

[Paper]

Defining “Tao-Style” Equality of Fishing Allocations as the Small-Scale Fishing Cultural Heritage in Lanyu, Taiwan

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Abstract

We advocate Tao-style (adjustable or contradictory) equality, which offers an alternative vision of resource sharing and community collaboration beyond the traditional currency-based worldview. Based on qualitative research and participatory observation, we provide evidence of fishing allocations from three small fishing communities on Lanyu Island. We demonstrate that the notion of equality in Tao culture is anticapitalist. More importantly, by analyzing community-based fishing allocations of the Tao, we identify two recognizable qualities—*islandness* and the culture of small fishers—that have not been discussed in recent studies of the indigenous Tao. We conclude that traditional means of production are essential for small island societies. To balance the economic development of small islands worldwide, researchers, scholars, and policymakers should learn more about these small fisheries.

Keywords

Islandness, small-scale fishermen, fishing community, fishing allocation, indigenous Tao studies

Introduction and Research Questions

We analyze community-based fishing allocations of the Tao indigenous fishery society in Lanyu, Orchid Island, in Taiwan. Scholars and researchers of Tao indigenous culture suggest that local democratic tradition influences Tao’s fishery cooperatives and decision making (Yang 1998, 2011, 2014). Although we agree with this theory, we also note that Tao fishing communities embody sociocultural characteristics of sharing among small-scale fishing communities and islanders worldwide. We address two recognizable

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qualities— islandness and the culture of small-scale fishers—that have not been extensively discussed in recent indigenous Tao studies.

To understand indigenous worldviews, we consider perceptions of what art history scholars (Lippard 1997; Mitchell 2001) call “multicentered society.” The term has two layers of meaning. Researchers of cultural anthropology are mobile, unlike tribal communities that are tied to their place. When researchers enter a community, they “[become] one of the ingredients of an existing hybridity, which is really what all “local places” consist of” (Lippard 1997, 6). The researcher interacts with the local community through his or her cultural self. However, one culture’s vocabulary might not translate perfectly into the language of another culture. The focus of this study is equality of fishing sharing and allocations. For Tao fishing communities, preserving *mangarao* (sharing) and spontaneous *meyayo* (donating) is essential whenever fishing groups distribute their harvests. All-in-one equality is inconsistent with their worldview. In the Tao mind, equality is integrated with layers of socio-psychological and material needs. In sum, our capitalistic worldview does not give us the vocabulary to describe the Tao understanding of equality. If we even try to apply our understanding of democracy to Tao local wisdom, we will misinterpret Tao culture. It would be a mistake to assume that the Tao believe in the same all-in-one equality as capitalist consumer societies. Therefore, in this paper, we use the term “Tao-style” equality, which implies that it is either adjustable or contradictory.

From the multicenter cultural perspectives presented above, we doubt that the Tao-style equality of fishing sharing and collaboration is rooted in the democratic worldview of the Tao people. Having survived on a tiny island in the Pacific Ocean for centuries, the Tao people possess a maritime democratic wisdom that embodies islandness, and small-scale artisanal fishers’ cultures are connected to small-island physical conditions and the dangerous work of fishing. The term “artisanal fisherman” first appeared in the United Nations literature of Food and Agriculture Organization (UNFAO) in the early 1970s. UNFAO’s Fish Project (2015) defines artisanal fisherman in relation to small-scale fisheries.¹

In light of mechanization, which has transformed Tao indigenous fishing, we define Tao fishing as small-scale instead of artisanal. However, Tao fishing groups clearly use both. Sabella claims to

distinguish those individuals or communities whose fishing techniques, technology and productive organization differ sharply from modern industrial sectors of the fishing economy. . . . Productive organization, community structure, and many forms of social interaction among artisanal fishermen evolved from familial and kinship ties. Their low productive potential is only partially oriented to a market economy, as a substantial part of daily catches is designated for home consumption. (1980, 56–57)

Although Tao indigenous fishing proves that distinctive cultural ingredients contribute to the Taiwanese cultural heritage, for most Taiwanese, Lanyu is a tourist destination. Hundreds of thousands of tourists allow the five-thousand residents of the island to enjoy a decent scale of economic development but also generate more than ten hundred-thousand tons of garbage and marine waste (Huang 2019; Chung 2021; Chung and Chang

forthcoming).² Tao fishing is presented as ritual performance for Taiwanese tourists. Related to Qu, Coulton, and Funck's (2020) research of newcomers coming to Japan's declining islands, Tao people also see the dilemma between development and preservation when they need tourist economy and working-holiday youth talents, but native islanders gradually lost the autonomy to manage the island environment and cultural practices. In the 2020 New Year's Eve concert on Lanyu Island, musician Syaman Macinanao (Hsieh 2020) sang his new song, "Jikangai," which means "don't come" in Chinese. The song describes how the Tao only welcome tourists who appreciate their island³:

Jikangai (Don't Come)

imo ya jimzapzat do pongso eya am (If you do not appreciate our island)

jikangai (Don't come.)

imo ya jimacyanod do keyli am (If you do not care about our culture)

jikangai (Don't come.)

imo a ya tey maoyaoyahen a tao am (If you only drink a spoonful of alcohol)

jikangai (Don't come).

Small islands around the world are becoming tourist destinations. Even researchers and scholars might overlook the traditional means of production that is part of the islanders' cultural heritage. In the case of the Tao, being overwhelmed by tourists has already threatened flying fishing cultures (Yang 2016). Instead of examining the Tao's fishing-culture heritage in terms of ecotourism studies, we describe the cultural nuances of small-scale fishery according to Tao indigenous wisdom and knowledge. Based on participatory observations, in-depth interviews, and textual analysis of Tao fishing communities, we analyze the core of Tao fishing communities' harvest allocations in relation to Tao socio-cultural structures and worldviews. We extract sustainable principles for small-island fishing communities to use in confronting modernization.

The paper consists of four parts. In the introduction, we define Tao-style equality. In Part II, we elaborate on the literature and the socio-geographical context of Tao and Lanyu; we also introduce our research methodology. In Part III, we present the case study and emphasize the way in which Tao villagers practice their fishing allocations. Part IV discusses the findings and explains how Tao-style equality is related to islandness and the small-scale fishing cooperation of *mangarao* (sharing) and *meyayo* (donating). Finally, in the conclusion, we suggest future research directions from the perspectives of multicentric cultures.

Literature Review and Research Methods

Conkling (2007) defined islandness as the imposition of boundedness and the isolation of islanders' daily experiences that resonate beyond the islands themselves. Platt (2004) argues that islandness is a construct of the mind, a singular way of looking at the world, while outsiders perceive more sensitivity of islanders' worldview than islanders.⁴ We propose that researchers of Tao culture have neglected to study the way in which the

quality of islandness influences the Tao worldview and way of living. We argue that islandness is correlated not only with pre-modern Tao islanders but also with the contemporary Tao. Like other islanders with limited land-based resources and wildlife (Prasad et al. 2013; Akyeampong 2007), the Tao possess comprehensive indigenous fishing skills, technologies, and allocation practices that rely on multicentered ocean worldviews to sustain maritime ecosystems. The equality of Tao fishing allocations reflects the sense of islandness. According to Conkling (2007), despite their imprinted islander identity, they also exhibit the islandness characteristics that are common to other island populations: (1) a life closer to maritime nature; (2) a deep respect for nature and an instinctive understanding of one’s powerlessness over its; and (3) communalism and tolerance of individuality (199–200).

On one hand, Lanyu islanders struggle to make the most of their limited resources. On the other hand, the need to survive typhoons, floods, and enemies from outside requires a larger tribe. They can work alone or together. We therefore argue that the Tao’s democratic communal lives embody what Bourgeault (1990) and Putz (1984) termed “lifeboat ethics,” “vigilant cooperation,” and “mutual care and generosity, even between ostensible enemies.” While we support scholars who define Tao society as a democratic network rooted in their local maritime wisdom, we investigate how their sense of democratic values is related to the islandness of lifeboat ethics and vigilant cooperation.

Theorists of islandness have analyzed how ecological resources are interrelated and influence islanders’ sociocultural and psychological interactions. Their theories are rooted in the study of the islands off the coast of Maine in the United States. Maine has a deeply rooted and authentic home landscape identity. From her cultural perspective of “multi-centeredness,” Lippard (1997) noted that she first arrived on Maine’s Georgetown Island as a three-month-old baby in a basket and moved between her city home and island summer home for sixty years. However, “true” Maine natives whose families have lived there for generations still consider her an outsider. Lippard argues that it would take more than five generations to reconsider the local Maine identities.

With Maine’s unique culture in mind, we find that islanders on hundreds of islands around coastal Maine hold a sense of belonging and sociocultural values that are similar to those of inhabitants of small islands worldwide. As Conkling (2007) suggested, geographical boundedness shapes islanders’ socio-isolations, while the landscape-based island qualities transcend local cultures. As noted earlier, the notion of “on island” or “off island” is more applicable to outsiders, who associate more with islands than with the islanders themselves. For on-island insiders, the ecological surroundings shape their socio-psychological worldviews. The qualities of islandness among the Tao and other islander are similar.

1. Independence: small boats and social circles demand it if a personality is to survive.
2. Loyalty: ultimate mutual care and generosity even between ostensible enemies.

3. A strong sense of honor easily betrayed.
4. Polydextrous and multifaceted competence or what islanders call “handiness.”
5. A belligerent sense of competition interlaced with vigilant cooperation.
6. Traditional frugality with bursts of spectacular exception.
7. Earthy common sense.
8. Opinionated machismo in both the male and female mode.
9. Live-and-let-live tolerance of eccentricity.
10. Fragile discretion within a welter of gossip.
11. Highly individualized blend of spirituality and superstition.
12. A complex oral tradition, with long memories fueled by a mix of responsible record keeping and nostalgia.
13. A canny literacy and intelligence.

(Putz 1984, 26)

Putz (*ibid.*) uses “aquarium” as the metaphor of inhabited islands associated with ecological systems and natural resources. Putz argues that, as with aquaria, islands are capable of self-maintenance, but their functional components lack diversity and are continually stressed. Compared to a continental community, there are fewer eco-options or strategies by which an island community can adjust to changes. Campbell (2009) and Lewis (2009) claim that vulnerability is an essential characteristic of islandness. Researchers in disaster recovery and reduction have begun to discuss the vulnerability and resilience of island societies from a policymaking standpoint (Kelman et al. 2011; Kelman and Khan 2013; Kelman 2018, 2020).

For fishing communities, researchers collect local ecological knowledge through methods of ethnosciences, in particular, ethnobiology (Sousa, Martins, and Fernandes 2013). Tao fishing communities, like many other fishing communities, are physically removed from the support and help of land-based societies (Pu 2018). For Tao fishing groups, relatives, including in-laws, are the backbone of fishing organizations. However, unlike many small-scale fishing crews in the Atlantic Ocean, who make decisions independently even though they work on the same boats (Poggie 1980a), Tao fishing groups cooperate. Small-scale fishers’ cooperatives are an important topic of investigation by scholars of maritime anthropology (Poggie 1980b). When this group emerged in the 1970s, researchers from different fields collaborated on their common structural and organizational problems. Through controlled comparisons, maritime cultural anthropologists analyzed and determined the adaptive significance of psychocultural characteristics (Eggan 1954; Poggie 1978; Castro 2004). Based on the work of Poggie (1978), researchers have studied a range of psychocultural traits and found tribes making significant economic adjustments to compete and survive through resources sharing and community collaborations in the commercial world. As mentioned earlier, Tao society embodies strong ties among relatives. Therefore, community collaborations and resources sharing of Tao people might be defined as clan-based commons.

After reviewing theories of islandness, multicenteredness, and small-scale fishing, we now reframe the concept of Tao-style equality of fishing allocations. The Tao-style fishing sharing culture can raise awareness of small-island and small-scale fishing cultural heritages. According to our investigation, these tribal fishing cultures have been eroded if not destroyed by contemporary machine fishery industries and commercial systems. The Tao-style fishing cultures in our research might not be unique. However, it is one of the few small-island-based fishing cultures that is still alive in Taiwan, even though Tao fishers are increasingly turning to the use of machinery.

On Taiwan’s mainland, the Amis and Paiwan are two aboriginal cultures that practice hunting and fishing, mainly in rivers. Pung and Liu (1996) researched the Daniau Village of Paiwan tribes and documented that the village chief distributed the hunting and fishery harvest fairly to every household. Lin and Wang (2008) studied the Fataan Tribe of Amis and discovered the hierarchy-based Palakaw sharing style. However, due to population decline and economic crises, the Amis villagers have begun to use the Palakaw-style fishing ritual for ecotourism. After investigating the Hainan, Guangdong, and Zhoushan islands in China, we confirm that machinery fishing with commercial marketing systems now dominates fishery in these islands. In contrast, we argue that Tao-style equality and allocation play a significant role in preserving small-island and small-scale aboriginal fishing.

In addition to written-text analysis, we conducted participatory observations, non-structured interviews, and field engagements. From 2018 to 2020, the second author spent two years in the field, collecting on-site data. However, as an indigenous young researcher from the mountain-based Paiwan tribe, this researcher can only understand Mandarin. Bilingual locals helped translate all dialogue into the Tao languages. To improve the sociocultural knowledge about the Tao and Lanyu, the researcher enrolled in language and cultural training courses to develop his own Tao cultural understanding, including learning to dive in the Pacific Ocean around Lanyu.

The researcher conducted fieldwork during the summers of 2019 and 2020. Each visit was more than a month long. For the participatory observations, the researcher joined tribe housing building projects and volunteered at restaurants in exchange for extended stays at bed-and-breakfasts in different villages in Lanyu. By participating in Tao people’s daily activities, the researcher gained insight into their communications.

In-depth interviews are always the best way to understand cultural meanings and the reasons behind respondents’ subjective cognition. To understand how Tao people perceive their communal supportive cultural practices, the researcher interviewed twelve islanders between 25 and 69 years old. Five of them were younger than forty years old, and two were older than sixty. The rest were between forty and fifty years old. Due to constraints on the researcher’s social networks and the male-dominated nature of fishing, only two of the interviewees were female.

From August to December 2018, the researcher worked as an intern on the block-chain-based Tao Coin project. An IT company developed the project to create a Lanyu

ecotourism future. During the four-month project period, the researcher visited Lanyu for the first time in September; in March and May of 2019; and in July-August, September, and November 2020. These six visits enabled the researcher to collect first-hand data on the islanders' perception of the information technology of communal currency.

The Case Study

Sociogeographical Context of Lanyu

Located off Taiwan's southeastern coast, Lanyu is the second-largest affiliated island, with a total area of approximately 45.74 square kilometers. Three nautical miles to the southeast sits a Xiaolanyu (Little Lanyu, or *Jimagaod* in Tao), with an area of only 1.75 square kilometers (fig. 1). Due to the lack of potable water and arable land, this island is uninhabited, but it is a vital fishing ground for the Tao people. Lanyu's geographic location makes its climate typically oceanic, with high temperatures and heavy precipitation. With the exception of the Hengchun Peninsula, Lanyu is the only place in Taiwan with a tropical rainforest (Huang 2005).

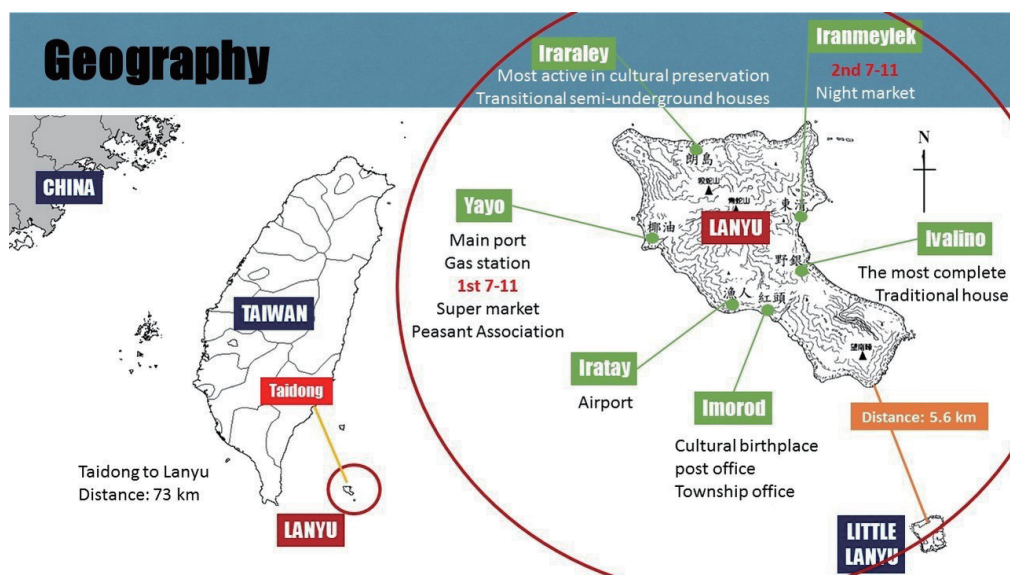


FIGURE 1. Maps of Taiwan (left) and Lanyu (Orchid Island) (right).
Source: You-Ren Chung 2021.

If we shift from a land to a marine orientation, Lanyu appears as one of the smaller Pacific islands that connect the necklace-like islands of the Philippines and Japan. “Pongso no tao” (meaning “people on the island”) is the original language of the Lanyu. “Tao,” meaning people, is the word the locals use to refer to themselves. Therefore, we address the locals as Tao. Tao have resided on Lanyu Island for 800 years. Their language

origins are similar to the Batanese of the Philippines (West 2008). Due to Lanyu’s remote location, the Tao people came into contact with other people at a later stage and thus preserved their rich traditional culture of boat planking, underground dwelling, and flying fish festivals very well. Tao society is constituted of geographic relationships and kinships that form families and clans. In addition, collaborative, productive groups form a community that serves as a political unit (Yu 2004). The social system is based on equal sharing without an obvious social hierarchy. People tend to revere the elderly because of their experience and wisdom.

In March 2020, the population of Lanyu was 5,145, with the indigenous population accounting for 4,301 (83.6%) of the overall population; 4,057 were Tao. The government has arranged the six communities into four administrative regions: Yeyou Village (Yayo), Langdao Village (Iraraley), Dongqing Village (Iyanmeylek and Ivalino), and Hongtong Village (Imorod and Iratay). Though these communities share languages and cultures, each has its own ethnic identity (Yu 2004).

The transportation infrastructure between Taiwan and Lanyu consists of a 19-seat airplane and a boat that can carry 300 passengers. The airport and the port are located in western Lanyu. The flight time between Taiwan and Lanyu is 30 minutes, and the trip by boat takes two to three hours. As a remote area, Lanyu is often affected by travel restrictions between the island and Taiwan, especially in winter (from October to February), when the northeast monsoon sets in and often results in the island being hard for tourists to access. Therefore, Lanyu has a peak tourist season (April to September) and an off-season (October to March).

Under the Japanese occupation during World War II (fig. 2), Lanyu was classified as a biological and anthropological research area. As such, it did not undergo much development (Huang 1995; Huang 2005; Lee and Yen 2004). However, in the 1950s, the Nationalist Government set up administrative units such as the Veterans Affairs Council and Command Headquarters. The government occupied much land and moved many convicted felons from Taiwan to Lanyu, making the island a natural prison (Huang 1995; Huang 2005). This was the beginning of problems for the Tao people (Transitional Justice Commission 2020). From the 1960s to the 1970s, the government built an airport, a port, a national housing project, and even a nuclear waste plant on the island.

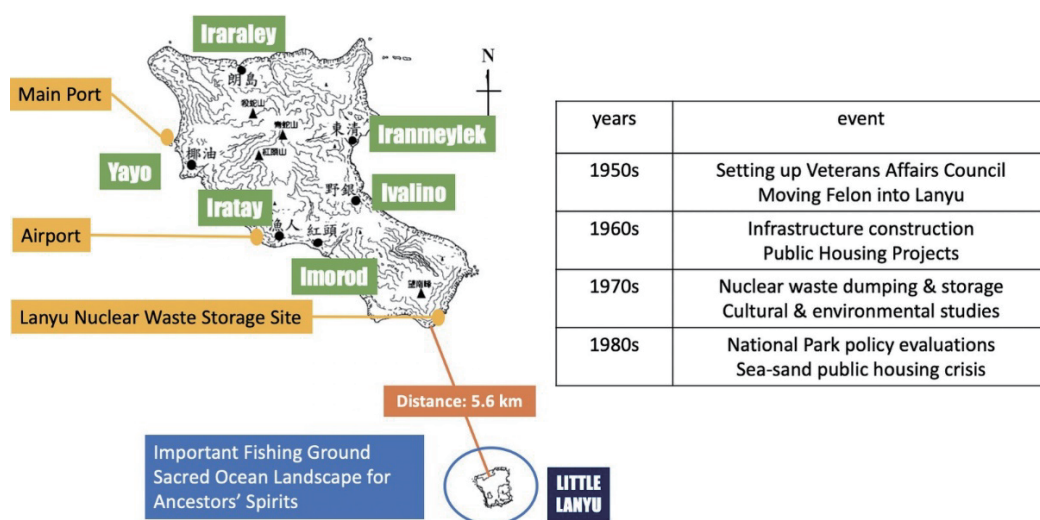


FIGURE 2. Major historical events and major landmarks in Lanyu.

Source: You-Ren Chung 2021.

Since the 1980s, the Tao people have protested sea-sand buildings⁵ and the establishment of the nuclear waste plant. The ocean site designated as a nuclear dumping areas embodies significant cultural meaning for the Tao people. They consider the area as the symbolic territory of evil spirits. To date, no agreement has been reached in terms of the relocation of the nuclear waste. In the 1980s, islanders successfully opposed a plan to build Lanyu National Park. Thus far, tourism development policies for Lanyu remain unclear, partly because the development policies are vague and there is no consensus on development among the Tao (Huang 2005).

Tao Fishing Practices

A. Symbols and Classifications of Flying Fish. Flying fish are the cultural symbol of the Tao. The flying fish is central to the maritime worldview of sustaining the balance between the islanders and the ecosystems of the Pacific Ocean. The fish has an important role in Tao society and in its many festivals and ceremonies. For the Tao people, flying fish are either *rahet* (bad fish/male fish), *oyod* (good fish/female fish), or *kanen no rarake* (old man fish) (Yu 2004). *Rahet* is only eaten by men, but *oyod* can be eaten by both men and women. The flying fish is sacred in Tao culture. It is not only a source of protein (Yang 2014; Syaman Lamuran, Hsiao, and Tsai 2015). Tao divide the year into flying fish season (fig. 3), completed flying fish season, and waiting for flying fish season (Syaman Lamuran, Hsiao, and Tsai 2015).

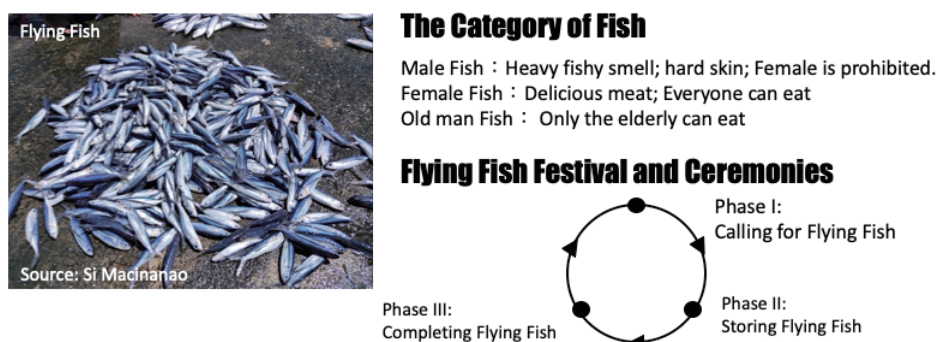


FIGURE 3. Fish and flying fish season in Tao traditional culture.
 Source: Si Macinanao 2021.

B. Construction of Big Plank Boats by Family-Based Fishing Groups. Big plank boats and family-based fishing groups are important in Tao society. There are two kinds of plank boats. A big boat can hold a fishing group of six to ten people. A small plank boat can hold one to three people (Yu 2004). Extended families construct the boats for their fishing group. Before cutting the timber to build a big boat, the owner will recruit a fishing crew from among his brothers or children. The fishing group is an important team composed of core members of several families, mainly connected by blood or marriage. In addition to feeding members’ families, the fishing group helps build relationships, fortify society, share knowledge, increase their catch, and minimize risk (Siyapen 1994).

However, in the modern economic system, fishing groups are facing changes and challenges. For example, fishing using plank boats cannot generate enough income to live on. Many adolescents are moving to the main island of Taiwan to find better-paying work, and fishing groups have gradually collapsed (Cheng 2004; Yu 2004). Moreover, local communities use the compensation from the nuclear waste stored on the island to purchase motorboats (Cheng 2004), which can enable a larger catch than traditional big plank boats. Therefore, the number of big plank boat teams and boats has declined. At the same time, local bonds are weakened because motorboats require smaller crews. Tao fishermen are now using fish shooting tools or fishing rods or form a temporary fishing group with their friends. The opportunities for Tao people to use plank boats in fishing are diminishing.

C. “Tao-Style” Adjustable Equality of Fishing Allocations. According to tribal elders, the introduction of motorboats and the change in fishing groups have not changed the Tao people’s fishing-allocation principles. We define it as adjustable equality of fishing allocation. This means that only part of fishing catches is equally divided. The rest of the fish would be allocated according to the needs of members of the fishing group. Tao people have three ways of sharing fish: equally; based on special circumstances; and sharing leftover fish. On one hand, Tao people believe that fishing catches should be shared equally with everyone,⁶ as each person regardless of skill has put in the same effort. On

the other hand, portions of fishing catches are often distributed according to the agreements made by the fishing groups. Eventually, any extra catch will be distributed separately.

Figure 4 shows that *mazavonot* (barracuda) is a type of *oyod* that swims in schools. As soon as someone sees a school of fish, they will ask anyone nearby to find male relatives and friends to fish together. There are usually thirty people fishing at a time. Therefore, the catches belong to everyone and are shared equally, even with onlookers who were not fishing. However, some people, such as the person who first spotted the fish and the person whose nets were used, are entitled to a larger share of the catch, even though they do not ask for it. It is agreed upon by everyone in the fishing group. In summary, catches are not always equally distributed. Based on the consensus among fishing groups, some contributions will be rewarded.



**Scenario 1:
The Sharing of Golden Barracudas**

First, everyone in the group will share some fish with “the one who saw the fish group first” and “the owner of the fish net”.
Second, everyone will share the fish fairly.

**Scenario 2:
The Sharing of mix Fish**

After fishing, categorizing different types of flying fishes, i.e., male fishes, female fishes, senior fishes
Then, distributing numbers of fishes based on individual fish man’s family needs – not about how much labor each one engaged. For examples, those who have seniors and females at homes or with pregnant wives receiving more.

FIGURE 4. Distribution of Barracudas
Source: Syaman Macinanao 2021.

When there are several types of fish in a single catch, it will still be divided equally first and then be shared in different ways, based on the decision by the boat owner or the needs of crew members (fig. 5). The catch is initially sorted into good, bad, and old man. Then, each type of fish is evenly distributed among the participants. Nevertheless, the boat owner has the ultimate authority on how to share the catch. If the owner knows that a crew member has only women in his family, then he will give more female (good) fish to him and give more male (bad) fish to the other members. If someone in a crew member’s family is pregnant, the boat owner will give fish that is most suitable for pregnant women to eat. Sometimes the boat owner will take a smaller share in order to give more fish to everyone else because since he has a boat, it is easier for him to catch the fish that he needs. After a catch has been allocated, there might be a few fish left over, and crew members may take some of them if they want to. Those who have already received all they need will leave, but others who need more will stay. Occasionally, the leftover fish will be shared with bystanders, be eaten directly as sashimi, or fed to animals.

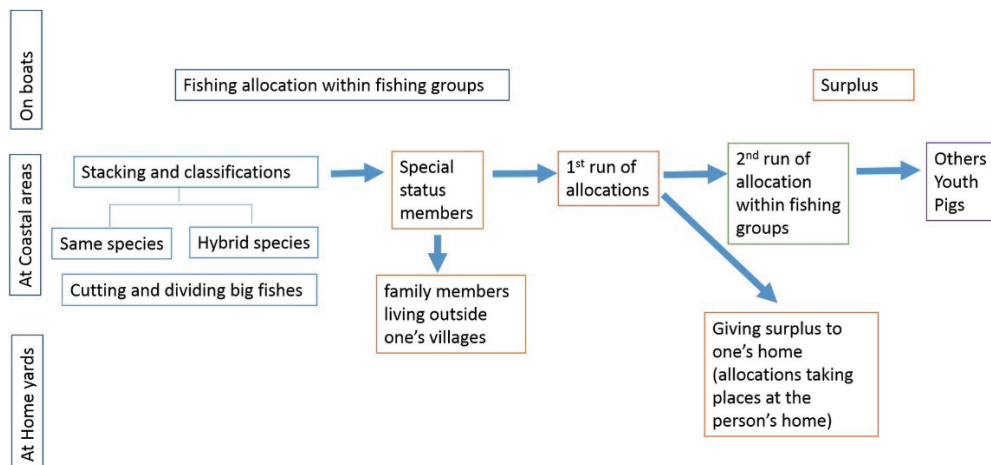


FIGURE 5. Analytical diagram of the Tao-style equality of fishing allocation for Iraralay Village's fishing groups on Lanyu.

Thanks to the formation of fishing groups and the sharing of catches, not only are the family members of the crew fed well but participants form strong bonds with each other while sharing and working together. Such collaborative bonds turn interpersonal relationships into cohesive power in families, clans, and society. The catches are often evenly divided, but sometimes the members of a fishing group may agree to give more fish to some people who are in greater need. In addition, the allocation may be conducted following the decision of boat owners and circumstances of crew members' families. In these ways, the fish-sharing system is a form of mutual assistance and a sharing system still operating in Tao society. The social connection behind the sharing is more meaningful than simply the equal allocation of fish. In sum, Tao people are more attentive to each other's needs. Everyone's needs are considered in the fish-sharing system, which supports the people in the community who are in greatest need.

Findings and Discussion

After investigating three communities' fishing allocations, we drew a comprehensive diagram and an analytical table to present and discuss our findings. The colored boxes in figure 6 and table 1 indicate three communities. Imorod, Iraraley, and Iratay all adjust the amount of fish before starting the all-in-one allocation. Iraraley also practices a second run of allocations after the all-in-one. Iraraley fishermen also allocate fish in someone's home, and then the homeowner receives whatever is left over. The allocations before and after the all-in-one step are based on the needs of members of the fishing group and the wishes of the boat owner. For Tao people, the entire process is defined as allocation equality.

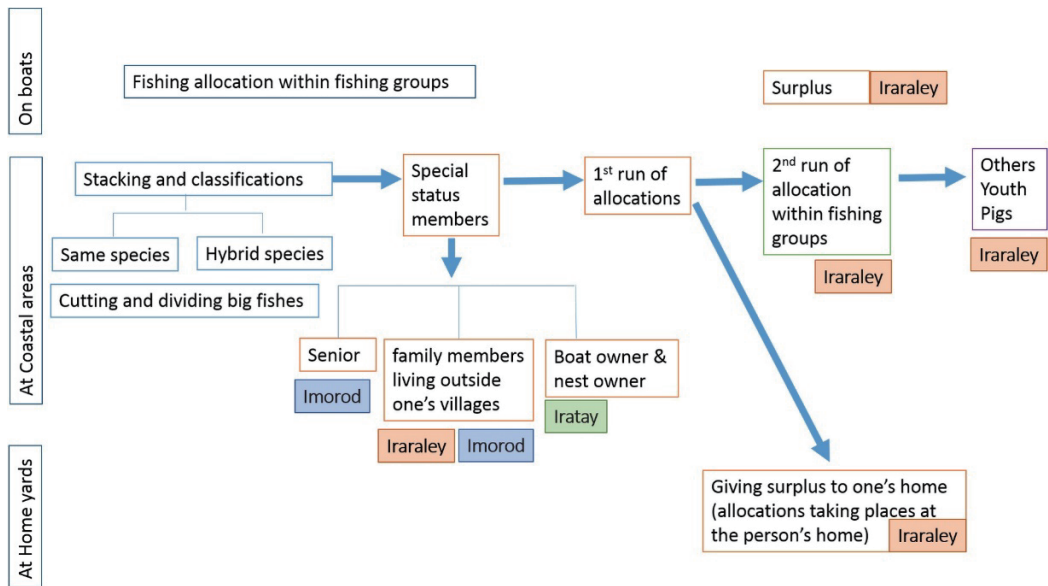


FIGURE 6. Tao-style adjustable fishing allocations of Imorod, Iraraley, and Iratay communities.

TABLE 1. Analysis of three communities' fishing allocations.

Villages	Stacking and classification	Priority allocation to persons with special identities	First run evenly allocated
Imorod	Cut and distribute larger fish	Older people, family members residing in other villages (a little bit better, a little more, a little bigger)	If there are uneven allocations, adjust next time
Iratay	Cut and distribute larger fish	Boat owner, fishing net owner (2 units each)	Assign with the intentions of the owner, assisted by the crew
Iraraley	Cut and distribute larger fish	Family members residing in other villages (one extra unit)	NA

Social systems of fishing allocations evolved from the means of production of original societies. In contrast to Poggie and colleagues' studies of small-scale fishing cooperatives in the 1980s, Tao society is neither rooted in capitalist systems nor in commercial practices. Tao's fishing collaboration has to be observed through a non-capitalist worldview. The traditional economy of the Tao people is not based on the contemporary economic concept of currency accumulation. It is a social system based on labor and jointly operated, and there is no such thing as a currency that can be quantified. Therefore, Tao society shapes the cohesion of the society through the joint work of the teams and then creates a

deeper connection between subsequent friendships through sharing.

The joint work of a fishing group organization begins with the construction of a jig-saw boat by the boat group. The building of the ship is an essential support for several nuclear families. In the ship group, not only can the protein needed at home be obtained through co-working but boat building is also a way of sharing knowledge. The fleet shares the technology of navigation. The spirit of mutual assistance between ship groups is similar to contemporary community mutual aid associations. If there are difficulties or needs in the ship group, they will resist attackers or provide help. Finally, all the fishing groups in the tribe support the tribe’s stable economic system.

The sharing of fish catches is the continuation of joint labor. The main goal of joint labor is to protect the nuclear family from deprivation. In the traditional society, fishing technology was different from that of modern mechanical fishing, so a huge amount of manpower was needed to generate greater economic benefits. Larger teams could catch more fish to support the family of each crew member. However, this kind of co-work does not simply provide improved economic benefits. The social system of co-work and sharing creates a strong sense of cohesion among individuals, families, and society. From the perspective of the members of the fishing group organization and the cooperation model, the members can form boat groups or families who can fish together. Such a complex interpersonal network can preserve the stability and harmony of the tribe.

In addition, the fishing group organization is an important platform for knowledge sharing. Since it was not easy for the original society to accumulate knowledge, the risk was higher in independent sailing. Therefore, the best way to learn was to enter the system of the fishing group and learn the techniques of fishing and sailing together. This is the case for knowledge learning in the original society. Personal knowledge must be obtained from family, friends, and other members of the tribe.

We now turn to catch sharing. The fairness of allocation is the premise of the Tao people’s catch allocation, but when we look more closely, this fairness has deep social implications. The four factors that affect the fairness in the allocation of fish are allocation based on the intentions of the owner, the family status of the crew, the consensus of the crew, and the numbers and types of fish.⁷ Taking these four items into account, such a fair allocation highlights the shared rights of the Tao people and practices that demonstrate compassion for the disadvantaged, humility and gratitude, good sharing, and charity, so that society can be maintained.

The Tao-style fairness of allocation is an essential principle in the economic diffusion of the Tao people. As long as they go to sea in a boat and share a fishing net, the catch will be equally distributed by the members. The tribe’s commitment to social justice for sharing harvests advocates that all people are equally deserving, and those who have the same ability should not show off but should learn *nakem* (humility). The *mangarao* or *kalovotan a kanen* (sharing) and *meyayo* (charity) help maintain fairness and harmony (Syaman Lamuran and Tibusungu’e Vauauana 2016).

Tao fishing communities embody three characteristics of islandness: (1) a maritime

lifestyle; (2) survival based on a deep respect for nature and an instinctive understanding of one's powerlessness to control it; (3) tolerance of individuality. All these conditions contribute to Tao local knowledge of cooperation, consisting of co-employment, co-work, and sharing (Tung 2015). More importantly, Lanyu islanders struggle to make the most of their limited resources. All tribes try to survive typhoons, floods, and enemies; they need to fight together and protect themselves and their property. Tao fishermen's collaborations embody what Bourgeault (1990) and Putz (1984) identified as "lifeboat ethics," "vigilant cooperation," and "mutual care and generosity, even between ostensible enemies."

In this regard, we remove the allure of romanticizing Tao-style equality as a pure democratic worldview rooted in an indigenous tribal society. However, Tao-style equality certainly encompasses a maritime-centered worldview that perceives that socioecological networks that produce goods are more important than those goods themselves. In contrast to Tao-style equality and maritime-centered socio-ecological networks, Sabella (1980) studied the failure of Peruvian small-scale cooperatives and argued that similar patterns have been reported in other areas of the world. Examining the processes of small-scale fishers' challenges, how and when the co-op leaders allocate payments is important. Reading Sabella's descriptions, we find that small-scale cooperatives within capitalist commercial systems face trust issues that the Tao tribal society avoids by way of adjustable equality.

Regardless of if they are Tao or small-scale fishers in other societies, every fisher lives hand to mouth. The uncertainty of income is an intolerable prospect. Establishing fishers' trust in the fishing group allocations is essential for fishing socio-systems. Tao-style equality sheds light on the design of alternative procedures and principles to distribute the harvest. This might not apply to other societies, but it provides a prototype for the social design of small-scale fishing communities.

Conclusion

From the perspective of community cultural preservation, we studied the indigenous Tao fishing communities in Lanyu, which has become a famous tourist destination in Taiwan. We analyzed community-based fishing allocations and observed that Tao fishing communities embody sociocultural characteristics of sharing among small-scale fishing communities and islanders worldwide. We then demonstrated how Tao-style equality of fishing allocations interacts with the islandness and culture of small-scale fishers. We advocate that people with a capitalist way of thinking must adopt non-currency-based perceptions to understand Tao-style equality. Tao-style equality integrates the lifeboat quality stemming from people's daily social relationships while it creates mutual trust that balances group dynamics and the consumption of ecological resources.

While the mainstream solutions for small islands' economic strategies are tourist island developments, our research sheds light on the traditional means of production conveying islanders' cultural heritage of small-scale fishery practices. Instead of approaching

Tao fishing culture heritage from an ecotourism point of view, our study explores the cultural nuances of small-scale fishing allocations with Tao indigenous wisdom and knowledge. For Tao culture, the ocean is the center of Tao life and well-being. Therefore, the supporting systems are much more important than often perceived.

Notes

1. Household-based traditional fisheries (unlike commercial fishing companies), using less capital and energy, small fishing vessels (if any), and make short fishing trips that are close to shore. The fish are mainly for local consumption. It ranges from gleaning or a one-person canoe in developing countries, to more than 20-meter trawlers, seiners, or long-liners in developed ones. Artisanal fisheries can be subsistence or commercial fisheries, geared to local consumption or export. They are sometimes called “small-scale fisheries” (Fish Project 2015).
2. The lack of landfills and incineration plants to dispose of tourists’ garbage leads to the long-distance transporting of waste via freight companies combining shipping (from Lanyu to Taitung) and land transportation (from Taitung to Kaohsiung). It costs 5,025 New Taiwan (NT) Dollars per ton (US\$176.4 per ton).
3. All translations in the text are the authors’ own, unless otherwise indicated.
4. Islanders might not be aware of their perceptions regarding their singular way of looking at the world, while outsiders who do not have the island worldview could notice the differences.
5. A sea-sand building is constructed with concrete mixed with ocean sand instead of river sand. Due to the high chloride ion content, sea sand soon causes white stains, called “wall cancer,” to form on the walls. In the long term, the chloride ion content will accelerate rebar corrosion and result in flaking of the concrete in blocks, severely damaging the building’s structure (Taipei City Government). <https://dba.gov.taipei/cp.aspx?n=F5251DA2086F199C>.
6. In Tao society, only males are allowed to fish.
7. Male, female, and seniors eat different types of flying fish. Therefore, both the numbers and types of fish are essential in the allocating steps.

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