

*The Geography,
Habitat, and
Biology of the
Queen Conch*

There are seven species of conch in the Strombidae family in the Caribbean:



Strombus gigas - queen conch



S. costatus - milk conch



S. goliath - goliath conch



S. alatus - Florida fighting conch



S. pugilus - West Indian fighting conch

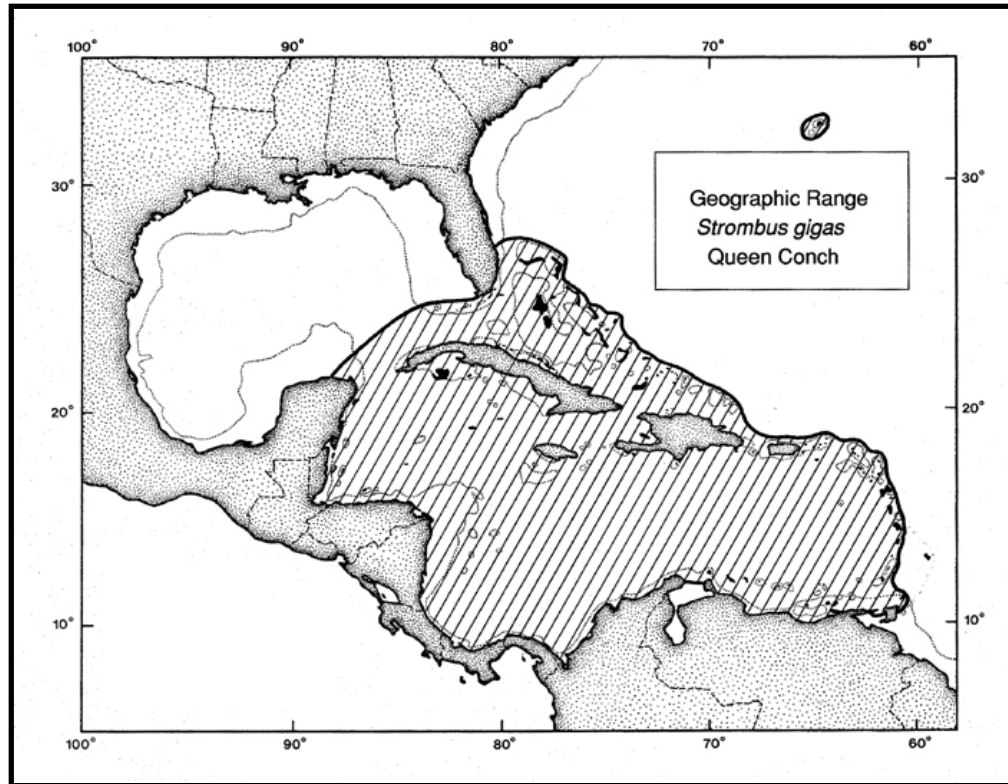


S. raninus - hawk-wing conch



S. gallus - rooster tail conch

These large marine gastropods are found in various regions from the coasts of North Carolina to Florida, to Central and South America, to Bermuda.



This is a map indicating the range of the queen conch throughout the Florida and Caribbean region.

(Drawing by Bonnie Bower-Dennis)

Adult and juvenile conch live in shallow seagrass beds and sand flats. They feed on epiphytic algae and diatoms located on the seagrass blades and sand grains.



Caribbean Marine Research Center

Adult conch migrate to deeper waters (15m) in the winter months and then return to shallow waters (3m) in the summer to spawn.

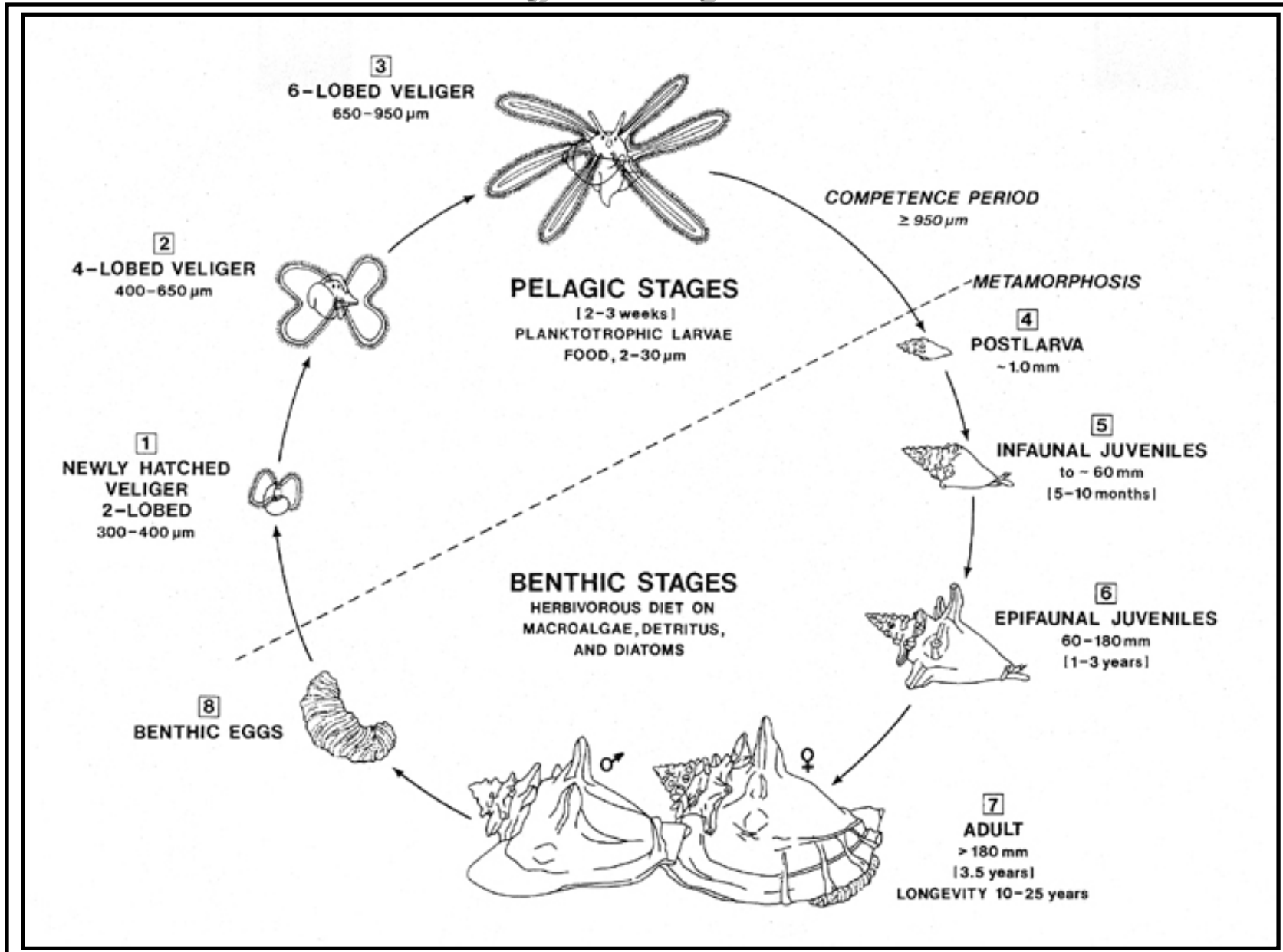
Juvenile queen conch will remain buried in the sand for the first year of their life. After this time, they will emerge from their nursery habitat and migrate towards deeper waters in search of food.



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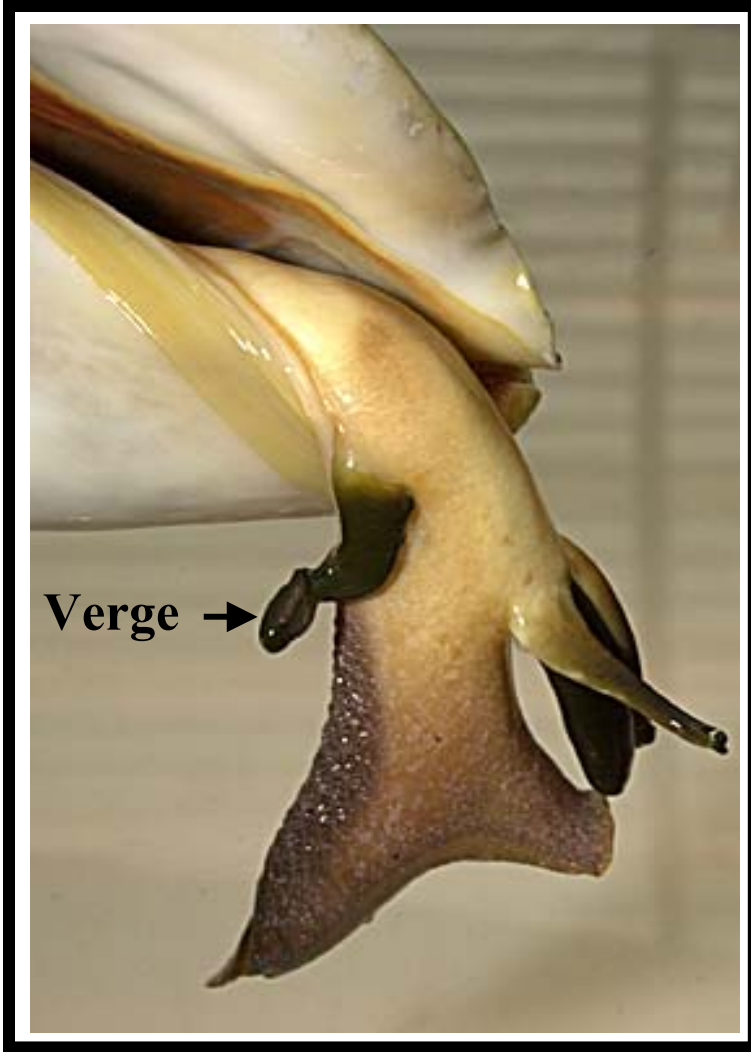
Sometimes they migrate in very large groups called a “conch wave”. This rare occasion is thought to be a predator avoidance tactic: “safety in numbers”.

Life Cycle



Drawing by Bonnie Bower-Dennis

Conch have separate sexes.



Male



Female

Queen conch reach sexual maturity at 3 years.

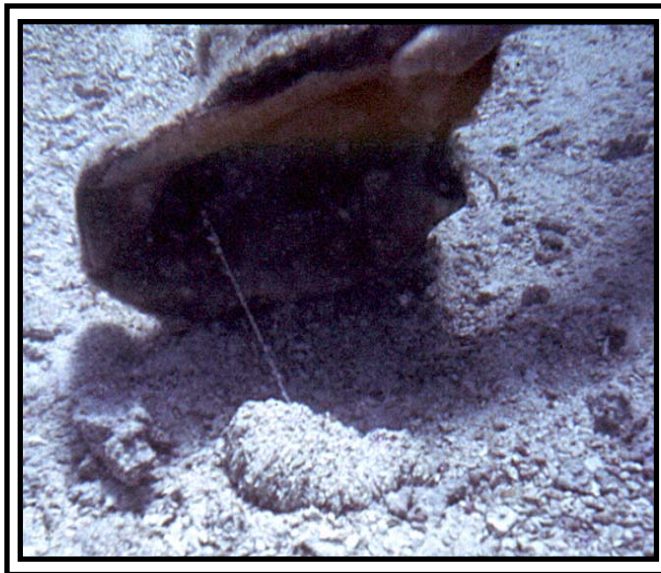
*At this time,
the animals
will mate....*



Tom Smoyer



Ken Riley



Kathy Orr

*...and the female will
lay an egg mass.*



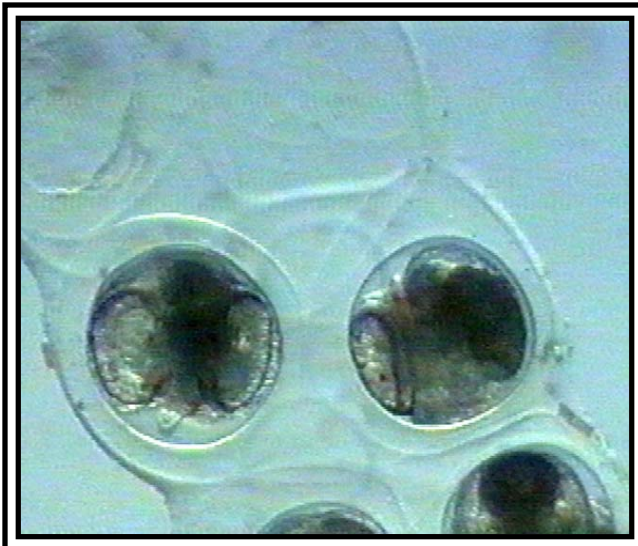
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The egg mass is a long (10-20m) strand that is coiled into a crescent shape and camouflaged with sand grains.

A queen conch egg mass may contain up to 400,000 eggs!



Megan Davis

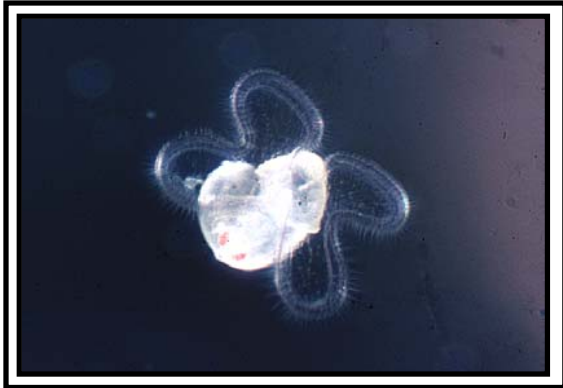


Megan Davis

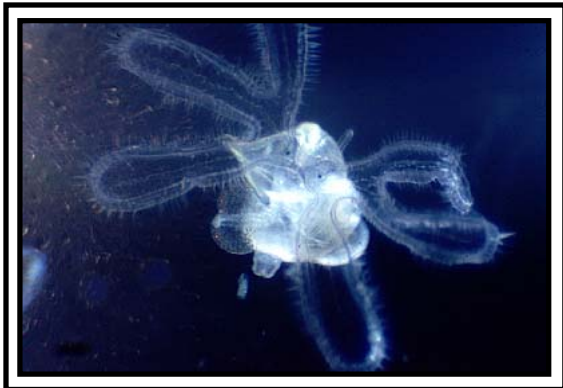
The baby conch are ready to hatch in 3-5 days.



The conch “veligers” hatch with 2 lobes that supply the animal with oxygen and help it collect microscopic algae from the water column.



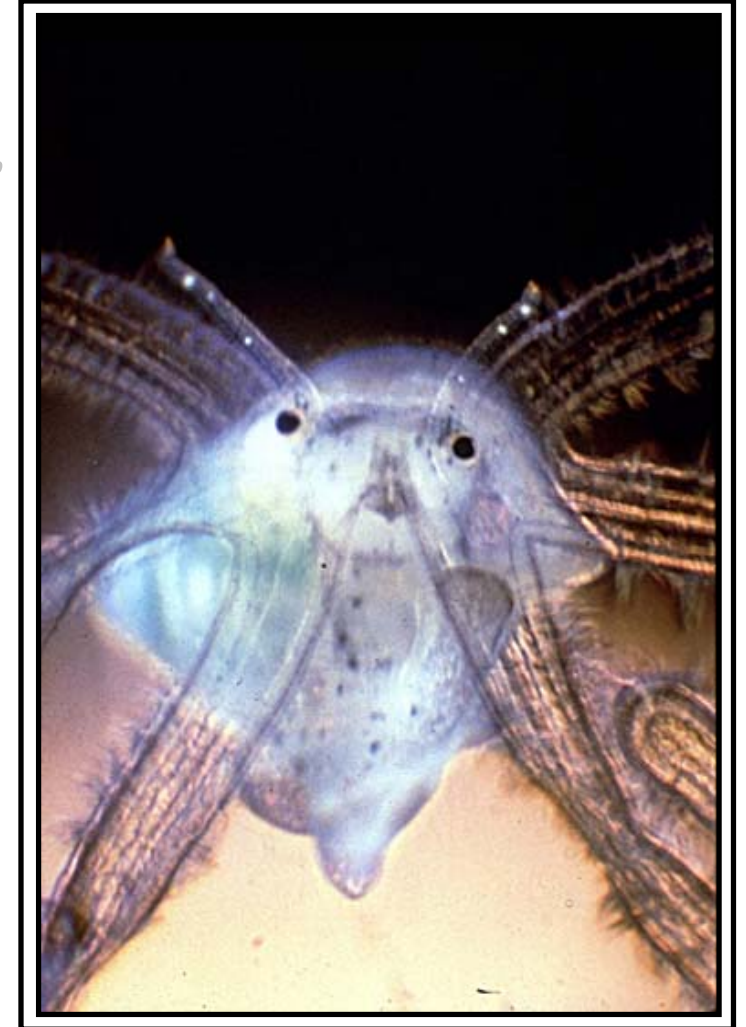
The veligers will stay as larvae for 21 - 30 days.



As they grow, they continue to add lobes until they have a total of six long lobes.

After 21 - 30 days, the veligers are ready to undergo metamorphosis. They will display several physical characteristics that prepare them for life in the sand and seagrass beds:

- 1. Ctenidium (gills) are elongated and functional for respiration when they lose their larval lobes.*
- 2. Buccal mass has developed into the proboscis that they will use for grazing.*



Megan Davis

The conch will settle out of the water column onto nursery grounds (seagrass beds).



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Here they will sense a food cue that will cause them to lose their lobes and become a fully benthic (bottom-dwelling) animal.

The queen conch will continue to add length to their shell they were born with until they are 3-4 years old. At this time, they will not grow any larger, but will instead add shell to their lip for the remainder of their life. This is when they reach sexual maturity and begin the cycle all over again.

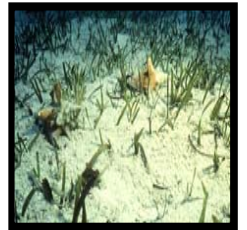
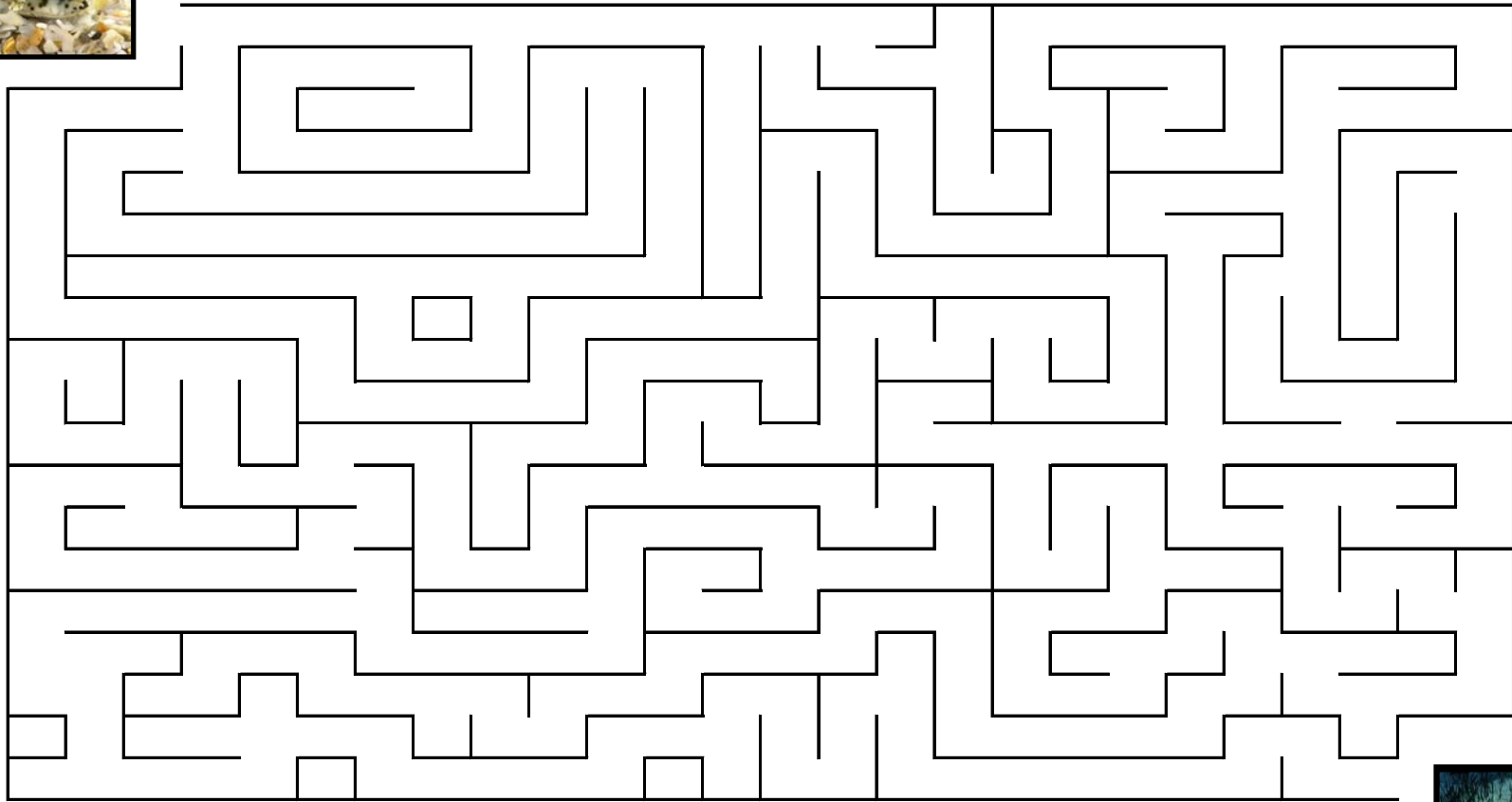


Kathy Orr

Lesson Plans

- 1. Have your students draw each stage of the queen conch life cycle and discuss the animal's structures, habitat, and it's food source during each developmental stage***
- 2. Help the juvenile queen conch migrate to it's food in the seagrass bed.***
- 3. Discuss and define the vocabulary words, and then locate them in the word find.***

Help this conch get to the seagrass bed!



Vocabulary Words

Queen conch – A large herbivorous gastropod important as a commercial and subsistence fisheries specie in Florida and the Caribbean region

Strombus gigas – The scientific (genus specie) name for the queen conch

Proboscis – A long, flexible snout-like organ that is use for grazing

Eye Stalk – A tentacle-like extension that supports the eye.

Foot – The muscular structure on the conch which is used for locomotion, and is the part of the animal consumed by humans

Operculum – The harden structure at the tip of the foot used to aid the movement called the “strombid leap”

Egg Mass – Structure that is internally fertilized and then laid by the female conch. Each egg mass may contain half a million eggs.

Lobes – Ciliated structures found only on larval conch used for locomotion, feeding, and to get oxygen from the water column

Shell – The hard outer covering characteristic of mollusks. Conch are born with a shell and the shell will grow with them as they age

Pink – The brilliant color which is a characteristic of the large queen conch shells

Horn – An empty conch shell with the tip of a spire removed that is historically used in many tribal ceremonies

Radula – The mouth-like apparatus at the tip of the proboscis used for scraping algae off of seagrass blades and sand grains

Benthic – Another term for a bottom dwelling animal

Veliger – A larval (free-swimming) conch

Spire – The points or tips of the conch shell. These are formed as a defense mechanism so that the shell appears larger than it is and makes it difficult for predators to crush

Test your ability and find the hidden conch words.

S Q A G G Q E O S B L Y O M E
A H I B R U H R E S P I G E S
G A E E V G S N B I S E B O L
I I S L E E T A N I L G G E M
G A G L L H L K A N L G A S I
S L K A I S C G L K H M S P C
U T U C G V E N B A V A G I B
B P A Q E S F B O O T S I R R
M B N P R O B O S C I S E E P
O P R V S C C S O C N T E U N
R A D U L A A D L T S E A Y Q
T E R L U B R Q O O T U E B E
S R M O P I O P E R C U L U M
T F O H H O R N M S R B M S Q

QUEEN CONCH
STROMBUS GIGAS
PROBOSCIS
EYE STALK
FOOT
OPERCULUM
EGG MASS
LOBES

SHELL
PINK
HORN
RADULA
BENTHIC
VELIGER
SPIRE

*Answers on next
page*

How did you do?

S
A H
G E V N I S E B O L
I L E T N G
G L H K G S
S I C L M P
U C G N A A I
B E F O T S R
M P R O B O S C I S E
O O N E
R A D U L A T E Y
T
S O P E R C U L U M
H O R N Q

QUEEN CONCH
STROMBUS GIGAS
PROBOSCIS
EYE STALK
FOOT
OPERCULUM
EGG MASS
LOBES

SHELL
PINK
HORN
RADULA
BENTHIC
VELIGER
SPIRE