

An update on sea turtle strandings and rescue in Taiwan

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Marine turtles are ecologically important, charismatic animals found in virtually all marine realms, though their numbers are in decline worldwide (Spotila et al., 1996, Jackson et al., 2001). Major threats to sea turtle populations include habitat degradation (Wang and Li, 2008), direct fishing and/or by-catch (Cheng and Chen, 1997; Wang and Li, 2008; Cheng et al., 2018), pollution and marine debris (Lam et al., 2006; Wabnitz and Nichols, 2010), egg harvesting (Jones et al., 2016), and disease (Chen et al., 2012; Keller et al., 2014). Of the seven marine turtles species on Earth, five have been reported around Taiwanese waters: green (*Chelonia mydas*), loggerhead (*Caretta caretta*), olive ridley (*Lepidochelys olivacea*), hawksbill (*Eretmochelys imbricata*), and leatherback (*Dermochelys coriacea*; Fong et al., 2010; King et al., 2013; Kuo et al., 2017). In Taiwan, the Ocean Conservation Administration (part of the Ocean Affairs Council) has established a Marine Animal

Rescue Network (MARN) that oversees the rescue of stranded sea turtles and cetaceans around the nation. Members of the MARN include the Coast Guard Administration (CGA; Fig. 1), the county government, research institutes, and local organizations and volunteers. Initial reports of strandings are typically made to the CGA. Following examination, visibly healthy sea turtles are directly released. However, those suffering from injuries, emaciation, or other abnormalities are normally transported to a nearby rehabilitation facility (discussed in more detail below) for further veterinary care. As public awareness for marine turtle conservation has increased, there has been a corresponding rise in the numbers of stranded sea turtles reported (see Fig. 2 for data from the past five years.).

In 2018, a total of 172 stranded sea turtles, including 142 green, 15 hawksbill, 5 olive ridley, 6 loggerhead, 1 leatherback, and 3 unidentified species were found in



Fig. 1. Taiwanese coast guard employees rescuing stranded and/or injured sea turtles.

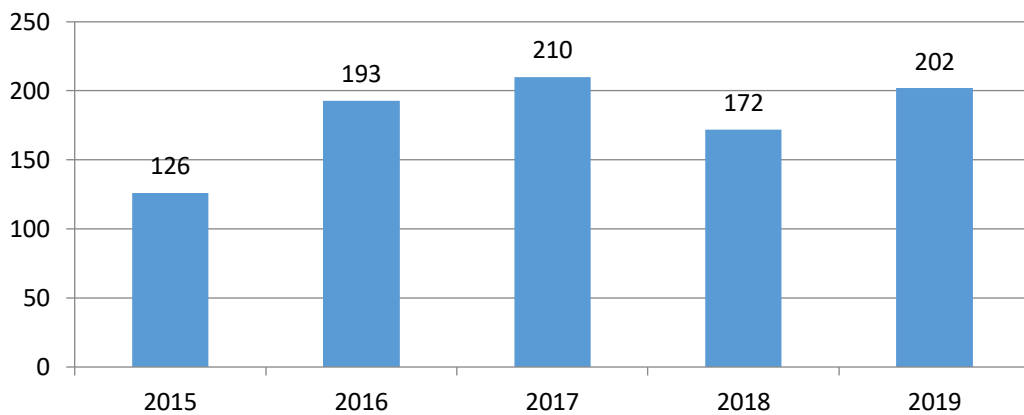


Fig. 2. The numbers of stranded sea turtles reported in Taiwan between 2015 and 2019 (as of September).

Taiwan (Fig. 3). Of these 172, 105 (61%) were dead, with only 18 (10%) deemed healthy and directly released after physical examination. The remaining 49 turtles (29%) were sent to sea turtle rehabilitation facilities for medical care. In terms of

spatial distribution (by county), higher numbers of stranded sea turtles were reported in Northern Taiwan (Fig. 4): 43 from New Taipei City and 29 from Yilan County. In Penghu County 22 stranded sea turtles were observed, and 40 were

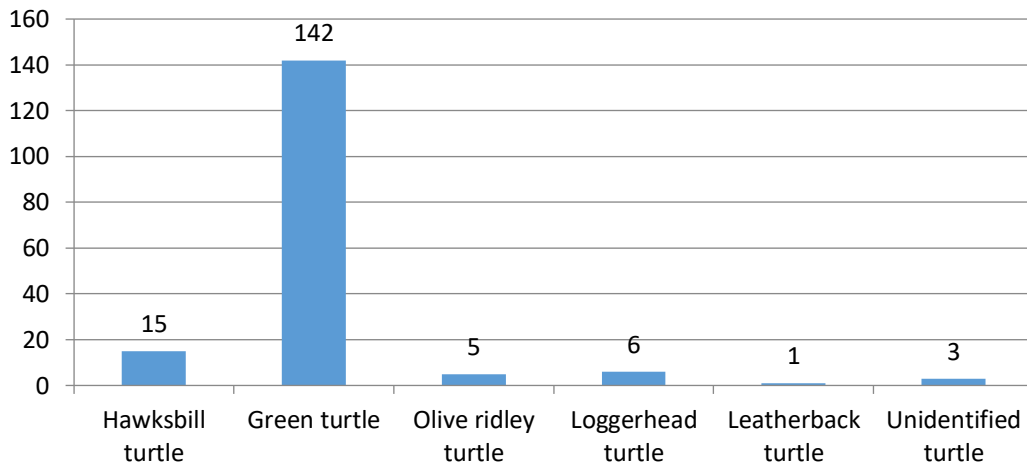


Fig. 3. Counts of stranded sea turtles by species in Taiwan in 2018.

documented in Southern Taiwan (20 each in Taitung and Pingtung counties). Fewer stranded sea turtles were observed in Eastern Taiwan (Fig. 4).

At present there are three sea turtle rehabilitation facilities in Taiwan: the Penghu Fisheries Research Institute, National Taiwan Ocean University (NTOU), and the National Museum of Marine Biology and Aquarium (NMMBA). NTOU handles the northern half of the country (Taichung city to Hualien County), with NMMBA in charge of the southern counties. Successfully rehabilitated sea turtles are generally released into the wild after treatment by staff veterinarians;

environmental education and public awareness are key during the treatment and release stages, and members of the public are allowed to observe the process. There is an emphasis on understanding how each sea turtle was injured/stranded, as well as informing the public as to the operations of the sea turtle “convalescent ward.” Following a brief lecture on sea turtle conservation to those members of the general public in attendance (*i.e.*, volunteers assisting in the efforts), the rehabilitated sea turtles are then released back to the ocean (Fig. 5).

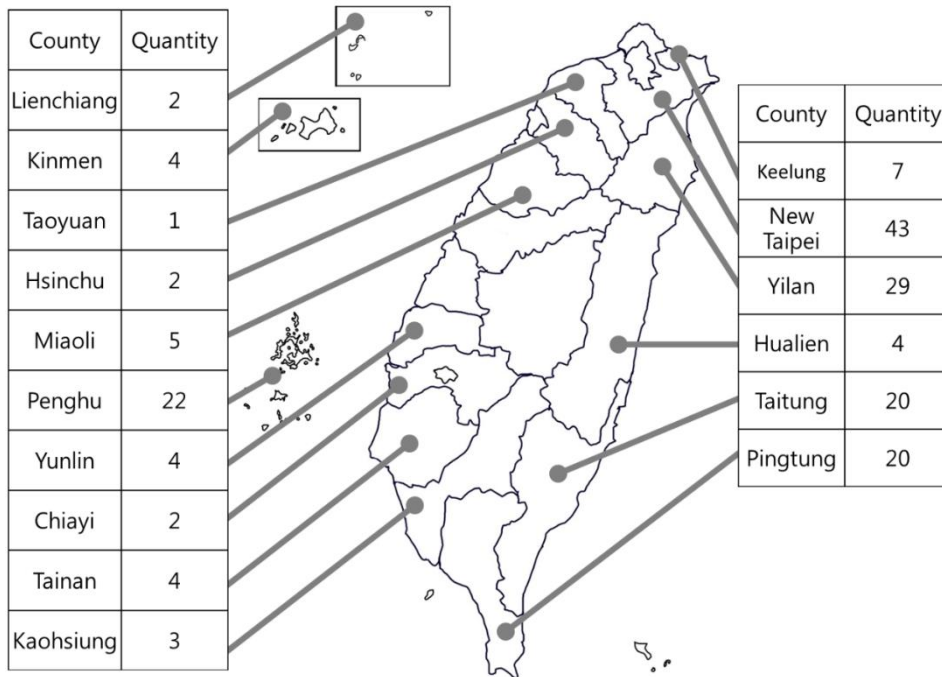


Fig. 4. Stranded sea turtles reported from each county in 2018.



Fig. 5. The National Museum of Marine Biology and Aquarium's sea turtle conservation and wild release program.

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DOI: 10.29926/PLATAX.201912_2019.0006

Platax 16: 77-81, 2019