Conservation and Sustainability of Turtle in Bakungan Island of Sandakan and Bohey Dulang Island of Semporna, Sabah, Malaysia

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Abstract
The writing of this paper aims to report on the results of research conducted on the conservation and sustainability of turtle in Bakungan Island, Sandakan and Bohey Dulang Island, Semporna in Sabah, Malaysia. Nowadays, turtles have been categorized as among the endangered species of life due to various factors. In fact, this study aims to find out what is the alternatives of conservation and survival of newborn turtle in addition to continuing to release the newly born turtle into the sea only. Based on the study, the method of releasing newly born turtles into the sea is no longer practical nowadays due to the existence of various predators in the coastal areas. The results from this study showing this problem can be overcome by not releasing the newly born turtle directly into the sea but preserved this newly born turtle until the shell of the turtle shell has become hard by using several methods such as the pond, tank and cage.

Introduction

Turtles are among the marine life that belong to vertebrates (backbone) in the class of reptiles similar to snakes, lizards, turtles, labi-labi and tuntung. Studies show that these animals have been going back millions of years, namely in the Jurassic period (145-208 million years) and contemporaries of dinosaurs. Nowadays, these animals have been gazetting as protected life as they are threatened with extinction by human activities and are among the important assets for eco-tourism purposes. Nowadays, the sustainability and future of turtle species around the world seems to be already threatened by the collection of turtle eggs, capture for commercial purposes, sea pollution, climate change and

so on. Sabah, which is surrounded by the South China Sea, the Sulu Sea and the Celebes Sea and is blessed with dozens of islands and hundreds of coral patches, is one of the waters suitable for turtle habitat.

Purpose of Research

There are several purposes for which this study was carried out. Among them are the need to identify the continuity of breeding and conservation program for turtle cubs based on the hatchery method carried out by Sabah Parks; to assess the extent to which the method of releasing newly hatched and directly released turtle and continue to be released into the open sea is still relevant in the breeding and conservation efforts of turtles in Sabah taking into account the present reality; know why the new turtle cubs that are hatched and continue to be released into the open sea have trouble surviving and ultimately cause the number of turtles to decrease and finally set out other suggestions that can be used as a new alternative to overcome the problem of the survival of turtle breeding and conservation programs in Sabah.

Turtle Conservation and Sustainability

Currently, there are three major turtle breeding and conservation centers in Sabah, namely the Turtle Islands in Sandakan (Selingan, Bakungan, and Gulisan Islands) and Sipadan Islands in Semporna which are operated by Sabah Parks. To this end, turtle hatcheries have been set up on these islands and are fully guarded by the staff of Sabah Parks. For this purpose, the eggs of the turtles will be collected at night and will continue to be planted in the hatchery and will hatch in the period between 40-60 days. To date, the breeding method of turtles carried out by Sabah Parks is still based on the natural law of releasing new hatched turtles into the sea. However, the results of the study found that this natural method (hatchery) of releasing the newly hatched turtle cubs into the sea also invites a thousand and one questions. Based on the monitoring carried out, the efforts to breed and raise the turtle cubs until adulthood were not as expected. This is due to the existence of various predatory animals such as beavers and storks, fish, squids and so on. In addition, this study found that there are also turtle stuck dead on the fishing trawler's net. In fact, a review should be done to address these issues and questions and use other methods and perspectives.

Discussions

Although these animals have been gazetting as protected life under the Sabah Parks (Amendment) Enactment 19, Markets Forelife Enactment 1997 and the Malaysian Fisheries Act 1985, these animals continue to be hunted as they are in high demand in the domestic and international markets such as eggs, skins and meat. For example, on May 3, 2004, the Sabah Marine Police arrested a Chinese fishing boat on the island of Mengalum and found 130 turtle carcasses, 30 turtle shell and three surviving turtles. On 26 March 2009, a group of fishermen from Hainan, China were detained by the Malaysian Maritime Enforcement Agency (MMEA) for illegally carrying out fishery activities in the waters off Mantanani Island near Kota Belud on the west coast of Sabah. In the arrest, the Sabah Marine Police found 74 turtles from green and hawksbill species including six still alive. Two days later, on 28 March 2009, the MMEA again detained a Vietnamese fishing boat about 18 nautical miles from the waters of Mengalum Island and found 20 turtles.

In addition to being caught and killed by foreign fishermen to obtain their meat and skins for the international market, the turtles in Sabah are also under threat in terms of their breeding. According to a survey conducted around the Sandakan market, the sale of turtle eggs is still underway despite being completely banned by the Sabah Fisheries Department and the Sabah Wildlife Department. It is even more surprising that turtle eggs from Sabah have also been sold openly at the Payang Central Market in Terengganu. In the meantime, the expedition also found several turtle carcasses floating on the surface of the water in the Sulu Sea and the South China Sea which are believed to have been caught and suffocated during the accidental fishing activities using tow trawlers, trawlers and explosives.

Results and Findings

Considering the issues and questions mentioned earlier, this study and writing suggest that the conservation and sustainability methods of turtle using cages, tanks and ponds are practiced as an alternative to the hatchery method and the direct release of newly hatched turtle cubs into the sea. Through this method, the survival of turtle is believed to be more secure as the shells of turtle have become harder than the newly hatched, larger in size, capable of swarming the sea and

predators and so on. In fact, this study and writing suggest three (3) methods used which are (1) cage (2) tank and (3) ponds as shown below.

Photo 1: Cage Method

Source: Bakungan Island in Sandakan

Photo 2: Tank Method

Source: Bakungan Island in Sandakan

Photo 3: Pool Method

Source: Bakungan Island in Sandakan

The results and findings from this study found that all three methods of using a social science perspective seem to have shown positive and encouraging results. The results of this study have been successful in raising turtles as shown in Table 1 and the photos below.

Table 1: Expansion of **Turtle Child Growth in Bakungan and Bohey Dulang Island Between January 2022-October 2022**

MEASURE	JAN	FEB	MAC	APRIL	MAY	JUN	JULY	AUGUST	SEPT	OCT
WEIGHT (GRAM)	29.5	30.1	30.5	30.6	31	31	33	33.5	33.8	33.8
LONG (MILLIMETER)	4.8	4.9	5.1	5.2	5.2	5.2	5.4	5.4	5.6	5.6
WIDE (MILLIMETER)	3.9	4	4.2	4.2	4.2	4.2	4.2	4.2	4.4	4.4

Source: Bakungan Island in Sandakan

Photo 4: Measuring the Size of the Newborn Turtle

Source: Bohey Dulang Island in Semporna

Photo 5: Comparison Size Between Newborn and Ten-Month Turtle

Source: Bakungan Island in Sandakan

Conclusion and Further Research

The survival of turtle nowadays seems to be unsecure and requires human intervention to help its sustainability. In fact, the use of cages, ponds and tanks is among other alternative methods that can be practiced in the conservation and survival of turtles to continue to be part of the marine ecosystem and contribute to the development of a country, especially the marine-based tourism industry.

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