

Individualism and collectivism in small-scale fisheries post-3.11 Japan

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Abstract

Purpose – This study examines fisheries affected by the Great East Japan Earthquake and Tsunami in 2011 to explore how the collectivism appears during the recovery process.

Design/methodology/approach – The author questions the context of collaboration after the disaster among independent small-scale fishers in Miyagi by conducting semistructured interviews with more than 50 local fishers with anthropological observations of boat fishing operations and using local documents and statistics.

Findings – The corresponding collaboration among the fishers after the disaster is not a mere “disaster utopia,” but is embedded in the socioecological context of fishing. Fishers have developed individual and group fishing. They have institutionalized competitive distribution for sedentary fish with low resource fluctuation, while outcome-equal distribution is adopted for migratory fish with high resource fluctuation. This forms a fishing continuum that connects competitive individualism with collectivism in the community, which has contributed to resilience for disaster recovery.

Originality/value – The balance between individualism and collectivism is decisively coordinated in socioecological contexts. The multifaceted resource strategy for maritime biodiversity that features family-based occupational differentiation in a community is crucial for disaster recovery of small-scale fishers.

Keywords Disaster studies, Resilience, Fishing, Tsunami, Japan

Paper type Research paper

Introduction

The long Pacific coast of Tohoku, in northeast Japan, is well known for the high quality of its fishing grounds owing to a confluence of warm and cold currents. The region has historically developed the maritime products industry in various ways. The Great East Japan Earthquake and Tsunami in 2011 heavily damaged these fishery communities. This study investigated the ways in which they have recovered.

Although relative compared to peasant societies, fishing societies show more individualistic and independent tendencies (Acheson, 1981). These tendencies are related to maritime resource variability, relative isolation from land, technological responses to uncertain situations and the common property nature of the resources (Pollnac, 1988). Japanese fishers and their communities are no exceptions. While collective work with patience is needed in agriculture, individual decisions and skills are imperative for success in fishing. Additionally, while the successive eligibility of community meetings tends to be limited to the first son in Japanese peasant societies, fishing societies encompass all sons



equally (Akimichi, 1995; Takakuwa, 1994). Such individualism is a consequence of competitiveness (Jentoft and Davis, 1993; Leibbrandt *et al.*, 2013). How do these societies recover from disasters when cooperation is an indispensable requirement for recovery (Shaw *et al.*, 2008)? In what contexts will cooperation occur in a fishing community in the aftermath of a disaster?

One theoretical answer might be the concept of “disaster utopia,” which describes a temporary collaborative behavior that appears among those affected in an emergency and disappears quickly after the emergency has passed (Solnit, 2009). Several social scientists researching aspects of the 2011 Great East Japan Earthquake observed the emergence of numerous, simultaneous and joint recovery activities in fishery communities soon after the disaster (Cheek, 2020; Ueda and Torigoe, 2012; Wilhelm and Delaney, 2015; Yoshino, 2017). Fishers who acted competitively during normal times initiated communal operations when faced with a significant emergency. These findings are significant as a local form of “disaster utopia,” but disaster recovery in Tohoku is a long and ongoing process (Katayama, 2016; Wilhelm, 2018). The “disaster utopia” concept does not sufficiently explain the prolonged recovery process.

Another theoretical explanation is community resilience and social capital. Resilience, originally derived from ecology, refers to individual or group capacities to deal with, resist and recover from the effects of disasters (Berkes, 2008; Oliver-Smith, 2009). *Social capital* describes features of social organizations, such as networks, norms and trust, which facilitate action and cooperation for mutual benefit (Putnam, 1995), implying that greater social capital results in greater resilience. Social scientists emphasize the role of resilience in disaster recovery classified by bonding (emotional connection among individuals), bridging (connection to social groups) and linking (connection to power) (Aldrich, 2012; Aldrich and Meyer, 2014). Some studies argue how types of social organization (or the bridging type) vary in leadership style for fishery community resilience, while others emphasize the role of outside advocates, linking the success of governmental support during the 2011 disaster (Aldrich, 2019; Kawashima, 2015; Sakaguchi, 2019). While I do not deny the role of social capital in fishery disaster recovery, fishing technology and resource management should be considered, because a combination of social relations and fish catch volume affects the fishery communities in the recovery process (Hamada, 2014).

The research questions examined in this study include the following: What sociocultural context generates the cooperation seen in disaster recovery in an individualistic fishery setting? If the reason for competitiveness in a fishery society is attributed to certain conditions related to resources and ecology, might we explain their collaboration in the same socioecological context? A previous insightful study on human competitiveness insists that local work experience, resulting from different technologies and socioecological factors, is a determinant of this competitiveness (Leibbrandt *et al.*, 2013). Given that competitive individualism in fishing societies would correspond to the socioecological conditions of resources, cooperative behavior could occur under certain conditions.

Thus, it is not necessary to argue for a temporal shift to either individual or collective action, or a degree of social capital strength types, but rather, an exploration of conditions under which individualism coexists with collectivism. Most social scientists regard cooperation (collectivism) “as opposed to natural (competitive) behaviors,” and anthropologists have shown “ways in which the two mechanisms (cooperation and competition) are related, regulated and balanced” in all societies (Molina *et al.*, 2017, pp. 12, 14). Using ethnographic data, I illuminate the process of recovery in the small-scale fishery community affected by the 2011 disaster and consider how two attributes coexist in a fishing society as a socioecological relation.

The fishing industry in Tohoku Pacific prefecture employs 96% of small-scale coastal fisheries (Kase, 2012). By focusing on fishing technology, socioeconomic relations and

ecology in the context of the aftermath of the 2011 Earthquake and Tsunami, I attempt to draw insights and provide suggestions regarding disaster risk reduction of small-scale fisheries in a broader context.

Background – Pacific Tohoku coast and disaster

The devastating tsunami that struck Japan's Tohoku Pacific coast in 2011 killed more than 18,000 people and destroyed countless houses and facilities. In terms of the fishing industry, the damage to the three hardest-hit administrative prefectures (Iwate, Miyagi and Fukushima Prefectures) was extensive (Kase, 2012; Wilhelm, 2018) [1]. Nine years since the disaster, the Japanese government has implemented various reconstruction policies for public infrastructure and has provided financial support to individual fishers (Hamada, 2020).

There was an introduction of a notorious policy titled “special zoning for fishing reconstruction (*suisangyo hukko tokku*).” It had a neoliberal orientation (Nihei, 2018; Ryugasaki, 2014) and is considered as so-called “disaster capitalism” (Klein, 2007). Policymakers had promoted changes in labor organization from small-scale (family) fishing to company-based management or fishery complex corporations in the tsunami-affected area. Under the pretext of the increase in aging fishers and the decline in fishing industry profits, the government intended to weaken the community-based territorial use rights in fisheries and recommended that exterior business organizations participate in local fishery associations (Hamada, 2014; Kase, 2013). Regardless of the decrease in the labor force, local fishers strongly opposed this neoliberal policy and resisted the introduction of the business organization (Takano, 2013). They recovered the predisaster ways of fishing with some new innovations, which was an unexpected outcome of the policy (Delaney, 2017).

Government statistics in 2013 showed a 20% decrease in the population of fishers in Iwate and Miyagi prefectures. Nonetheless, in terms of the production level, there was an approximately 80% recovery of fishery catches in these prefectures (Katayama, 2016) [2]. It is important to examine the process in the fishery communities and industry that caused the simple catch statistics.

Fieldwork in the tsunami-affected locus

The field site encompasses the Isohama fishing community located on the coast of the southern Miyagi Prefecture. The topography features a long flat coastline with a large sandy beach. Due to the flat coastline, there were few local tsunami memories with almost no records of the giant tsunamis in Isohama [3]. The fishery community is part of a small village where fishing is a main local industrial section. The main operation is offshore boat fishing and shellfish gathering (Hamada, 2014).

Anthropological fieldwork began in June 2015 and continued until June 2019 with nearly monthly visits. The research methods included participant observation and semistructured interviews with more than 50 individuals, including fishers, local traders, market officers and local branch representatives of the Miyagi Fisheries Cooperative. To protect their privacy, all participant names used in this study are pseudonyms.

My initial involvement with the region dates to August 2011, when I was engaged in a government-commissioned project for an emergent survey on damaged intangible cultural heritage. Previous research has demonstrated some of the results (Takakura, 2016, 2018; Takizawa, 2019). Through the personal relations built during previous research, the local skippers and the officer were introduced to me, and I expanded acquaintances at the fishing site. The interview and the observed ethnographical information were analyzed by the qualitative methods with the hermeneutical approach (Delanty, 1997).

Most of the geographical features of the territories of Isohama were swept away by the tsunami, and the buildings and facilities disappeared completely. Fishers and other community members dispersed and moved to surrounding villages and towns. Unlike the neighborly relations fishers had before the tsunami, their meetings are now limited to fishing operations. Since 2015, I have conducted in-depth repetitive interviews with 11 fishers and participated in fishing operations on boats with some. I collected statistics and demographics on local fisheries, along with legal information on fishing rights, from interviews conducted at local fishery cooperatives. In addition, I used literature covering community history and local government reports on disaster reconstruction in the area (Yamamoto, 1994, 2018a, b).

Tsunami scars and emergent correspondence

Local statistics

Isohama is an administrative hamlet within the Yamamoto Township. Before the 2011 disaster, there were 44 fishers, and it had a population of 505 people, with 151 households in 2010. Thirty-two fishing boats were registered in 2008 (Yamamoto, 2018a).

According to interviews with local fishers, the scale of fishing was small and conducted at the family level, with no work done at a larger company level. Before the disaster, each household engaged in fishing usually owned their boats. The boat is a competitive unit, and the fishers collaborated only during the operation in the same boat. Approximately 20% of the households in the hamlet worked in fisheries. Most fishers worked in father and son (or son-in-law) pairs. Wives and other family members were not engaged in fishing; they were homemakers or worked in part-time jobs unrelated to the fishery. There are no roles or assignments for women in local fishing processes. While fishing was a historically cultural symbol in the community, the catch volume was limited, which resulted in the absence of processing and distribution industries.

The 2011 tsunami destroyed almost all 28 boats in Isohama, and nine of the 44 fishermen were killed. Twenty fishermen left the occupation due to the tsunami; however, six newcomers have joined the Isohama fishery since 2011. As of December 2017, 24 fishermen work on 12 boats, which were bought after the tsunami. The youngest boat owner is middle-aged (42–43 years old), while the oldest is 72 years old. The age of a fishing crew usually ranges from 18 to 50 years.

Joint operations soon after the disaster

Immediately following the disaster, Isohama fishers moved away and found refuge in temporary governmental evacuation facilities or with relatives. A single boat saved miraculously was brought to Isohama port with the cooperation of local fishers. Although these fishers are competitive during normal circumstances, the membership of the fishery cooperative and shared local territorial use rights of fishery promoted emergent cooperation. Soon after, in May 2011, the government initiated a program to remove the disintegrating concrete block debris along the coastal area, using salvaging companies. Isohama fishers were required to participate in it with the boats. This government reconstruction policy provided fishers with income for their help in the removal of sea debris, as well as the physical reconstruction of fishery infrastructure such as ports and storehouses (Kase, 2012; Yamamoto, 2018b; Wilhelm and Delaney, 2015).

Through this process, local fishers had the opportunity to meet other residents and interact and exchange ideas during the operation or at the harbor. According to Mr. Ito, the leader of the local cooperative, fishers who participated in the sea debris removal operation tried to find something to do as survivors and agreed on fixed-net fishing. They found rope and netting in the debris on the beach and repaired these items. Because all the surviving

fishermen lost boats and gills, they rotated fishing on boats (fixed-net fishing and cage fishing) and unloading on land. Profits were allocated equally among participants. These joint operations continued until March, 2014. The government provided financial support for fishers to purchase new boats, and in April 2015, local fishers began to buy boats. The owners of new boats then left joint fishing operations and engaged in individual fishing.

The Isohama case illustrates that cooperative fishing with egalitarian profit distribution occurred a few months after the initial emergency. The egalitarian outcome promotes cooperation (Greenwood, 1988). The results of the study indicate that joint operations enhanced a sense of fellowship among the local fishers and resulted in each restarting fishing. This is similar to findings from previous studies (Ueda and Torigoe, 2012; Yoshino, 2017) as a “temporal disaster utopia.” The next section describes Isohama’s continuing recovery process in ethnographic detail.

Individual and group fishers in a nonemergency

The contrasting calendar and profit distribution

This section examines the following question: If the joint operation symbolized a temporal cooperation explained by the concept of disaster utopia, does individual fishing on each boat indicate evidence of recovery completion? At present, careful observers can discern two groups of Isohama fishers: individual fishers, based on family pairs (father–son), and cooperative fishing undertaken by several families.

Individual fishing households conduct gill-net fishing in offshore areas. The primary targets are flounder or Japanese rockfish throughout the year and whitebait during the season. They usually leave the port around midnight and return to the harbor in the morning. The unit of operation is the family, and it is this family household that undertakes the risks and receives profits.

Group fishing engages in fixed-net fishing and shellfish gathering. This joint operation has a more demarcated seasonal calendar. Spring fixed-net fishing occurs from April to July for Japanese sea bass, with netting repair taking place in August and September. Autumn fixed-net fishing takes place from October to December for salmon, and the gathering of Sakhalin surf clam takes place from December to March. Two teams, each consisting of three families, work in joint operation, and the profit is equally shared by all participants. At the same time, these fishers engage in individual fishing in their spare time when joint operations are completed. This may include cage fishing for crabs from April to June and fishing for octopus from October to November. Fishers sometimes take part in gill-net fishing in July.

Table 1 presents the typology of fishing in this community. I have classified these four types of fishing based on factors such as preparation and maintenance of gear, operation time at sea, gear investment costs, income, economic incentive, style of management and degree of participation for newcomers. Gill-net and cage fishing are competitive, individualistic, hard to enter and unequal in income. Fixed-net fishing and shellfish gathering are cooperative, collective and easy to enter and have equality in income. Interestingly, this orientation corresponds to differences in fishing grounds. Generally, competitive, individualistic fishing operates further offshore, while cooperative, collective fishing occurs near the coast.

The two types of local practices are not inventions after the disaster. They existed even before the disaster. According to the fishers, the joint operation that occurred during the emergency was not a special correspondence (disaster utopia) but an extended manner of group fishing.

Joint operations are undertaken during the annual festival, when fishers pray collectively for a good catch at the local Shinto shrine in January and the general meeting of the Isohama ship-owner association in March. Aside from these events, most fishers work separately, except in emergency situations, partially because the individual fishers and the group usually

	Gill net	Cage	Fixed-net	Shell gathering
Preparation by every operation	Complicated	Less complicated	Simple	Simple
Maintenance of gear by operation	Difficult	Less difficult	Easy	Easy
Operation time in sea	Long	Long	Short	Short
Gear Investment	Inexpensive	Inexpensive	Expensive	Expensive
Income	Unstable	Unstable	Stable	Stable
Economic incentive	Competitive	Competitive	Outcome Equality	Outcome equality
Management	Family	Family	Group	Group
Participation for new comers	Difficult	Less difficult	Less difficult	Less difficult
Fishing grounds	Offshore (Oki)	Near offshore (oki)	Near coast (Nada)	Nearer coast (Nada)

Table 1.
Typology of fishing
ways in Isohama

decide the operation time individually. Additionally, with the closure of the market auction at the Isohama Port, each individual fisher and group need to find brokers, which consequently reduces the opportunities for communication among them after unloading. The cessation of the market has been critical, as it has made many feel that recovery from the disaster has not been completed.

Collectivist fishery has not disappeared

As the fishery societies were inherently individualistic and independent, field data addresses why the opposite character has sustained in the group fishery. The first case is a complaint from a young new fisherman, Terada Toshiro, in his 30s, who was employed as a member of the group fishery after the disaster. His attitude displays typical characteristics of an individualist fisherman.

Fixed-net fishing and crab fishing are easier than gill-net fishing, because we do not need to embark at midnight. If my father and I work together, because of our different physical capabilities, I can hardly see how the business could be expanded. What we can do depends on the range of cooperation. [I have] no perspective on big money and success. No greed. If I moved to gill-net fishing, I would need knowledge of many types of nets depending on the fish. (June 8, 2018)

The young fisherman recognized fixed-net fishing – a tool promoting collectivism – as an easier way to participate as a newcomer. However, the economic return from this type of work would be limited due to the egalitarian sharing of profits by families. He regards gill-net fishing – a tool that promotes individualism – as requiring more skill. From this perspective, group fishing is considered elementary, while individual fishing represents an advanced stage or development from a collective/cooperative to individual/competitive fishing.

However, older and more experienced fishers, who are fathers, have different opinions on the economic stability and labor efficiency of group fishing.

Fixed-net fishing requires time and effort, but once well set, the working time at sea for a round of fishing would be two hours. Gill-net fishing requires at least four or more hours for a round, and one needs to perform net management after every haul. In addition, in terms of economic expense, one must often buy a new gill net, and gill-net fishing requires more gasoline. Fixed-net fishing is economical. If we complete a round, one may engage in other work, such as crab (cage) fishing. Certainly, the gill-net fishermen keep the profits, but the catch changes every day. It is like gambling. Conversely, the catch in fixed-net fishing is stable to sustain a household economy, and we can predict how much we will make. (June 22, 2018)

In addition, the father refuted his son's opinion that deeper knowledge is necessary for fixed-net fishing rather than gill-net fishing because the former has a complex structure.

There is a different reason for the survival of the collectivist way; the price of a fixed-shore net is high, costing approximately 20,000,000 JPY (approximately US\$190,000). Therefore, several families jointly purchase equipment. The current relationship between these families, who engage with fixed-net fishing, could span several generations. Mr. Iida, a fisherman in his 60s and vice chair of the local fishery cooperative, indicated that joint fishing began during his father's generation. He hopes that joint fixed-net fishing will continue into the next generation, as his son-in-law and other sons work together. They believe that close associates who share the risk should continue in the long term. The advantage of the group fishery is that it provides compensation both of steady income and of long-term trusting relationships.

Territory and sentiment

While economic stability and long-term social capital might be a reasonable explanation for the group fishery, there are other drivers of collectivism. First, it is important to discuss the issue of the fishing grounds. The fishing grounds are legally acknowledged as a territorial use for fishing rights, and all members of the Isohama branch of the fishing cooperative have equal usage rights. It is interesting that the two groups make use of different areas of the surrounding ocean according to their fishing methods. The joint operations of shellfish gathering and fixed-net fishing are conducted closer to the coast, and individual gill-net fishing operates further offshore. Cage fishing occurs between these two areas. The fishers conceptualize space in the ocean according to the distance from the coast: *nada* as shore areas for shellfish gathering and fixed-net fishing, and *oki* as offshore for gill-net fishing.

While shore fishing is generally quiet and safe, offshore fishing is relatively rough and dangerous. Another fisherman in his 50s, who returned to Isohama from the city after the disaster and chose fishing as an occupation, outlined the advantage of fishing on the safer shore. Does the group fisher who works in such a relatively safe condition with outcome equality pursue only economic stability? From my fieldwork, there are several drivers among collectivists beyond safety and money. For example, Hiroshi Hamamoto, who is 37 years old, offers these insights.

When I was depressed after the disaster, Iida, my father-in-law, asked me to become a fisher. . . I do not consider fishing to be tough work. Making money is always difficult. Fishing offers a good income. I'm satisfied with it. In addition, salmon in fixed-net fishing is marvelous. In my first experience, I was impressed by salmon fishing. (June 8, 2018)

Feelings of success expressed by new fishers include satisfaction with income and a deep emotional connection with salmon fishing. This emotional aspect is important and connects fishers' hopes and dreams (Wilhelm and Delaney, 2015). Emotional satisfaction enables the coexistence of collectivism and individualism.

Local historiography traces the premodern harbor and the related facilities of this region back to the mid-17th century and the statistics of the salmon catch at least to 1907 (Inoue, 2014; Watari, 1977; Yamamoto, 1994; see also Takahashi, 2015). The well-informed fisher Koji Watase (born in 1953) explained that fixed-net fishing for salmon started here in 1895, before which time the locals used the coastal dragnet (July 23, 2015). With such a long history of salmon fishing, the regional cuisine has developed a local dish called *harako meshi* or boiled rice mixed with salmon and salmon roe. This local culinary innovation has become representative of the prefectural cuisine. The elementary school in this region has a special visit to the Isohama Fishery Cooperative every season of salmon fishing. Fishermen instruct children about local history, fishing and food culture.

Collective fishing satisfies not only economic profit but also emotional sentiments inherent in catch prosperity and the sense of involvement in local history and economics. Risk avoidance and self-fulfillment are key to the continuation of group fisheries in nonemergency situations. Individualists and collectivists base their fishing practices on different rationales.

Discussion

There are several lessons learned from these types of fishing. As described, Isohama fishers conduct four types of fishing with different orientations: gill-net and cage fishing are competitive and individualistic, while fixed-net fishing and shellfish gathering are cooperative and collective. However, the two fishing orientations do not compete but are harmoniously segregated by socioecological conditions. The nearer the fishing ground, the more stable the catch and the less skilled work required. This is due to cooperation in work and equal distribution of income. The more remote the fishing grounds, the higher the risk, the return catch and skill required, which are elements based on individual discretion in both operation and profit.

This study determines how the two contradictory attributes of competitive-individualist and cooperative-collectivist are embedded in the local socioecological relation during prolonged disaster recovery. This examination shows that although the two different modes of cultural values and behavior of competitive-individualist and cooperative-collective are seemingly in conflict, they are interdependent, as reflected by the local fishing culture and ecology. In summary, a fishing continuum has formed, which connects competitive individualism to collectivism. During normal times, the four fishing methods occur in distinct locations according to socioecological conditions in the continuum. The reason for the success of “disaster utopia” in this artisanal fishery lies in the local culture.

The effects of government policies or other external factors as preconditions for resilience should be revisited. The policy of local participation in sea debris removal soon after the tsunami provided an opportunity for fishers to meet and discuss options for the future. This was particularly important considering the scattered living conditions after evacuation. Another important policy was financial support for fishing boats and infrastructure. The enhancement of local communication among victims and the improvement of the physical environment enabled residents to find paths to recovery that confirmed with culture. The policies supporting the existing fishery organization, rather than the neoliberal one, were effective for disaster recovery in the Isohama case.

As in previous studies, I confirmed the temporal joint operation in Isohama during the emergent phase as a disaster utopia. The local fishery cooperative functioned with social capital for resilience, providing enhanced social ties among fishers who harnessed government policies to increase social capital. However, these two aspects do not sufficiently explain why individualists collaborated in the fishery context for a prolonged period. My investigation suggests that the local context is the reason behind some individualist fishers requiring safe labor conditions, economic stability, self-esteem involved in local history and economics and emotional sentiment in the cooperative-collective fishery.

When an emergency occurred, cooperation became necessary among the fishers; they switched to a mode of cooperative and outcome-equal fishing. When there were signs of recovery, some fishers moved to an individualistic and competitive mode, but others continued to engage in collective work. There is a logic to the two modes of behavior among artisanal fishers. If there was only one mode (i.e. individualistic and competitive) in their fishing tradition, it would be difficult to ensure resilience over a prolonged recovery process.

The two modes of behavior that spontaneously coexist, even in normal times, are significant because this is embedded in social and technological, as well as in environmental

conditions. The type of fishing is not a mere technological difference but an adaptation that corresponded to the local socioecological relation with a historical path.

The catch targets of fixed-net fishing are salmon and Japanese sea bass, which are seasonal migratory fish. There are sizable amounts of these fish, and the fishing strategy aims at a stable catch by using larger and more complex gear and cooperation. Therefore, fishers manage diverse maritime resources using different strategies. While local fishers engage in cooperative/collectivist fishing for migratory catches, they participate in competitive/individualist fishing for sedentary fish. The typical migratory fish are salmon in autumn and sea bass in spring, and sedentary catches include Sakhalin surf clams, flounder, octopus, crab and rockfish. The exception to this dichotomy is the harvesting of Sakhalin surf clams, for which the joint operation of a pool production system replaced individual fishing in 1978, due to overharvesting (Abe *et al.*, 2007; Sasaki, 1993). The fishing community institutionalizes the competitive distribution of sedentary fish with low resource fluctuation (stable), while an outcome-equal distribution has been adopted for migratory fish with high resource fluctuation (unstable). This represents a strategy to enhance competitiveness in a stable resource condition while reducing the individual risk with an affluent but unstable resource condition.

This can be compared to the anthropology of sedentary and storage hunter-gatherers in the Northern Pacific coastal peoples. This demonstrates the importance of seasonal affluent migratory resources for sedentary adaptation with social stratification even within hunter-gatherer societies without food production. Family-based occupational differentiation can be observed in these societies (Flannery and Marcus, 2012; Testart, 1995; Watanabe, 1983). Egalitarian hunter-gatherers could change to become nonegalitarian according to ecology and resource conditions, particularly due to changes in food resource affluence and the cold climate necessary for food preservation. The anthropology of the Northern Pacific fishers demonstrates that seasonal affluence impacts socioecological equilibrium, resulting in a move away from an egalitarian to a socially stratified society.

In the current case study of artisanal fisheries in Tohoku, Japan, seasonal affluence allows collectivism as an alternative norm and behavior, in contrast to the competitive individualism of the generalized fishing society. We can observe these different methods embodied in the contrast between the group and individual fishing. If the disturbance of the socioecological equilibrium was emphasized as a regular or expected event, the fishers would coexist with these two different ways of individual and group fishing or cooperative and competitive norms. The coexistence of contradicting norms and behavior in a community contributes to fishing and economic diversification among people in nonemergency times. Simultaneously, it forms emergency-related cooperation and autonomous recovery to the normal mode without government interventionist policies.

Conclusion

The purpose of this study is to explain the sociocultural context generated for the prolonged recovery process of small-scale fisheries in Tohoku, Japan. The recovery process is contrasted with a disaster utopia, which some researchers have examined following catastrophic events. While collaborative behaviors among the focused fishers in this study are a type of disaster utopia or a temporary collaboration, I suggest that the behaviors should be understood as part of the local resilience process brought on by social capital and the socioecological relations of the region.

This study emphasizes that the key to resilience in the areas studied is the local tradition of fishing using two different modes of behavior and ethics. This dichotomy has been formed by both the environmental context of two different maritime resources (sedentary and migrant) and the technological aspects of fishing. The balance between individualism and collectivism

is decisively coordinated in the socioecological relation of the area. In this regard, this study supports conclusions from previous research on human competitiveness being determined by local experiences of different technologies and socioecological factors (Leibbrandt *et al.*, 2013).

In terms of disaster risk management, however, this study contests a monolithic perspective that emphasizes either competitive or collective activity. Maritime resource harvesting can be arranged by socioecological relations that determine whether harvesting is suitable for competitive or cooperative fishing, and this determination corresponds to the spatial use of the sea. Fishers can choose the type of work they prefer according to their circumstances. Competitive individualism is associated with higher risks and income, while collectivism is associated with stability, moderate income, self-esteem and emotional sentiments, which are more suitable for newcomers and elderly fishers. The ecology and social demand of maritime resources prescribe which method – individualism or collectivism – people will choose. Rather than the monolithic conceptualization of the social attributes of a fishing society, understanding the perspective of family-based occupational differentiation and the changing preferences of fishers according to various conditions is required to study disaster risk reduction. Social scientists and policymakers involved in disaster research should avoid such singular perspectives and instead carefully understand the focused community through pluralistic and flexible viewpoints. While policymakers may prefer a simplified, essentialist view of society for the quick and effective implementation of disaster risk management, I recommend that they consider the plural conceptualization of social attributes in the targeted community. This can contribute to the development of disaster management policies, especially for small-scale fisheries.

Furthermore, the availability of multiple resources allows fishers to choose their resources. Additionally, they can choose which practices to engage in during normal times, even as collectivism is required in response to a disaster. The multiple resource strategy based on maritime biodiversity in a small-scale fishery is crucial for resilience in the face of uncertainty during disastrous events, which generates collectivism.

In conclusion, disaster risk management for small-scale fisheries should encourage capabilities for diverse fishing methods, such as individualism and collectivism, for the multiple maritime resources in the community. These capabilities are crucial for disaster recovery. The loss of diversity, changes in the consumer market and the environment all affect the vulnerability of small-scale fisheries. Policymakers should carefully observe these aspects and intervene in a timely manner against adverse repercussions. My recommendation is based on the premise that the existence of governmental financial support for labor tools, such as boats, and the maritime biological diversity, corresponds to the local fishing tradition. The different socioecological conditions of small-scale fisheries require different policy recommendations for disaster recovery, which requires further research.

Notes

1. The Japanese government reported damage to fisheries during the 2011 disaster. http://dl.ndl.go.jp/view/download/digidepo_6008618_po_03_p17-22.pdf?contentNo=4&alternativeNo=>p.19 (27 June 2019)
2. The condition of Fukushima prefecture has a completely different pattern than the other two areas because of ongoing nuclear radiation.
3. It is different from the conditions of the northern Tohoku Pacific (Sanriku). The Sanriku topography features a *ria* or sawtooth, coast and is divided by thousands of small bays (Yoshino 2017). The northern Tohoku Pacific is well known for the history of giant tsunamis that often occur owing to the *ria* coast, where many members remember the recent tsunamis (Hayashi 2017).

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