



Marine Turtles Culture



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Introduction

Sea turtles are toothless reptiles whose bodies are covered by hard shells. The top shell is called the carapace; the bottom shell is called the plastron

About 7-8 species around the world, five of them occur in Arabian Gulf as follow:



1- السلاحف الخضراء

Scientific Name: *Chelonia mydas*

Common Name: Green turtles



2- سلاحف منقار الصقر

Sci. N.: *Eretmochelys imbricata*

Common N.: Hawksbill turtles



3- السلاحف الرومانية

Scientific Name: *Caretta caretta*

Com. N.: Loggerhead turtles



4- سلاحف ردي الزيتونية

Sci. Name: *Lepidochelys olivacea*

Com. N.: Olive ridely turtles



5- السلاحف النملة

Sci. N.: *Dermochelys coriacea*

Com. N.: Leatherback turtles

Biology

They have long life span, between 100 and 200 years. They can't tolerate low temperatures and generally die at less than 8°C.

Turtles have good eyesight and smell, but poor hearing. Most species are omnivorous, though in some species immature are carnivorous and adult herbivorous

Each of the marine turtle species is listed by the World Conservation Union as being Critically Endangered or Endangered (IUCN 1996).

**general life cycle that encompasses three major habitat areas:
the nesting beach,
the open ocean and
the shallow foraging areas**

Marine turtles move thousand kilometers between these areas

Reproduction Processes

Some turtles reach maturation within one year, others may be need ten years

All marine turtles have nearly same reproduction cycle with little differentiations

1- Breeding

At the beginning of breeding season adult males and females are leaving the feeding grounds to migrate to copulate near the nesting area

The female stores the sperm for use later in the breeding season

At the completion of mating the males depart, presumably returning to the distant feeding grounds, while the females concentrate into areas adjacent to the selected nesting beaches



2- Nesting

In Arabia the peak nesting months are in summer. Each female comes ashore to nest often on the same beach where they hatched many years earlier, usually at night, several weeks after her first mating



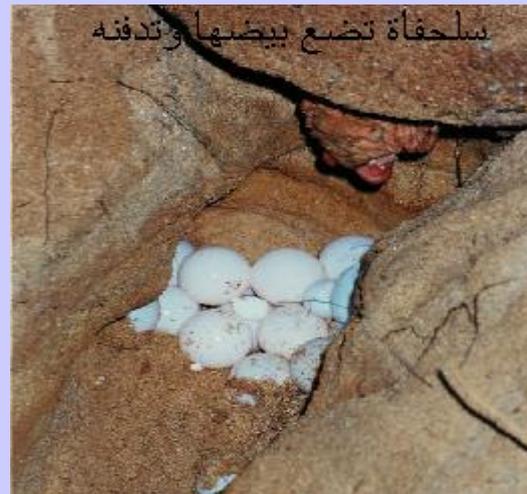
The female turtle digs a body pit, when the body pit is deep enough it digs the nest chamber by the action of its limbs

Turtles start to lay hundred or so eggs, after which the chamber and pit are filled up again and the sand is carefully spread around to hide the nesting site and return to see

Within one breeding season each female typically lays several clutches (groups of eggs) at about two weekly intervals

At the completion of the nesting season the females return to their respective distant feeding grounds, presumably to the same area that each left at the start of its nesting migration

After two to eight years many of these females will again breed, each generally returning to nest on the same beach as before



سلحفاة تضع بيضها وتدفنه

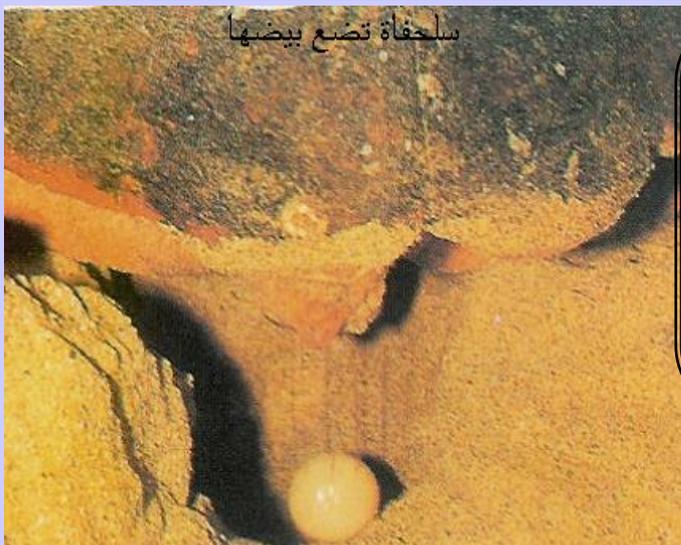
3- Eggs and hatchlings

The white, spherical, soft-shelled eggs are about the size of ping pong balls.

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The eggs hatch about seven to twelve weeks after laying. A warm nest at mid incubation results in all, or almost all, females hatchlings while males come from cool nests.



The hatchling turtles dig their way unaided as a group through the 50cm or more of sand to the surface. On surfacing usually at night, they immediately cross the beach to the sea, once they reach the sea males may never come back ashore, females only coming for nesting



Culturing Processes

Marine turtles culture suggested before 50 years. Some researches claimed that this process increased numbers of them, others claimed decreased numbers.

There are two ways for culturing

1-Farming: mean culturing of females for reproduction and also culturing the new generations

2- Ranching: mean collecting the eggs or new hatchlings from the environment and (Incubate then culturing)

History of farming

There are three attempts of commercial culturing for green turtles around the world

1-Cayman Turtle Farm (CTF)

This farm began in 1968 with culturing inside semi-natural enclosures, but quickly changed to culturing in closed ponds at Grand Cayman Island.

At the beginning, eggs were collected from nature, but they succeeded in semi-artificial reproduction for green turtles. In 1978, they stopped bringing eggs from nature.

They succeeded in releasing immature green turtles to nature.

This farm also culture and reproduce small numbers of Hawksbill turtles.

2-Farm Corail, Reunion Island

Experimental beginning at 1972, collecting eggs from the coasts of Tromelin and Europa Islands.

This farm have some problems such as slow growth for hatchings, diseases resulted from pelleted feeds and low water temperatures in these two islands

3-Torres Strait Farm

This farm initiated 1970 in villages area of Torres Strait Islands, Australia

Green turtles eggs collected from two islands (Bramble Cay and Rayne) and transferred to about 150 villagers in Torres Strait Islands. At beginning there were some difficulties represented by low ratio of hatchings and high ratio of mortalities

They decided to work only in nine islands with capacity of 100-500 small green turtles

During 1974-1978 they studied reproduction and diseases of green turtles, but they Cant solve the problems of parasites and diseases and also providing suitable feed for small turtles

During 1980 they trying to cultivate hawksbill turtles but they failed also

Culturing of hawksbill turtles in UAE

As we mentioned above, many researchers try to cultivate hawksbill turtles and they don't succeed. In Gernin Island-Abu Dhabi, EURADA try as experimental project to cultivate hawksbill turtles, they failed also.

The hatchlings of hawksbill turtles fed on a conventional feed form marine invertebrates

The new hatchlings of hawksbill turtles bites each other and caused fleabites that infected by microbes and led finally to mortalities

Problems caused stopping this project

1- Repeating of the biting behavior especially during feeding period

2- Diseases are occurred in all rearing farms, but in this project its increased because unsuitable waters in ponds and the biting process. This problem can be decreased by continues replacing of water and reduced numbers of hatchlings in ponds

3- The new hatchlings that cultivated in stagnant water covered by algae. This problem can be decreased by shading the ponds, increasing the depths of ponds and increasing the replacement of water

4- During the summer when water temperature increased, Turtles became un active and lose the appetites, then became sick. Marine turtles are tropical animals live in temperature range of 22-30 °C with optimum of 26 °C, while UAE waters reached above 36 °C.



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