

**The Third East Asia Regional Meeting**  
**At**  
**The 34<sup>th</sup> Annual Symposium on Sea Turtle Biology and Conservation**  
**April 13, 2014**

**Summary Report**

**1. Welcome**

Dr. Yoshimasa Matsuzawa opened the meeting by welcoming all attendees and welcoming their participation. He explained that this meeting provides a forum for symposium participants who work in the East Asia region (including geographic areas of Japan, Taiwan, mainland China, Hong Kong and Korea) to share information and foster collaboration in the region. He thanked the Western Pacific Regional Fishery Management Council for sponsoring the meeting.

**2. Participant Introductions**

Dr. Matsuzawa asked each participant to introduce themselves.

Dr. Takashi Ishihara is with the Suma Aqualife Park and Sea Turtle Association of Japan (STAJ), and is a biologist studying loggerhead turtles in Japan.

Yuji Tsuruta is a graduate student at the Osaka Prefecture University and is researching loggerhead turtles in Wakayama Prefecture, Japan.

Keiji Nakazawa, Ayumi Sada, Yuhi Hayakawa, Shiori Yamamoto, Takeshi Ueno, Ryota Okada, Miu Kobayashi, Kaoru Nukui, Takuro Matsuo, and Kosuke Yoshida are members of the Sea Turtle Research Collegium at the Tokyo University of Marine Science and Technology.

Asuka Ishizaki is with the Western Pacific Regional Fishery Management Council based in Hawaii.

Satomi Kondo is with the Everlasting Nature of Asia (ELNA) and works in the Ogasawara Islands.

Saki Hashimoto is currently an intern with Sea Turtle Inc. at South Padre Island. She worked with ELNA last year in Ogasawara.

Wan-Hwa Cheng is a graduate student at the University of Central Florida and is conducting research on habitat models for sea turtles in East Asia.

Hiroyuki Suganuma is with ELNA and works in a number of locations including Ogasawara and Indonesia.

Ayaka Asada is a graduate student at Texas A&M and is studying diving behavior and foraging ecology of leatherback turtles.

Irene Kelly is the Sea Turtle Recovery Coordinator for NOAA Fisheries Pacific Islands Region.

Karen Frutchey is with the University of Hawaii Joint Institute for Marine and Atmospheric Research (JIMAR) and NOAA Fisheries.

Cheng Tsung Tseng is a graduate student at the National Taiwan Ocean University and is studying sea turtle leeches.

Dr. I-Jiunn Cheng is a sea turtle biologist at the National Taiwan Ocean University.

Peter Kowalski is a graduate student of Dr. Cheng at the National Taiwan Ocean University and is studying sea turtle gene flow between Taiwan and Japan.

Pat Opay is with NOAA Fisheries in Hawaii.

Anna Stamatiou is with MEDASSET and is based in the Mediterranean.

### **3. Presentations: Research and Conservation in the Region**

Presentations on research and conservation activities in the East Asia region were solicited in advance of the meeting, with a total of five talks submitted.

#### ***a. Kosuke Yoshida, Introduction of Sea Turtle Research Collegium, Tokyo University of Marine Science and Technology***

Sea Turtle Research Collegium (SRC) of Tokyo University of Marine Science and Technology was founded in 2003. The group consists of undergraduate students only and is not affiliated with a specific department at the University. Technical advice is provided by Everlasting Nature of Asia (ELNA). The SRC's main activities are research of digestive tract contents collected from sea turtles stranded in the Kanto Region of Japan and conducting educational activities targeting elementary school students. SRC, in collaboration with students from other universities, also founded an annual student-symposium where students studying sea turtles gather and have active discussion. SRC members travel to some of the nesting sites during summer break to learn more about turtles that strand in Kanto, and have worked with the Ogasawara Marine Center and Kuroshima Research Station. SRC also plans to study sea turtles in Hachijo in the future, where the objective will be to gather information about sea turtles in the coastal areas from divers. Not having a professor and not being affiliated with a department often causes funding difficulties for SRC, but students have the ability to select research topics and decide on activities freely. Yoshida asked the meeting participants for their thoughts on what kind of research or conservation activities an undergraduate group could conduct.

Meeting participants suggested identifying faculty members at the university interested in sea turtle research to work with the group or to serve as technical advisors. Working with faculty members may provide additional sources of funding for SRC's activities. Meeting participants

also suggested using crowd funding through existing websites as an alternative approach to funding activities.

**b. I-Jiunn Cheng, *An Amazing Ambassador: What Sea Turtles Can Do for Us***

Turtle researchers usually think about sea turtles as endangered species that need active protection plans. However, sea turtles can also act as an effective medium to promote coalescence of conservation with industry, religion, possible international cooperation and public awareness campaign. In January 2014, a stranded female green turtle with a Japanese tag was rescued from the inlet channel of a Taipower thermal power plant in Taoyuan County, northern Taiwan. According to the pathological examines and weather conditions, she was diagnosed as cold-stunned after intestinal obstruction by anthropogenic materials and undigested encrusting sponges. This is the first female adult green turtle ever rescued since 2009, and the first cold-stunned case in Taiwan. Communications with Dr. Yoshimasa Matsuzawa of the Sea Turtle Association of Japan regarding the tag resulted in a referral to the Everlasting Nature of Asia (ELNA)'s Ogasawara Office, who confirmed that the turtle was tagged and released by the research team of ELNA on June 18, 1994 on the uninhabited island of Hirashima in Ogasawara.

According to Taiwan's wildlife conservation law, all rehabilitated sea turtles should be released back to the wild in the same county as it was rescued. Taipower Company decided to hold the release ceremony. By working in partnership with them, Taipower Company became actively involved in sea turtle conservation campaigning by learning about sea turtle biology, conducting beach cleaning and inviting six local school children to join the ceremony. The turtle was released in the morning of April 2, 2014 at Guanyin Beach. Guanyin is one of the three Buddha in Buddhism. This inspires Buddhists a lot, and 280 at-home Buddhists joined the ceremony. Several groups including Taipei Office, Interchange Association, Japan and Ministry of Foreign Affairs ROC, also attend the ceremony. A satellite tag was deployed to determine where she goes after the release. Under the witness of Buddha, a total of more than 600 people celebrated the rebirth of a green turtle that nested in Japan. Little do we understand how sea turtle can acts as an ambassador to bridge the conservation with industry, religion and possible international cooperation.

Meeting participants commented that this provides an example that sea turtles can be a catalyst for international cooperation. Matsuzawa reported that he recently received a card from the students who attended the release ceremony. Meeting participants also asked whether the recaptured turtle had been seen in Ogasawara since 1994, and whether the turtle had grown since its first capture record. Hiroyuki Suganuma and Satomi Kondo of ELNA responded that the turtle was tagged at an uninhabited island and had not been resighted since, but they were unable to confirm during the meeting whether the turtle had grown.

**c. Satomi Kondo, *Importance of Monitoring Survey on Sea Turtles Using an Example of Ogasawara's Green Turtles, *Chelonia mydas****

The Ogasawara Islands is globally recognized as one of the important rookeries for green turtles (*Chelonia mydas*). Kondo presented information about monitoring methods and results of the number of nests, predation, other damages on eggs and the number of hatchlings of Ogasawara's

green turtles in 2012. Monitoring activities were conducted at 57 nesting sites in three island groups; Chichijima group, Hahajima group and Mukojima group. Landing tracks and nests were counted and recorded throughout the nesting season. All the shells were subsequently dug out after the predicted hatching date and shells were categorized and counted. The eggs were categorized into ‘successfully hatched’, ‘preyed’, ‘washed out’, ‘inundated’ and ‘damaged by other reasons’. Preyed eggs were further categorized into different predators. Nests counts provide an understanding of present status of nesting females, whereas egg categorizations help predict future trend.

Eggs preyed by crabs and termites occupied over 70% of the nests in 2012. Although hatching success varies from site to site, the average hatching success rate was 29.3% in Chichijima Island. A total of 65,943 hatchlings emerged were supposed to enter the sea. The full- scale monitoring on nests started in 1976 and the number of nests increased dramatically in the past few years, although around 4 years of remigration frequency showed the fluctuation of abundance of the nests. The total number of nests in Chichijima reached 1,919 in 2012, which was the highest since the research had begun. Long-term monitoring is necessary to understand present population status and predict future trend. Moreover, nest counts as well as survey of predation and other damages are essential to understand environmental and anthropogenic influences, which is a significant importance to implement adequate management and apply effective protection.

Meeting participants asked how many of the islands in Ogasawara are uninhabited and what percent of the nests are studied for hatching success. Kondo responded that only two islands are inhabited and there are about 30 additional islands that are uninhabited. Day surveys are conducted for most beaches, although some surveys are conducted through extended camps. She also noted that they attempt to conduct hatch success surveys on all nests, with about 95% of the nests actually surveyed.

#### **d. Takashi Ishihara, *Sea Turtle Bycatch on Coastal Fisheries around Japan and Differences on the Fishing Methods***

A nationwide interview survey was conducted from 2009 to 2013 to evaluate sea turtle bycatch in coastal fisheries around Japan. Interviews with a total of 1,074 fishermen and other industry representatives were conducted at 175 sites, and 2,087 responses regarding fishing methods were gathered. Forty seven fishing methods were recorded, most common being gill nets with 400 responses, followed by rod/line fishing (244 responses), trolling (182), bottom trawl (175), small pound net (163), longline (132), diving (112), aquaculture (96) and large pound net (89). The proportion of large pound net, small pound net, gill net, bottom trawl and longline in this study were greater than those of fishery census of all management entities in Japan.

There were nine fishing methods with at least one response indicating a Class 3 (namely, 6-10 turtles/yr) or higher bycatch frequency. These methods were large pound net, small pound net, gill net, bottom trawl, boat seine, longline, surrounding net, rod/line fishing and trolling. Bycatch frequency varied widely, even for same fishing methods and there were many answers of low bycatch rate (namely, class 1 [ $<1$  turtle/yr] and 2 [1-5 turtles/yr]) in the aforementioned categories. Of the 76 responses regarding bycatch frequency in large pound nets, 32.9% were

class 2 and 23.7% were class 3. There were 26 valid responses regarding sea turtle species, with green turtles (4 answers) and loggerhead turtles (10 answers) being most prevalent. Second to large pound nets, bycatch frequency in small pound nets was also high. Twenty two of 115 (19.1%) valid responses were higher level bycatch frequency (class 3 or more). Between 89.6-97.9% of the responses regarding bycatch frequency in gill net, bottom trawl, boat seine, longline, surrounding net, rod/line fishing and trolling were concentrated in class 1 and 2, with class 1 alone occupying 60.6-97.8%.

Meeting participants asked a number of clarifying questions including the number of pound nets in Japan, the size of turtles caught, main season for pound net bycatch, and whether turtles were caught alive or dead. Ishihara explained that there are about 500-800 large pound nets, and over 6,000 small pound nets, with the large/small distinction defined based on setting depth. The size of the turtles caught depends on the fishing method and locality, although in general green turtles are usually larger than 40cm and loggerheads are usually larger than 60cm, similar to sizes observed for stranded turtles. Season of pound net bycatch also depends on the management entity, as some pound nets only operate seasonally while others operate year-round. Based on previous studies, Ishihara expected that approximately half of all pound nets were closed-type pound nets (i.e., higher turtle mortality), but the current study suggested that only 10-20% may be closed-type and as such sea turtle mortality from pound net bycatch may not be as high as originally thought.

**e. Yoshimasa Matsuzawa, *Why Were Many Young Loggerheads Found on the Coast of the Japan Sea During the Winter of 2012-2013?***

Most loggerhead turtles are found on the Pacific coast side of Japan, and their distribution in the North Pacific is explained by the Kuroshio current. Sea turtles in the Japan Sea are not well known, and there are very few people studying sea turtles on the Japan Sea coast. Less than 10 turtles are reported from the Japan Sea annually, usually due to cold-stunning events during the winter. However, during 2012-2013, 116 loggerheads were found stranded and 16 loggerheads were bycaught in the Japan Sea. Other species such as green turtles and hawksbill turtles were also found, and a total of 232 turtles were found in 2012-2013. Most of the stranded turtles were juveniles <20cm. These findings raised questions about where these turtles are coming from and why there was an increase in 2012-2013.

One possibility is that the juveniles are coming from the southern islands of Nansei Shoto, given that there was no notable increase in nesting on the Japan Sea Coast in 2012. Concurrently, unusually large numbers of *Entada* spp. seeds found commonly in the Nansei Islands were found on the Japan Sea Coast in the winter of 2012-2013. In addition, 2012 marked a year of unusually large number of typhoons passing the Amami islands where the Tsushima Current separates from Kuroshio. This leads to a hypothesis that the typhoons caused sea turtle hatchlings to drift more toward the Japan Sea on the Tsushima Current than in typical years, presenting an opportunity for additional research on the Japan Sea Coast.

Meeting participants commented that bycatch at a small pound net station in the northeastern part of Taiwan usually occurs from late November through spring, and juvenile turtles are usually caught. Matsuzawa added that Dr. Moon, a turtle researcher in Korea, has studied cold stunning

and he hopes to continue working with Dr. Moon to better understand cold stunning along the Japan Sea. Meeting participants also asked whether there is good information to support the hypothesis that typhoons are a cause for the increased turtle records in the Japan Sea. Matsuzawa noted that the rare nature of turtle strandings in the Japan Sea means that most cases are reported in the media and recorded by the Sea Turtle Association of Japan, and there are about 10 years of stranding records so far. With respect to the typhoons as a cause, Matsuzawa responded that he examined about 50 years of typhoon data so far, but additional information is necessary to examine changes in currents during typhoon events.

#### **4. Updates from Participants, Information Exchange and Discussion**

No additional updates were provided by the meeting participants.

#### **5. Future Meeting Operations**

Matsuzawa indicated that he would like to have another meeting next year concurrent with the International Sea Turtle Symposium. Ishizaki asked participants to follow up with the coordinators if they have any suggestions about future meetings.

#### **6. Other Discussion and Closing**

With no other discussion, Matsuzawa thanked the participants and closed the meeting.

## List of Participants

*In alphabetical order by last name:*

<u>Name</u>	<u>Affiliation</u>
Ayaka Asada	Texas A&M University
I-Jiunn Cheng	National Taiwan Ocean University
Wan-Hwa Cheng	University of Central Florida
Karen Frutchey	University of Hawaii Joint Institute for Marine and Atmospheric Research (JIMAR)/National Marine Fisheries Service Pacific Islands Regional Office
Saki Hashimoto	Sea Turtle Inc., South Padre Island
Yuhi Hayakawa	Sea Turtle Research Collegium, Tokyo University of Marine Science and Technology
Takashi Ishihara	Suma Aqualife Park/Sea Turtle Association of Japan
Asuka Ishizaki (Co-organizer)	Western Pacific Regional Fishery Management Council
Irene Kinan Kelly	National Marine Fisheries Service Pacific Islands Regional Office
Miu Kobayashi	Sea Turtle Research Collegium, Tokyo University of Marine Science and Technology
Satomi Kondo	Everlasting Nature of Asia (ELNA)
Peter Kowalski	National Taiwan Ocean University
Takuro Matsuo	Sea Turtle Research Collegium, Tokyo University of Marine Science and Technology
Yoshimasa Matsuzawa (Co-organizer)	Sea Turtle Association of Japan/Suma Aqualife Park
Keiji Nakazawa	Sea Turtle Research Collegium, Tokyo University of Marine Science and Technology
Kaoru Nukui	Sea Turtle Research Collegium, Tokyo University of Marine Science and Technology
Ryota Okada	Sea Turtle Research Collegium, Tokyo University of Marine Science and Technology
Pat Opay	National Marine Fisheries Service Pacific Islands Regional Office
Ayumi Sada	Sea Turtle Research Collegium, Tokyo University of Marine Science and Technology
Anna Stamatiou	MEDASSET
Hiroyuki Suganuma	Everlasting Nature of Asia (ELNA)
Cheng Tsung Tseng	National Taiwan Ocean University
Yuji Tsuruta	Osaka Prefecture University
Takeshi Ueno	Sea Turtle Research Collegium, Tokyo University of Marine Science and Technology
Garance Weller	Argos CLS
Shiori Yamamoto	Sea Turtle Research Collegium, Tokyo University of Marine Science and Technology
Kosuke Yoshida	Sea Turtle Research Collegium, Tokyo University of Marine Science and Technology