAC were to increase to 73,000 tons, there would only be 8,857 tons available for the remaining 27 members. Developing members who have not received allocations argue that they cannot develop their fisheries under such a situation, while developing members who have received allocations argue that an increase in allocations is necessary for the further development of their fisheries. They complain that it is extremely unfair that those six members monopolize about 80% of the total allocation.

In order to address the dissatisfaction of developing members, it is not enough to simply allocate the entire increase of the TAC to developing members; it is also necessary to reduce the allocations of developed members who currently have allocations and transfer them to developing members. However, when the TAC increases by a big 11,000t, it would be difficult for developed members to accept a reduction in the allocations. I believe that the only solution to this situation would be:

(1) For the time being, all the increased amount will be distributed among developing members, and the allocations for developed members will remain as they are;
(2) Further reduce the catch of small bigeye by purse seiners, thereby increasing the TAC in the future; and
(3) Establish a rule that when the TAC increases in the future, a larger amount will be allocated to developing members.

A similar situation exists for Atlantic bluefin tuna. The stock of Atlantic bluefin tuna has deteriorated to such an extent that at one point a ban on international trade was proposed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), but with subsequent strengthening of conservation and management measures, the stock has steadily recovered and the TAC has been gradually increasing. From 2023, the TAC has increased from 36,000t to 40,570t, but of the 17 members receiving allocations, 7 members (large fishing members) with an allocation of 1,000t or more account for 95% of the total allocation. The remaining members (small fishing members) are demanding a review of the allocations, as they are extremely distorted.

The next TAC review is scheduled in 2025, and the TAC will be automatically calculated under the management procedure adopted in 2022. The simulation shows that the TAC is expected to increase in the next review. Due to the complexity of discussions on allocations, preliminary discussions have been held at intersessional and annual meetings towards the next year's review. In the case of Atlantic bluefin tuna, measures to regulate small fish catch have been already introduced (in principle, catch of fish less than 30kg is prohibited), and this is thought to have greatly contributed to the stock recovery. Thus, if we follow the example of bigeye tuna, the following constitutes a possible solution:

(1) Give all the increase in the next TAC to small fishing members; and
(2) When the TAC increases in the future, a larger amount will be allocated to small fishing members.

However, things are not that simple. This is because while the conflict for bigeye tuna is between developing members and developed members, in the case of bluefin tuna, it is between large fishing members (which includes developing members) and small fishing members. In the case of bigeye tuna, the right of developing countries to develop their fisheries is recognized under international law, making it difficult for developed countries to increase their allocations. On the other hand, in the case of bluefin tuna, there is no provision requiring large fishing countries to be considerate of small fishing countries. However, if the TAC is increased, the allocation of individual members will not increase unless there is a consensus on the distribution of the increased TAC, so large fishing members need to make some concessions to small fishing members in order to increase their own allocations. On the other hand, although small fishing members insist that consideration should be given to them, they need to compromise on the specifics so that it can be acceptable to large fishing members.

For these reasons, it is expected that the discussion will not be about giving the entire increase to small fishing members, but rather using the current allocation ratios as a starting point and adding allocations to small fishing members. In this case, the allocation ratio of the large fishing members will decrease, but since the TAC itself increases, the allocation quantity will increase, and they can explain to stakeholders, “Although the allocation ratio has decreased a little, the allocation itself has increased, so let's accept this.”

The common point in the debate over allocations for bigeye and bluefin is the question of how much consideration should those who have allocations give to those who do not. This problem is not limited to fishing allocations, but is common to many problems in human society. We have seen many cases in the past when the gap between those who have and those who have not becomes large and society becomes unstable, sometimes leading to riots and revolutions. Although those are extreme examples, the essence of the matter remains the same. Am I the only one who thinks that such experience should be utilized in discussions about allocations?

Reducing the burden of refrigerator operations: First refrigerator training course held in Kesennuma for an engineer on board a distant-water tuna vessel

On March 8, the Northern Miyagi Prefecture Tuna Fisheries Association and the Northern Miyagi Prefecture Ship Owners Association held their first refrigeration machine training course in Kesennuma City, Miyagi Prefecture, for engineering staff of distant-water tuna longline vessels. In recent years, there have been no opportunities to learn how to properly handle refrigerators, making it difficult to pass on the experience of chief engineers and train engineering staff.

In the distant-water tuna longline fishery, the ultra-low temperature freezing and storage that is critical to product value is entrusted to engineering staff. Although this requires a high level of skill, there is a lack of instruction manuals and a high level of experience is required. The

stress caused by the fact that the operation of the refrigerator was left to the discretion of the chief engineer was also contributing to the shortage of engineering staff.

At the seminar, Mr. Mitsuyo Uno, manager of the development department from Nisshin Kogyo Co., Ltd., a top manufacturer of refrigeration equipment for distant-water tuna longline vessels, took the stage and carefully explained the principles of refrigeration equipment. By adopting an electronic expansion valve that automatically adjusts the flow of refrigerant, it is possible to solve the problem of "liquid back" where liquid refrigerant is mixed in the compressor that compresses the gaseous refrigerant, leading to energy savings and making it possible to adapt a new refrigerant quickly.

Mr. Shigeru Hatakeyama, president of Trident Lab Co., Ltd., which specializes in labor-saving and manpower-saving measures for ships, introduced "Onboard support system." This system provides remote support from land using high-speed satellite communications so that inexperienced chief engineers and engineering staff can go fishing with confidence. Fixed-point cameras are installed at locations where it is easy to visually judge the situation, such as the state of frost on the compressor inlet, and when used in conjunction with temperature sensors, visualization of refrigerator control is achieved. By sharing viewpoints with on-shore staff via high-speed satellite communications, the system eliminates the concerns of the chief engineer and supports efficient operation and problem prevention.

Approximately 50 people from the current engineering staff, shipping companies, and equipment manufacturers participated in the seminar. A former chief engineer with over 50 years of experience vented, "I was never taught how long it should take to quickly freeze catch in the freezing chamber."

In the days when there were many Japanese sailors involved in operating refrigerators, such as first and second engineers and pilots in chief, study sessions were held regularly to share knowledge and techniques. Due to the decrease in the number of vessels, such sessions have disappeared, and now opportunities for chief engineers and engineering staff to be on duty at the same time have drastically decreased, making it difficult to pass on skills and knowledge.

Mr. Hiroaki Katsukura, president of the Northern Miyagi Prefecture Tuna Fisheries Association and also the chairman of the Tuna Longline Fishery Productivity Improvement Study Group established in Kesennuma in 2017, said that in a questionnaire about troubles faced, "Engineering staff have voiced concerns about the handling of refrigerators" was mentioned. He said that the purpose of holding the seminar for the first time was to improve the quality of products and to develop senior seafarers.

Southern bluefin tuna tag survey started

Commissioned by the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), the OPRT has begun conducting twice-monthly southern bluefin tuna tag surveys at Toyosu Market this year as well.

The tag survey records data on the plastic control tags attached to frozen southern bluefin tuna displayed at the tuna auction site in the seafood wholesale building of Toyosu Market. The data on the tag includes the nationality of the fishing vessel, the year of catch, the unique number of the fishing vessel, and the serial number of the tuna caught. The event takes place from around 4:30 a.m., when the tuna are lined up at the auction site, to when the auction begins at 6:00 a.m. The number of tagged fish varies depending on the season, but is around 150 to 350.

The purpose of the survey was to find out when the frozen southern bluefin tuna listed on the Toyosu market auction site was caught, and to verify whether the catch reporting by the fishing country was accurate. After being caught, southern bluefin tuna is frozen, transported, and stored at ultra-low temperatures, maintaining its quality for three to four years, so there is a time lag before it is shipped to the market. This survey data makes it possible to estimate the annual catch rate of southern bluefin tuna handled at the Toyosu Market in one year. Using the market transit rate estimated from a separate survey, it is possible to estimate the amount brought into Japan from market statistics, which are the only official statistics downstream from trade statistics, and to verify whether there are any irregularities in each country's catch reports.

Until two years ago, the Fisheries Agency conducted this investigation, verified that there were no irregularities in the catch reports of Japanese vessels, and reported it to the CCSBT. This survey and verification was highly evaluated by the CCSBT, which has now decided to conduct a similar survey to check whether each country's catch reports are appropriate.

Access to the tuna auction site at Toyosu Market is strictly restricted for outsiders due to hygiene and other issues, making it an area where even those involved in the industry cannot casually tour. By visiting the auction site regularly for a year for this survey, one can feel the seasonal changes in tuna sales, and by seeing the tuna lined up all over the auction site at the end of the year, one can feel how much Japanese people like tuna.

Kenya's new membership approved

At its board meeting on March 26, the OPRT discussed the application for membership to the OPRT submitted by the Kenya Tuna Fisheries Association (KTFA). The KTFA was approved to join the OPRT as it was confirmed that the KTFA agreed with the purpose of establishing the OPRT and would also manage the capacity of longline vessels in Kenya.

The KTFA is the national organization for Kenya's tuna longline fishing industry and is located in Mombasa, Kenya's second largest city, on the Indian Ocean.

The maximum number of OPRT registered vessels is one existing distant-water tuna longline fishing vessel, and any increase in the number of vessels will be negotiated between the KTFA and the OPRT.

With the addition of Kenya, the number of non-Japanese members (countries) has increased to 13.