



VULNERABILITY TO VIABILITY
GLOBAL PARTNERSHIP

A Situational Analysis of Small-Scale Fisheries in Japan: From Vulnerability to Viability

V2V Working Paper No. 2021-1

Yinji Li, Tamano Namikawa, Sachiko Harada, Izumi Seki, Ryoichi Kato

November 2021

Editors:

Ana Carolina Esteves Dias

School of Environment, Enterprise and Development (SEED), Faculty of Environment, University of Waterloo, Waterloo, ON, Canada

Derek Armitage

School of Environment, Resources and Sustainability (SERS), Faculty of Environment, University of Waterloo, Waterloo, ON, Canada

Prateep Kumar Nayak

School of Environment, Enterprise and Development (SEED), Faculty of Environment, University of Waterloo, Waterloo, ON, Canada

Cover design:

Sevil Berenji

Cover photo:

Robert Seidel (Unsplash)

How to cite:

Li, Y., Namikawa, T., Harada, S., Seki, I., and Kato, R. (2021). *A Situational Analysis of Small-Scale Fisheries in Japan: From Vulnerability to Viability*. V2V Working Paper 2021-1. V2V Global Partnership, University of Waterloo, Canada.

V2V Global Partnership Secretariat

School of Environment, Enterprise and Development,
Faculty of Environment

200 University Avenue West, EV 3

University of Waterloo, Waterloo, ON, N2L 3G1 Canada

Website: www.v2vglobalpartnership.org

Email: v2vglobalpartnership@gmail.com

V2V Global Partnership is supported by the Social Sciences and Humanities Research Council of Canada under its Partnership Grant Program.



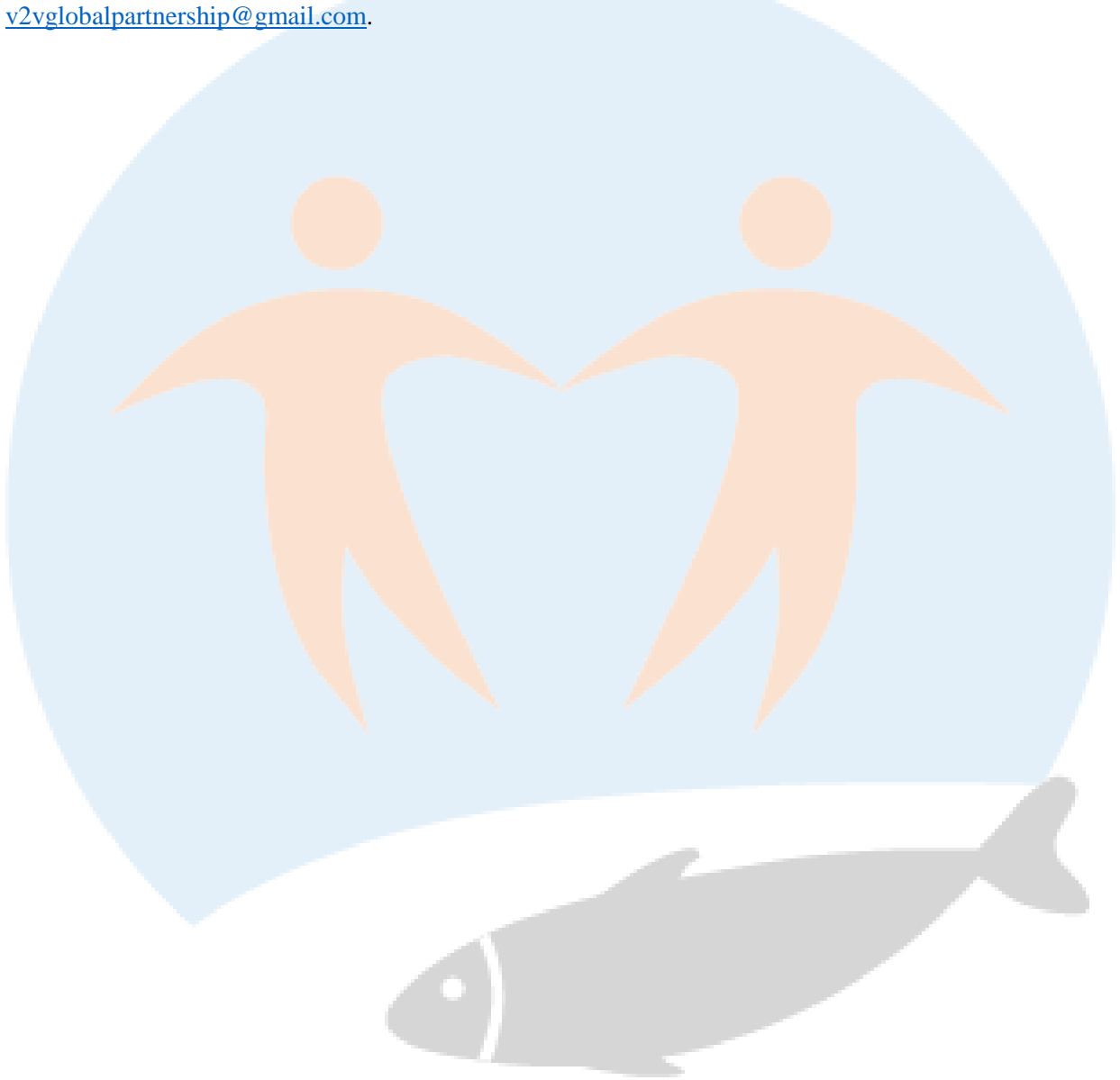
Social Sciences and Humanities
Research Council of Canada

Conseil de recherches en
sciences humaines du Canada

Canada

V2V Working Paper Series

V2V Global Partnership “Working Paper Series” aims to facilitate the exchange of ideas, mobilize knowledge and generate broad-based discussions on vulnerability-viability themes within the context of small-scale fisheries. The Working Paper Series will provide a collaborative and interactive platform for academics, practitioners, representatives of civil society, and individuals interested in making written contributions to the theoretical, methodological, practical, and policy aspects of small-scale fisheries, both locally and globally. To contribute to the V2V Working Paper Series, please contact v2vglobalpartnership@gmail.com.



A V2V Situational Analysis of Small-Scale Fisheries

Small-scale fisheries (SSF) are an important economic resource, both at the local and global level; their depletion has ramifications on fundamental aspects of life, spanning from food security to society's wellbeing and culture. On the global scale, SSF provide food security and a source of livelihoods and income for more than 100 million people. The objective of the V2V Situational Analysis is to build a global perspective on key vulnerabilities and opportunities associated with SSF viability across six countries in Asia (Bangladesh, India, Indonesia, Japan, Malaysia, Thailand) and in six countries in Africa (Ghana, Malawi, Nigeria, Senegal, South Africa, Tanzania). Each country-level situational analysis identifies the key social-ecological drivers of change, emerging issues and challenges confronting SSF, and important policy and governance concerns.

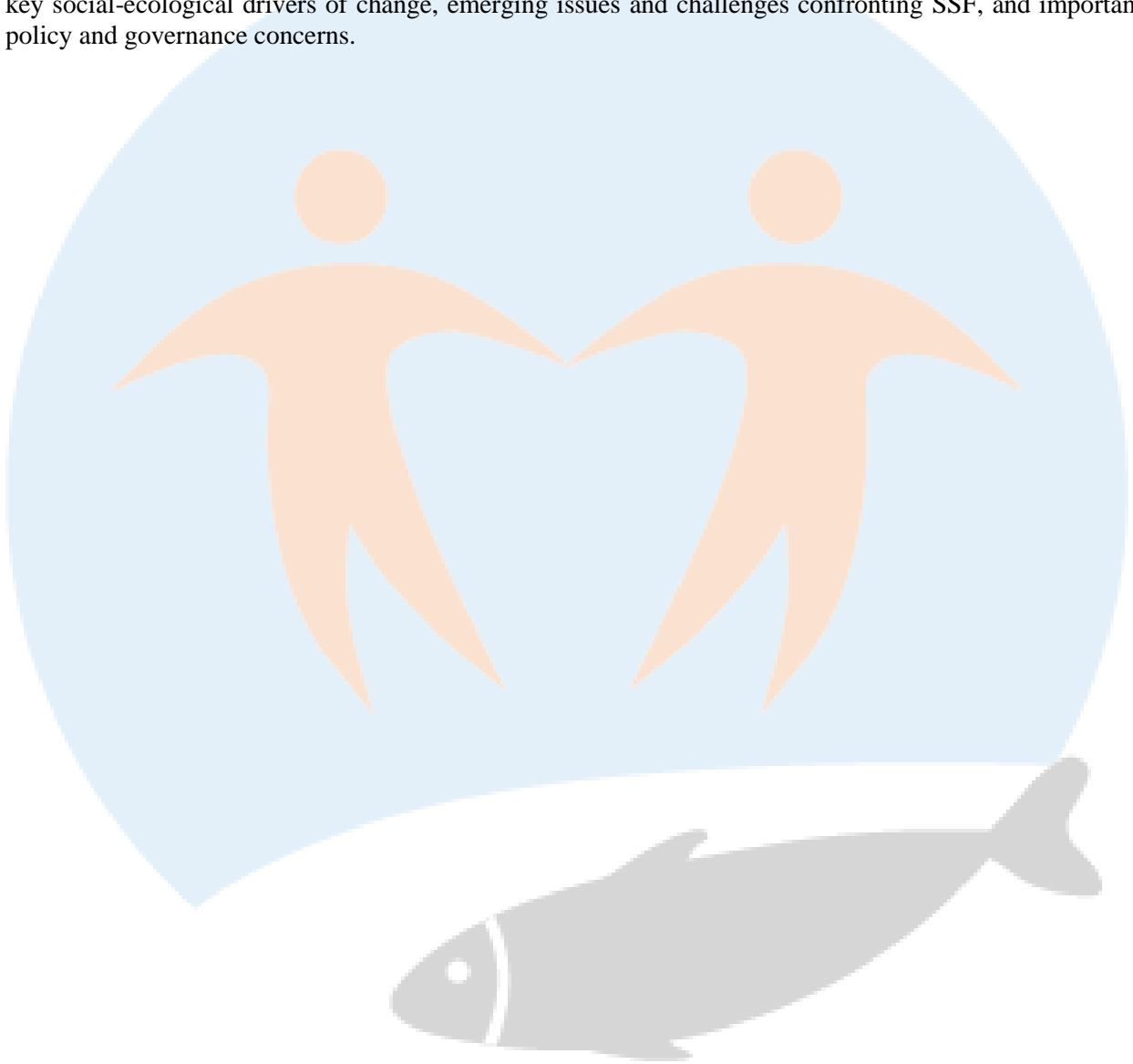
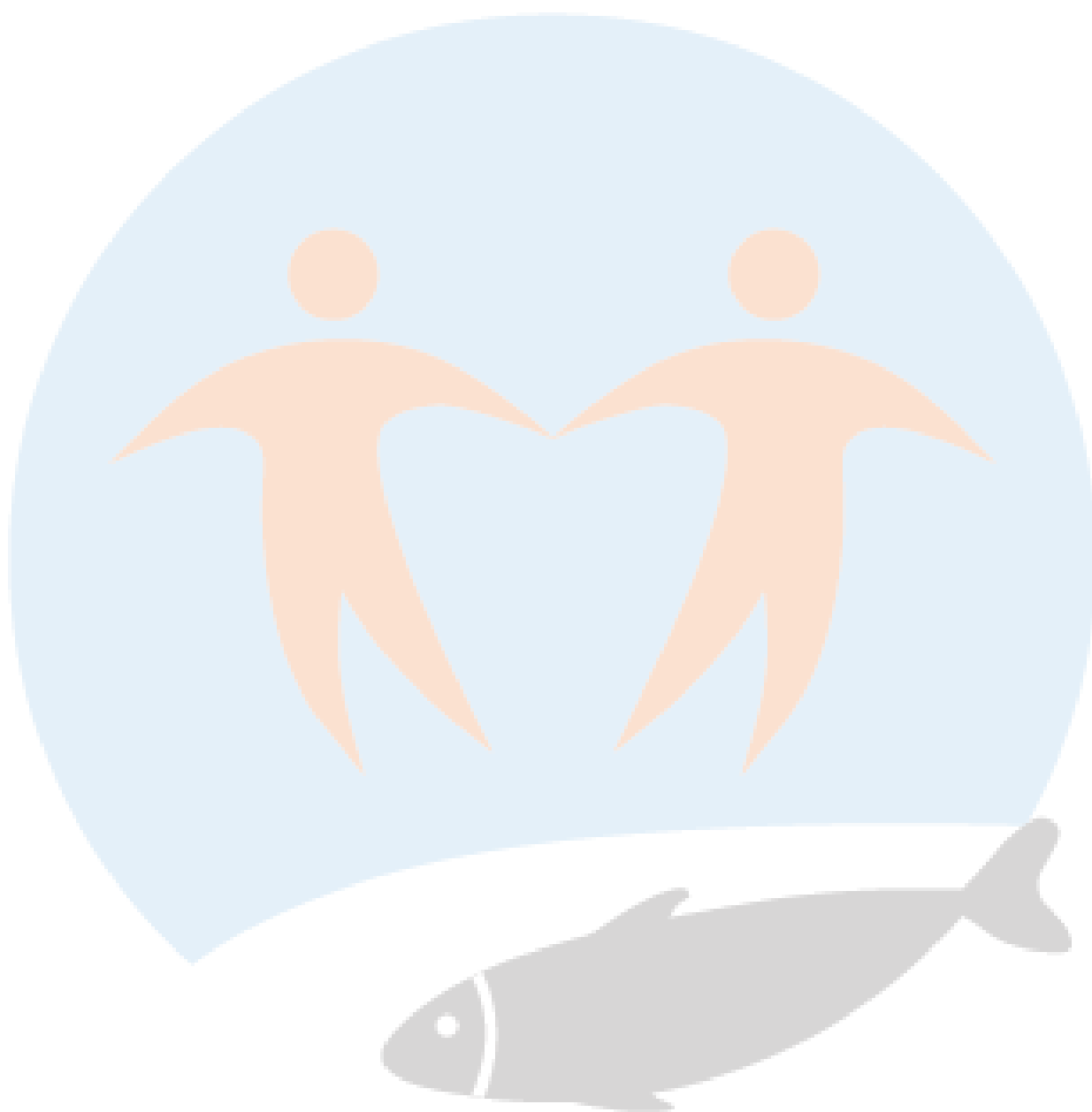


Table of Contents

1.	Introduction.....	1
2.	Meaning and status of small-scale fisheries.....	2
2.1	Small-scale fisheries contribution to Japan.....	2
2.2	Small-scale fisheries profile in Japan.....	3
2.3	The relevant linkages between ecosystems and small-scale fisheries in Japan	3
3.	Social-ecological changes and key drivers	4
3.1	Natural changes.....	5
3.1.1	Sea desertification (Isoyake)	5
3.1.2	Ocean warming	6
3.1.3	Larger and more frequent disasters	6
3.2	Social changes.....	6
3.2.1	Falling birthrate, ageing population and declining of seafood consumption in Japan are all social changes affecting the V2V process.....	6
3.2.2	Increasing seafood demand in the world.....	7
3.3	Political changes	7
3.3.1	Revision of Fishery Act	7
3.3.2	Revision of Food Sanitation Law.....	8
3.4	Changes of governing system	8
3.4.1	Fishing ground planner	8
4.	Emerging issues and challenges.....	9
4.1	Emerging issues	9
4.1.1	Social-ecological issues	9
4.1.2	Economic issues.....	10
4.1.3	Political and governance issues.....	10
4.2	Opportunities.....	11
4.2.1	Online direct sales.....	11
4.2.2	Community tourism (Nagisa-Haku).....	11
4.2.3	Gender (Suisan Jyoshi)	11
4.2.4	Collaboration (sixth industrialization)	11
4.2.5	Community viability (Umigyo)	12
4.3	Challenges.....	13
4.3.1	Structural changes	13
4.3.2	Changes in the environment of marine ecosystems	13
4.3.3	Policy changes	14
5.	Policy and governance	14

5.1 Small-scale fisheries governance and management in Japan.....	14
5.2 Key highlights about SSF legal/policy framework	14
5.3 Policy reform	15
5.4 Blue justice.....	15
References.....	17



A Situational Analysis of Small-Scale Fisheries in Japan: From Vulnerability to Viability

Yinji Li^{1*} • Tamano Namikawa² • Sachiko Harada³ • Izumi Seki¹ • Ryoichi Kato¹

¹ School of Marine Science and Technology, Tokai University, Shizuoka, Japan

² Japanese Institute of Fisheries Infrastructure and Communities, Tokyo, Japan

³ Tokyo University of Marine Science and Technology, Tokyo, Japan

* Corresponding author: riginki@tokai-u.jp

1. Introduction

Being a country surrounded by oceans with rich fishing grounds, Japan has been reliant on aquatic resources since antiquity (Harada, 2020). The Japanese fishing industry has a long history and its legacy has an active role in enriching the nation's culture. In this section, we introduce an overview of small-scale fisheries (SSF) in Japan. In Japan, the majority of coastal fisheries operators run SSF. Contrary to the typical image invoked by the phrase “coastal fisheries” (where a couple of fishers embark on a small fishing boat and work on a day-to-day basis), official statistical survey reports define it as “[Fishing operations] that do not use fishing vessels, use non-motorized boats, outboard motorboats, or motorized boats weighing less than 10 tons, or use fixed nets or seawater culture” (Ministry of Agriculture, Forestry and Fisheries [MAFF], 2018a), or “The term for any of the fisheries operations that use trawling nets, other gill nets, large fixed nets, salmon fixed nets, small fixed nets, other fishing nets, other long lines, other trolling lines, other baits, or shell/seaweed gathering nets” (Ministry of Agriculture, Forestry and Fisheries [MAFF], 2018a). In other words, the term “coastal fisheries” refers to any fisheries operation that does not use fishing vessels or that use fishing vessels weighing less than 10 tons (Harada, 2020).

The major characteristics of Japanese SSF include a diversity of fishing operations and a pervasiveness of family-run businesses. According to Fisheries White Paper, the northwestern Pacific Ocean is the world's most productive sea area, with a production volume of 20.33 million tons, which amounted to 21% of the world's fishery production in 2018. Japan has a vast territorial sea and exclusive economic zone (EEZ), with many warm and cold currents flowing along the coastline. As a result, the surrounding waters are home to 50 of the world's 127 species of marine mammals and about 3,700 of the world's 15,000 species of saltwater fish (of which about 1,900 are endemic to Japan). Indeed, Japan's surrounding waters are extremely biodiverse, even from a global perspective (Japan Fisheries Agency [JFA], 2019). Thanks to these natural conditions, some of the most abundant fishing grounds in the world are located in these waters.

On the other hand, the complexity of the seafloor and the natural environment of these waters calls for adaptation strategies from local fishers, who have devised a multitude of different fishing techniques (Harada, 2020). The fishing grounds near the coast of Japan have sandy seabed, algae, and reefs. Even in a narrow bay like Tokyo Bay, the depth is 1500 meters. The coast of Japan is not only complicated in terms of the topography of the seabed, but also in terms of the coastal topography, with many rivers flowing into the sea. As a result, different areas require different fishing strategies, so a neighbouring fishing village may have a completely different fishing method from the next one.

According to the 2018 Census of Fisheries (Ministry of Agriculture, Forestry and Fisheries [MAFF], 2018a), there were 60,201 coastal fisheries businesses (excluding marine culture businesses). Of these, 58,611 were privately managed entities, showing that the majority of coastal fisheries operators were

family-run businesses. In a report on the international competitiveness of fisheries production, the Japan Fisheries Agency documented that production per fisher was 21.9 tons and production per fishing vessel was 48 tons in Japan, as opposed to 241.7 tons per fisher and 441 tons per vessel in Norway (Japan Fisheries Agency [JFA], 2021). This underscores the significantly small production scale of Japanese fisheries businesses (including non-coastal fisheries). The majority of coastal fisheries businesses in Japan are characteristically family-run and considerably small-scale (Harada, 2020).

In Japan, almost all fishers are members of the Fisheries Cooperative Association (FCA). A fisheries cooperative is a non-profit organization whose main role is to manage fishing rights and support fishers to run their fishery smoothly. FCA handles procedures for registering fishing vessels, tax payments by fishers, measures against marine accidents, and sales of fuel oil. The FCA also manages fishing rights onto which fishers base the operation of their fisheries. Japan's FCA is an essential organization for fishers. Having a fisheries cooperative is a fundamental aspect of viability. Most of the fishers' collective activities and actions are carried out through the fishers' organizations.

2. Meaning and status of small-scale fisheries

2.1 Small-scale fisheries contribution to Japan

In 2018, Japan's fisheries production increased by 120,000 tons, 3% more than in 2017, 4.42 million tons in total. Coastal fisheries and marine aquaculture each produced about 1 million tons, accounting for 45% of total fisheries production. On the other hand, the value of Japan's fishery production is 1,557.9 billion yen, and there is no data focusing on coastal fisheries only. The number of entities in the coastal fishery layer accounts for about 95% of the total number of entities in 2018, of which 96% are individual entities, and the majority are very small SSF entities (Japan Fisheries Agency [JFA], 2019). Similarly, inland water fisheries are also SSF, but the number of fishers engaged in inland water fisheries in Japan is small and accounts for a very small percentage of the total fisheries.

The majority of Japan's coastal fisheries are managed by individuals under family businesses. In 2018, the average fishing income of individual operators of coastal fishing vessels was 1.86 million yen, a decrease of 320,000 yen from the previous year. While some coastal fishery businesses have sales of several hundred million yen, nearly 70% of all businesses have sales of less than 3 million yen (Japan Fisheries Agency [JFA], 2019).

A number of factors are making the successful managing of fisheries increasingly more complicated. For example, there is a general decline in fish consumption, which is in tandem with a general decline in fish price and of fishing resources. In addition, fishers are ageing, and fewer members of the younger generation are interested in joining the workforce; and finally, changes in the marine environment are seriously harming the industry. Overall, the management of coastal fisheries is in a difficult situation, resulting in a serious lack of successors, and a continuous decline in the number of coastal fishery operators.

Still, fishing villages heavily rely on the fishing industry. Due to their limited employment opportunities, coastal fishing plays an important role in supporting the local economy. For example, the local economy relies on the supply of fishing boats, fishing nets, ropes, fuel, food and feed, ice for distribution, refrigerators, and other equipment. In addition, there is a rich culinary culture and processing technology using marine products, and the restaurant and lodging industries are operating to provide these products. It is recognized that fisheries and fishing villages have a variety of functions in addition to supplying marine products to the public.

Japan Fisheries Agency explains that the multifaceted functions of fisheries and fishing villages have three roles: "creating a rich natural environment", "providing safety and security at sea", and "providing a relaxing". The first one, creating a rich natural environment, includes the conservation of seaweed beds, tidal flats, and coral reefs, the beautification and conservation of coastal areas, the conservation of river and lake ecosystems, and environmental conservation through fishing activities. Providing safety and security at sea refers to maritime rescue, disaster relief, marine environment monitoring, and border surveillance. Lastly, providing a relaxing means interacting with people in the city and passing on the traditions and culture of the city (Japan Fisheries Agency [JFA], n.d.).

As the fisheries industry continues to lose its momentum, the vitality of fishing villages is also being lost. To strengthen the fisheries industry itself and to reinvigorate local communities, some endeavours have started to add new values to the industry, which will thankfully carry positive ramifications onto the general public (Harada, 2020). Japan's fisheries face many challenges, but fishers and local governments continue to work hard to make it a sustainable industry.

2.2 Small-scale fisheries profile in Japan

The words "small-scale fisheries" (SSF) are somehow new in Japan as there is no clear definition of SSF nor it is a term often used. A more familiar concept in the context of Japan is that of coastal fisheries. According to the National Federation of Fisheries Cooperative Associations (JF Zengyoren), coastal fisheries in Japan are considered fisheries that employ fishing vessels under 10 m, which conduct operations lasting less than a day. We consider those coastal fisheries as SSF, which also include aquaculture and set-net fisheries (Li et al., 2020a). Table 1 summarizes the key features of SSF in Japan.

2.3 The relevant linkages between ecosystems and small-scale fisheries in Japan

The concept of Sato-umi may offer a viable solution to the current state of fisheries. Sato-umi is a coastal area where biological productivity and biodiversity have increased through human interaction. In Japanese, "SATO" refers to the area where people live, and "UMI" refers to the sea. The Sato-umi sea-area is vital for the continuity of fishing customs that have been taking place there for many centuries. Such activities as fishing and the distribution of product are key to supporting the vitality of the Sato-umi culture.

The Sato-umi is a concept that includes both nature and human beings realms, as well as an area in which both high biological productivity and biodiversity take place. Healthy Sato-umi provides numerous advantages, namely, appropriately maintaining the material circulation function, integrating and comprehensively managing the land and coastal area, and conserving the rich and diversified ecosystem and natural environment. This 'preferable coastal area environment' must be maintained with the cooperation of more people to accede this precious environment to future generations (*What is Sato-umi?*, n.d.).

Table 1 <i>Summary of small-scale fisheries profile in Japan</i>				
Terms used in SSF	Gear types ¹	Vessel types	Ecosystem types	Ecosystem detailed types
<ul style="list-style-type: none"> • Artisanal • Coastal • Inland • Inshore • Small boat • Small scale • Subsistence • Traditional 	<ul style="list-style-type: none"> • Dredges • Cast nets • Gillnets • Gleaning • Harpoons • Harvesting machines • Hooks and lines • Lift nets • Recreational fishing gears • Seine nets • Surrounding nets • Traps • Trawls • Set-net • Bottom set net • Trap pot and trap box • Trap tube • Long line • Vertical long line • Diving fishing • Drift nets 	<ul style="list-style-type: none"> • Raft • Outrigger • Dory • Piroque • Wooden • Fiberglass 	<ul style="list-style-type: none"> • Marine • Freshwater • Brackish 	<ul style="list-style-type: none"> • Archipelago • Intertidal • Beach • Lagoon • Coastal • Lake • Coral reef • Mangrove • Deep sea • Open ocean • Estuary • River • Salt marsh • Sawtooth (ria) coastline
¹ Illustrations of main fishing method: https://www.maff.go.jp/j/tokei/census/gyocen_illust2.html				

3. Social-ecological changes and key drivers

In this section, we provide information on key social-ecological changes and key drivers of change in respect to SSF vulnerabilities and viabilities in the context of Japan. The V2V Global Partnership understands that vulnerability and viability are complex ideas. It defines vulnerability as a function of exposure, sensitivity and capacity to respond to threats. It uses the term viability not just in its economic sense but also to include its social, political, and ecological aspects. A driver is defined as any natural or human-induced factor that directly or indirectly causes a change. Table 2 summarizes the key changes affecting the SSF in Japan.

Table 2					
<i>Key social-economical changes in respect to SSF vulnerability and viability</i>					
	Changes	Key drivers	Positive impacts	Negative impacts	Core trade-offs
Natural	Sea desertification (isoyake)	Various factors		Decreased in catch	
	Ocean warming	Global warming		Changes in fish species composition	
	Larger and more frequent disasters			Damage of fishing ports inundation of fishing village	
Social	Falling birthrate and ageing population	The inability of the Japanese social system to respond to current social demands		Declining of Japanese seafood market	Japanese seafood destinations tend from domestic to overseas (high hurdle for SSF)
	Declining of seafood consumption in Japan				
	Increasing of seafood demand in the world	Internationalization of food distribution	Increasing of world seafood market		
Political	Revision of Fishery Act	Policies to transform the fishing industry into a growing industry	Leaders of conservation activities for coastal fishing grounds	Circumstances that new companies can easily entering into aquaculture businesses	
	Revision of Food Sanitation Law	Changes in dietary style and internationalization of food	Mandatory HACCP programs	Maintenance cost increasing for hygiene management of landing market	
Governing system	Creating a fishing ground plan	Revision of Fishery Act	Effective use of fishing grounds	Loss of independence of FCAs	

3.1 Natural changes

3.1.1 Sea desertification (Isoyake)

In Japan, a decrease of seaweed beds has been noticed by fishers for more than a century, a phenomenon called “isoyake”. It is defined as the decrease or disappearance of upright seaweed beds resulting in the formation and maintenance of poorly vegetated areas on the shallow bedrock and stony beds (Fujita, 2002). The key drivers of isoyake vary, depending on seafloor topography, oceanographic characteristics, species composition, and history of coastal use. A prominent example of isoyake caused by changes in oceanographic composition was the aftermath of Ernino, an event where records of high-water temperatures following the berthing of the Kuroshio current axis were observed. An example of a change in biota is

feeding pressure on algae-eating animals such as sea urchins and fish. Examples of human activities are pollution and eutrophication due to the inflow of domestic and industrial wastewater, stagnation of seawater due to river improvement and revetment maintenance, increased suspended substances and sedimentary mud, and overfishing of mammals and seafood. Other examples include the accumulation of volcanic ash. These causes affect the seagrass beds alone or in combination (Fujita, 2002).

In the isoyake area, the shortage of seaweeds that feed sea urchins and abalone causes a severe fishery problem. Since the fishery species among reef areas, including urchins and abalones, are important for the coastal fishery, the Isoyake which damages the reef environments has a negative impact on SSF. More information about Isoyake, including the current situation, measures and examples are provided in the "Guidelines for Isoyake Measures" (Japan Fisheries Agency [JFA], 2021).

3.1.2 Ocean warming

Global warming drives ocean warming. The biogeographic boundary between temperate and subtropical marine organisms has an annual maximum water temperature of about 29°C (Kuwahara et al., 2006). This water temperature line movement has a significant influence on aquatic products, especially fish species composition. According to Kuwahara et al. (2006), the temperature line, which is currently located in the south of Kyushu, moves north as warming progresses and reaches the Kanto and Hokuriku coasts in 100 years. Kuwahara et al. (2006) indicated that if water temperatures continue to rise, southern Japan may incur a significant reduction in coastal flounder, particularly in red sea bream, abalone, sea urchin, and other farmed yellowtail, blowfish, and seaweed.

3.1.3 Larger and more frequent disasters

Global warming makes natural disasters larger and more frequent. Natural disasters like tsunamis seriously damage fishing ports and cause inundation to fishing villages. A tsunami often develops when earthquakes occur on the seabed. The 2011 Great East Japan Earthquake is a notable example, but Japan has experienced numerous tsunamis and major tsunamis occurred in 1896, 1923, 1933, 1944, 1946, 1960, 1983, and 1993 since the era of Meiji.

A tsunami is one of the natural disasters that is known to cause the most damage to fisheries. It takes away lives, it swipes everything in its way, and destroys aquaculture products and fishing facilities. Fishing villages hit by a tsunami become devastated to the point where recovery is almost impossible, but Japan's history is coloured with many stories of incredible resilience. In Japan, tsunamis are expected, and fishing villages must be prepared accordingly (Kageyama, 2020).

3.2 Social changes

3.2.1 Falling birthrate, ageing population and declining of seafood consumption in Japan are all social changes affecting the V2V process

In Japan, the birthrate is declining, and the population is ageing rapidly. They are due to a decline in birth rate and an increase in life expectancy (Japan Cabinet Office, 2003). The population is undoubtedly falling, which severely damages Japan's economic growth and social security. From the fisheries industry's perspective, population decline means a decrease in Japan's fishery consumption and the decline of the Japanese fish market.

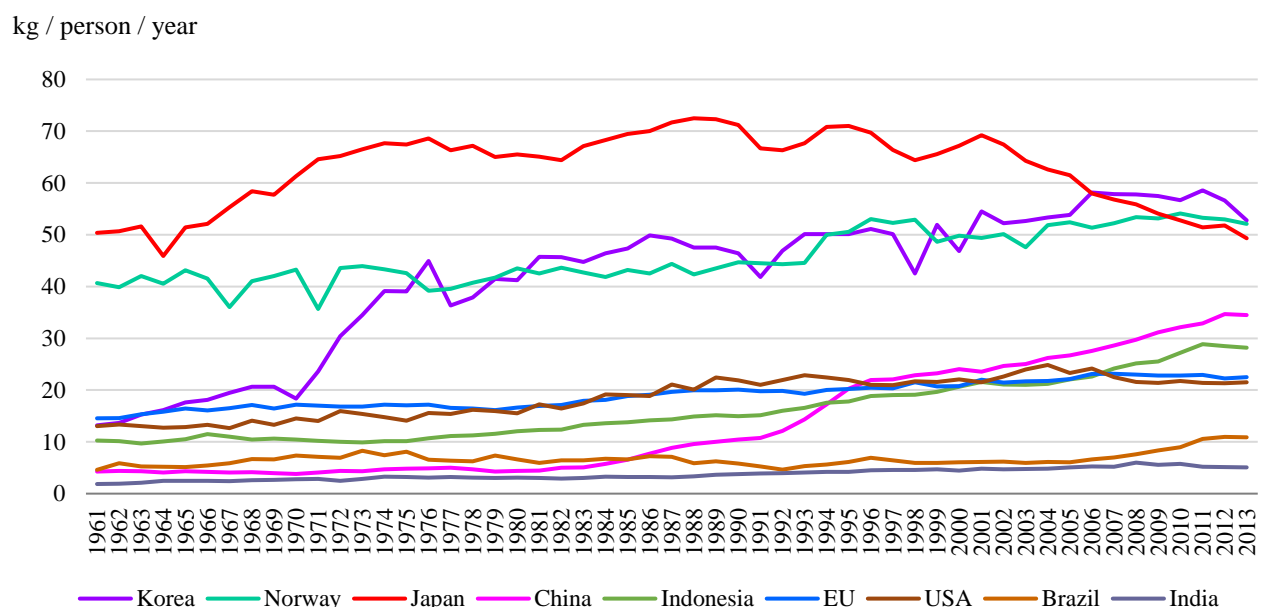
3.2.2 Increasing seafood demand in the world

In contrast to the shrinking Japanese seafood market, the global seafood market is expanding. The key driver is the internationalization of food distribution due to the development of transportation technology. Per capita consumption of seafood worldwide has more than doubled in the last half-century. Seafood is a valuable food resource that accounts for 16% of the world's animal protein supply (Japan Fisheries Agency [JFA], 2020).

Increasing per capita consumption of seafood is a global trend. In Asia and Oceania, fish-eating habits are present since the 1960s, and figure 1 demonstrates a marked increase in fish consumption as a result of improvement in living standards. In particular, economic growth is significantly expanding in emerging countries, with China doubling in the past half-century and Indonesia triplicating.

Figure 1

Trends in per capita annual consumption of edible seafood in major countries/regions (gross food basis)



Note. Adapted from Japan Fisheries Agency, 2016.

The shrinking of the Japanese seafood market and the expansion of the global seafood market is driving exports of Japan's fish stock. However, for small-scale coastal fisheries with a small-lot/ high-mix seafood production, export hurdles are high in procedures and costs. For example, documents and certificates that would otherwise be unnecessary for domestic transactions are now required, and transportation costs are high. Therefore, to maximize efficiency and minimize cost, it is in Japan's interest to export in bulk.

3.3 Political changes

3.3.1 Revision of Fishery Act

In Japan, both fishery production and the number of fishers have been declining for the past 30 years (Japan Fisheries Agency [JFA], 2020). The Fishery Act was designed to address this trend and transform the

fishing industry into a growing one. The Act was revised to address resource management. The main revisions were as follows:

- a) Construction of a new resource management system (management by Total Allowable Catch - TAC, essential control by Individual Quota - IQ);
- b) Revision of the fishery permit system to boost productivity. This entails the review of regulations related to vessel size and obligatory reporting that contributes to resource management and productivity improvement;
- c) Revision of the sea area utilization system that contributes to the development of aquaculture and coastal fisheries. This includes the revision of the license system, the change of the leading implementers of fishing ground planning, and the positioning of the fishery cooperative as the main body of conservation activities for coastal fishing grounds;
- d) Revitalization of fishing villages and demonstration of multifaceted functions; and
- e) Other revisions focused on the public election system for fishers' committee members to the system of Emi from the governor.

The revision to the Act that is most relevant to SSF is (c) revision of the sea area utilization system. This changed leading implementers from the FCAs (Fisheries Cooperative Associations) to the local government in the new Fishery Act. Overall, this change created a more transparent fishing ground planning. In addition, this change made it so that it has become easier to license "contributors to the development of the local fishery industry". On the other hand, the FCA has been responsible for the conservation of coastal fishing grounds. Also, a system has been introduced in which fisheries cooperatives carry out conservation activities for coastal fishing grounds based on prefectural regulations.

3.3.2 Revision of Food Sanitation Law

According to the Order for Enforcement of the Food Sanitation Act, the Food Sanitation Law was amended in 2018, and from June 2021, all food business operators have been obligated to manage hygiene by the Hazard Analysis Critical Control Point (HACCP) standards. The key driver is the change in Japanese dietary style and the internationalization of food. Since it is also applied to the local landing market, there is a concern that the cost of hygiene management will increase in the landing market operated by the FCAs.

3.4 Changes of governing system

3.4.1 Fishing ground planner

As mentioned in the previous section, due to the revision of the Fisheries Act, the prefectural governor will take the lead in the fishing ground planning that the FCAs previously carried out. When formulating a fishing ground plan, detailed knowledge about fishing grounds and fishing methods is required. It is also necessary to coordinate the interests of each fisher who uses the fishing grounds. Therefore, there is a concern that the prefecture would require long hours of work for the planning of fishing grounds. At the same time, there is another concern that the independence of fisheries cooperatives and fishers, who were able to grasp the status of fishery production and the status of each fisher, will be impaired by taking charge of planning the fishing grounds.

4. Emerging issues and challenges

In this section, we identify and describe a broad range of key emerging issues, opportunities and challenges with respect to SSF vulnerabilities and viabilities, with attention to both the local and the international perspective. Emerging issues refer to new trends in the social, ecological, economic and political domains that may positively and/or negatively impact SSF. Sometimes, both positive and negative impacts are observed at the same time, or what we refer to as trade-offs. Opportunities refer to situations that make it possible to enhance one or more aspects of SSF's success. These can be economic, ecological, social, governance, or other aspects. Challenges refer to difficulties encountered in the SSF sector in a country that require changes and innovative solutions in current governance and management approaches.

4.1 Emerging issues

4.1.1 Social-ecological issues

Two relevant social-ecological issues in Japanese SSF refer to gender and wellbeing. Gender issues were identified in the political domain. "Board meetings with women take too much time" - this is a remark given by Mr. Yoshiro Mori, the former Chairman of the Japanese Olympic Committee (JOC) in a board meeting on February 3rd, 2021. Following national shock at the Chairman's blatant gender bias, on February 4th, Mr. Mori attempted to revoke his opinion, but it was not simple. The following day, acute criticism spread over the world, even many volunteers were quitted, and co-supporting companies condemned the discriminating attitude of the former Chairman. On February 12th, the JOC announced his resignation (Kenji, 2021).

This unfortunate remark by Mr. Mori is an excellent example of the gender issues pervading today's Japan, whose Global Gender Gap index ranked it 121st out of 153 countries in 2020 (Hutt, 2019). Similar attitudes toward gender equity are carried over the fishing industry. Since 2014, gender equality in all sectors, including agriculture and fisheries, became one of the objectives of Japanese authorities. However, Japanese society is still dominated by paternalistic attitudes and behaviours, making this objective difficult to achieve. The reason is probably that gender equality policies are only targeting equal opportunities in employment without questioning the masculine values dominating Japanese society that expect women to stay at home and take care of children, husbands and old parents. In the fisheries sector, the paternalistic attitudes of cooperatives prevent women from being fully employed in fisheries and make it impossible for women to participate in the decision-making process of the sector (Soejima & Frangoudes, 2020).

Another socio-ecological issue in Japanese SSF refers to the status of fishing resources. Resource evaluations in Japan have been conducted for 84 stocks of 50 fish species. The government assessment conducted in 2018 (Ministry of Agriculture, Forestry and Fisheries [MAFF], 2019a) determined that there were 14 stocks with high resource levels (17% of the total stocks), 29 stocks with moderate levels (34%), and 41 stocks with low levels (49%). Of the 37 stocks that were analyzed of the 15 major fish species in Japan's fisheries and biomes, just 60%–70% were at moderate or high levels.

These numbers have been declining for decades, as Japan's fisheries and aquaculture production peaked in 1984 at 12.82 million tons, before rapidly decreasing until 1995 when the decline slowed to a more gradual pace. Coastal fisheries had successfully maintained steady production at a rate of approximately 2 million metric tons per year. However, their production rates have been falling since 1995, with an output of 890,000 metric tons recorded in 2017 (Ministry of Agriculture, Forestry and Fisheries [MAFF], 2018a; Li & Namikawa, 2020).

Another socio-ecological factor is the release of radioactive water. The 2011 Great East Japan Earthquake in the Tohoku area caused a tsunami that severely damaged the Fukushima Daiichi Nuclear Power Plant facility. Moreover, the tsunami infiltrated the section of the facility where water was treated. The total amount of the treated water is more than 1 million tons, and critical discussions emerged on how to decrease the amount (*Government decides to release treated water and ocean from Fukushima Daiichi Nuclear Power Plant*, 2021).

Recently, the Japanese government decided to dilute the treated water and release it to the ocean. It will start two years later in 2023 and will be completed in 10 years (*Fukushima Daiichi Nuclear Power Plant Contaminated Treated Water*, 2021). The Japanese government says releasing water is safe with a scientific basis; however, local fishers are against this decision. Fishers are afraid that rumors about the quality of fish taken from areas with treated water might harm fish sales. Indeed, the Japanese government must take local fishers' opinions into account when drawing policies that may so heavily impact the industry.

4.1.2 Economic issues

Economic issues refer to any issue concerning income, industry sustainability and growth. With regard to income, fishers' salaries are much smaller than workers in most other industries (Ministry of Agriculture, Forestry and Fisheries [MAFF], 2018b). Individual fishery enterprises that engage in aquaculture generate approximately 8 million yen, while individuals who engage in coastal fishing generate an average of around 2 million yen. This is partly due to the presence of many ageing fishers who continue to fish by reducing the scale of their operations, decreasing the number of operating days, and specializing in fisheries that require less physical effort. Although the income of the middle-aged generation is not considered small and while the unit price of marine products has slightly increased in recent years (disregarding the impacts of COVID-19), salaries fluctuate as they are subject to fish prices that vary due to weather, fuel costs, and catch volumes (Li & Namikawa, 2020).

A severe lack of successors is affecting the fishing industry. The majority of coastal enterprises in Japan are operated by individual fishers who mainly engage in fishing by themselves. The only potential successors to these fishers are their children, who do not always opt to continue their parents' work due to changes in societal values. Although projects in various places exist to recruit and train motivated fishers as leaders (such as those who work in the city) (Li & Namikawa, 2020), the overall number of fishers in Japan has decreased from 238,000 in 2003 to 153,000 in 2017, while the proportion of fishers aged 65 or older has risen from 30% to 40% (Ministry of Agriculture, Forestry and Fisheries [MAFF], 2019b).

4.1.3 Political and governance issues

The Blue Economy and the Fisheries *seichosangyoka* (growth industrialization) movements that are triggered by the new Fisheries Act should be raised here as emerging issues in Japan. The Blue Economy has been drawing great attention worldwide as many organizations actively promote its concept. Its waves also ripple across Japan, and the concept of and the term "blue economy" is filtering into Japan (Watanabe, 2019; Watanabe, 2020; Ocean Policy Research Institute [OPRI], 2018). While the furtherance of blue economy-related research and policies is expected to promote sustainable ocean development, there are growing concerns that small-scale fisheries will be marginalized in the context of relevant policies.

4.2 Opportunities

4.2.1 Online direct sales

Covid-19 has caused severe damages to the entire national industry, including fisheries. Meanwhile, the online market called "Pocket Marche" has dramatically increased the number of registrants. The number of users reached 180,000 as of May 2020, from 52,000 as of February 2020, and has 3.2 times the growth. It attracted the attention of the producers as a sales destination of the product. The number of registered producers increased from 2,000 at the end of February 2020 to 2,700 as of mid-June 2020. At the same time, the number of items has expanded rapidly from 3,900 to 6,500 (*Corona era / online market*, 2020). Thus, a significant change in the distribution of agricultural and fishery products took place during the pandemic. In the future, such a direct sales system is expected to connect fishers and consumers directly, maintain and improve fish prices, increase the added value of fish, and secure fishery income by them.

4.2.2 Community tourism (*Nagisa-Haku*)

Japan's Ministry of Agriculture, Forestry, and Fisheries (MAFF) promotes overnight stay travel in agricultural and mountainous villages known as "Nouhaku", and trips to fishing village regions, in particular, known as "Nagisahaku". The Japan Fisheries Agency (JFA) promotes "Nagisahaku" activities throughout Japan to foster further interaction between cities and fishing village regions and to revitalize fishing villages. Fishing villages have an abundance of resources attractive to tourists that cannot be found in cities, such as freshly caught seafood and local dishes incorporating the daily catch, as well as coastal scenery that can be said to evoke the classic imagery of Japan. Tourists can also experience the industry and culture of fishing, which embody Japanese tradition. When participating in Nagisahaku activities, in addition to gaining a lodging experience unique to fishing villages, tourists may sample local ingredients, find bargains at direct sales outlets, make their own craft goods and fish (Goto, 2020).

4.2.3 Gender (*Suisan Jyoshi*)

"*Umi no Takara! Suisan Jyoshi no Genki Project* (The Treasure of Ocean! Women in Fisheries Project)" was started by the Japan Fisheries Agency in November 2018. The number of members, which was 16 at the time of its launch, increased to 60 as of January 2019. It consists of multi-industries related to fisheries, such as fishers, processing industry, brokerage, fish food promotion, and singer-songwriter community. Very few women are working in this field by sharing various issues in fisheries and working to promote more people to eat fish and protect the sea, individually or sometimes as a team (Tateoka, 2020).

4.2.4 Collaboration (*sixth industrialization*)

Agricultural economist, Naraomi Imamura, conceptualized the idea of "sixth industrialization" to illustrate the need of expanding operations in industrial sectors where businesses grow from primary industries to processing (secondary industries) and sales and distribution (tertiary industries). Initially, the term was intended to express a linear expansion by simply summing "1" for primary, "2" for secondary, and "3" for tertiary industries to reach the "6" in total. Currently, however, the primary industries have declined to the point where they are no longer sustainable on their own, and so Imamura has shifted the definition from straight-forward addition to multiplication ($1 \times 2 \times 3 = 6$). This has been done to signify the manner in which businesses can plan for organic and comprehensive combinations of the three levels of the industry. In recent years, the term has been embraced across Japan to describe the revitalization of small farming,

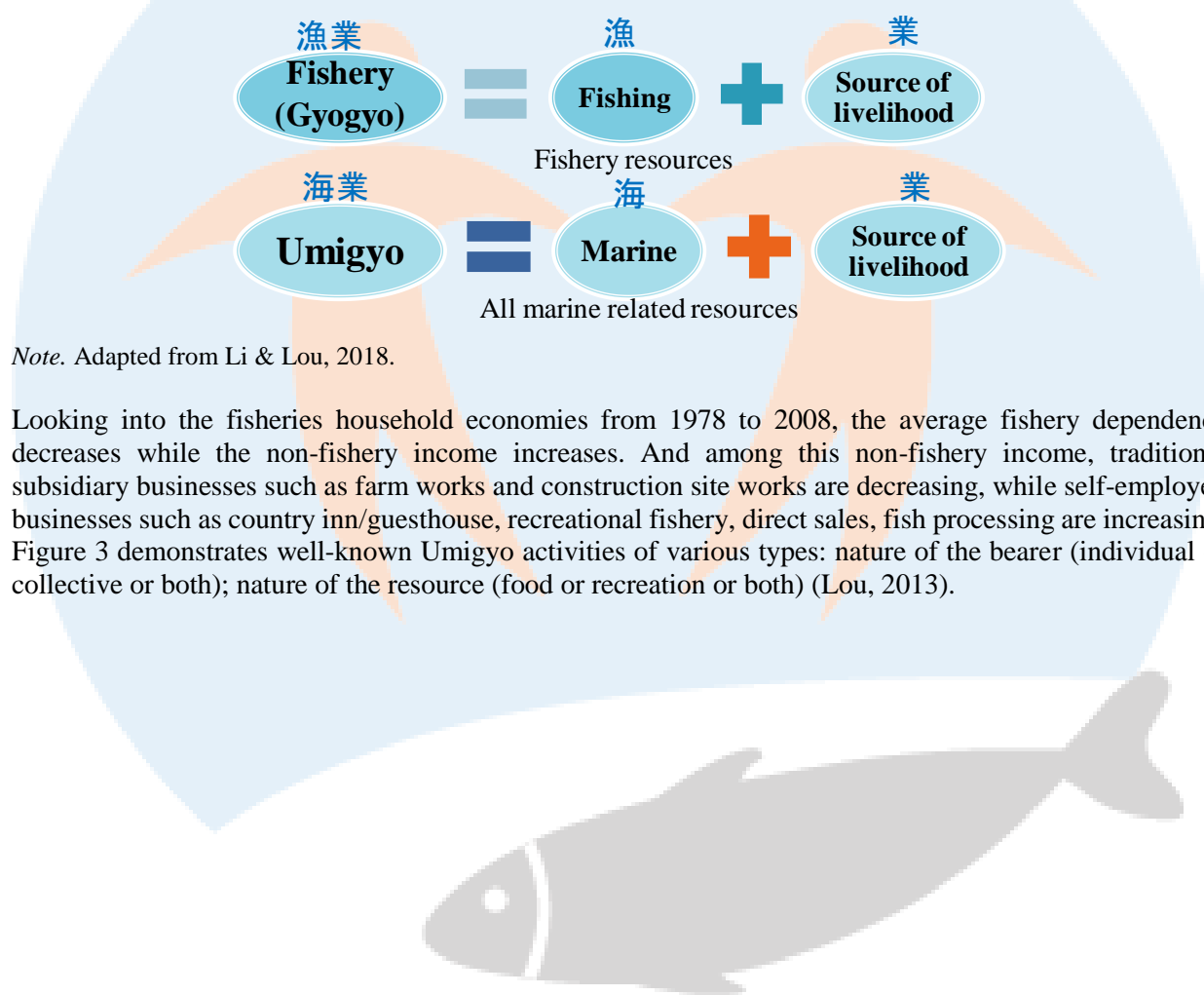
mountain, and fishing communities, and the diversification of their local industries, efforts which the national government is actively working to support (Tomita, 2020).

4.2.5 Community viability (*Umigyo*)

A series of new economic activities, *Umigyo* is gaining significant momentum in recent years in Japan. *Umigyo* is defined as a series of economic activities carried out by community people centered on fishers and fishers' organizations, for answering diverse needs on marine and coastal use today, utilizing not only fishery resources but also all kinds of regional marine-related resources (Figure 2) (Lou, 2013).

Figure 2

The Umigyo concept

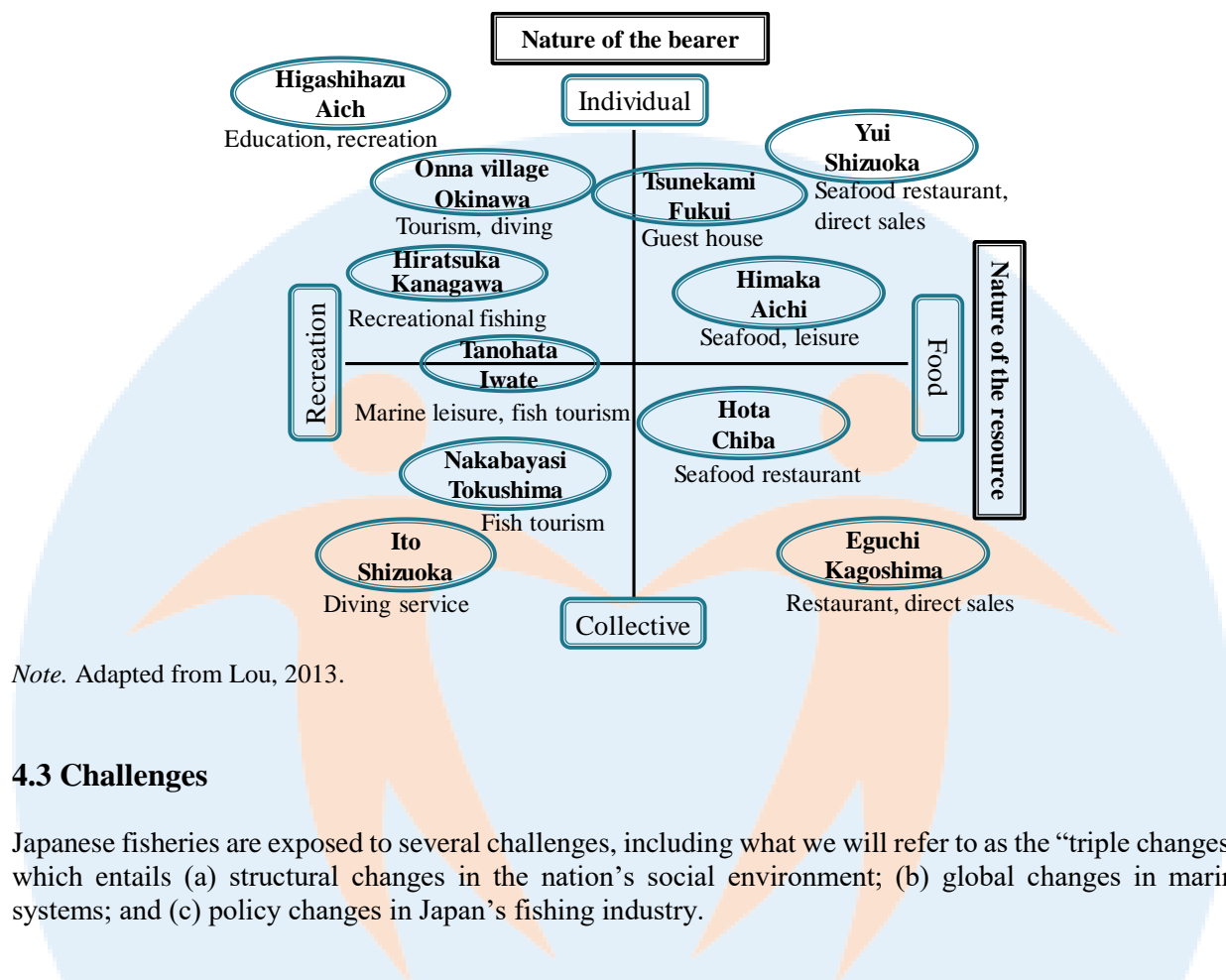


Note. Adapted from Li & Lou, 2018.

Looking into the fisheries household economies from 1978 to 2008, the average fishery dependence decreases while the non-fishery income increases. And among this non-fishery income, traditional subsidiary businesses such as farm works and construction site works are decreasing, while self-employed businesses such as country inn/guesthouse, recreational fishery, direct sales, fish processing are increasing. Figure 3 demonstrates well-known *Umigyo* activities of various types: nature of the bearer (individual or collective or both); nature of the resource (food or recreation or both) (Lou, 2013).

Figure 3

Well-known Umigyo activities by types



Note. Adapted from Lou, 2013.

4.3 Challenges

Japanese fisheries are exposed to several challenges, including what we will refer to as the “triple changes”, which entails (a) structural changes in the nation’s social environment; (b) global changes in marine systems; and (c) policy changes in Japan’s fishing industry.

4.3.1 Structural changes

Structural changes in the social environment include a decrease in rural populations as urban areas grow, changes in the fishing industry’s product distribution structure due to the increasing power and influence of retailers over SSF, and changes in the lifestyles of urban residents who increasingly use coastal areas for leisure. Also, the growing presence and the impact of ocean development, including renewable energy projects in coastal areas (Kawabe et al., 2016), represent major structural changes to SSF. As the Blue Justice concept advocates, it is essential that big development recognizes and respects the existence of SSF and the fishing communities which sustain them (Jentoft, 2019; Li & Namikawa, 2020).

4.3.2 Changes in the environment of marine ecosystems

With regard to changes in the environment of marine ecosystems, Japan’s fisheries have not been spared by their effects. These global changes, induced by various natural and anthropogenic stressors, have impacted the ability of fisheries to function and deliver goods (Bundy et al., 2016). Often manifested in large-scale, natural disasters such as hurricanes, typhoons, and tsunamis significantly harm coastal fishing communities, whose geographical location and heavy reliance on primary resources place them in highly

vulnerable positions. While all citizens suffer from the damages caused by a changing sea environment, Japanese SSF and their host villages must now face the reality of living along coastal frontlines (Li & Namikawa, 2020).

4.3.3 Policy changes

The last of the “triple changes” refers to those brought on by the fisheries policy reform of 2018. In the past, set-net and demarcated fishery rights were governed under a system in which local fishers’ rights were prioritized, as uniformly determined by law. This system has since been modified to give priority to fishers who are deemed to be operating the “most effective and appropriate” fisheries, easing the entry of private capital into the fishing industry. As a result, there is a growing chorus that local fishers are being deprived of their usual fishing grounds (*Will fishing grounds be robbed by businesses?*, 2018; *The contents of the ridiculous new fishery law deregulation opens up fishing rights*, 2019), and that the effects of these new policy changes may negatively impact Japanese SSF (Li & Namikawa, 2020). As the next section will elaborate, these issues have been at the centre of several governance efforts.

5. Policy and governance

In this section, we critically assess the policy and governance context, responses and options/opportunities concerning the vulnerability and viability of SSF.

5.1 Small-scale fisheries governance and management in Japan

Japanese fishing industry can be divided into four main classes of licensed fisheries, fishery-rights based fisheries, free fisheries, and other fisheries regulated by the Fishery Act (Fisheries Law Study Group [FLSG], 2005). Licensed fishery falls into the two classes of fisheries permitted by the minister and the governor, and fisheries based on fishing rights are further separated into three categories: set-net fishery, aquaculture, and common fishery. Among these, fisheries based on fishing rights and fisheries permitted by the governor are relevant to small-scale fisheries.

The Japan Fisheries Agency is a national-level management institution. The prefectures follow the national level’s management policies, and the prefectural fisheries departments are in charge of managing SSF. For the fisher’s level, fishers organizations centring on Fisheries Cooperative Associations fulfill an essential and autonomous management role, SSF fisher’s supporting role, and other functions (Li et al., 2020b).

5.2 Key highlights about SSF legal/policy framework

The key highlights about the policy framework for the SSF in Japan are as follows:

First, it regulates the industry from many perspectives: while asserting substantial laws through the Fishery Act, it legislates ethically through the Fishery Basic Act with keen attention to philosophies of law.

Second, it ensures the sustainability of SSF and SSF communities: by protecting viability, it guarantees fishers’ livelihoods and exclusive rights to fish (Li & Namikawa, 2020).

Third, through the Fishery Act's amendment enforced on December 1st, 2020, Japan's law finally sought to promote sustainability: while the original Act proposed "comprehensive and advanced use of fishing grounds" and "democratization of fisheries", the newly amended one puts much emphasis on the "resource management and fishery efficiency".

While there are expectations for industrial growth, concerns about the SSF fishers' rights are still to be properly addressed. It remains to be seen how Japan will secure SSF sustainability from this point forward.

5.3 Policy reform

The policy reform included a new resource management system that contributed to an overall boost in economic efficiency. First, a newly improved distribution structure allowed fishers' income to grow significantly; second, a reconsideration of the fishing permit issuance system increased general productivity; third, a formal revision of the coastal area utilization system considerably developed aquaculture and coastal fisheries (Ministry of Agriculture, Forestry and Fisheries [MAFF], 2018b). Among them is the revision of the coastal area utilization system, which puts an end to the current priorities when granting fishery rights (Table 3).

Fishery rights in Japan include common fishery rights, demarcated fishery rights, and set-net fishery rights, with different priority orders as follows (Tanaka, 2003; Lou, 2014; Makino, 2011). The common fishery rights fisheries are mainly aimed at shellfishes and algae. The eligibility of the rights is granted only to fisheries cooperatives where a vast majority of local fishers are members. Such fisheries are generally run by individual fishers and require coordination among fishers regarding fishing grounds. Aquacultures by specific demarcated fishery rights (e.g., oyster, seaweed) are operated in the same way. Because of the ease of entry in terms of technology and necessary capital, the coordination between fishers becomes very important; therefore, the fishery cooperative is first in line.

Comparatively speaking, for demarcated fishery rights and set-net fishery rights, because there is a need for high technology and significant capital, the rights can be granted to individuals. For the former, those with experience in fisheries, including local fishers, have the priority; while for the latter, priority is given to fisheries cooperatives and the juridical persons with more local fishers. Such order of priority has been abolished by the revised Fishery Act (shown as gray parts in Table 3). This implies that fishers who are not operating the "most effective and appropriate" fisheries will not be able to obtain the fishery rights (Ministry of Agriculture, Forestry and Fisheries [MAFF], 2018b). Yet, there are no clear evaluation criteria for the judgment of what "most effective and appropriate" fisheries mean.

5.4 Blue justice

Cohen et al. (2019) highlight the need to recognize SSF as part of the solution to design a Blue Economy, so that it can be a legitimate vision for ocean governance. We feel that the relationship between the "seichosangyoka" (growth industrialization) policy and SSF in Japan is a miniature version of the problem over the Blue Economy or Blue Growth policy and SSF in international society. As they add, "Of the 755 fisheries cooperatives nationwide, only 77 fisheries cooperatives have properly heard about why and how the policy reform" (*The contents of the ridiculous new fishery law deregulation opens up fishing rights*, 2019). This concern is related to the procedure justice, which may take form through restricted access to a decision. Blue Economy is seen as to improve efficiency and fisher's income through growth industrialization. But we argue that if the "seichosangyoka" is to be a reasonable vision for the sustainability of the fishing industry, the importance of Japanese SSF must be fully recognized in this context (Li et al., 2020b).

SSF communities are scattered throughout Japan. For these communities, fishing is their livelihood and fisheries are the backbone of their economy. Furthermore, fisheries are key to the cultural identity of Japanese coasts. If Japan continues to underscore the vital role played by fishing, its value may be lost. Can seichosangyoka-oriented policies ensure sustainable fisheries, and what should growth look like? The seichosangyoka, ocean development, Blue Economy, Blue Growth, and other related policies are not necessarily negative to small-scale fisheries. It is also expected that new opportunities for small-scale fisheries will be created, which would not have been possible before. However, success will only be realized when the Difference Principle is respected, and the SSF Guidelines are fully recognized and implemented with a conscious effort. Attention must be paid to “A Just Space for Small-Scale Fisheries in Blue Economy” (Cohen et al., 2019) and “A Just Space for Small-Scale Fisheries in Seichosangyoka” (Li et al., 2020b).

Table 3					
<i>Priority orders regarding fishery rights in Japan</i>					
		Demarcated fishery rights	Specific demarcated fishery rights	Set-net fishery rights	Common fishery rights
Example		Pearl aquaculture	Oyster, seaweed aquaculture	Mackerel, horse mackerel by set-net fishery	Abalone, sea urchin by skin diving
Granting period (Year)		10	5	5	10
Priority order	First	Existing fishers and others (priority given to local and experienced ones) *Removed	Fisheries cooperatives (exercised by cooperative members) *Removed	Juridical person including more than 70% of the local fishery households *Removed	Fisheries cooperatives (exercised by cooperative members)
	Second	Others (newcomer) *Removed	Juridical person including more than 70% of the local fishery households *Removed	Juridical person consists of more than 7 local fishers *Removed	
	Third		Juridical person consists of more than 7 local fishers *Removed	Existing fishers and others (including juridical person) *Removed	
	Fourth		Existing fishers and others (including juridical person) *Removed	Others *Removed	
	Fifth		Others *Removed		
*Removed from the provision of the new Fisheries Act.					

References

- Bundy, A., Chuenpagdee, R., Cooley, S. R., Defeo, O., Glaeser, B., Guillotreau, P., ... & Perry, R. I. (2016). A decision support tool for response to global change in marine systems: the IMBER-ADA pT Framework. *Fish and Fisheries*, 17(4), 1183-1193.
- Cohen, P. J., Allison, E. H., Andrew, N. L., Cinner, J., Evans, L. S., Fabinyi, M., Garces, L. R., Hall, S. J., Hicks, C. C., Hughes, T. P., Jentoft, S., Mills, D. J., Masu, R., Mbaru, E. K., & Ratner, B. D. (2019). Securing a just space for small-scale fisheries in the Blue Economy. *Frontiers in Marine Science*, 6(171), 1-8. <https://doi.org/10.3389/fmars.2019.00171>
- Corona era / online market: High affinity with various marine products (2020, August 19). The Suisan-Keizai Daily News. <https://www.suikai.co.jp/>
- Fisheries Law Study Group. (2005). Chiku Jo (section by section) explanation of fisheries law. *Jiji Press*, 1-609.
- Fujita, D. (2002). Isoyake. In T. Hori, M. Ohno, & T. Horiguchi (Ed.), Current Situation of Algae Science in the Early 21st Century (pp. 102-105). Algae Society of Japan. http://sourui.org/publications/phyecology21/materials/file_list_21_pdf/31Isoyake.pdf
- Fukushima Daiichi Nuclear Power Plant Contaminated Treated Water: Government Decides on Ocean Release Policy With voices of "absolute opposition" from fishers. (2021, April 13). Tokyo Web. <https://www.tokyo-np.co.jp/article/97712>
- Goto, T. (2020). Nagisaku Initiatives. In Y. Li, & T. Namikawa (Eds.), *In the Era of Big Change: Essays about Japanese Small-Scale Fisheries* (pp. 203-209). TBTI Global Publication Series.
- Government decides to release treated water and ocean from Fukushima Daiichi Nuclear Power Plant. (2021, April 13). BBC News, Japan. <https://www.bbc.com/japanese/56728227>
- Harada, S. (2020). A Bird's Eye View: Diverse Forms of Coastal Fisheries and the Future of Fishing Villages. In Y. Li, & T. Namikawa (Eds.), *In the Era of Big Change: Essays about Japanese Small-Scale Fisheries* (pp. 14-21). TBTI Global Publication Series.
- Hutt, R. (2019, December 17). These 10 countries are closest to achieving gender equality. *World Economic Forum*. <https://www.weforum.org/agenda/2019/12/gender-gap-equality-women-parity-countries>
- Japan Cabinet Office. (2003). *The meaning of aging and population decline*. (2003 Annual Report on the Japanese Economy and Public Finance). The Cabinet Office (CAO). https://www5.cao.go.jp/j-j/wp/wp-je03/03-00301.html#sb3_1_1
- Japan Fisheries Agency. (2016). *FY2017 Trends in Fisheries - FY2018 Fisheries Policy* (White Paper on Fisheries: Summary). Ministry of Agriculture, Forestry and Fisheries. <https://www.jfa.maff.go.jp/e/annualreport/attach/pdf/index-14.pdf>
- Japan Fisheries Agency. (2019). *The ever-increasing global demand for marine products* (2016 Fisheries White Paper). Ministry of Agriculture, Forestry and Fisheries. https://www.jfa.maff.go.jp/j/kikaku/wpaper/h28_h/trend/1/t1_1_1_1.html
- Japan Fisheries Agency. (2020). *World marine product consumption* (2017 Fisheries White Paper). Ministry of Agriculture, Forestry and Fisheries. https://www.jfa.maff.go.jp/j/kikaku/wpaper/h29_h/trend/1/t1_2_3_2.html
- Japan Fisheries Agency. (2021). *The current situation of the fishing industry*. Ministry of Agriculture, Forestry and Fisheries. <https://www.jfa.maff.go.jp/j/council/seisaku/kikaku/attach/pdf/210713-5.pdf>
- Japan Fisheries Agency (n.d.). *Consultation and report to the Science Council of Japan*. Ministry of Agriculture, Forestry and Fisheries. <https://www.jfa.maff.go.jp/j/kikaku/tamenteki/kaisetu/index.html>
- Jentoft, S. (Ed.). (2019). *Life Above Water: Essays on Human Experiences of Small-Scale Fisheries*. TBTI Global Publication Series.
- Kageyama, T. (2020). Business Continuity Plan: Disaster Prevention, Mitigation and Management. In Y. Li, & T. Namikawa (Eds.), *In the Era of Big Change: Essays about Japanese Small-Scale Fisheries* (pp. 155-163). TBTI Global Publication Series.
- Kawabe, M., Xiaobou, L., & Takeshi, H. (2016). Social Acceptance of Ocean Energy Development Projects: From Case Studies of Floating Offshore Wind Power Mills Verification Project, *Bulletin of Japanese Institute of Fisheries Infrastructure and Communities*, 53-56.
- Kenji A. (2021, February 12). Chairman Yoshiro Mori announces his resignation. What is the flow so far? HUFFPOST. https://www.huffingtonpost.jp/entry/timeline_jp_6025ed08c5b6591becd7a7da

- Kuwahara, H., Akeda, S., & Kobayashi, S. (2006). Prediction of changes in the distribution area of Japanese aquatic products due to global warming (Special feature on the effects of global warming) - (Impact on agriculture, forestry and fisheries). *Global Environment*, 11(1), 49-57.
- Li, Y., & Namikawa, T. (2020). The Meaning of Small: Definition, Governance, Roles and Challenges of Japanese Small-Scale Fisheries. In Y. Li, & T. Namikawa (Eds.), *In the Era of Big Change: Essays about Japanese Small-Scale Fisheries* (pp. 3-13). TBTI Global Publication Series.
- Li, Y., Namikawa, T., Harada, S., Kobayashi, M., Miyata, T., Nakahara, N., Sato, T., Segi, S., Seki, I., & Takenouchi, N. (2020a). Unlocking legal and policy frameworks for small-scale fisheries in Japan. In V. Kerezi, J. Nakamura, M. El Halimi, & R. Chuenpagdee (Eds.), *Unlocking Legal and Policy Frameworks for Small-Scale Fisheries: Global Illustrations*. TBTI Global Publication Series.
- Li, Y., Daly, J., & Chuenpagdee, R. (2020b). Blue Justice: “A Just Space” for Small-Scale Fisheries in “Seichosangyoka”. In Y. Li, & T. Namikawa (Eds.), *In the Era of Big Change: Essays about Japanese Small-Scale Fisheries* (pp. 431-440). TBTI Global Publication Series.
- Li, Y., Lou, X. (2018). A new role for fishermen’s side in Japan: Fisheries to Umigyo, fisheries governance to coastal governance. In V. Ramírez Luna, V. Kerezi, & A. Saldaña (Eds.), *Proceedings of the 3rd World Small-Scale Fisheries Congress* (pp. 260-267). TBTI Global Publication Series.
- Lou, X. (2014). Japanese coastal fishery resource management and fishery rights system. In A. Kota, & T. Mitsuo (Eds.), *Rural and Urban Sustainability Governance* (pp. 1 - 312). United Nations University Press.
- Lou, X. (2013). *The era of Umigyo: challenges towards the activation of fishing communities*. Tokyo, Rural Culture Association Japan.
- Makino, M. (2011). *Fisheries Management in Japan: Its institutional features and case studies*. Springer. <https://doi.org/10.1007/978-94-007-1777-0>
- Ministry of Agriculture, Forest and Fisheries. (2018a). *Trends in domestic fisheries and aquaculture production* (2017 White Paper on Fisheries). Ministry of Agriculture, Forestry and Fisheries. https://www.jfa.maff.go.jp/j/kikaku/wpaper/h30_h/trend/1/t1_3_2_1.html
- Ministry of Agriculture, Forest and Fisheries. (2018b). *Trends in fishery management* (2017 White Paper on Fisheries). Ministry of Agriculture, Forestry and Fisheries. https://www.jfa.maff.go.jp/j/kikaku/wpaper/h29_h/trend/1/t1_2_2_2.html
- Ministry of Agriculture, Forest and Fisheries. (2019a). *FY2018 Trends in Fisheries - FY2019 Fisheries Policy* (White Paper on Fisheries: Summary). Ministry of Agriculture, Forestry and Fisheries. <https://www.maff.go.jp/e/data/publish/attach/pdf/index-166.pdf>
- Ministry of Agriculture, Forestry and Fisheries. (2019b). *2018 Fisheries Census Report* (2018 Fisheries Census). Ministry of Agriculture, Forestry and Fisheries. <https://www.maff.go.jp/j/tokei/census/fc/2018/200313.html>
- OPRI (Ocean Policy Research Institute) (2018, March) *Guidebook on the creation of coastal areas: towards the realization of the blue economy*. https://www.spf.org/opri_media/publication/docs/ISBN%20978-4-88404-353-7.pdf
- Soejima, K., & Frangoudes, K. (2020). From Attention to Action: A long Road Toward Gender Equality. In Y. Li, & T. Namikawa (Eds.), *In the Era of Big Change: Essays about Japanese Small-Scale Fisheries* (pp. 69-76). TBTI Global Publication Series.
- Tanaka, K. (2003). *The latest fishery rights reader*. Mana Book.
- Tateoka, S. (2020). Suisan Jyoshi Project and Small-Scale Fisheries. In Y. Li, & T. Namikawa (Eds.), *In the Era of Big Change: Essays about Japanese Small-Scale Fisheries* (pp. 453-455). TBTI Global Publication Series.
- The contents of the ridiculous new fishery law deregulation opens up fishing rights: The sea is robbed by companies*. (2019, October 20). Chosyu News. <https://www.chosyu-journal.jp/shakai/13893>
- Tomita, H. (2020). The Sixth Industrialization: Development of Flexible Income Opportunities Through Regional Appeal. In Y. Li, & T. Namikawa (Eds.), *In the Era of Big Change: Essays about Japanese Small-Scale Fisheries* (pp. 175-183). TBTI Global Publication Series.
- Watanabe, A. (2019, May 28). Multiple benefits of blue carbon ecosystems in promoting blue economy and reinforcing resilience in coastal communities. *Japan Geoscience Union Meeting 2019*. <https://confit.atlas.jp/guide/event-img/jpgu2019/ACG40-09/public/pdf?type=in&lang=ja>
- Watanabe, A. (2020, July 8). Toward the Practice of the Blue Economy in the Coastal Area. *Ocean Policy Research Institute of the Sasakawa Peace Foundation*. <https://blog.canpan.info/oprf/archive/1914>
- What is Sato-umi?* (n.d.). Sato-Umi Net website, Ministry of the Environment (Government of Japan). https://www.env.go.jp/water/heisa/satoumi/en/01_e.html
- Will fishing grounds be robbed by businesses? Fisheries Act, amendment to eliminate "local priority"*. (2018, December 7). Asahi News. <https://www.asahi.com/articles/DA3S13801655.html>

Vulnerability to Viability (V2V) Global Partnership

The Vulnerability to Viability (V2V) project is a transdisciplinary global partnership and knowledge network. Our aim is to support the transition of small-scale fisheries (SSF) from vulnerability to viability in Africa and Asia. Vulnerability is understood as a function of exposure, sensitivity and the capacity to respond to diverse drivers of change. We use the term viability not just in its economic sense but also to include its social, political, and ecological dimensions.

The V2V partnership brings together approximately 150 people and 70 organizations across six countries in Asia (Bangladesh, India, Indonesia, Japan, Malaysia, Thailand), six countries in Africa (Ghana, Malawi, Nigeria, Senegal, South Africa, Tanzania), Canada and globally. This unique initiative is characterized by diverse cultural and disciplinary perspectives, extensive capacity building and graduate student training activities, and grounded case studies from two regions of the world to show how and when SSF communities can proactively respond to challenges and creatively engage in solutions that build their viability. Further information on the V2V Partnership is available here: www.v2vglobalpartnership.org.

V2V Global Partnership Secretariat
School of Environment, Enterprise and Development,
Faculty of Environment
200 University Avenue West, EV 3
University of Waterloo, Waterloo, ON, N2L 3G1 Canada
Website: www.v2vglobalpartnership.org
Email: v2vglobalpartnership@gmail.com



**VULNERABILITY TO VIABILITY
GLOBAL PARTNERSHIP**

V2V WORKING PAPER SERIES