

Humans and the Sea

The Japanese *Satoumi* concept of managing coastal resources depends crucially on the bottom-up involvement of local communities

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The ‘*Satoyama* Initiative’ was adopted by the 10th meeting of the Conference of Parties (COP10) of the Convention on Biological Diversity (CBD) in October 2010 at Nagoya, Japan. As reported in *SAMUDRA Report* No. 57, November 2010, the COP10 specifically recognizes “the *Satoyama* Initiative as a potentially useful tool to better understand and support human-influenced natural environments for the benefit of biodiversity and human well-being”.

Satoyama is a Japanese word meaning ‘mountains in human residential areas’ (from ‘*sato*’, meaning ‘residential area’, and ‘*yama*’, meaning ‘mountain’). The marine and coastal version of *Satoyama* is called *Satoumi*, where the ‘*umi*’ means ‘sea’.

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Satoyama and *Satoumi* are Japanese concepts for long-standing traditions associated with land and coastal management practices. These traditions have allowed sustainable use of natural resources and provide a historical model for environmental stewardship and resource management that contributes to human well-being.

The management practices usually take the form of a stakeholder initiative to conserve and sustainably use the ecosystem services. Collective efforts by stakeholders (local

residents) for resource management started before the Edo era, which ended in 1868, when feudal landlords granted rights to local fishers or foresters to manage and harvest the resources in return for a levy of a portion of the harvest as tribute.

During that period, marine resources were particularly important for the dietary needs of the people. The Japanese did not eat cattle meat for religious reasons and, hence, the main source of protein then was seafood. Despite the widespread demand, marine and coastal resources have been sustained for centuries through the collective efforts of the people. There are records, for instance, which indicate the sustainable use of coastal abalone resources for more than 600 years in some coastal villages in Japan.

Satoumi activities are still going on in various coastal communities in Japan. The Meiji governments, established in 1868, rigorously surveyed traditional local fishery management rules and attempted to incorporate them in the new government legal system. The present government issues licences called ‘fishery rights’, which allow exclusive harvest of fishery resources by local fishers in specified areas.

Long-term benefits

The government does not levy a portion of the harvest as tribute any more, but does collect tax and licensing fees. This system continues to provide incentives for local fishers to collectively manage their own resources to maximize their long-term economic benefit from the resources.

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Various marine protected areas (MPAs) and other area-based conservation activities have been created as the bottom-up, self-imposed instruments of local communities. Many local rules, however, have been left unlisted in the government regulations until now, presumably because they are too locally specific. Such local rules are implemented today as self-imposed agreements among local fishing communities, and the complete picture of these conservation activities has been largely unknown until now.

A survey was conducted by a team of the University of Tokyo from late 2009 to early 2010 in an effort to grasp a comprehensive picture of MPAs in coastal Japan. As a result, the survey identified 1,161 locations of MPAs in Japan.

Table shows the number of MPAs in Japan according to their management mechanisms. Protection is provided through various legal instruments. The six types of MPAs are: (i) marine park areas established by the Natural Parks Law (managed by the Ministry of the Environment); (ii) marine special areas established by the Nature Conservation Law (managed by the Ministry of the Environment); (iii) special protected zones inside the wildlife special protection areas, which are established by the wildlife protection and appropriate hunting laws (managed by the Ministry of the Environment); (iv) protected waters established by the act on the protection of fishery resources (managed by the Ministry of Agriculture, Forestry and Fisheries, MAFF); (v) legally binding no-take zones of aquatic animals and plants established under the Fishery Act and prefectural fishery co-ordinating regulations (managed by MAFF); and (vi) no-take zones established through self-imposed agreements among the members of the fishery co-operative associations (FCAs).

Among the 1,161 locations, 1,055 (52+616+387) are implemented in conjunction with fishery regulations. Specifically, they take the form of no-take zones for fish species. The

number of the bottom-up, self-imposed MPAs (387 locations in the study) had not been available for many years, and this study is the first published one that shows approximately 30 per cent of MPAs in Japan are community-based, self-imposed no-take zones.

MPAs managed by the Ministry of the Environment take a top-down approach, where the central government is a major driver of conservation, while fishery-related MPAs managed by MAFF take a bottom-up approach in which the informal functions of local FCAs are critically important.

The total area of MPAs in Japan has not been provided in this study. There is lack of information on the possible overlaps between different types of MPAs, as well as the exact size of some areas in community-based, self-imposed no-take zones, which makes an accurate calculation of the total coverage difficult at this stage.

The relevance of the number of such no-take zones can be explained by the management system of fisheries in Japan. Traditional Japanese fishery management systems are based on limited-entry systems and area allocations. At present, fishing areas are allocated to FCAs through the government licensing system. These area allocations are, in many cases, based on the traditional tenure system in managing coastal fishery resources, which assumes right-based co-management of resources in the community.

Fisheries agency

The number of FCAs in Japan was 1092 as of 31 March 2009, according to the fisheries agency of the government of Japan. Many FCAs



MPAs and other conservation activities have been created as bottom-up, self-imposed instruments of local communities

declared one no-take zone, some had two or more, while others possessed none. The number of no-take zones is reasonable, judging from the fact that it roughly corresponds to the number of FCAs.

A question may arise on the status of enforcement for self-imposed areas. The mechanism for compliance of the rules can be explained as follows:

First, self-imposed no-take zones have certain economic compulsions for implementing peer monitoring among the members in the same FCAs. Since the limited-entry system in coastal fisheries is strictly maintained by the fishery rights regime imposed by the government, those belonging to one FCA assume long-standing rights to collectively use fishery resources in their waters. In other words, the same group of fishermen bears the cost of conservation and receives the benefits inside local waters. Once they mutually agree to create a no-take zone as a means to maximize their collective benefits, the fishermen have a strong incentive to adhere to conservation, and peer-monitoring activities would be initiated to deter poachers. Several fishermen informed the authors of the study that they monitor positions of boats of their peers in the sea using

vessel positioning devices, mobile phones and other communication tools. Fines are often levied in case of infringement.

Second, self-imposed no-take zones are perceived among FCA members as being just as legally binding as other no-take zones. The majority of legally binding no-take zones and protected waters listed in prefectural fishery co-ordinating regulations are considered to have originated from past voluntary no-take zones.

Community-based coastal fisheries management started more than 250 years ago in Japan. Records show that the fishery regulation of Tokushima prefecture, for instance, which was enacted in 1895, contained provisions of closed areas and seasons. Such provisions were not a new creation about 115 years ago, but merely a legalization of measures that already existed as self-imposed community rules. This observation is reasonable, considering that the creation of new no-take zones from scratch usually requires more transaction costs than just reauthorizing already existing customary rules. It can be argued that, because the starting points of voluntary and legally binding no-take zones were similar, FCA members tended to adhere to both rules in a similar manner.

Why are many self-imposed MPAs left unlisted in the government legal framework? FCAs usually have both published and unpublished rules, and many MPAs are unrecorded. There are reasons why some of them are left unpublished in official documents. First, the non-binding ones are relatively new and missed the timing of major revisions of prefectural fishery co-ordinating regulations. Members of FCAs would prefer to avoid the rigorous documentation process required to register such areas as legally authorized protected areas, when good compliance for such local MPAs are maintained even without the formal legal status.

Table: The number of MPAs in Japan

MPA type	Management authorities	Legal framework	Number of sites
Marine park area	Ministry of the environment	Natural parks law	82
Marine special areas	Ministry of the environment	Nature conservation law	1
Wildlife protection area	Ministry of the environment	Wildlife protection and appropriate hunting law	23
Protected waters	Ministry of agriculture, forestry, and fisheries	Act on the protection of fisheries resources	52
Legally-binding no-take zones	Ministry of agriculture, forestry, and fisheries	Prefectural fishery co-ordinating regulations	616
Community-based self-imposed no-take zones	Local fisheries co-operative association (FCA)	Published and unpublished FCA rules	387

(Source: Yagi et al.,2010. Marine Protected Areas in Japan : Institutional Background and Management Framework. Marine Policy (2010), Vol. 34, Issue 06, pp. 1300-1306)

Second, fishers prefer flexibility in protecting migratory species. In the case of the sand eel fishery in Ise bay, for instance, the area of the autonomous MPA changes weekly to allow timely escape of migratory fish stocks. Had the regulations been legalized, they would not have been fully adaptive to the rapidly changing distribution of the species targeted for protection.

Activities of *Satoumi* are not limited to the creation of self-imposed MPAs. They also include positive interaction with the environment such as through habitat rehabilitation or tree planting upstream of rivers to help maintain water quality.

Such positive interactive activities with the environment—which have not been included in the study of the University of Tokyo—also include sea-grass planting, sediment removal from the ocean bottom, and removal of alien species. These activities ensure that the immediate marine and coastal biodiversity enjoys a higher level of protection than the surroundings.

Taking off from the discussions at the CBD, it is encouraged that the focus should not be only on total area coverage of MPAs but also on the intensity of *Satoumi* activities which include various bottom-up conservation activities of local stakeholders. This would benefit the fair and holistic evaluation of marine conservation activities.

Is the Japanese *Satoumi* approach to MPAs globally applicable? To answer this question, we should remember that compliance mechanisms of *Satoumi* and MPAs are based on peer monitoring and sanctions by community stakeholders who share the costs and benefits of the conservation activities.

Satoumi and self-imposed MPAs are one of the management tools that could bring common benefits to the members of the co-management group. In sum, *Satoumi* and autonomous MPAs are not a product of simple altruism, but rather are logical extensions of the tenure system guaranteed by the government legal system.



Satoumi are marine and coastal landscapes formed and maintained by prolonged interaction between humans and ecosystems

Users must be interested in the sustainability of the particular resource so that the expected benefits will outweigh current costs. To this end, the role of the government is important in keeping non-stakeholders from gaining access to no-take zones.

In the case of Japan, the fishery right issued by the government allows exclusive access to fishery resources for the licence holder, and is treated as a non-transferable property right under the Fishery Act. In return, FCAs are expected to establish their collective management rules for resource exploitation in the tenure area.

It can be argued that without similar territorial use-rights guaranteed by governments or similar authorities, the Japanese-style *Satoumi* or self-imposed MPAs would be somewhat difficult to transpose to other countries. ♪

For more



hitoumi.jp/hozen/

***Satoumi* Reports and Publications (in Japanese)**

ourworld.unu.edu/en/satoumi-the-link-between-humans-and-the-sea/

***Satoumi*: Link between Humans and the Sea**

www.env.go.jp/water/heisa/satoumi/common/EMECs8_Report.pdf

International Workshop on *Satoumi*

www.ias.unu.edu/sub_page.aspx?catID=111&ddlID=1418

***Satoyama-Satoumi* Ecosystems and Human Well-being, 2010, United Nations University**