How Fishing Pressure Can Influence the Evolution of Queen Conch

The queen conch (*Strombus gigas*) is a gastropod mollusk found in the western Atlantic Ocean. Queen conchs play an important role as herbivores in the marine environment. They are also culturally and economically important to countries like The Bahamas who rely on them for food and other products. Queen conch are currently listed as Appendix 1 - endangered on the Convention on International Trade of Endangered Species list [3]. It is important to understand how human actions can impact conch populations so that we can promote sustainability and mitigate for any negative effects.

**Natural Selection**

Even though this population is not being fished, there are still factors that can influence evolution. Genetic mutations and changes in the environment coupled with natural selection can influence the makeup of a population. The conch that are “better suited to their environment are the ones that survive” [2, 12].

**Predation**

Natural predators of juvenile and adult conchs [8].

**Mating**

Mating is density-dependent. If there aren't enough conchs in an area, they won't be able to find a mate! This can incur an Allee effect, which can cause a downward spiral in population size [11].

**Predation and fishing**

Predation and fishing remove individuals from the population.

**Removing the largest mature conchs**

Removing the largest mature conchs from the population means that only the smallest adults are left behind to reproduce.

**Fishing practices**

Fishing practices tend to focus on the largest individuals, which give the greatest return for investment [1, 7, 11].

**Populations of small thick-shelled conch called “samba”**

Populations of small thick-shelled conch called “samba” have been discovered in fishing grounds in Berry Islands and Andros, Bahamas. Mature adults are much smaller in size and reproduce less often than a typical mature conch [1, 11]. Samba conch were not observed in a local marine protected area [11].

**A minimum of 56 mature conch per hectare**

A minimum of 56 mature conch per hectare is required for there to be a chance for mating success [10, 11]. A football field is approximately two hectares.

**Smart and sustainable fishing practices**

Smart and sustainable fishing practices can help avoid the Allee effect and ensure that there will be populations of conch for future generations to enjoy [6].

**References**


For full citations see: