

Charles Darwin Research Station Fact Sheet

Marine iguanas (*Amblyrhynchus cristatus*)

Marine iguanas are the only sea-going lizards in the world. On visiting Galapagos in 1835, Charles Darwin wrote, “the coast abounded with great black lizards [...]”. Whilst numbers of this species are still high, they are still sensitive to the presence and activities of humans. By understanding more about them, scientists at the Charles Darwin Foundation (CDF) hope to preserve this iconic species.

Unique to Galapagos

Seven subspecies of endemic marine iguanas are found throughout the islands. These differ in size between islands, from 75 centimeters (Genovesa) to 1.3 meters (Northern Isabela) in length. Marine iguanas prefer southern coastlines with shallow reefs and intertidal zones for feeding. Large males feed off shore by diving for five to ten minutes at a time, up to depths of ten meters. Females and juveniles feed in the intertidal region or on exposed reefs close to shore.

Marine iguanas feed mostly on small red or green algae (seaweed). The algae regenerate fast and are a constant food source. Marine iguanas have a high salt content in their diet. They sneeze to expel salt from salt glands located above the eye. Their heads are often encrusted with salt.

The ability to feed in the cool water is dependent on regulation of body temperature. Marine iguanas bask in the sun until their body temperature reaches its optimum at 35.5°C. They then assume an elevated basking position, facing into the sun to minimize body exposure to heat, and raised to allow circulation of air. Most marine iguanas feed during the middle of the day when the day is warmest. After feeding, they return to basking to raise their body temperature again. Smaller juveniles cool and warm more quickly than large adults. Digestion is temperature-regulated. The ability to warm quickly means that juveniles have faster digestion rates than adults. In the evening, animals congregate in piles to conserve heat overnight.

During the breeding season, male marine iguanas become aggressive and display more vivid coloring. The Española subspecies has large patches of red. After mating, females migrate to a sandy area where they lay up to four leathery eggs in a sandy burrow. Females defend their nests from other females. Hatchlings emerge after three to four months, and are preyed upon by snakes, lava gulls and herons.

Vulnerability and CDRS research activities

The marine iguana is listed as Vulnerable on the IUCN Red List. Whilst numbers of this species are still high, they are still sensitive to the encroachment of the modern world and the presence of humans in Galapagos.

CDF FOCUS: RESTORATION



Key Facts

Species:
Amblyrhynchus cristatus, multiple subspecies

Common name:
Marine iguana

Size: Differs between islands, 75cm (Genovesa) to 1.3m in length (Northern Isabela)

Habitat: Southern coastlines, with wide interstitial zone and shallow reefs

Diet: Largely herbivores; iguana, sea lion or crab faeces

Range: Throughout islands

Status: Vulnerable

Threatened by:
Predatory cats and dogs, sensitive to climate variation, water pollution

Some populations of marine iguanas currently lack juveniles, probably due to predation on the young iguanas by cats.

In the late 1970's, there were an alarming number of attacks on adult marine iguanas by feral dogs. This prompted a successful campaign by the Galapagos National Park Service (GNPS), with technical advice from CDF scientists, to control the numbers and impacts of feral dogs.

Marine iguanas suffer from the negative impact of El Niño on water temperatures and the resultant availability of food. CDF scientists have studied the impact of El Niño on populations. A permanent monitoring project continues to assess animals at 61 locations on the south coast of Santa Cruz Island on a monthly basis.

A significant difference was observed between monitoring during the 1997-1998 El Niño event and La Niña episode that followed in 2001-2002. The main deterioration was observed in adult males during El Niño period. Recovery took approximately four years. Results from studies were affected by:

- sea temperature
- body condition
- location
- population density, especially amongst juveniles competing for food.

The oil spill from the tanker Jessica, which ran aground on San Cristóbal Island in January 2001, caused a dramatic 62% mortality of marine iguanas on Santa Fé Island over the following year. Visiting scientists linked this with oil having killed off a beneficial microorganism that lives in the animals' guts and helps them digest their diet of seaweed. The iguana populations on other islands that were not affected by the spill did not suffer declines during the same period. This highlights that even a small spill in an ecologically sensitive area can have long term impacts.