

Saving the Sea Turtles of Yakushima

The number of loggerhead turtles landing on the island of Yakushima to lay their eggs rose more than threefold year on year in 2008, thanks in no small part to the efforts of the volunteer organization Yakushima Umigame Kan. Nevertheless, the turtles' ecology is still under threat, as the NPO's head, **Kazumi Omuta**, reports.

Loggerhead turtles breed in subtropical to temperate zones, migrating from tropical to temperate waters in search of food. Japan is the only area in the North Pacific where loggerheads lay their eggs, and roughly 40%–50% of loggerhead turtles that come ashore in Japan choose Yakushima island as their landing point. The Nagata district in the northwest part of Yakushima is the landing point for 90% of the loggerheads that reach the island, drawing 30%–40% of all such turtles landing in Japan.

Sea turtles land on the three beaches in the Nagata district to lay their eggs from May to July. Turtles hatched on the beaches crawl back to the sea starting from the end of July until September.

Beaches where sea turtles land have not been designated as world natural heritage sites, but sandy sections of the beaches in the Nagata district and the Tashirohama beach locat-

ed on the eastern shore of Yakushima were in 2002 designated as ordinary zones within a national park. The shrub belt in the upper section of Inakahama beach, where most sea turtles currently lay their eggs, is privately owned and was placed outside national park boundaries. The area has no restrictions regarding development. Three lodging facilities—a hotel, camping ground, and seaside clubhouse—are situated next to Inakahama. From time to time, the light emitted by the hotel and other facilities at night upsets the sea turtles attempting to come ashore and those trying to leave for the ocean.

The three beaches in the Nagata district were registered as wetlands under the Ramsar Convention in November 2005, but the registered area measures only 10 hectares.

In 1985, a group of concerned local people, mostly younger residents, launched an ecological study on sea turtles, seeking to pass Inakahama

beach on to future generations. Conducted from May to July the study started daily around 9 p.m. and continued until the early morning hours when most sea turtles stop landing. Typhoons caused suspension of the research for a few days. The research activities now extend to a period from the end of April to September in order also to protect turtles, due to an increased number of visitors who come to view the sea turtles.

The study naturally covered the sea turtles' frequency of landing and egg-laying, and members of the research group also calculated the number of landing sea turtles by affixing a marker to turtles that come ashore. The marker has shown that each female sea turtle lays eggs an average of three times in the May–July egg-laying season. The marker also informs of the year-on-year increase or decrease in the number of sea turtles landing on Yakushima to lay eggs. This has been an important study for understanding the waters in which sea turtles migrate in search of food and the years in which they return to their home beach.

Aside from the ecological study, members of the research group relocate to safe locations egg nests in danger of being washed away by, for instance, typhoons, or stepped on by visitors. These are labor-intensive tasks. At present, the group is short-handed for its operations. In 2008, the group relocated 684 loggerhead turtle nests containing 75,019 eggs and eight green turtle nests containing 962 eggs for safety.

Until 1972, local villagers bid for beaches where sea turtles land, gathered their eggs, and sold them on Yakushima when the egg-laying season arrived. The eggs were a valuable protein source in hungry times. In certain parts of the island, junior high schools managed beaches. Students at the schools took turns collecting eggs and selling them in the villages. With the proceeds from the sales, the schools purchased fixtures and other improve-



Yakushima Umigame Kan volunteers rope off and monitor sections of the beach to protect newly born turtles from being crushed by human visitors to the shore.

COURTESY OF YAKUSHIMA UMIGAME KAN

ments. One informant who gathered eggs in those days said that more than fifty sea turtles used to lay their eggs on one beach in a single night. There are also stories of people who visited Yakushima all the way from Okinawa in order to catch sea turtles. This suggests that a greater number of loggerhead turtles visited Yakushima in those days to lay their eggs.

In April 1973, the Yakushima Town Office placed a ban on the collection of sea turtle eggs by enforcing a natural conservation ordinance. No penalty was levied, but the office appointed observers to protect the eggs during the egg-laying season and prevented illegal digging for eggs.

In June 1988, Kagoshima Prefecture established a sea turtle protection ordinance. The prefecture announced its policy to protect landing sea turtles and the eggs they laid within its limits, and established penalties.

In July 2006, the Ministry of the Environment designated sea turtles for protection under the National Parks Law. The Ministry protected by law sea turtles landing on Maehama, Inakahama and Yotsusehama beaches in the Nagata district and on Tashirohama beach, and set penalties for repeat violators of a fine of 300,000–500,000 yen or imprisonment for up to one year. First-time offenders are punished with a fine of 100,000 yen (1,030 dollars).

Loggerhead turtles coming ashore in the Nagata district grew in number in 1990. After repeated rises and falls, the number of landed loggerheads rose more than threefold year on year in 2008, which was astonishingly rapid growth. Assumed causes of this increase include protection of eggs (ban on egg collection) under ordinances and other rules since 1974, a volunteer organization's achievements in its long-term sea turtle protection activities, prohibiting drift-net fishing in the North Pacific, an area in which loggerhead turtles migrate, and measures for preventing incidental catches implemented on the west coast of Mexico. I believe that termination of fixed-net fishing and incidental catches in coastal waters in 1998 also contributed to Yakushima's loggerhead increase.

The Negative Impact of Tourism

Visitors to Yakushima began to increase in number in 1993 when the island was registered as a world natural heritage site. In line with this increase, numbers increased of those visiting Yakushima's beaches to watch sea turtles. As a result, sea turtles were increasingly obstructed from landing and laying eggs, and turtles were more frequently stepped on and killed on their way from hatching locations to the sea. To deal with these problems, in August 1999 Yakushima Umigame Kan (Yakushima Sea Turtle Center) launched nighttime turtle protection activities on Inakahama beach in cooperation with the Kagoshima Prefectural Government and Kamiyaku Town Office (now the Yakushima Town Office), in addition to its activities for protecting adult sea turtles. Umigame Kan roped off an approxi-

A volunteer measures a tagged turtle's back.



mately 300-meter-long section of the sandy beach with the greatest number of nests and called on visitors to exercise caution to avoid accidentally crushing newly hatched turtles approaching the ocean.

Sponsorship of the beach-roping activity moved from Umigame Kan to the Ministry of the Environment in 2002 when Inakahama, Maehama and Yotsusehama beaches in the Nagata district were incorporated into a national park. The Kamiyaku Town Office offered posts, Umigame Kan supplied rope, and the Ministry of Education performed its installation in cooperation with the Kagoshima Prefectural Government, Kamiyaku Town Office, Umigame Kan, and concerned local residents. Installation of turtle protection ropes used to begin in mid-July, but in 2008 the period was moved up to July 3 to coincide with the start of the incubation period in order to prevent more turtles from being crushed. In a further step, ropes were installed to mark off a

100-meter section of Maehama Beach, which hosts the greatest number of sea turtle nests, to protect turtles in the same period as on Inakahama.

Viewers of sea turtles numbered 1,672 in 1985 when the ecological study was launched. This number rose to 2,719 in 1993 when Yakushima island was registered as a world heritage site, to 10,285 in 2005 when the three beaches were registered under the Ramsar Convention, and reached 11,846 in 2008. The huge crowd began to significantly affect sea turtles' landing and egg-laying, and the

hatched turtles. Annual visitors to Yakushima surpassed 400,000 in 2007. The lowest estimates of annual visitors to Inakahama beach, including daytime visitors, exceed 200,000 considering the number of visitors to the island.

Catching sea turtles and collecting their eggs are activities governed by laws and ordinances. But no restrictions exist on watching sea turtles. Tour guides and others currently take customers to the beaches and show them sea turtles laying eggs and turtles, calling these "eco-tours."

Relevant administrative agencies have ignored the conditions surrounding turtle-viewing. Until 2008, they provided no response, with the exception of areas inside the ropes. They have taken no action against turtle viewers. Umigame Kan has conducted significant protection activities by relocating eggs and taking steps for protecting incubation, all on a voluntary basis. Responding to increasing numbers of sea turtles and people who

visit the beaches to watch them became difficult for Umigame Kan because it relies entirely on infrequent volunteers for its protection activities.

Sea turtle watchers can negatively affect sea turtles landing and laying eggs, and hatched turtles, in many ways. Car headlights shined onto the beach and human shadows have caused landed sea turtles to head back to the sea. Many sea turtles began to come ashore after 11 p.m. when few people visit the beaches. At present, the ban on human entrance inside the turtle protection ropes has no legal jurisdiction. Many people go inside the ropes because the off-limit rule is only a request. Because of the foot-crushing caused by this situation, only 30% to 40% of hatched turtles make it through the sand and reach the sea, which is an extremely low rate. There is concern that this low departure rate may lead to future decline in the sea turtle population under the current situation in which the probability of a turtle growing up to become an adult

Umigame Kan's activities were recognized by a state agency in the United States, which subsidized the group for five years until 2008. In exchange, Umigame Kan supplied all its data on egg-laying frequencies and incubation studies to the agency. From December 8–10, 2008, officials from White House agencies corresponding to Japan's Ministry of the Environment and Fisheries Agency, along with U.S. sea turtle researchers, visited Japan and explained to the Ministry of the Environment, Fisheries Agency and Yakushima Town Office that loggerhead turtles in Yakushima are rare wildlife from a global viewpoint, and they should be protected at any cost.

Action Plan

At present, Umigame Kan is undertaking ecological research on sea turtles and activities for protecting them with its limited funds and staff. Umigame Kan performs its activities all night long and throughout the sea turtles'

affecting Umigame Kan's activities for studying and protecting sea turtles. Sandy beaches are decreasing in size, their privately owned hinterlands are undergoing development, and visitors are descending on them to watch the turtles. These conditions, I believe, will negatively affect the ecology of sea turtles, particularly their incubation, and accelerate a sea turtle population decrease in the future if they remain unchanged.

The following actions are apparent solutions for the problems described.

- 1) Continually supply sand and create sandy beaches of sufficient depth in response to the decreasing size of sandy beaches.
- 2) Create a hinterland environment for Inakahama beach. The hinterlands can be developed freely now because they are private property. Attempt to protect the hinterlands by restricting their development or acquiring the land.
- 3) Relocate nests the night they are found to be in danger of washouts or accidental crushing by sea turtle watchers.
- 4) Give lectures to egg-laying observers, and restrict their numbers.
- 5) Keep the habitats of sea turtles and humans separate. Restrict human entrance or, in the worst cases, designate sections inside as complete sea turtle sanctuaries when ropes are installed for protecting turtles.
- 6) Offer places for study to local residents who view sea turtles as a tourist attraction, so that they can gain accurate knowledge. Develop better methods for observation.
- 7) Develop an organization that includes administrative bodies and non-governmental organizations, and try to protect sea turtles and the environment through this organization.



Volunteers move a batch of turtle eggs that is in danger of being washed into the sea.

sea turtle is said to be one in 5,000.

The turtle incubation rate is higher on the edges of the beaches visited by fewer people. Results also show that the incubation rate is higher from mid-August to September versus July to mid-August when the greatest number of people visits the beaches to watch the turtles.

arriving season on a voluntary basis. Umigame Kan would like to maintain a regular staff of at least ten volunteers for its nighttime activities. However, securing volunteers for a research period that continues for more than five months is difficult, except in August during college summer vacation. This manpower difficulty is significantly

The Ministry of the Environment has begun to take action in recent years. I believe activities for protecting the loggerhead turtles of Yakushima island, which are important wildlife from a global viewpoint, can take place in a harmonious and sustained manner if and when the problems stated above are resolved. □

Kazumi Omuta is head of Yakushima Umigame Kan.