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What is the Conch Restoration Project about?

The Queen Conch is an endangered species on Bonaire. To protect the Queen Conch, taking conch became forbidden back in 1985. However, as the conch has been part of the local and regional cuisine for centuries, it is regretfully still rather common to poach the conch. As by the end of 2010 the number of mature conch have reached a critical small number, the Conch Restoration Project was developed, which also involves the Bonairean fisherman and community, as a last resort to save the Queen Conch. By working side by side the project helps the Bonaireans realize that they are the custodians of their own resource. Bonaire needs to stops poaching today and thus give the Conch population time to recover so that in future, we all may be able to enjoy the conch again.

The Conch Restoration Project consists of both an extensive awareness campaign for children and adults plus a scientific research program. A team of scientists is gathering information on the habitat and the Queen Conch stock. Last year an inventory has been made of conch in Lac Bay. All conch are tagged in order to identify and follow growth and migration or movements during the project. The conch will be monitored regarding reproduction and health. This all must lead to a restoration of the population of conch in Lac Bay. To inform the Bonaire visitor of the conch restoration program the Bon Kousa Foundation started the awareness program ‘Adopt-a-Conch!’ Please participate in helping the conch: you can adopt your own individually numbered conch and give it a pet-name!! For more info please visit www.conchbonaire.org

Ban tres Karkó bá! 'Let's bring back the conch!' Leave them alone so we will have more in the future. Give the conch a chance to grow up and reproduce. If you see someone taking conch please phone STINAPA at 7171-8444 or 786-9603

Adopt a Conch!

You can help protect the Queen Conch by adopting one of our tagged conch in Lac Bay Bonaire.

For more information please visit our website: www.conchbonaire.org
The 8 stages in the life cycle of the conch

1. Benthic Eggs 0-5 days
Crescent in shape and camouflaged on the seafloor by a coating of sand grains. Ready to hatch in 3–5 days.

2. Newly Hatched Veliger 5-7 days
The newly hatched conch, known as veligers have lobes on them, the purpose of which is to supply the veliger with oxygen and obtain food, in the form of microscopic algae from the water column in which it floats.

3. Four Lobed Veliger 7-20 days
As the veliger increases in size it grows more lobes to supply it with oxygen and food.

4. Six Lobed Veliger 20-30 days
By 21–30 days the veliger will have 6 lobes and will be ready to metamorphose and enter the benthic stage of the life cycle.

5. Post larva 1 month
The conch now resembles the adult form although it is only 1 mm long. The conch will settle, instead of floating in the water column, in shallow seagrass beds or sand flats. The change in environment will be sensed and the final stage of metamorphosis, to lose the lobes, will take place.

6. Infaunal Juvenile 1-12 months
At this stage the conch is between 1 and 12 months old and up to 60 mm in length. The juvenile conch will live buried under the sand it settled in.

7. Epifaunal Juvenile 1-3 years
The conch is now 1 to 3 years in age and can be 180 mm in length. They will emerge from their nursery habitat and start to migrate to deeper waters in search of food. Conch feed on algae and bacteria on seaweed.

8. Adult 3-25 years
The conch is now about 3 to 5 years old and is sexually mature. As an adult the conch will no longer increase in size but it will form the ‘lip’ that identifies it as an adult. For the remainder of its life the conch will add shell to this ‘lip’.

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Photo: Tom Smoyer
Photo: Sabine Engel
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**Queen Conch: the facts of life**

**The Queen Conch:** is a giant sea snail of the Strombus family, and a member of group of animals called molluscs. Molluscs belong to the scientific class of Gastropoda. Like other members of its class, it carries its home on its back. The Queen Conch is found in warm shallow waters in grass beds of the Caribbean Sea and can live 40 years, but the normal lifespan is estimated at between 10 to 25 years.

**Conch predators:** Conch have a number of predators and are eaten by many animals at different stages of their life. Animals such as spotted eagle rays and southern rays, octopus, hermit crabs and spiny lobsters all feast on conch. Smaller predators such as porcupine fish, spotted snails and the blue crab also eat the young conch. The spiny lobster patiently nibbles the conch shells to pieces trying to eat the prize inside. However, one of the Queen Conch’s largest predators in the ocean is the loggerhead turtle. With its massive jaws, the loggerhead turtle crushes the adult conch shell to feast on the animal inside. Of course the Queen Conch’s largest predator on land is people. People love to eat the conch.

**Conch shell:** The Queen Conch has a beautiful large, spiral shell often lined in pink. The conch’s mantle, a thin layer of tissue located between the body and the shell, creates the shell. The conch builds the hard shell from calcium carbonate that it extracts or takes from the sea. The shell is up to 1 foot (30 cm) long. The lip of the shell is flared and there are spines to deter its many predators. Sometimes, you’ll find a conch fish (type of cardinal fish) sharing the shell of a living conch. Hermit crabs, juvenile fish or octopus live inside empty conch shells.

**Conch sexlife:** A conch develops into an adult after about 4 years, and as it matures the mantle (body) of the snail pushes on the growing shell, making the opening flare out. This allows the mature snail to move along the lagoon floor with the shell opening flat against the bottom. The conch’s rapid growth slows after the snail matures. Conch move into deeper water as they mature, but start the life cycle again by returning to the shallows to mate and lay their eggs.

**Conch anatomy:** The Queen Conch’s body is divided into 3 parts - the head, the visceral mass, and the foot. The conch has two pairs of tentacles on the head; it has a light-sensitive eyespot located on each of the larger tentacles. The smaller pair of tentacles is used for smelling and touching. Young conchs can bury themselves in the sand when they are in danger, using their operculum.

**Conch Diet:** Conches eat grasses, algae, and floating organic debris. They eat using a radula, a rough tongue-like organ that has thousands of tiny denticles, tooth-like protrusions that look like a chain.
The queen conch, Strombus gigas, is the largest molluscan gastropod (shell length 7 to 9 inches; 18 to 23 cm) of the six conch species found in the shallow sea-grass beds of Florida, the Bahamas, Bermuda, the Caribbean Islands, and the northern coasts of Central and South America. The queen conch is found in the territorial waters of at least 36 countries and dependent territories. It is known by various names, such as cara-coco (Mexico, Honduras, Columbia), carrucho (Puerto Rico), cobo (Cuba), and lambi (Hispaniola, French Antilles).

Many studies have focused on fisheries management, ecology and culture techniques of S. gigas. In the mid-1970s, culturists began growing queen conch larvae to the juvenile stage for stock enhancement and for grow-out markets as a way to offset fishing pressure. The same culture techniques have been used to study larval ecology and fisheries oceanography, which contribute to the development of regional fisheries management plans.

Natural history

The adult of this slow-moving mollusc has a heavy shell (5 pounds; 2.3 kg) with spines on each whorl of the spire and a glossy, deep, flared aperture. The orange-yellow mantle, located around the soft body of the animal, ranges from 0.19 to 0.5 pounds (250 to 500 g), with the largest animals weighing 7 to 9 inches (18 to 23 cm) of the six conch species found in the shallow sea-grass beds of Florida, the Bahamas, Bermuda, the Caribbean Islands, and the northern coasts of Central and South America. The queen conch is found in the territorial waters of at least 36 countries and dependent territories. It is known by various names, such as cara-coco (Mexico, Honduras, Columbia), carrucho (Puerto Rico), cobo (Cuba), and lambi (Hispaniola, French Antilles). Although it is found in tropical waters, the queen conch is not considered a migratory species. It can live in both warm and cold water, and it is found in the Galapagos, in the cold waters of the equator, as well as in the Caribbean and the Bahamas.

Queen conch are highly valued for their meat, which is considered one of the finest white meats in the world. The conch is harvested in the Caribbean, where it is considered a delicacy. The conch is harvested by professional and commercial fishers, and it is also harvested by local communities. The conch is harvested using a variety of methods, including line fishing, hook and line, and traps. The queen conch is also harvested for its shell, which is used in jewelry and for decorative purposes.

Fisheries and regulations

For hundreds of years, queen conch have been harvested as a subsistence food source and the shells used for ship ballast, tribal tools, building materials, jewelry and decoration. Beginning in the 1970s, the queen conch commercial fishery developed in response to the rapid growth of tourism in the Caribbean and the increased international demand for the meat. Many states of the Caribbean region and that the trade is sustainable.

Today, queen conch laboratories in Mexico (e.g., CINVESTAV-IPN) and Florida (e.g., Florida Fish and Wildlife Conservation Commission, Harbor Branch Oceanographic Institution, and Mote Marine Laboratories) are conducting conch research and education programs. The loss of important nursery habitats close to shore. In 1982, queen conch larvae were used to study larval ecology and fishery management techniques. The same culture techniques have been used to study larval ecology and fisheries oceanography, which contribute to the development of regional fisheries management plans. Today, queen conch larvae are used to study larval ecology and fishery management techniques.
How to reach involved organisations

Adopt a Conch: is a nature awareness and conservation project of the Bon Kousa Foundation, a registered non-profit organisation on Bonaire.

DCNA: the Dutch Caribbean Nature Alliance assist and support nature conservation activities on each of the Islands of the Dutch Caribbean.

Stinapa: is dedicated to the conservation of Bonaire's natural and historical heritage through the sustainable use of its resources.

Postcode Loterij: the Dutch National Postcode Lottery donates 50% of her proceeds to charity. They support 81 organisations.

IUCN-NL: International Union for Conservation of Nature, helps the world find pragmatic solutions to the most pressing environment and development challenges.

What if we change: is the story about how we can re-green the planet. An interactive storytelling project.

Bon Kousa: the Bon Kousa Foundation helps other non-profit organisations to realize culture & nature awareness and conservation projects.

Please visit us at http://conchbonaire.org

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