

Stomach Contents



VIRGINIA
AQUARIUM
& MARINE SCIENCE CENTER

Students will remove models of food and trash from a turtle's "stomach" and discuss how these items can impact sea turtles.

Duration

Activity: 30 minutes

Supplies

- Resealable baggie or container
- Small trays
- Tweezers
- Label (template attached)
- Gak (use dry beans to represent sorting through stomach without needing to remake gak each time you do the activity)
- Small pieces of food wrappers, balloons, paper, and other trash
- Broken pieces of crab molts and marine shells (find on beach walk)
- Pieces of plastic plants (find in store with fish tank supplies)
- Small pieces of natural sponge
- Small models or fishing lures to represent fish and jellies
- Datasheet (attached)

Background

Each species of turtle has a different diet. Below is a list of the common prey items for each sea turtle species.

- Kemp's Ridley - crustaceans (crabs), mollusks (clams/snails), jellyfish, submerged aquatic vegetation (sea grasses and algae)
- Loggerhead - Crustaceans (crabs), mollusks (conchs), sea grasses
- Hawksbill - Sponges
- Green - Sea grasses and algae (carnivore as hatchlings and juveniles)
- Leatherback - Jellyfish

All sea turtles are opportunistic feeders, so if something is slow moving enough, they will eat it. As juveniles, most sea turtles will eat sea grasses and any small, slow moving also living in the floating sargassum.

When a sea turtle washes ashore or is found floating in the water dead, the Virginia Aquarium's Stranding Response team collects data on the animal and many cases brings the animal back for future research. For many stranded sea turtles, this will include an animal autopsy, or necropsy, to collect valuable data on the species including the species, sex, size, weight, tissue samples, overall health of systems, and a probable cause of their mortality. The information they gather from these turtles can be used to better understand sea turtle anatomy, their life history, and how we can better protect them.

During a necropsy, scientists will remove their stomach and digestive track to analysis what they've eaten recently. They can sort through pieces of the prey such as crustaceans (crabs), mollusks (clams, oysters, snails), plant material (algae, seaweed, grasses), sponges, and even fish (bones). If the sea turtle ate something atypical, this can provide evidence for threats they face in their environment and even a probable cause of death. For example, researchers have found significant amounts of trash in a sea turtle's digestive tract with little to no other food. This may have caused the turtle to starve thinking they were full or blocked their tract to ingest food. Scientists have also found fishing gear such as hooks and filament in digestive tracks which has caused infections.

Finding natural food sources in a sea turtle's digestive tract can also give researchers evidence for other behaviors such as foraging around piers and nets. Historically, fish has not been a main diet of sea turtles as turtles are much slower. However, stranding researchers have started to see an increase in fish bones in the necropsied stomachs. What does this tell us about how sea turtles forage for food in our local waters? Is there less of their natural prey (crabs and snails) that's forcing them to seek out other food sources? Are they being opportunistic feeders and seeking out easy prey around fishing piers and fishing nets?

Instructions

1. Have students research the common prey items for each species of sea turtle or review together as a class.
2. Provide each student or small group of students with a stomach content bag with label, tray, and tweezers. Before they start removing the contents from the bag or container, have students record the information from the label onto their data sheet including identification number, stranding date, sea turtle species, and stranding location.
3. Students should sort through the stomach contents and organize into different categories - **fish**, **crustaceans** (crabs), **mollusks** (clams, mussels, snails), **squid/jellies**, and **trash**.
4. Students will tally how many of each category they found in their stomach and record on their datasheet.
5. Using the data collected and the prey chart on their datasheet, have students answer the questions pertaining to their stranded turtle. Did the turtle eat anything unusual? Could this turtle have stranded based on something it ate? Why would that sea turtle eat those items?
6. Have each group share with the whole class what they found in their turtle stomach and how that may have impacted their turtle.
7. As a whole class or in their groups, have students identify ways they can help keep sea turtles?

Extension

Have students create a poster or presentation to highlight their findings and set up a research symposium event for them to share. Invite community members and parents to learn about their research and what actions they would recommend protecting sea turtles.

Stomach Content Analysis



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Step 1: Record the identifying data from the label on your stomach content bag or container.

ID #: _____

Date: _____

Location: _____

Species*: _____

**See chart under Step 3 for species abbreviation.*

ID #: VAQS 200810003

Date: 13 June 2008

Location: Back Bay

Species: CC

Step 2: Open your stomach contents and place on the tray. Sort materials into similar prey items and record the information below using tally marks.

| | |
|--|--|
| Fish | |
| Crustaceans (crabs) | |
| Mollusks (clams, oysters, mussels, snails) | |
| Squid/Jellies | |
| Trash | |
| Cannot identify | |

Step 3: Use the chart below to help you answer the questions on the back of your datasheet.

| Turtle Species | Diet |
|-------------------|---|
| Green (CM) | Seaweed, seagrasses |
| Hawksbill (EI) | Sponges, worms, mollusks (clams, oysters, snails) |
| Kemps Ridley (LK) | Crustaceans (crabs) |
| Loggerhead (CC) | Mollusks (clams, oyster, snails), crustaceans (crabs), jellies, fish, some plants |
| Leatherback (DC) | Jellies, some items caught in jelly stomachs such as small fish, crabs, and zooplankton |

Research Questions

1. What was the most common item found in your sea turtle's stomach?

2. Did your sea turtle eat prey that's part of their normal diet? If no, please explain what they should be eating.

3. Did you find anything in the stomach unusual for this species to be eating? If yes, please list those items.

4. Why do you think the turtle may have been eating these items?

5. Do you think that this turtle may have stranded due to something it had been eating? If yes, please explain why.

Step 4: Brainstorm ways you can help protect sea turtles based on your research findings.

VAQS 200810003

13 June 2008

Back Bay

CC

VAQS 200810010

14 June 2008

Back Bay

CC

VAQS 200810012

27 July 2008

Back Bay

CM

VAQS 200810032

4 July 2008

Cape Charles

CC

VAQS 200810022

13 August 2008

Cape Charles

DC

VAQS 200810013

7 June 2008

Back Bay

CC

VAQS 200810001

26 May 2008

Back Bay

CC

VAQS 200810035

27 August 2008

Fort Story

CM

VAQS 200810002

30 May 2008

First Landing

CC

VAQS 200810025

26 July 2008

First Landing

DC

VAQS 200810005

24 June 2008

Back Bay

LK

VAQS 200810031

03 August 2008

Back Bay

CC

VAQS 200810008

26 June 2008

Cape Charles

EI

VAQS 200810009

13 June 2008

First Landing

LK

VAQS 200810021

07 July 2008

Fort Story

CM

VAQS 200810011

18 June 2008

Back Bay

DC