Global Re-introduction Perspectives: 2011

More case studies from around the globe
Edited by Pritpal S. Soorae

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Results from an experimental head starting program for hawksbill sea turtles in the UAE

Himansu S. Das

Environment Agency-ABU DHABI, P. O. Box 45553, Abu Dhabi, United Arab Emirates *hsdas@ead.ae*

Introduction

In the Arabian Gulf, the most common and principal species of concern are the hawksbill turtle (*Eretmochelys imbricata*) and green turtle (*Chelonia mydas*) which are also the focus of considerable conservation efforts by the IUCN's Marine Turtle Conservation Program. These two species extensively use UAE waters for foraging and the hawksbill sea turtles use the sandy beaches of several offshore islands of the country for nesting. The hawksbill turtle (*Eretmochelys imbricata*) has declared as an endangered species by IUCN since 1970 and its status has not improved to date. Sea turtles are affected by numerous anthropogenic factors including degradation and loss of nesting habitats, water pollution and impact on hatching success. These threats notwithstanding, the mortality of turtles during the early stages of their life history is relatively high. The hawksbill sea turtle rearing and release (head-starting) program at Jarnain off the coast of Abu Dhabi is an attempt at enhancing wild hawksbill turtle populations in the area.

Goals

- Goal 1: To develop methods of rearing hawksbill hatchlings in captivity with minimum mortality.
- Goal 2: To undertake rearing and release of a small proportion of wild sea turtle hatchlings with the objective of enhancing sea turtle populations in the wild.

Hawksbill turtle © Edwin Grandcourt

Success Indicators

- Indicator 1: Mortality in captivity is less than 30%.
- Indicator 2: Released turtles to become part of the wild nesting population as evidenced by recapture.

Project Summary

Feasibility: A rearing unit was established at Jarnain, an island 140 km off north-west of Abu Dhabi. The unit is fenced

Hatchlings being released into the sea

by thick mesh net to protect tanks from direct sunlight. A small proportion of hatchlings from natural nests of the island are collected for rearing. Tanks of two different diameters (0.6 m and 4.8 m) are placed in a linear fashion to facilitate easy inflow and out flow of seawater through underground pipes. Hatchlings are fed 2% of their body weight with high protein diets (floating 2 mm pellets, 35% protein (TILAPIA 40 CP, ARASCO, Riyadh, KSA). Hawksbills are aggressive in captivity and bite on soft body parts, at times causing serious injuries. The injured hatchlings are treated in nursery tanks until they recover. Once the hatchlings reach a certain age (2, 4, 6 and 12 months) and weight (100 g, 250 g, 400 g and 600 g), they are released, preferably during late evening at the same beach from where they were collected. A small percentage (5%) of hatchlings were reared for over 1 year (yearlings) and tagged before release.

Implementation: A total of 2,640 healthy reared hatchlings including 48 tagged yearlings were released to the sea in last four years. No tag recovery has been reported to date. Behavior and growth of hatchlings in captivity has been documented. Procedures to minimize mortality during the experiment have been developed and standardized. Since main objective of this experiment was to increase the sea turtle population in the wild, hatchlings (hawksbills) were retained for a maximum period of one year. However most (>80%) of the hatchlings were released by the end of 6 months.

Post-release monitoring: The Jarnain experiment in the UAE has been a successful program as long as rearing is concerned however, till we receive tag returns, the objective is not achieved. It is difficult to conclude that the reared turtles have survived well in the wild and have become part of the reproductive population in the region. Hunting of sea turtles in the Arabian Gulf does not exist and the ban of drift net fishing has minimized the suffocation related deaths of turtles. Hence, direct pressure on species is minimal in UAE waters. However, the foraging and nesting habitats of sea turtles in UAE are under natural and anthropogenic pressure. Survey and monitoring of sea turtle nesting, foraging habitats in UAE waters is underway, and the conservation action plan is being implemented. If the habitats are protected, with the existing “no-direct-pressure” on species, we should have a very healthy wild population of sea turtles in this region. By releasing head-started hawksbills to the wild in large numbers, we may create a situation where imbalances in natural resources arise and pressure on critical marine habitats, coral reef and seagrass beds increased. This kind of

natural imbalance may result in various problems pertaining to resource sharing among marine wildlife and habitat. Under this dilemma, results from tag return from the released stocks will provide vital information on head starting as a conservation tool for hawksbills and other species of sea turtles.

Major difficulties faced

- Injury and infection in hatchlings while in rearing tanks.
- Unavailability of long-lasting tags for hatchlings/yearlings.
- Lack of techniques to monitor released hawksbills.
- Remote location of experimental site.

Major lessons learned

- Head starting may not be the best tool for conservation of sea turtles.
- For marine migratory species such as sea turtles, protection of habitat is crucial.
- Re-introduction programs should not be initiated if there is no well defined feasible post release monitoring plan.

Success of project

Highly Successful	Successful	**Partially Successful**	Failure
		√	

Reason(s) for success/failure:

- Lack of proper monitoring plan.

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