TAMPA BAY WATCH

Kids' pages

Are you ready to learn about the bay?

News for the kids of Tampa Bay!

Summer 2019

TAMPA BAY WATCH
Restoring the Bay Every Day

Got a Question? Ask a Scientist!

In This Issue:

Mark your Calendars!

NATIONAL ESTUARIES DAY CLEANUP

SEPTEMBER 21

Join us for one of the bay's most important events: removing debris from our beaches and waterways to protect our estuary and its creatures. Find out more at **tampabaywatch.org.**

Q Do Hermit Crabs Make Their Shells?

A No; hermit crabs **find** their shells! In fact, hermit crabs occupy shells left behind by dead sea snails. Hermit crabs make these shells their home and carry them wherever they go.

Hermit crabs are crustaceans. They are related to crabs, lobsters, and shrimp. Hermit crabs need their shells to protect their vulnerable bodies that are soft and shaped similarly to lobsters. They have ten legs. The first two legs are their claws—also called chelipeds. The next two sets are used for walking, and the last two sets are special, small legs that are used to hold their shells onto their backs.

As hermit crabs grow, their shells do not grow with them. When their homes begin to feel crowded, the hermit crab must find a new larger, empty shell. Hermits are always on the lookout for a new shell. When they find a potential new shell, they first inspect it with their front claws. If they determine that the shell is the right size, the crab will quickly leave its old shell and switch to the new one. Hermit crabs are exposed and vulnerable when they are switching shells, and they will finish the "move-in" process quickly.

Above, a group of hermit crabs. NPS Photo, nps.gov

Marine hermit crabs—those that spend their lives in salt water—can be found in sandy or soft, muddy bottom habitats; or in intertidal zones: areas on the coastline between the tides.

There are many different types of hermit crabs in the Tampa Bay estuary, but only around five of these species are commonly seen: the striped hermit crab, long-clawed hermit crab, white flat-clawed hermit crab, red flat-clawed hermit crab, and giant red hermit crab.

Sources: chesapeakebay.net; sciencenewsforstudents.org; gcrl.usm.edu; gulfspecimen.org; oceana.org; ucmp.berkeley.edu

Expand Your Mind!

Meet & Greet: Tampa Bay Hermit Crabs

WHITE FLAT-CLAWED HERMIT CRAB

Pagurus pollicaris

The white flat-clawed hermit crab is an active species of hermit crab that can often be found living inside moon snail shells. Flat-clawed hermit crabs are also known for wearing anemones on top of their shells for extra protection. This relationship is beneficial for both crab and anemone: the anemone gets leftover food from the hermit crab, and the crab gets protection from the stinging cells on the anemone.

Sources: gulfspecimen.org; pbs.com; inaturalist.com

GIANT RED HERMIT CRAB

Petrochirus diogenes

The giant red hermit crab is the largest species of hermit crab in North America. Its main body can reach up to around 30 cm long with large, crushing claws. Its body is bright rusty red with textured bumps and knobs, and it has long red- and white-striped antennae. Antennae are used as "feelers," allowing the hermit crab to sense its surroundings.

Sources: gulfspecimen.org; rookerybay.org; sta.uwi.edu; txmarspecies.tamug.edu; tribenwater.com

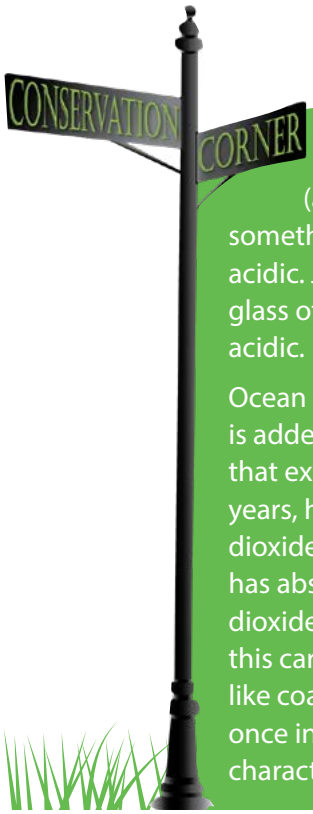
STRIPED HERMIT CRAB

Clibanarius vittatus

The striped hermit crab is a large crab with olive-green stripes on its legs. This species of crab is said to be the hardiest of all the species living in the Gulf of Mexico, and can live for several days out of the water. This adaptation allows them to survive in the intertidal zone—the land between high and low tides.

Sources: gcrl.usm.edu; oceanservice.noaa.gov; tybeemarinescience.org; projectnoah.org

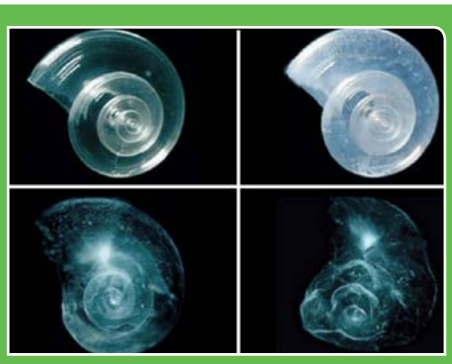
Our education programs get kids into the bay!



Ocean Acidification has negative effects on our crabby friends

Ocean acidification occurs when the pH (a measurement of how acidic or "basic" something is) is lowered, making the ocean more acidic. Just like when you add lemon juice to a glass of water, you are making your water more acidic.

Ocean water becomes acidic when carbon dioxide is added. Carbon dioxide is a greenhouse gas that exists in our atmosphere. Over the last 200 years, humans have been adding more carbon dioxide to the atmosphere. In that time, the ocean has absorbed around 500 billion tons of carbon dioxide from the atmosphere. A large portion of this carbon dioxide is from humans burning fuels like coal, gasoline, and jet fuel. Carbon dioxide, once in the water, can change the properties and characteristics of the ocean.



Shells affected by ocean acidification

Due to ocean acidification, some minerals (substances that are naturally formed by the earth), like calcium carbonate, are no longer present for the animals that need them. Calcium carbonate is the building block of structures like seashells, affecting animals like oysters, clams, sea snails, and coral skeletons; as well as the hard bodies of animals like crabs, shrimp, and lobsters. Ocean acidification is negatively affecting the world's oceans, including estuaries like Tampa Bay.

Sources: *aoos.org; climatekids.nasa.gov; ocean.si.edu; oceanservice.noaa.gov.* ***Photo:*** *David Littschwager /National Geographic Society, nps.gov.*

Fun Facts about Hermit Crabs!

- Some hermit crabs encourage anemones to attach to their shell; they will even transfer them from shell to shell as they grow!
- It is common for a hermit crab's right claw to be bigger!
- Both land and marine hermit crabs use gills for breathing.
- Hermit crabs are scavengers: they eat whatever they can find—a large variety of plants and animals, including dead organisms. They help keep the ocean clean!

Sources: discoverwildlife.com; gulfspecimen.org

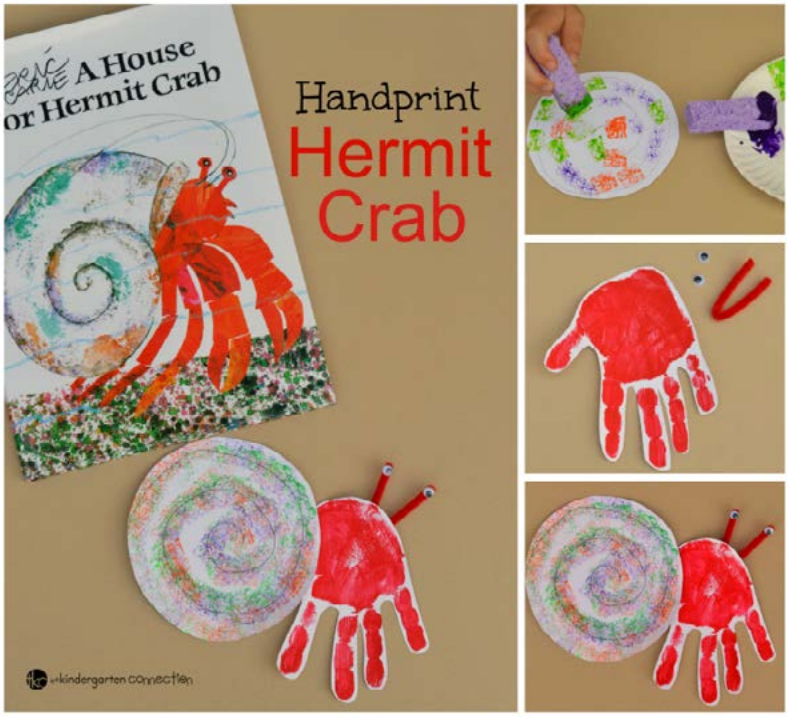
Did You Know...

It is extremely difficult for a hermit crab to be coaxed out of its shell if it doesn't want to leave. The hermit crab's back legs and abdomen (the back portion of their body) firmly hold them in place. *Source: chesapeakebay.net*

Fun Activity:

Adorable Hermit Crab Craft!

Make your own hermit crab out of a paper plate and your own hand print! Remember to ask an adult for help with this craft.



Materials:

- White card stock
- Paper plate
- Paint
- Small googly eyes
- Red pipe cleaner
- Glue
- Pencil/marker
- Scissors
- Sponge
- Paint brushes

Instructions:

1. Apply paint to one of your hands and place on white card stock. Allow hand print to dry.
2. The paper plate will be your hermit crab's shell. Use a pencil or marker to draw a swirl on the shell.
3. Cut your sponge into smaller pieces for easier painting.
4. Place the sponges in your paint and lightly dab onto the hermit crab's shell. Allow some time to dry.
5. While the paper plate hermit crab shell is drying, cut a small piece of red pipe cleaner and fold it in half to make the hermit crab's antenna.
6. Cut the dried handprint out, trimming around the fingers.
7. Attach googly eyes with glue to the ends of the pipe cleaner.
8. Attach the handprint cutout with glue to the back side of the paper plate. Allow the fingers to come out of the side of the shell. The fingers will be the legs of the hermit crab.
9. Glue or tape the pipe cleaner to the back of the handprint so that the eyes stick out above the handprint.

Enjoy your new hermit crab friend!

Source: Pinterest; thekindergartenconnection.com

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Kids' Pages is a quarterly newsletter supplement to the *Bay Watch Log.*

Please get your kids involved and sign them up to be a member today! Email **membership@tampabaywatch.org** or visit tampabaywatch.org.

Cover masthead artwork drawn by Sarah Kelly, one of Tampa Bay's talented youth artists.

Estuary Edventures

TAMPA BAY WATCH

Kids' pages Investigations

Topic: Hermit Crabs

Summer 2019 edition

Instructions: Read through the appropriate Kids' Pages edition and answer the questions below. Once all the questions have been completed, refer to the Answer Key to check your work.

Multiple Choice (choose one):

1. **Hermit crabs fall into which category of animals?**
   - (a.) Crustaceans
   - (b.) Echinoderms
   - (c.) Teleosts
   - (d.) Cephalopods

2. **How many total legs does a hermit crab have?**
   - (a.) 6
   - (b.) 8
   - (c.) 10
   - (d.) 12

3. **What is the first thing a hermit crab does when looking for a new shell to make its home?**
   - (a.) Quickly leave the old shell for the new one
   - (b.) Inspect the shell with its front claws
   - (c.) Fill the new shell with sand
   - (d.) Break the old shell with its front claws

4. **Why would it be beneficial for a hermit crab to carry an anemone on their back?**
   - (a.) The anemone's stinging cells protect the crab
   - (b.) The anemone becomes a food source for the crab when there is no other food available
   - (c.) The anemone distracts the crab's predators so the crab can make a safe getaway
   - (d.) The anemone tells really great bedtime stories to the crab

5. **Which species below is the largest hermit crab species in North America?**
   - (a.) Long-clawed hermit crab
   - (b.) Red flat-clawed hermit crab
   - (c.) Giant red hermit crab
   - (d.) Coconut crab

Fill in the Blank:

6. **Hermit crabs occupy the shells left behind from dead _____ (2 words).**

7. **A hermit crab's first two legs are their _____. The next two sets are for _____, and the last two sets are specialized to hold their _____.**

8. **It is common for a hermit crab's _____ claw to be bigger.**

9. **Both land and marine hermit crabs use _____ for breathing.**

Short Response:

10. **In 3-5 sentences, please discuss how ocean acidification is affecting hermit crabs and other ocean-dwelling animals, and then infer how further acidification effects could affect humans. Please use examples and information from the Conservation Corner of the Kids' Pages publication.**

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Kids' pages Investigations
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ANSWER KEY

1. A. This group also includes crabs, lobsters, and shrimp.

2. C. They are also known as "decapods," meaning "10 legs."

3. B. They do this to ensure the shell is the appropriate size.

4. A. The anemone also benefits by receiving excess food from the hermit as it eats.

5. C. The giant red hermit crab may be the largest hermit crab in North America, however the coconut crab is the largest land-dwelling arthropod (phylum which includes crabs and insects) in the world!

6. Hermit crabs occupy the shells left behind from dead **sea snails.** (2 words)

7. A hermit crab's first two legs are their **claws.** The next two sets are for **walking,** and the last two sets are specialized to hold their **shell.**

8. It is common for a hermit crab's **right** claw to be bigger.

9. Both land and marine hermit crabs use **gills** for breathing.

10. *Answers will vary.* ***Example answer:*** *Ocean acidification changes the pH of the ocean, making it more acidic. When the ocean becomes more acidic, it changes the presence of necessary mineral compounds, like calcium carbonate, and makes it harder to come by or use. Hermit crabs, corals, snails, and many other animals need that carbonate to form their protective coatings and without it, become more vulnerable to predation. If this continues, we could lose populations of those animals and could see a major shift in our ocean's marine food webs, possibly upsetting our fisheries and coastal recreational areas.*