



Department of Planning and Natural Resources
Division of Fish and Wildlife
U.S.V.I. Animal Fact Sheet #19
Queen Conch
Strombus gigas



The beautiful shell of the queen conch (*Strombus gigas*) is an enduring symbol for the USVI, as it is for the whole Caribbean. Among images, the foremost is the “call to freedom” that was sounded by the blowing of a conch horn, signifying an end to slavery during the Danish colonial era. But queen conchs, and their shells, have been utilized throughout the history of our islands. The earliest inhabitants - Arawak, Taino, and Caribe Indians - fashioned jewelry from conch shells, used them for tools, cookware, horns, and even as building materials. The first explorers returned home with the conch shells and they were quickly adopted as a standard decorative item for European homes. Today, the beauty of conch shells still captivates tourists who purchase them as mementos of their visit.

Because of their exquisite taste and large size, queen conchs have always been an important food in the USVI. Today, conch meat (derived from the conch’s foot) is used in many traditional dishes like pates, fritters and chowders. Queen conch meat is in high demand, with a market price of about \$6.00 per pound. For this reason, the queen conch supports a commercial fishery of scuba and free divers who harvest conch by hand. The queen conch fishery makes an important contribution to our local economy.

Description

Reaching over 12 inches in shell length, but averaging 6-9 inches, the queen conch is among the largest marine snails in the world - older adults may exceed 5 pounds! The large, thick shell has blunt spikes that radiate from a central spire. The shell flares sideways into a “lip” on the shells of older conchs. Inside, the shell color is a lustrous pink to red. An orangish layer (called the periostracum) coats the shell’s exterior, though it is usually hidden beneath a layer of algae and sediments. With age, the periostracum slowly erodes away, being absent from shells of the oldest conchs.



Hidden within the sturdy shell is the conch itself. The queen conch has a mottled gray head with large proboscis (mouth) for feeding on algae. Two well-developed yellow eyes rest on the ends of eyestalks, each stalk bearing one short sensory tentacle. Attached to the foot is a long claw-like operculum which is used for propulsion, much like a pole-vault. Through a series of awkward leaps and tumbles, the queen conch slowly moves forward. A yellow-orange mantle is pressed against the shell continuously polishing the surface and secreting more shell material. Rarely (about 1 in 10,000 conchs), the mantle secretes shell around an embedded object like a sand grain, forming a conch pearl.



Identification

The queen conch is one of five conch species found in the USVI. The queen conch is distinguished by its large size, blunt shell-spikes, orange mantle, and mottled gray head. Our four other conchs (all in the genus *Strombus*) are distinguished as follows: the milk conch (*S. costatus*) has a creamy color along the inside of its shell and a green head; the hawkwing conch (*S. raninus*) has a knobby brown and purple shell with a reddish interior; the roostertail conch (*S. gallus*) has a distinctive “roostertail” extending rearward from shell lip; the West Indian fighting conch (*S. pugilis*) is smaller (~4 inches) and the shell opening is deep orange.

Classification

The queen conch is an invertebrate from the phylum Mollusca (meaning soft body) - a group that includes snails, chitons, clams, octopuses, and squids. Conchs are classified together with all other snails as gastropods (stomach feet). The queen conch belongs to the subclass Prosobranchia and family Strombidae. Their genus name *Strombus* means "spiral shell" and their species name *gigas* means "giant."

Distribution and Habitat

The range of the queen conch extends from southern Florida and Bermuda to the Bahamas, stretching southward throughout the Caribbean. Queen conchs generally occur in waters less than 100 feet deep although they are occasionally found at depths greater than 200 feet.

Adult queen conchs occur in habitats where algae (their preferred food) abound such as hardbottom or sandy algal plains, rubble areas, and seagrass beds. Occasionally they forage in coral reef habitats too. Their habitat preference changes during the course of their lifetime (see below) and they migrate during reproduction. Despite their slow speed, conchs may travel large distances (tens of miles) during their foragings and migrations, making their exact locations difficult to predict from one year to the next.

Growth and Reproduction

Queen conchs have been reported to live for 40 years (in Bermuda), although 6-15 years may be more typical. The architecture of a queen conch shell reflects its age and sexual maturity. Young, sexually immature conch have thin shells that quickly elongate - up to 3 inches per year - but lack a flared lip. As a conch reaches sexual maturity (usually in its third year) and reaches a length of ~9 inches, shell growth changes permanently: energy is devoted to shell thickening, and the opening of the shell flares into a distinct lip. In mature conch, both shell and lip continue to thicken throughout life while shell length changes little.

In the spring or early summer, mass conch migrations from deep to shallow coincide with annual reproduction. After mating with males, the females lay 6-inch egg masses composed of thin tubes over 100 feet long. Within the egg masses, up to half a million conch embryos develop. The embryos hatch as tiny free-floating larvae called veligers, which drift in the open ocean for 3-4 weeks. Some veligers survive the voyage to settle down in quiet nearshore waters - especially shallow seagrass beds, algal plains, and sandy areas. There, they transform into small conch and spend much of their first year buried under sand and sediments, emerging at night to feed. In their second year, when conch have reached 3-6 inches in length, they emerge and move into shallow seagrass and sandy habitats. From here they may progress to deeper habitats with age.

Ecology

Queen conchs are herbivorous, feeding primarily on algae, but also on decaying plant and animal material called detritus. Frequently, they graze in seagrass beds, eating algae that grow on blades of seagrass.

Among the predators of queen conch, man is clearly the most significant - in some places queen conchs have become rare due to over-harvesting. Quite a few predators

eat juvenile conch: fish, such as porcupinefish (*Diodon hystrix*) and permit (*Trachinotus falcatus*), and spiny lobsters (*Panulirus argus*) prey on juveniles, as do a variety of crabs, sharks, rays and snails. Adult conchs, owing to their larger size and thicker shells, have fewer predators (aside from humans). These include horse conchs, octopus, and loggerhead sea turtles.

Conservation

In recent decades, declines in USVI conch populations have led to serious concerns about their conservation. Territorial and federal regulations have been enacted to help queen conch stocks recover to their former abundance.



- Spire

Queen Conch
Minimum
Shell Length
of 9 inches

- Distal End

To protect immature individuals, queen conch must be a minimum of 9 inches in shell length (from spire to distal end as shown above) or 3/8-inch lip thickness [a measuring gauge is available from DFW]. Commercial fishermen are limited to 150 conchs per day while recreational fishermen (for personal use) can take no more than 6 conchs per day. Conch must be landed whole in their shells. There is a closed season each year (July 1st to September 30th), when queen conch cannot be harvested, to ensure successful conch reproduction. Undersized conch shells and their meat cannot be sold. Imported conch must have a CITES export permit and clear at the port of Miami.

Awareness of and adherence to regulations is one means to preserve queen conch populations. Protection of essential habitats, especially the conch nursery areas found within our near shore waters, will be equally important to ensure conch for future generations.

References for this article are available upon request from DFW. For more information on this or other animals in the USVI please visit our web site at:

www.vifishandwildlife.com

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