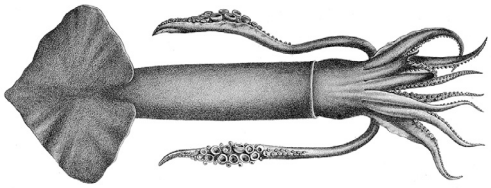
CATCH SHARES IN ACTION

# Japanese Common Fishing Rights System

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McIlwain, K. (2013). Catch Shares in Action: Japanese Common Fishing Rights System. Environmental Defense Fund.

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SEASALT
Secure
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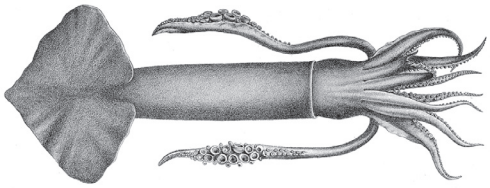


SPECIAL DESIGN FEATURES

MULTI-SPECIES, GROUP-ALLOCATED, AREA-BASED, NON-TRANSFERABLE

The Japanese Common Fishing Rights System is a comprehensive catch share program that manages the nearshore fisheries along Japan's vast coastline by allocating secure areas, or Territorial Use Rights for Fishing (TURFs), to harvesting Cooperatives. The system has evolved over time and is a model for managing mobile nearshore species through a network of scaled Cooperatives. The program depends upon a coordinated system of co-management, including nested layers of governance from the federal level down to the regional level. The program design has promoted innovative approaches—especially by fishermen—including coordination within and across TURFs (and Cooperatives), and pooling of harvesting arrangements to improve economic efficiency and resource sustainability.

## SYNOPSIS

Dating back to the 1700s, Japanese coastal fisheries have been managed by organizations of local fishers, now called Fishery Cooperative Associations (FCAs). The current system was officially recognized in 1949 when FCAs were granted exclusive access to coastal TURFs. FCAs co-manage coastal fisheries along with the Ministry of Agriculture, Forestry and Fisheries (MAFF), prefectural governments, and specialized fishermen-led associations called Fishery Management Organizations (FMOs). Japan's TURF program encompasses most of the nation's coastline and includes 1,057 FCAs (JF Zengyoren, n.d.) and 1,738 FMOs (Makino, 2011).

The federal government establishes seven annual catch limits to manage eight species within the program: Japanese sardine (*Sardinops melanostictus*), jack mackerel (*Trachurus japonicus*), Pacific saury (*Cololabissaira saira*), walleye pollock (*Theragra chalcogrammus*), Japanese common squid (*Todarodes pacificus*), snow crab (*Chionoecetes opilio*), chub mackerel (*Scomber japonicus*) and spotted mackerel (*Scomber australasicus*). The latter two species are managed together under a single catch limit. All catch limits are divided and allocated to specific FCAs. Individual FCAs and FMOs can implement self-imposed catch limits for additional species as well as stricter catch limits for federally managed stocks. These coastal fisheries landed approximately 1.3 million metric tons in 2009, and coastal fishery value has been estimated at U.S. $4.3 billion (Japan Statistical Bureau, 2013).

## Road to a Catch Share

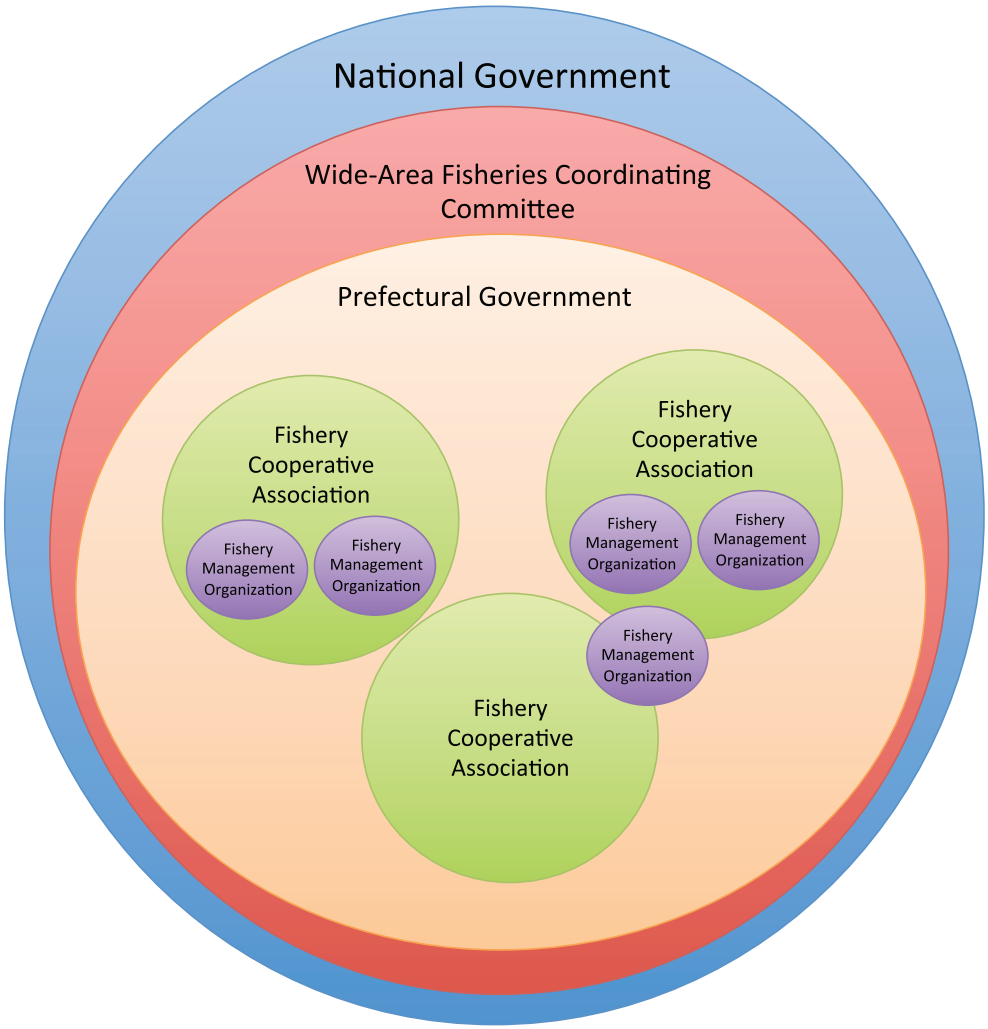
Japan's long history of locally managing small-scale, coastal fisheries provided the foundation for the current catch share program. Starting in the early 1700s, local fishermen were given exclusive use of marine resources (Yamamoto, 1985). Fishing societies formed to protect coastal areas from outsiders; these organized groups were a precursor to FCAs. In 1901, the Meiji Fisheries Law provided the first form of exclusive rights in coastal fisheries to these fishery societies. During the 1930s, as most coastal fishing boats became motorized, fishing pressure increased on coastal fish stocks. Overfishing and conflicts among fishermen, particularly between coastal fishermen and industrial trawlers, began to occur.

To address these issues, the Japanese government formalized the current rights and co-management responsibilities to FCAs as part of the Fishery Law of 1949. The Fishery Law established nested layers of governance to co-manage coastal resources (Figure 1). At the national level, the MAFF was authorized to administer the fishing rights and licensing systems to control fishing pressure (Makino, 2011). Fishery regulations, including prohibitions of species, size limitations, area closures, season closures and limitations on fishing gear were delegated to the governments of 39 coastal prefectures, which are akin to states. Prefecture governments became responsible for issuing fishing licenses and exclusive common fishing rights (TURFs) to FCAs, which in turn are subject to regulations set by the national and prefectural government agencies. Wide-area fishery coordination committees, consisting of prefectural representatives, were formed to work together for the management of highly migratory species. In the early 1980s, FMOs started to form to improve the co-management system and support innovation among FCAs (Uchida and Makino, 2008).

## Performance

Almost 65 years after implementation, the program has clearly enhanced coastal fishery management by establishing a nested governance program that improves the sustainability of fish populations and strengthens fishermen's role in the management process. The system has also enabled innovation by fishermen by giving FCAs the authority to adapt and implement additional regulations tailored to local, day-to-day operations within their TURFs (Ruddle, 1987). However, the biological, economic and social outcomes vary by TURF, with some performing better than others.

## FIGURE 1 | *Japanese Fisheries Co-management System*




**1. National Government**
*Ministry of Agriculture, Forestry and Fisheries*
Administers the fishing rights and licensing systems. Sets catch limits based on advice from the Fisheries Agency and Fisheries Research Agency.

**2. Wide-Area Fisheries Coordinating Committee**
Manage and coordinate highly migratory species.

**3. Prefectural Governments**
Manage coastal fisheries and implement regional fishing regulations. Allocate common fishing rights to FCAs.

**4. Fishery Cooperative Associations**
Manage common fishing rights (TURFs). Establish formal fishing rules for members. Coordinate with national and prefectural governments.

**5. Fishery Management Organizations**
Coordinate fisheries, fishing grounds, and/or gear types within or across FCAs. Establish additional fishing rules.

## STEP 1 IN ACTION

# Define Program Goals

The National Fishery Law of 1949 established the current key program goals for coastal fisheries, specifically (Miki and Soejima, n.d):

- Protect small-scale coastal fishermen from outside fishing pressure
- Promote strong involvement of fishermen in management processes
- Incorporate community knowledge in management decisions

In support of these goals, the National Fishery Law of 1949 formalized the management of coastal natural resources by allocating secure exclusive access to existing FCAs, and formalizing the operation of these Cooperatives.

The Law Regarding the Preservation and Management of Living Marine Resources of 1996 identified additional goals. In particular, it called for national productivity, conservation and management goals within Japan's exclusive economic zone, including the introduction of a total allowable catch (TAC) system for eight species (Makino, 2011).

Complementing the national goals, each FCA and FMO also has identified goals. These goals vary depending on ecology, resource availability and other local conditions. Consequently, an FCA prioritizes management goals in accordance with the most pressing issues occurring within its TURF and among its members. Goals among FCAs commonly include the effective use of fishing grounds, recovery of resources, increased revenue, sustainable businesses and maintaining stable fish prices (Yadava et al., 2009). FMOs can further develop and refine goals to be more specific based on the species, area or gear type. For example, the Council for Promoting Sea Cucumber Resource Utilization in Mutsu Bay, an FMO, aims to sustainably manage the sea cucumber stocks and to conduct processing and marketing activities on behalf of the fishermen (Matsuo, n.d.).

## STEP 2 IN ACTION

# Define and Quantify the Available Resource

The catch share program is a multi-species program with responsibility for managing eight commercially important species. In 1997, the federal government introduced a national catch limit system and a total allowable effort (TAE) system. The government set seven catch limits for 19 stocks of the eight species that were in need of conservation or targeted by foreign fleets. Stock assessments and allowable biological catch calculations are performed annually by prefectural research stations and the Fishery Research Agency, which recommends the nationally set catch limits (Nishida, 2005). The nationally set catch limits are then divided up and allocated to fishing sectors, including FCAs. These catch limits can be adjusted due to socioeconomic conditions, a practice that has drawn criticism from the scientific community (Nishida, 2005; Takagi and Kurokura, 2007; Sustainable Fisheries Partnership, 2013).

Many TURFs manage a variety of additional species, including seaweed, sedentary shellfish (clams, mussels, sea urchins, abalone and shrimp), moderately mobile groundfish (flatfish and rockfish) and migratory fish (mackerel, pollock and herring). Coastal fishermen employ various types of gear (Uchida, 2007). As only eight species are managed under government-defined catch limits, FCAs are responsible for creating management measures for any additional species within TURF boundaries. FCAs and FMOs have the authority to self-impose catch limits for managed species, and some choose to do so. Prefectural research stations may assist FCAs with conducting stock assessments and determining a scientifically-based catch limit. In 2003, 30% of FMOs adopted catch limits for some of their species, and more than 15% of FMOs had stock assessments and catch limit measures (Uchida and Makino, 2008). FCAs with limited capacity and access to scientific data may impose daily or seasonal limits to manage mortality. These management measures are approved upon submission to the Sea Area Fisheries Coordinating Committees, advisory bodies consisting of fishermen representatives, academics and public interest representatives (Makino, 2011).

Cooperatives have voluntarily established more than 1,000 marine protected areas along the coast (Yagi et al., 2010). Many are designated as no-take reserves to support stocks in their TURFs. For example, the Kyoto Danish Seine Fishery Federation (KDSFF), which is certified by the Marine Stewardship Council as a sustainable and well-managed fishery, designated permanent no-take zones for areas of critical snow crab habitat and seasonal spawning reserves. Combined, these no-take zones cover approximately 19% of KDSFF fishing grounds (Makino, 2008). Similarly, the Sakuraebi Harvesters' Association, targeting sakuraebi shrimp (*Sergia lucen*), implemented a self-imposed closure during spawning season for its target stocks (Uchida, 2007).

## STEP 3 IN ACTION

# Define Eligible Participants

The catch share program was designed to ensure local communities and fishermen have continued access to fishery resources while promoting their involvement in management. To meet these goals, common fishing rights are allocated only to existing local FCAs and not to individual FCA members (Uchida and Makino, 2008). To be eligible for allocation, FCAs must have a minimum of 20 members and must include the majority of the fishermen within the FCA's geographic area.

The national government also established minimal requirements for fishermen to become members in a local FCA. FCA members must have prior fishing experience, cannot have any fishery violations and cannot possess other fishing rights (Hirasawa, 1980). Members must also be residents of the community and participate in commercial fisheries a certain number of days per year (minimum number of days ranges from 90 to 120 depending on individual FCA bylaws) (Makino, 2011). These requirements were established to prevent the consolidation of rights to individuals from outside the community and non-active fishermen (Ruddle, 1987).

FCAs have the authority to modify the terms of eligibility for new entrants. The most common way FCAs allow fishermen to enter the fishery is through a trial period as a crewmember on an FCA vessel (Uchida, 2007).

FCAs are legally recognized entities that are allocated common fishing rights granted by the government and are authorized to manage coastal fisheries. In comparison, FMOs are often created by groups of fishermen utilizing

the same fishery or fishing grounds and can be considered an eligible group to fish within an FCA's TURF. FMOs are voluntary, autonomous groups of fishermen that have evolved to coordinate and scale management to the appropriate social and biological characteristics of the fishery. The federal government does not make provisions or rules regarding the operation of FMOs. FMOs often adopt stricter management measures than those in place by the FCA, including rules for catch limits, fishing effort controls, harvest coordination, monitoring and stocking (Uchida and Makino, 2008). These regulations are typically developed in coordination with, and cannot contradict, members' FCA regulations. FCAs are not required to have an FMO, although many are associated with FMOs.

## STEP 4 IN ACTION

# Define the Privilege

The Fisheries Law of 1949 formalized the unofficial TURF boundaries that dated back to the 1700s (Yamamato, 1985). The size of each TURF was based upon existing geo-political boundaries of the local communities, and encompassed the fisheries within each area. Cooperatives were granted the right to co-manage and exclusively operate in the assigned area for a period of 10 years. An FCA must then apply to the Sea Area Fisheries Coordinating Committee for renewal of the fishing right. Renewal is dependent upon whether the FCA is managing the TURF resources effectively and complying with fishery regulations.

Each FCA determines how to distribute its allocated fishing rights among its members. Not all fishermen may access the entire TURF area; some areas within the TURF may be reserved for the exclusive use of individuals and/or groups. For example, in the Yaeyama FCA, fishermen are organized into groups based on fishery type and residency location. A seasonal lottery is used to allocate fishing spots among the groups (Ruddle, 1987). Alternatively, Mutsu Bay's Council for Promoting Sea Cucumber Resource Utilization equally allocates the catch limit among eligible vessels. Each vessel is assigned to one of four harvesting groups, which determines the days they are allowed to harvest sea cucumbers. Vessels are provided a daily catch limit (Makino, 2011).

To adhere to the social goals of the program, the Fishery Law prohibits transfers, leases, loans and mortgages of TURFs. Individual FCAs, and some FMOs, have the authority and responsibility to determine regulations regarding the allocation and transferability of harvesting privileges among their respective members. As transferability rules are determined by individual FCAs and FMOs, restrictions on trading and use of shares vary across the coast. Many FCAs allow harvesting privileges to be inherited by a relative or successor who belongs to the same FCA (Ruddle, 1987). FCAs typically do not allow members to transfer their fishing rights from one FCA to another. A fishermen moving to another FCA will be required to meet the basic eligibility requirements to harvest in the new area (H. Uchida, personal communication, 2012).

## STEP 5 IN ACTION

# Assign the Privilege

As directed by the Fishery Law of 1949, eligible nearshore Cooperatives were allocated quota and area-based privileges called common fishing rights (also referred to as TURF rights). Common fishing rights are granted

exclusively to FCAs. A fisherman must be an FCA member to be an eligible participant. Once an FCA receives approval and the prefectural government officially issues the TURF, each FCA is allocated a percentage of the annual catch limit for the eight species managed under the national quota. While this percentage is based upon the FCA membership's catch history, the government neither assigns nor accounts for catch limits at the individual fishermen level. Rather, catch limits are managed at the Cooperative level and the FCA is responsible for ensuring its members comply (H. Uchida, personal communication, 2012).

## STEP 6 IN ACTION

# Develop Administrative Systems

The catch share program relies on coordinated co-management between national, regional and local organizations. The national government is responsible for setting catch limits for key species and ensuring system-wide compliance. Prefectural governments allocate rights and also ensure some coordination on a regional level. FCAs have the responsibility to ensure compliance with their allocated catch limits and have the authority to adapt and implement additional regulations tailored to local, day-to-day operations within their TURF to compliment federal fishery management (Ruddle, 1987).

FMOs emerged in the early 1980s as national policy promoted and fostered their development to improve the co-management system and support innovation among FCAs (Uchida and Makino, 2008). FMOs formed from groups of FCA fishermen with the objective of developing mutually agreed upon fishery management strategies for specific fisheries, grounds and/or gear types. FMOs have been formed by a single FCA, a subgroup of FCA members (such as trawl fishermen) or multiple FCAs (encompassing larger areas to better manage migratory stocks) (Uchida, 2007). Most commonly, FMOs are housed within the infrastructure of FCAs.

Administrative systems for the TURF program are largely decentralized and conducted by the FCAs and FMOs. Members agree upon Cooperative bylaws that define FCA rules and responsibilities, including internal governance and administrative systems. They submit the bylaws to the prefecture for approval and formalization. The self-imposed rules developed by each FCA encourage compliance from members (Yadava et al., 2009). Additional functions of the FCA include the operation of wholesale markets, collective purchasing and providing financial services (loans and crediting).

Fishermen largely land and sell their catch at the local wholesale market, where FCA staff conduct catch accounting and create reports for prefectural government agencies (Makino, 2011; H. Uchida, personal communication, 2012). Should fishermen sell catch directly to retailers or restaurants, they are required to report their catch record to FCA staff (M. Makino, personal communication, 2013).

The local FCA or FMO handles enforcement on a day-to-day basis, including fishery regulations and TURF boundaries. Violations are typically handled internally within the FCA or FMO without the involvement of third parties or government authorities. Penalties vary in severity among the Cooperatives. Government authorities largely address issues of noncompliance during the TURF renewal process when management practices are assessed for proficiency.

Operational costs of each FCA are covered through a fee system in which 3-5% of total sales from the wholesale market are collected. Administrative costs may be supplemented from direct sales of seafood as well. In such

instances, the FCA will buy seafood from its wholesale market and resell to local consumers (H. Uchida, personal communication, 2012).

FMOs typically operate within the infrastructure of an FCA and therefore have low startup costs (H. Uchida, personal communication, 2012). Additional collections for operation and administrative costs are determined on an individual FMO basis. For example, the Sakuraebi Harvester's Association pools and distributes revenues to members according to a set formula. This formula deducts costs for ice and storage, a 3% commission fee and a 1% port fee from the total revenue (Uchida, 2007). The remaining amount is divided equally among all association members.

## STEP 7 IN ACTION

# Assess Performance and Innovate

The Common Fishing Rights System was implemented with goals to involve fishermen in the management process and protect them from outside fishing pressure. Almost 65 years later the program has met and exceeded these goals. It has created a co-management system that allows management to operate on the appropriate scale and promotes local fishermen innovation, improving coastal fisheries for fishermen and their communities.

One of the hallmarks of this program is effective co-management though nested government entities, which has achieved an appropriate scale for proficient fishery management and enabled fishermen to incorporate local fishery knowledge and expertise into the management process. This is highlighted by the development of FMOs—entities that were not initially formed through legislation but rather evolved over time to coordinate management of fish stocks at the proper biological scale. FMOs have reduced conflict and promoted coordination between Cooperative members (Yadava et al., 2009). FMOs also allow fishermen to manage straddling stocks between FCA territories, a feature that has evolved from fishermen's ability to incorporate community knowledge into management decisions.

FCAs rarely exceed their catch limits and the catch share system has been integral in ensuring landings have not exceeded federally set catch limits. Despite good compliance in the TURF system, the current status of the eight species managed with a catch limit is mixed.[1] This may be due to catch limit overages in the offshore fleet or political pressure to raise catch limits for socioeconomic reasons (Makino, 2011; Sustainable Fisheries Partnership, 2013). In order to address this, it will be important to ensure appropriately set catch limits and good compliance from all sectors.

Every 10 years, the Sea Area Fisheries Coordinating Committees assess the operation and management practices of FCAs for effectiveness in the management of their TURFs. The Committee may revoke allocated common fishing rights if FCAs are not serving as stewards of their coastal fisheries. Individual FCAs have also chosen to conduct their own annual assessments for both biological and social impacts. For example, the Kaiwuchi-machi FCA, in partnership with a local community, conducts annual stock assessments and social assessments. Social assessments determine the impacts of the sea cucumber fishery and branding on the local economy, including jobs and tourism opportunities (Makino, 2011).

1 The Japanese government has determined that chub mackerel, sardine and walleye pollock have low stock levels; jack mackerel and snow crab have medium stock levels; and Pacific saury, spotted mackerel and Japanese common squid have high population levels (Makino, 2011)

Fishermen and Cooperatives have also adopted innovative management approaches within the program. This is evidenced by the growing prevalence of pooling arrangements within and between Cooperatives, in which fishing effort, costs and/or revenues are pooled. Such management measures may be developed and modified to promote better coordination among members and neighboring Cooperatives, to increase profits and to improve stock conditions, among other things. The more successful TURFs in Japan often have high levels of cooperative behaviors (i.e., pooling arrangements, coordination, etc.) incorporated into their management processes to achieve biological, social and economic goals (Makino and Sakamoto, 2001; TQCS International Pty Ltd, 2008; Makino, 2011). For example, the success of the KDSFF has been empirically linked to the voluntary reduction in eligible days for harvesting snow crabs and the permanent no-take zones the FMO established that increased catch-per-unit-effort and landing values (Makino and Sakamoto, 2001; TQCS International Pty Ltd, 2008). Pooling arrangements have social, financial and managerial advantages, and continue to grow in use. All of these innovations have been made possible because of privileges provided to fishermen through the establishment of the Common Fishing Rights System.

Although economic goals were not an identified priority in the development of the Common Fishing Rights System, there is growing evidence that co-management allows FCAs and FMOs to improve profitability within coastal fisheries. For example, the KDSFF has shown that landing values and revenue per unit of effort have increased. Additionally, the unit price of sea cucumbers, managed by the FMO Council for Promoting Sea Cucumber Resource Utilization, has steadily increased since 2003 (Makino, 2011).

While some TURFs may perform better than others, the TURF and co-management system in Japanese coastal fisheries is a platform for localized solutions. The successes of the Japanese system are spreading globally and gaining the attention of those who are looking for more effective ways to manage small-scale fisheries. Through supporting best practices and sharing lessons learned, the Cooperatives stand to benefit from their collective experiences.

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