

## Overcoming the COVID-19 calamity

—Impacts on Japan's fishery sector and challenges to achieving sustainable fisheries

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NOTE: The following includes a part of the Japanese article issued in April 2020 and some updates observed thereafter.

### Introduction

On Friday 19 June 2020, the professional Japanese baseball leagues managed to play the opening games of the 2020 season, after being delayed by 3 months<sup>1</sup>. The games were televised, but had no spectators at the stadiums. That symbolizes the reality of Japanese society in the so-called new normal to carry out daily activities while reducing infection risks. Originally, many Japanese cities and businesses were preparing to receive many Olympian athletes from around the world this year. The World Ocean Summit (WOS) to be organized by the Economist was to take place in Tokyo from 9 – 10 March 2020<sup>2</sup>. In connection with WOS, our Institute, the Ocean Policy Research Institute of the Sasakawa Peace Foundation, was supposed to host a series of meetings of the High Level Panel for a Sustainable Ocean Economy and the Friends of Ocean Action and to receive many ocean experts and stakeholders from around the world in Tokyo in March 2020. These events all had to be cancelled. The COVID-19 virus, declared as a pandemic by the World Health Organization (WHO) on 11 March 2020, has completely changed the scene in Japan and the world. On 24 March 2020, after speaking to Mr. Shinzo Abe, Prime Minister of Japan, Mr. Thomas Bach, President of the International Olympic Committee (IOC), announced that the Tokyo Olympics were to be rescheduled beyond 2020<sup>3</sup>. On 7 April, Prime Minister Abe declared a state of emergency for Tokyo, Osaka and 5 other prefectures, and called on residents for voluntary self-restraint in going out, urging them to stay home for a month until 6 May<sup>4</sup>. A week later on 16 April, the declaration was extended to the entire country. The declaration was extended on 4 May until the end of May and remained in effect for 7 weeks, until it was lifted on 25 May 2020.

The 7 week self-restraint, while it was considered effective in preventing the further outbreak of COVID-19 in Japan, left scars across the Japanese business landscape and throughout communities. The sectors that suffered first were hotels and restaurants. As travel, inbound tours, and social functions were cancelled, many businesses faced cash flow problems. The number of bankruptcies in the hotel sector reached 25, only behind the record high of 29 reported at the time of the 2011 Great East Japan Disaster<sup>5,6</sup>.

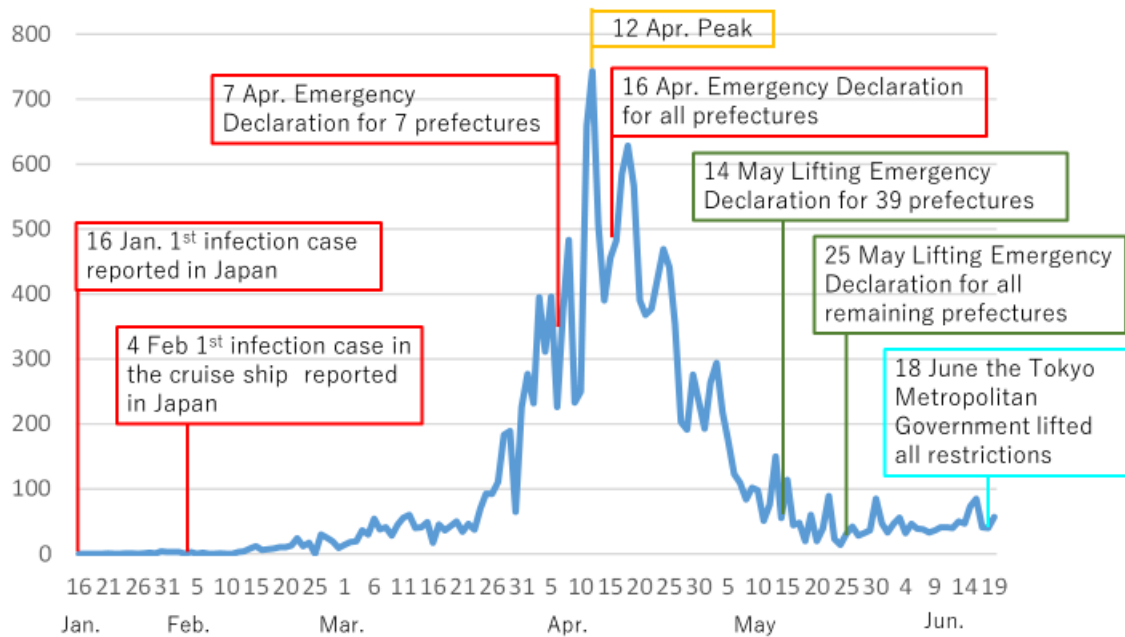
The Japanese business downturn also caused a slump in the fishery, aquaculture and

seafood sectors. Demand for seafood plummeted and retail prices went down drastically as business closures continued. At the same time, the COVID-19 impacts revealed the vulnerability of the Japanese fishery and aquaculture sectors. It turned out that many of the small-medium fishery entities and enterprises were operating at just around the threshold for survival and so didn't have the capacity for adaptive management to cope with the emergency situation of the COVID-19 impacts. The Japanese fishery sector has for a long time faced declining fishery production, requirements to change fishing practices and reduce fish catches in order to comply with bilateral and international fishery agreements, and the alleged relocation of fish habitats and migratory patterns.

This article will examine the impacts of COVID-19 on Japan's fishery, aquaculture and seafood sectors. It is intended to present policy options for building adaptive management and to generate reflection on the ways forward to overcome challenges towards achieving sustainable fisheries.

## 1. Development of COVID-19 and policy responses in Japan

An unknown pneumonia case was detected in Wuhan, China and reported to WHO on 31 December 2019<sup>7</sup>. The first case of the corona virus infection was reported in Japan on 16 January 2020. A man who developed fever in Wuhan, Hebei, China returned to Japan on 6 January and was hospitalized on 10 January<sup>8</sup>. Thereafter, the corona virus infection spread slowly in Japan. There were still less than 100 cases on 20 February, but in a month's time, it reached over 1,000, on 20 March. In the week of 23 March, the number of infection cases started rising sharply. The cumulative number of confirmed cases was 257 on 1 March. An entry ban on foreign visitors was introduced against those from Hebei Prefecture, China on 1 February<sup>9</sup>. On 27 February, Prime Minister Abe announced his request to close schools nationwide from 2 March<sup>10</sup>. On 28 February, Mr. Naomichi Suzuki, Governor of Hokkaido declared a state of emergency for Hokkaido, calling for residents to stay home<sup>11</sup>. The Hokkaido government reported the 10<sup>th</sup> COVID-19 casualty on 27 February. It was reported that there were 66 confirmed infection cases in Hokkaido, constituting 28% of the cases reported across Japan<sup>12</sup>. On 5 March, Mr. Yoshihide Suga, Chief Cabinet Secretary announced that the proposed visit of Mr. Xi Jinping, President of China, scheduled for April 2020 was postponed due to the COVID-19 pandemic<sup>13</sup>. On that day, the entry ban was extended to those from cities and states with high infection numbers in the Republic of Korea and Iran on 5 March<sup>14</sup>.



Adapted from MHLW, JSA, Nikkei and JHUM

Fig.1 Confirmed COVID-19 infection cases in Japan and policy responses

On 20 March, Mr. Hirofumi Yoshimura, Governor of Osaka Prefecture and Mr. Toshizo Ido, Governor of Hyogo Prefecture, neighbouring prefectures, called for the residents to avoid cross-border travels for the long weekend<sup>15</sup>. On 24 March 2020, after speaking to Mr. Shinzo Abe, Prime Minister of Japan, Mr. Thomas Bach, President of the International Olympic Committee (IOC) announced that the Tokyo Olympics would be rescheduled to beyond 2020, referring to the remarks made by Mr. Tedros Adhanom Ghebreyesus, WHO Director-General, on 23 March that there were more than 375,000 cases of COVID-19 infections, in nearly every country worldwide, and their number was growing by the hour<sup>16</sup>.

A day after, on 25 March, Ms. Yuriko Koike, Governor of the Tokyo Metropolitan Government, urged the people in Tokyo to stay home for the weekend<sup>17</sup>. On 26 March 2020, the entry ban was extended to foreign visitors who have been in COVID-19 affected regions in China, the Republic of Korea, Iran, and 21 European countries<sup>18</sup>. Despite the voluntary self-isolation and restriction of foreign visitors, the number of COVID-19 infection cases doubled to over 2,000 by the end of March and continued to rise at an accelerated pace (Fig.1)<sup>19202122</sup>. On 7 April, Prime Minister Abe declared a state of emergency for Tokyo, Osaka and 5 other prefectures and called for voluntary self-restraint from going out and urged people to stay home for a month until 6



Photos 1 and 2: No entry signs on the beach areas, Hayama, Kanagawa, 4 May 2020

May<sup>23</sup>. On the same day of 7 April, Prime Minister Abe announced a fiscal support package worth JPY108 trillion that was subsequently amended to JPY117.1 trillion<sup>24</sup>. A week later on 16 April, the declaration was broadened to cover the entire country and was extended on 4 May until the end of May. The entry ban was enlarged to cover 100 countries in total on 14 May and 111 on 27 May<sup>25</sup>. As the number of infection cases was declining and remaining at a marginal level, Prime Minister Abe lifted the state of emergency for 39 prefectures on 17 May<sup>26</sup>. He then lifted the declaration for the entire country on 25 May 2020 after its 7 week long implementation<sup>27</sup>. The Tokyo Metropolitan Government started easing requests for voluntary self-constraint by announcing a Step 1 on 25 May to open museums and libraries, Step 2 on 29 May to withdraw requests for shop and restaurant closures, and Step 3 on 12 June to withdraw the request for amusement center and park closures; there was a Step 3 addendum on 18 June to withdraw the request for live music house venues and night club closures<sup>28</sup>. On 12 June, the Japanese Diet passed the second supplementary budget to deal with the COVID-19 pandemic and economic recovery<sup>29</sup>. On 19 June, the Japanese professional baseball leagues celebrated the opening of the 2020 series by holding their opening games, which had been delayed by 3 months<sup>30</sup>. A package of fiscal support to the fishery sector included (i) 3.2 billion yen for supporting fishermen and fishery entities, including net zero interest loans, (ii) 10.2 billion yen for capitalizing funds to support the fishery sector, (iii) 3.2 billion yen for procuring and storing over-supplied seafood, (iv) 0.3 billion yen for supporting laborers in the fishery sector, (v) 140 billion yen to promote the sale of seafood, (vi) 1.67 trillion yen for supporting the travel and dining industries, and (vii) 14.7 billion yen for installing food processing facilities.

Japanese people started adapting to the new normal lifestyle by trying to carry out daily life with precautions over corona virus infection risks. Restaurants in Tokyo had to close for over three months. Some hotels still remain closed in Japan due to the need to install preventive and precautionary gear and facilities. The business downturn caused by COVID-

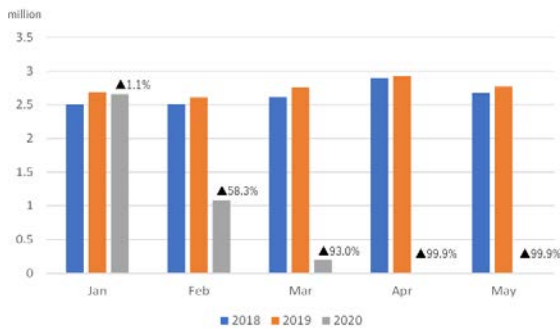
19 led to a slump in the fishery, aquaculture and seafood sectors as the demand for seafood plummeted and retail prices went down drastically. Economic recovery and infection risk management remain a priority. On the other hand, COVID-19 revealed the vulnerability of the Japanese fishery and aquaculture sectors. It turned out that the ability to cope with the emergency situation was undermined by the stagnant trends in the Japanese fishery sector, such as declining fishery production, administrative gaps in complying with bilateral and regional fishery regulations, and the alleged relocation of fish habitats and migratory patterns.

This article will examine the impacts of COVID-19 on Japan's fishery, aquaculture and seafood sectors. It is intended to present policy options for building adaptive management and to generate reflection on the ways forward to recover from the COVID-19 impacts and to overcome challenges towards achieving sustainable fisheries.

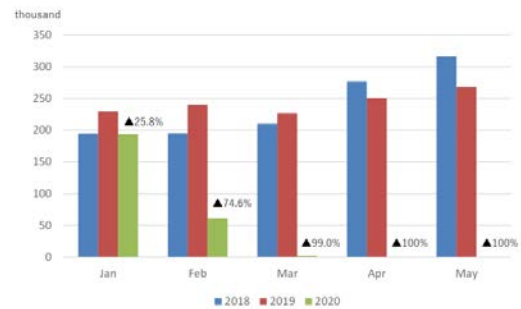
## 2. COVID-19 impacts on Japan's fishery sector – the case of Okinawa

The socio-economic impacts of COVID-19 were particularly evident in remote islands that depend on tourism. Okinawa is one example. Foreign tourism to Japan plummeted by 58.3% in February 2020 compared to the same month in 2019 (Fig.2) <sup>31</sup>. It further fell by 93.0% in March and 99.9 in April. Likewise, the number of foreign tourists to Okinawa dropped by 74.6% in February and 99.0% in March. It was zero for the months of April and May (Fig.3) <sup>32</sup>. Japanese visitors to Okinawa also dropped sharply, by 91.0% in April compared to the same month in 2019. Drastic cutbacks in numbers, coupled with the stay home policies, kept people away from dining at restaurants and hotels, resulting in a decreased demand for food, including seafood.

There is 1 fish market (Tomari) and 4 fishery associations (Nago, Itoman, Yonashirocho, and Yaeyama) in Okinawa that provide data on fish production in value and volume. Fig. 4 shows the aggregated fish production of the 1 fishery port and 4 fishery associations in Okinawa from January to May 2020. It is interesting to note that fishery production increased in value from January to May 2020 by 35.31%<sup>33</sup>. The Tomari Fishery Port also showed an increase in fishery production for the first five months of 2020, by 24.27%. However, in terms of fishery production in value, it declined for both the aggregated



Adapted from Japan National Tourism Organization  
Per centage figures are the change rate of 2020 for the same months compared to 2019.



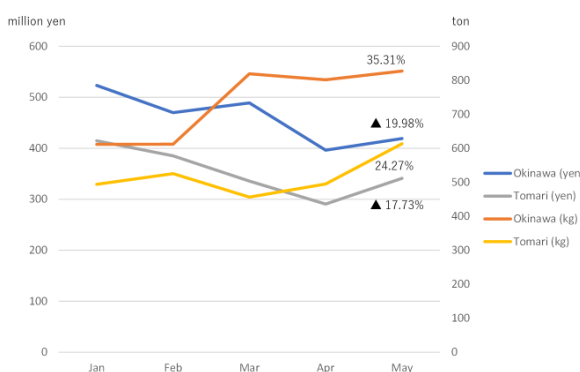
Adapted from data provided by the Okinawa Prefectural Government  
Per centage figures are the change rate of 2020 for the same months compared to 2019.

Fig.2 Number of foreign visitors to Japan (2018-2020)

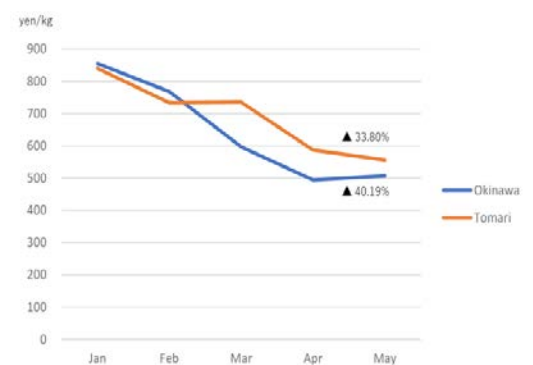
Fig.3 Number of foreign visitors to Okinawa (2018-2020)

Okinawa production and Tomari's production. The fishery production in value for Okinawa declined by 19.98% and the production for Tomari declined by 17.73%. These trends indicate that fishermen were actually catching more fish every month from January to May. However, fishermen were receiving less economic return from their fish catch every month. This is indeed a paradox in resource economics. It can be demonstrated more clearly if a simple equation is applied to calculate the fish production value per kg (Fig.5).

COVID-19 impacts still need to be examined on a continuous basis. At the same time, there are already some data, for instance from the local fishery ports and associations that exhibit the damage caused by the COVID-19 impacts in Japan's fishery, aquaculture, and seafood sectors. Lessons can be drawn from there towards enhancing resilience and adaptive management capacity of sectors to meet emergency situations such as the COVID-19 impacts.



Adapted from the data provided by Okinawa Prefecture's Fishery Promotion Fund

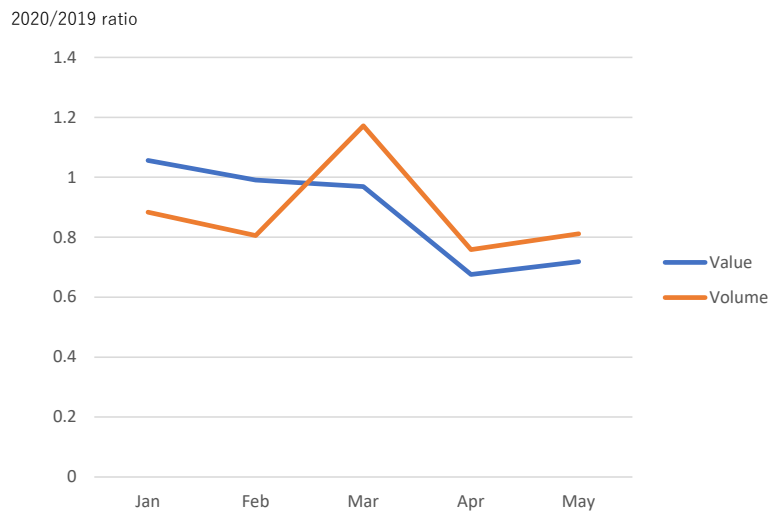


Adapted from the data provided by Okinawa Prefecture's Fishery Promotion Fund

Fig.4 Fishery production in Okinawa (Jan – May 2020)

Fig.5 Fishery production value per kg in Okinawa (Jan – May 2020)





Adapted from the data provided by Okinawa Prefecture's Fishery Promotion Fund

Fig. 6 Ratio of the Fishery production in 2020 against 2019

For the aggregated figures of 1 port and 4 association in Okinawa, the fish production in value per kg declined from January to May by 40.19% while it fell by 33.80% for Tomari. When the figures are compared to those of 2019, the fishery production in volume and value was less in 2020 than 2019, except the fish production in volume for March in 2020 was greater than the same for March in 2019 (Fig.6). It is also shown clearly that the fishery production in value was much lower than volume in the 2020/2019 comparative

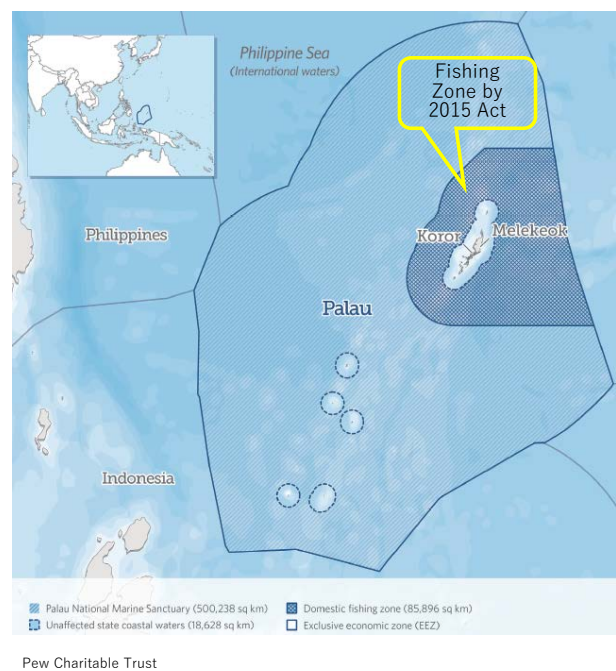
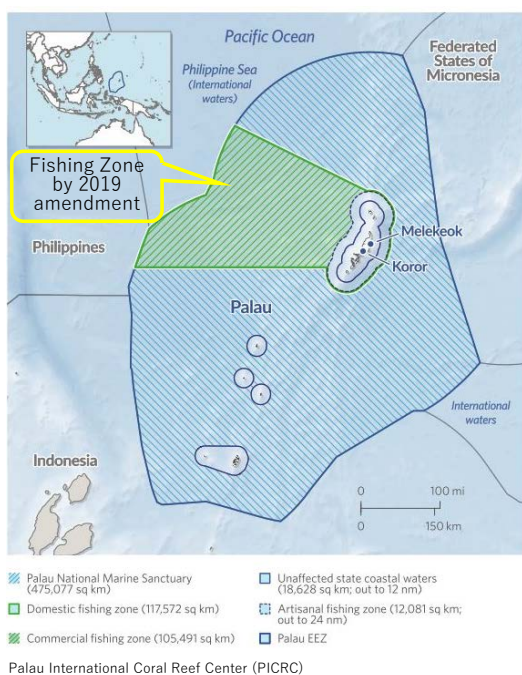


Fig.7 PNMS Map (left by the 2019 amendment and right by the 2015 Act)

ratio. In 2020, fishermen were catching less fish, but the ratio of revenue loss was much greater than the reduction in fishery production volume.

COVID-19 is not the only factor causing hardship for Okinawan fishermen, according to Ms. Rika Yohena, Secretary-General of the Okinawa Tuna Fisheries Association (OTFA). They have to operate not only under the legislative and policy framework of Japan, but also under regional and bilateral policy frameworks. One major change that they had to deal with is Palau's National Marine Sanctuary (PNMS) Act, that came into full effect as of January 2020. 33 out of 63 fishing boats that belong to OTFA have fished tuna (bigeye tuna and yellowfin tuna) in Palau's EEZ for many years in exchange for paying fishing rights under the Vessel Day Scheme under the auspices of the Parties to the Nauru Agreement, a subregional fishery treaty. Okinawan fishermen, operating medium boats of 18 tons on average as semi-family run businesses, have supplied tuna to the fish market in Okinawa for generations. Palau adopted the PNMS Act in 2015 that aimed at establishing a marine sanctuary that will cover 80% of Palau's EEZ in January 2020. To achieve this, in pursuance of the PNMS Act, Palau reduced the fish catch quotas by 20% at the end of 2015, and thereafter by 10% each year<sup>34</sup>. In 2019, Palau conducted a review of the PNMS implementation and revised the PNMA Act with a view to enhancing conservation efficiency, compliance and enforcement, and opportunities for domestic fishery sector development by relocating the fishing zone from around the main island to the west of Palau's EEZ and allowing exceptions to the fish landing requirement with permission from the minister responsible for fishery resources (Fig.7) <sup>353637</sup>.

While the fishing quotas were lowered for the 2016 – 2019 period, the fishing zone was not implemented until January 2020. Okinawan fishermen were able to fish mainly from north to west in Palau's EEZ. However, from 1 January 2020, the Okinawan fishermen had to restrict their fishing activities within the designated fishing zone in Palau. In order to make sure not to fish outside of the boundary, they even strove to restrict fishing activities in the areas that are actually less than 20 per cent of Palau's EEZ. Due to the restriction in the fishing areas, Okinawan fishermen have faced hardship in catching fish in Palau's waters since January 2020.

As another factor of declining fish catch, Okinawan fishermen also bring up the possible relocation of tuna stock habitats and migratory routes, presumably due to the sea water warming. It is pointed out that sea water temperature is rising around the equatorial zone and tuna stock might move to north or east in the northern hemisphere<sup>38</sup>. It is also projected that if the sea water temperature increase continues, tuna may move away from



the EEZ of Palau, the Federated States of Micronesia, Nauru and Papua New Guinea<sup>39</sup>. Among various tuna species, bluefin tuna maintain a good value in the fish market. April is the season when bluefin tuna migrate from south to north toward Japan's EEZ. A few weeks after they started catching bluefin tuna, the headquarters of the Japan Tuna Fisheries Association sent an instruction to the Okinawa Tuna Fisheries Association to stop fishing bluefin tuna as the fish catch exceeded 80% of the fish catch quota allocated by the Fishery Agency of Japan in accordance with an agreement with the Western and Central Pacific Fisheries Commission (WCPFC). In 2014, the members of WCPFC agreed upon the fish catch quotas in which Japan set a fish catch quota of bluefin tuna for fish larger than 30kg at the average level of 2002-2004 annual catch and for the fish less than 30kg at half of the average for the same period<sup>40</sup>. In 2018 and 2019, the Fishery Agency of Japan proposed to increase the quota by 20% for the large fish and by 10% for the small fish, but the proposal wasn't accepted<sup>41</sup>. The Japanese Fishery Agency has been striving to improve the system of allocating the quota for bluefin tuna catch across the coastal prefectures in Japan<sup>42</sup>. The suspension of fishery activities on the sea entails fuel and labour loss and opportunity costs. Okinawan fishermen struggle with the many challenges posed by COVID-19, bilateral and multilateral fishery agreements, and sea water warming and climate change impacts. In order to build a resilient and adaptive management capacity, they need national and international fishery policies and institutional support that will create conditions conducive to assuring them a stable revenue with more reliable fisheries arrangements in the long term. Sustainable fisheries remain of utmost importance in this context and it requires interdisciplinary and transformative policy research and support for stakeholder empowerment.

### 3. Safeguarding non-residential seafarers amidst COVID-19

Fishing boat owners faced a critical dilemma in the COVID-19 calamity. As fish demand was declining, some fishing boat owners made the logical decision to give up moving boats to the sea for fishing and to keep the boats in dock. When they do so for undertaking maintenance and repair of the fishing boats, the boat owners arrange home leaves for the non-residential foreign seafarers. However, with COVID-19, people were instructed to refrain from travelling and asked to stay home. All international flights were suspended. Ports and airports were closed and extensive quarantine requirements were also introduced in their home countries. For these reasons, both boat owners and seafarers had no choice but to remain in the work place or at ports in Japan. Boat owners had to pay for the salaries of the seafarers despite the fact that they were not working on the fishing boats. This raised costs for boat owners. For each of the fishing boats that belong to the members of OTFA, 6

non-residential foreign seafarers are employed on average. The total number of such seafarers can easily rise to 380 or 400, as about 63 boats belong to OTFA. Boat owners of OTFA comply with labour laws and maintain employment contracts and continue to pay salaries. Some of the boat owners have insurance for a situation like COVID-19 to cover unexpected expenses. However, some owners do not have such insurance due to their limited financial capacities. Boat owners battle the cash flow shortage and there has been a growing call for fiscal support to rescue the fishery sector.

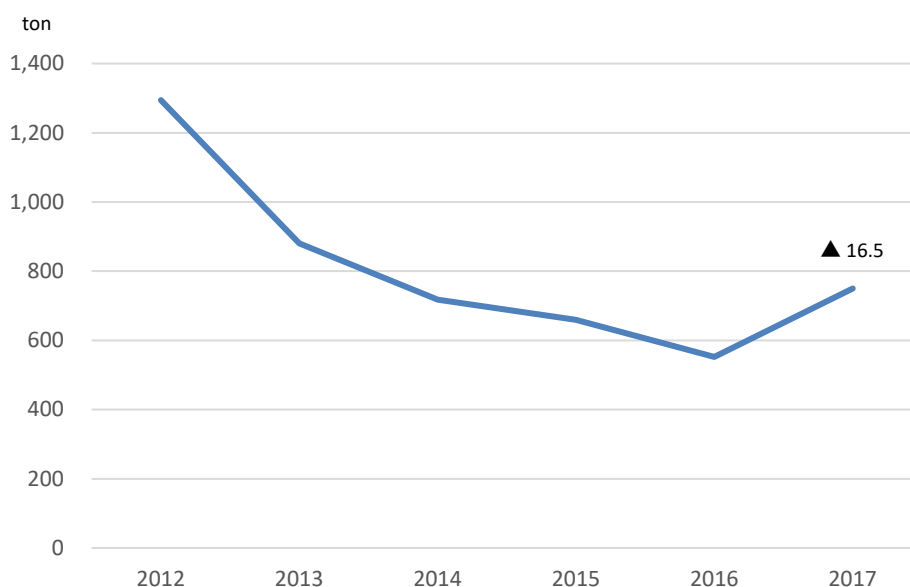
For long-distance fishing boats, after landing fish at foreign fish ports, it is the usual practice to allow seafarers to fly back to their home countries in the middle of their fishing trips before the fishing boats return to Japan. Mr. Minoru Honda, Executive Managing Director, Japan Far Seas Purse Seine Fishing Association, explains the unusual situation created by the COVID-19 pandemic. Skipjack purse sein fishing boats leave a port in Japan, catch skipjack and land it at a port in Guam. After landing fish in Guam, Filipino seafarers normally fly from Guam back to the Philippines. However, it wasn't possible at the time of COVID-19 as the port didn't allow Filipino seafarers to enter Guam due to the border closure measure for infection control. PNA requires purse sein fishing boats to board observers who monitor fishing operations and ensure compliance with PNA regulations. It is also incumbent upon fishing boats to enable observers to return to their home countries after they have completed their duties. As international flights were cancelled, some fishing boats had to travel to the home countries of the observers. Such trips entailed fuel, labour, and opportunity costs. There were some cases in which the boat owners had to find seats for the observers in private planes chartered by other companies. Even in such cases, the economic costs turned out to be severe burdens on the boat owners. The PNA Secretariat released a notice on 27 March that the fishing boats were allowed to operate without observers, as an exception, until 31 May and thereafter extended it to 31 July 2020<sup>43 44</sup>. The demand for canned tuna was mounting in Europe due to the requirement to stay home. However, Mr. Honda shared a hardship story that workers were not able to come to the cannery plants in Thailand and their supply chains were also marred by labour and transport disruptions, thereby incurring revenue loss.

#### 4. Small scale fisheries and COVID-19 – case of Okinoerabujima, Kagoshima

Okinoerabujima, a small island in Kagoshima Prefecture in the southern part of Japan is home to a population of about 13,000 and its economy is based on agriculture and fisheries<sup>45</sup>. 255 fishermen and 171 fishing boats belong to the Okinoerabujima Fisheries Association (OFA)<sup>46</sup>. About 30% of the fishery production is consumed on the island while 70% is sold to Okinawa and other outer markets. Like other cities, the number of tourists

started to decline in mid February and went down to zero. As a result, the demand for seafood also declined. The demand in the Okinawan market fell sharply too. As airflight services were reduced and maritime shipping was also curtailed, it was getting difficult to market fish and seafood both on and off the island. Mr. Yusuke Muneoka, Director-General of General Affairs of OFA stated that fishermen with a decent financial base seemed to be managing the economic hardship, but those who were financially vulnerable were finding it difficult to cope with this situation.

In Okinoerabujima, economic hardship from the COVID-19 impacts was coupled with the existing fishery stagnation. Diamond squid or *sodeika* used to be one of the major species that brought important revenue for the local fishermen. However, the catch volume of diamond squid has remained very low since November 2019. Red sea bream (*hamadai*) and blue fusilier (*aodai*) have become a major fish catch, but their market price plummeted. The reasons for the poor catch of diamond squid are not clear. The Kagoshima Fisheries Association and Okinoerabu local town office are conducting a survey on this matter. Some speculated reasons are the possible relocation of its habitat due to sea water warming or possible overfishing in neighbouring countries. The catch of squid has declined by 16.5% for the period of 2012 – 2017 (Fig.8). When the demand in the local fish market stagnated, it was thought worth exploring the sales of seafood directly to consumers. However, the cost of shipment raises the product price due to the remoteness of the island. Disruption of flight services also raised uncertainty of timely delivery. It was also



Adapted from the data by the Kyushu Agriculture Policy Bureau

Fig.8 Squid catch in Kagoshima Prefecture

suggested to freeze the over-supply of seafood. However, to maintain the freshness of the seafood, standard freezers would not suffice; instant freezers are rather required. They have not yet been installed and they are more expensive and require a procurement budget. There are some fishermen who are trying to recoup the loss of revenue due to the declining fish price by catching more fish. This can force fishermen into a vicious circle. Mr. Muneoka mentioned that small scale fishermen in Okinoerabujima have relatively small operational costs to cover due to the small size of their business operations. However, if the situation persists, fishermen will slide into dire economic distress. Sustainable fisheries and the development of required infrastructure and marketing systems are deemed important to develop the capacity for resilient and adaptive management in the fishery sector.

## 5. COVID-19 impacts on aquaculture

### 1) Oyster farming in Hirota Bay in Rikuzentakata City

Hirota Bay in Rikuzentakata City, Iwate Prefecture is well known for its high quality oysters. After the 2011 Great East Japan Disaster, some oyster farmers abandoned their businesses. However, the remaining oyster farmers have striven to restore oyster farming and have reconstituted the channels to market their oysters to high-end restaurants in Tokyo and Kyoto. Local oyster farmers dip their oysters. Mr. Katsuji Chida, Representative of the Maruten Seafood, explained that to maintain good quality and growth, they lift the rope that holds oysters from the sea and dips them in hot water in the tank on the boat. By doing so, they can remove mussels attached to the oysters and help oysters acquire nutrients to grow better and faster. After harvesting oysters, they leave them in a sterilization tank for 48 hours to make them suitable to be eaten raw. 2 year-old oysters can be larger than the palm of the hand. Mr. Chida proudly says that the oysters from Hirota Bay are No.1 in Japan, thus No.1 in the world.

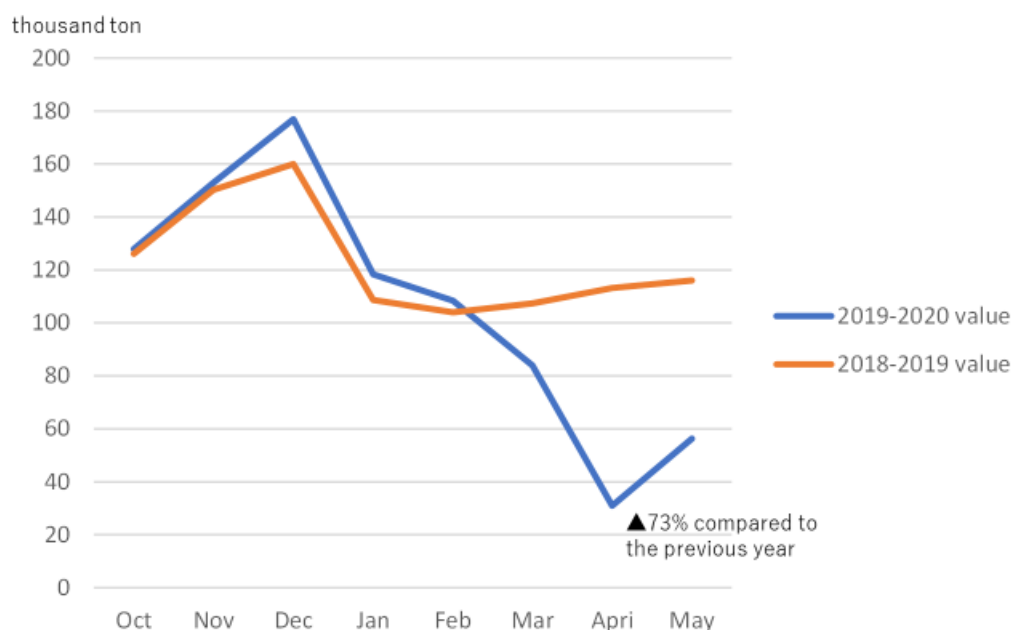
Maruten Seafood is not, however, an exception to those affected by COVID-19. The sales of its oysters started declining and went down to half of normal monthly sales. Since the emergency declaration was announced on 7 April, sales plummeted to 20% of the normal monthly level. Maruten Seafood has 14 employees, but they need to continue to pay their salaries despite the fall in their oyster sales. Sterilization tanks need to be operated 24 hours every day and operational and maintenance costs are unchanged. Seaweed and scallops are also grown, but they also face market stagnation.

There is also a concern over the outbreak among sea urchins that eat seaweed. It is

assumed that the outbreak is attributed to sea water warming, as sea urchins are growing poorly due to the shortage of seaweed. Aquaculture farmers can barely find time to harvest oysters in the areas. There have been issues of whether the aquaculture farmers are eligible to seek compensation or fiscal support under the government’s COVID-19 economic support programs. Elderly oyster farmers are prone to economic hardship as they are not confident they can get loans from a bank. In the 2011 Great East Japan Disaster, Mr. Chida recalls that many elderly oyster farmers abandoned their businesses due to the financial difficulty and lack of confidence in repaying loans. The volume of oysters traded at the Toyosu market in Tokyo decreased by 73% compared to the previous year<sup>47</sup>. The market contraction was obvious and it severely affected oyster farmers in Japan.

## 2) Oyster farming in Shizugawa Bay, Minamisanriku

In Shizugawa Bay, Minamisanriku-cho, Miyagi Prefecture, oysters and coho salmon are the major seafood produced locally, and aquaculture farming ponds and ropes can be seen from the coastal road. After the 2011 Great East Japan Disaster, local fishermen collaborated with the World Wildlife Fund (WWF) Japan and universities and tried to restore oyster farming in an environmentally sound manner aimed at reducing and optimizing the density of oyster farming. In 2018, they acquired the first ASC (Aquaculture Stewardship Council) certificates in aquaculture in Japan. As they also conserve the kelp forest in the region, Shizugawa Bay was designated as a protection site under the Ramsar Convention. They were also awarded the Emperor’s prize for the fishery sector at the annual festival of agriculture, forestry and fishery. ASC certified oysters are now procured



Adapted from the data provided by the Tokyo Central Wholesale Market

Fig.9 Oyster traded volumes at the Toyosu Market, Tokyo



by the large retailer Aeon, helping secure a stable market channel and price. However, Mr. Kiyohiro Goto, Director-General of the Oyster Department, Shizugawa Fishery Association, explains that due to COVID 19, sales volumes are down by 20-30% compared to the previous year. However, demand for household consumption remains substantial and decent revenues were secured for oyster farmers and workers at the oyster processing plants. There is a concern over possible infection among workers at the processing plant, so managers and workers exercise precautions to prevent the COVID-19 infection. Mr. Goto expressed his hope that COVID-19 would abate and market demand would be restored soon.

### 3) Abalone aquaculture in Ohfunato

Abalone is considered a delicacy and important seafood for traditional Japanese meals. Kitanihon Suisan, an aquaculture farming enterprise, draws seawater 24 hours a day every day and farms abalone in tanks on land. Its abalone has a good reputation for its taste and sanitary conditions and its business has been expanding in recent years. However, as all their buyers, including hotels and restaurants, suspended their businesses due to COVID-19, the sales volume of its abalone plummeted to 20% of regular months. It has exported abalone to Hong Kong, Bangkok and Manila. However, transport systems to these cities were also closed as precautions for the COVID-19 pandemic. Mr. Toshihiro Furukawa, CEO of Kitanihon Suisan, explained the severe situation. To maintain good quality, Mr. Furukawa is reluctant to freeze abalone. He is now exploring ways of



Adapted from the data provided by the Tokyo Central Wholesale Market

Fig. 10 Volume of abalone traded at the Toyosu Market in Tokyo

selling abalone directly to individual consumers. As he farms abalone on the land, it is not clear if his enterprise is categorized as a marine aquaculture farm or a terrestrial farm. Mr. Furukawa has a concern over his consultations with local government offices and banks in connection with his requests for financial support. At the Toyosu market in 2019, abalone recorded the highest volume of trading in the month of June. Compared to that highest volume in 2019, the volume of traded abalones in the month of April 2020 decreased by 84% (Fig.10) <sup>48</sup>. Mr. Furukawa made an urgent appeal for financial support to sustain his business.

#### 4) Seagrape aquaculture in Onnason

Seagrape (*umibudo*) is very well-known for its springy texture and is a popular souvenir for tourists in Onnason, Okinawa, a coastal community on the west side of Okinawa. However, as tourists stopped coming to Onnason, the sales of seagrape also ceased. Mr. Masami Yamashiro, former President of the Onnason Fishery Association lamented over the economic adversity faced by the local fishermen. Seagrapes need to be kept cool and will melt in warm temperatures. Selling seagrapes through delivery is not feasible due to the cost and cooling needs. Part-time workers on the seagrape aquaculture farms were laid off, but there are still operational costs that need to be covered despite zero sales. Local people also worry about whether tourists will come back or not even after the lifting of the travel restrictions. Mr. Yamashiro also expressed his concern that in the economic supports by the government, fisheries and other primary sectors seem to be given only secondary priority while discussions are centered on the service sector.

The voice of fishermen needs to be brought to the attention of policy makers so that effective economic assistance measures can be delivered urgently to people in need, including fishermen.

#### 6. Overcoming the COVID-19 calamity and achieving sustainable fisheries

COVID-19 devastated people's lives. As the demand for seafood plummeted sharply, it has brought about severe socio-economic damages to the Japanese fishery sector. It is indeed an urgent priority task to contain the corona virus infection and bring the calamity to the end. However, it still remains unclear how soon COVID-19 can be curtailed and it may be deemed more realistic to gradually restore economic activities while maintaining precautionary measures to prevent the infection and transmission of the virus. As economic restrictions continue, prompt and effective economic assistance needs to be delivered in order to rescue particularly fishermen and seafarers, small and medium fisheries, aquaculture and seafood enterprises.

At the same time, in striving to overcome the COVID-19 impacts, it has also become evident that there is a need to promote sustainable fisheries as a way to harness the resilient and adaptive management capacity of the fishery sector. In Okinawa, fishermen were struggling to sustain their fishery businesses under changing national, bilateral and regional fishery policies and arrangements. There is a need to reduce loss and inefficiency in the fishery administration and operations while at the same time forging policies for facilitating and optimizing the conservation and sustainable use of marine and fishery resources. In Okinoerabujima, strategies need to be explored and implemented in order to sustain the economic returns from sustainable fisheries and to avoid being trapped in a vicious circle where fishermen catch more fish and sell it at a lower price and face the loss of economic revenue.

In Shizugawa, Hirota, and Ofunato, aquaculture farmers have started exploring multiple marketing schemes as risk hedges to avoid over-dependency on a single marketing channel and to secure alternatives to sustain revenues under unexpected disruptions of usual marketing channels. In Onnason, excessive reliance on external and inbound tourism raises the vulnerability of the local economy under emergency situations and so it was deemed important to incorporate blue economy into the local economy. Mr. Hideki Ishida, Professor emeritus of Tohoku University, currently residing in Okinoerabu, stated that COVID-19 posed a question to us about how humans should live with the planetary nature and reminded us of the untackled and important task of achieving sustainable livelihoods.

Fishermen and all those who are involved in fisheries, aquaculture, and seafood sectors carry out the important task of continuously supplying us with seafood. They need to remain in business, and assistance needs to be delivered urgently and effectively so that they do not face a situation where they can do nothing but abandon their beloved work, to which many have dedicated their entire lives. Researchers on ocean policy need to examine the current situation, promote information on challenges and policy options, and assist policy makers and stakeholders in finding effective ways of overcoming COVID-19 and achieving sustainable fisheries.

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