GROWING AN ISLAND: OKINOTORI

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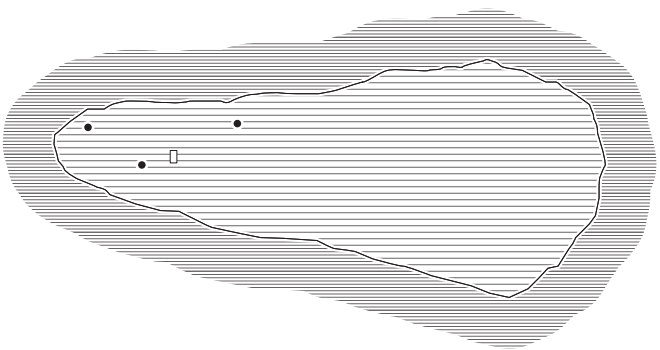

The United Nations Convention on the Law of the Sea (UNCLOS) defines an island as "a naturally formed area of land, surrounded by water, which is above water at high tide".[1] However, according to this international law, not every kind of island engenders the same legal effects, for "Rocks which cannot sustain human habitation or economic life of their own shall have no exclusive economic zone."[2] The primary purpose of this paragraph was to ensure that insignificant geological features, particularly those far from areas claimed by other states, could not generate broad zones of national jurisdiction in the middle of the ocean. Otherwise, the smallest rock would be capable of suddenly generating an enormous exclusive economic zone, a circular area with a radius of 200 nautical miles or 370 kilometres, i.e. an area of roughly two thirds the size of France.

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United Nations Convention on the Law of the Sea (UNCLOS), 10 December 1982, Part VIII, art. 121(1); reprinted in "United Nations, Official Text of the United Nations Convention on the Law of Sea with Annexes and Index", UN Sales No. E.83.V.5 (1983). The law entered into force 16 November 1994.

2
Ibid., Part VIII, art. 121(3).

In fact, there have been few circumstances in which rocks have given rise to such claims. Most often, these have been located in coastal areas subject to conflicting state claims. However, there is an interesting, utterly isolated case: that of a rock, or actually two rocks, in the middle of the western part of the Pacific Ocean known as the Philippine Sea. The first of the rocks is barely the size of a small room, and the second, that of a twin bed. At high tide, the smallest pokes some seven centimetres out of the ocean, while the bigger one reaches twice this height. They are part of a submerged reef formation that is about 4.5 kilometres long and less than 2 kilometres wide called Okinotorishima which is located 1,740 kilometres south of Tokyo and a thousand or so kilometres away from the nearest Japanese islands. These geological features are defined by the Chinese as rocks and by the Japanese as islands. Behind the linguistic disagreement, as the UNCLOS definition of an island makes clear, lies an economic and strategic one: if considered an "island", Okinotori's nine square metres of solid rock would allow the establishment of an exclusive economic zone measuring approximately 430,000 square kilometres – slightly more than the total surface area of Japan. It makes the claim to Okinotori a unique territorial issue, for this is not a case in which countries struggle for control of a territory. There is no chance that China would obtain territorial rights in the Okinotorishima dispute. The heart of this quarrel is the question of whether Japan can maintain its claim to an exclusive economic zone either by linguistically defining the unmanned rocks as islands or, as I will shortly explain, by growing them into "a naturally formed area of land" that can "sustain human habitation or economic life".

Originally named the Douglas Reef after the British naval officer William Douglas discovered it is 1789, the atoll, which at the time amounted to a handful of rocks or islets uninhabitable by humans, was long ignored by imperial powers. This all changed in the early 1920s, when the Japanese navy began surveying the seas south-west of Okinawa and the Ogasawara Islands. In 1931, after confirming that no other countries had laid claim to it, Japan declared the reef Japanese territory, placed it under the jurisdiction of the City of Tokyo as part of the Ogasawara Islands, and gave it a new Japanese name: Okinotorishima, or "remote bird island". Though it was debatable even then whether a coral reef could be claimed as territory from the viewpoint of the international law, the government decided to "make [the question] a fait accompli by claiming it".[3] No country officially made any objection to the inclusion.

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Ministry of Foreign Affairs of Japan, "'Douglas' Reef no ryodoken ni kansuru ken" in *Honpo tosho ryoyu kankei zakken* (n. p., 1931); cited in Yukie Yoshikawa, "Okinotorishima: Just the Tip of the Iceberg", *Harvard Asia Quarterly*, 9 (2005).

While the Imperial Navy had ambitions to transform what at that point were five rocks jutting out of the Philippine Sea into a hydroplane base, the government decided to refer to the base in international communications as a lighthouse and a meteorological observation site. By 1941, the foundations for the buildings were completed. Construction, however, was interrupted by the outbreak of the Pacific War. After the war, Japan lost sovereignty over the Ogasawara Islands, including Okinotorishima, until they were returned to them in 1968 by the U.S. The territorial possession of Okinotorishima did not attract much attention until the late 1970s, when nations started to claim their exclusive economic zones. In 1983, when Japan signed the UNCLOS (which took effect for most nations in 1994, but for Japan in 1996), the Japanese started to realize that their territorial claims could evaporate together with Okinotorishima's two remaining rocks, which were disappearing due to rising sea levels and the constant pounding of waves during the typhoon season. In order to stop the physical erosion of Okinotorishima, the City of Tokyo, and later the central government, carried out protective efforts from 1987 to 1993 by building steel breakwaters and concrete walls, and by having helicopters carefully drop tetrapods around the rocks. In 1988 an artificial structure was erected on the reef next to the rocks to house the facilities of the Japan Marine Science and Technology Centre. In the same year, American law professor Jon Van Dyke wrote that "the more than 200 million dollars the Japanese are spending to construct what is in essence an artificial island cannot . . . be the basis for a claim to the exclusive control over the resources in the waters around such a construction".[4] Van Dyke's academic opinion was in line with the Chinese political one, which was expressed later, and with growing insistence, during bilateral talks in Beijing in April 2004. Although China has no basis for laying claim to the rocks, it does have a military interest in keeping them from being declared part of Japanese territorial seas, because they are situated midway between Taiwan and Guam, a U.S. territory in the Pacific: the rocks would be located along the ideal route that an American fleet, including submarines, would take in the event of American military engagement with China to support Taiwan. Were such a situation to arise, the People's Republic might well want to place its submarines in the area in order to delay the arrival of U.S. Navy vessels without being annoyed by what would have been, until then, an essentially pro-Taiwan Japan.

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Jon Van Dyke, "Speck in the Ocean Meets Law of the Sea", *New York Times*, 21 January 1988.

China's challenging of Japan's territorial right to Okinotorishima led to a resurgence in nationalism in Japan as well as some vigorous reactions: in May 2005, Shintaro Ishihara, the nationalist Governor of Tokyo, rushed to the rocks, raised the Japanese flag on the largest one, mounted an address plaque reading "One Okinotori Island, Ogasawara Village, Tokyo" and had a 330-million-yen (three-million-euro) radar surveillance system installed.[5] With his actions, Ishihara asserted that recently developed international law could not repudiate the past investments Japan had made in Okinotorishima and that Tokyo had a legitimate claim over it. In an essay appearing in the Sankei Shimbun on June 6, he said that Japan had been spending money on Okinotorishima for future development since 1932, including the investment of 85 billion yen (approximately 770 million euros) in building and maintaining a residence.[6] According to the governor, these were historical facts that could not be reversed by the UN convention. Moreover, he argued, it was Japan's responsibility to hold the area and establish effective control over the surrounding waters through economic activities such as fishing in order not to allow the Chinese to develop the area into a base for submarines.

Japan's claim to this rock is not unique. In a decades-long dispute with Ireland, Iceland and Denmark, Britain has been seeking UN recognition of its rights to the seabed – and to the oil beneath it – around Rockall, an uninhabited granite outcrop measuring 31 by 25 metres located halfway between Ireland and Iceland. South Korea, for its part, has been involved in a conflict with Japan that has stretched on since the end of World War II but intensified after 1996, the year in which the UNCLOS took effect, and has renamed the Liancourt Rocks "Dokdo", or "solitary island", and is planning to double the number of resident households on the rock from one to two couples, to plant trees in order to develop "a forest", and to secure an adequate supply of potable water by installing a water purifier.[7]

While Japan's claim might not be unique, its solution to the problem is. Confronting Van Dyke's criticism, Tadao Kuribayashi, a professor of law at Toyoeiwa University in Tokyo, insists that the Japanese claim is justifiable as there is no definition of a "rock" in international law. Geologically speaking, he argues, coral reefs and rocks (objects consisting of hard continental soil) are different.[8] Thus, he argues, a country can claim its own exclusive economic zone based on its possession of coral reefs. Again, as with the island-versus-rock issue, there is more at stake with the difference between rock and coral: over

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See "Japan sets up address plate on controversial reef in Pacific", Xinhua News Agency, 20 June 2005, consulted at http://news.xinhuanet.com/english/2005-06/21/content_3111889.htm; and "Japan to establish surveillance system on Okinotori Island", BBC News, 16 May 2005.

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Cited from Shintaro Ishihara's website in Yoshikawa, "Okinotorishima".

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Jeong In-seop, "Dokdo, Island or Rocks? A Patriotic Misunderstanding", *Northeast Asian History Foundation News* (2010), 5.

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Tadao Kuribayashi, "The Position of Okinotorishima in the International Law" in Nippon Foundation, *Report on Promoting Economic Activities in Okinotorishima* (Tokyo, 2005); see http://nippon.zaidan.info/seikabutsu/2004/00009/contents/0001.htm.

time, rocks are, at best, stable, and are subject to erosion, but coral has the potential to grow.

Kuribayashi defended his position in the *Report on Promoting Economic Activities in Okinotorishima,* published by The Nippon Foundation (Nippon Dankai). This Japanese private foundation has been criticized for advancing right-wing and nationalist goals in the deceptive guise of a charity. It has shown a particular interest in the disputed rocks as part of its maritime programmes. For the preparation of the report it dispatched missions to the "islands" in November 2004 and March 2005.[9] The first mission was intended to investigate the ways in which the exclusive economic zone could be used, and its participants included experts in the fields of international law, and coral reef ecology and construction. The suggestions put forward in their report included the erection of a lighthouse, the cultivation of the existing coral reef and the development of an artificial one and the building of the social infrastructure necessary to sustaining human habitation. Once it bore a lighthouse, the island would be added to the charts around the globe as Okinotorishima, and the awareness of its presence would be enhanced. The breeding of the coral reef and sand by various means, such as planting glauconite and foraminifera (hard-shelled microscopic organisms whose bodies become sand as they die), was important as a means of enlarging the "island" due to the trend of rising sea levels that has resulted from global warming.

According to the *New York Times,* by 2005 the Japanese government had spent over 600 million dollars, or 500 euros, to keep the barren islets above water. It had encased the tiny protrusions in 25-metre-thick concrete that was 60 metres in diameter at a cost of 200 million euros, and had then cut slits in the concrete so that the "island" would comply with the UN law that "a naturally formed area of land" be "surrounded by water". The smaller one got a 40-million-euro titanium net to shield it from being chipped away at by wave-hurled debris.[10] Since then, Japanese scientists have been developing genetically modified species of coral with the aim of expanding the rocks into a small but internationally recognized archipelago: the Okinotori Islands. China, however, has criticized the Japanese government for planting coral, saying that the action runs counter to international conventions. Japanese officials, for their part, have confirmed that Japan had begun planting coral on Okinotori as part of a three-million-euro project to defend its territory.[11]

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See Martin Fackler, "A Reef or a Rock? Question Puts Japan in a Hard Place: To Claim Disputed Waters, Charity Tries to Find Use for Okinotori Shima", Wall Street Journal, 16 February 2005; and id., "Japan's Ultranationalists: Stuck between a Rock and a Hard Sell", *Wall Street Journal,* 20 February 2005.

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Norimitsu Onishi, "2 Rocks in Hard Place for Japan and China", *New York Times,* 11 July 2005.

11
"China Criticizes Japan for Planting Coral around Pacific Reef", Xinhua News Agency, 19 June 2007.

Science and construction are the keys to solidifying Japan's ownership of the atoll. Concrete is the visible marker of Japan's sustained claim to Okinotori. However, most of the "island-making" is being done off site and out of sight. With the support of the wealthy Nippon Foundation, the Tokyo Metropolitan Government has tried to speed up the rate of coral accumulation on Okinotori through the cultivation of coral polyps in Tokyo and their transplant to Okinotori for the purpose of creating a surface area that can "sustain human habitation". The first of these transplants was carried out in 2007. The government intends to graft millions of coral fragments, which are netted together, not only to save the two small islets that poke out of the water during high tide, but also to produce even more land area above sea level.

This is not Japan's first foray into making artificial islands. The tradition goes back to the creation of Dejima, a man-made island built in Nagasaki Bay in 1634. The island served to house Portuguese and then Dutch merchants as part of a shogun strategy to keep Japan culturally isolated while still permitting some trade. With an area of 120 by 75 metres, the fan-shaped island was administratively part of Nagasaki but autonomous in many other ways. Heavily controlled, it hosted, at some point in time, residences for twenty Dutchmen, warehouses and accommodations for Japanese officials.

The Okinotori project is also not Japan's first attempt to build artificial reefs. The first on record in Japan were built out of bamboo in the 1800s. Since the early 1950s Japanese marine fishery interests have been investigating the use of artificial reefs for the manipulation of fish populations by utilizing concrete riprap, natural stone, bricks and a plethora of other materials. All too often these installations furnished a welcome excuse to discard unwanted refuse like automobile tires, cars, ships, planes, streetcars, tanks and even offshore platforms ("rigs for reefs") for economic gain with little or no regard for marine ecology. In the 1960s and '70s, power companies even sponsored research for the utilization of highly toxic fly ash in artificial reef components.[12] None of these methods, however, would easily qualify as "natural growth".

Over the last fifteen years, several companies that market structures for artificial reef building have popped up, including ReefBalls, Grouper Ghettos, Ecoreefs, Eco-Coral and Biorock. The most advanced techniques used by the Japanese are genetically modified species of coral and a technology developed by Biorock called "mineral

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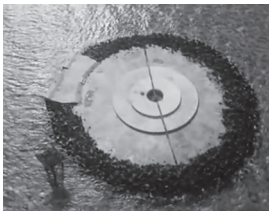
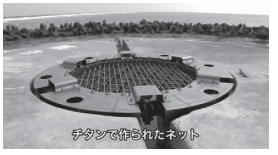
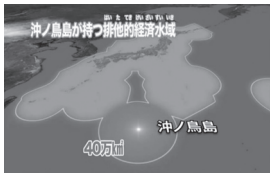
Wolf Hilbertz and Thomas Goreau, "Third Generation Artificial Reefs", *Ocean Realm Magazine* (October 1997).





accretion", which uses electricity to "grow" limestone rock on artificial reef frames and thus increases the growth rates of corals and other reef organisms.[13] A wide range of organisms on or near the growing substrate is affected by electrochemically altered conditions, which shift growth rates. According to the developers of Biorock, one of whom is the German-born architect and marine scientist Wolf Hilbertz, "reefs of any configuration and size can be grown for purposes of reef restoration and shore protection".[14] Although originally carried out on a small scale, recent projects include developing reefs of up to 630 metres in length and up to 20 metres in width. For Hilbertz and his partner Goreau, their work serves as the basis for a new profession: seascape architecture, which they present as the younger sibling of landscape architecture.

In an era of rising sea levels, and with many reefs and small atoll nation-states at risk of being submerged by this phenomenon, island-growing techniques and advanced coral cultivation technologies might become a flourishing business. Moreover, the Japanese government is adroitly turning its costly investments in these technologies into a form of environmental diplomacy. The Tokyo Metropolitan Government and the Nippon Foundation are promoting their efforts in island-growing as a means of overcoming environmental disaster. Yet for Japan, the key issue will be if it succeeds in growing coral fast enough to outpace rising sea levels. The Chinese might simply need to wait. Their large-scale turn to driving cars, using more appliances and heating larger homes might do the rest.



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"Two electrodes, supplied with low-voltage direct current, are submerged in sea water. Electrolytic reactions at the cathode (negatively charged electrode) cause minerals naturally present in seawater, primarily calcium carbonate and magnesium hydroxide, to build up." Ibid.

14
Ibid.