

Where is Great Bay?

Discover where the water of Great Bay comes from.

FOCUS: This activity shows students where Great Bay is located on a map of the region and where the water that flows into it originates.

Background: Great Bay is a large, shallow basin near coastal New Hampshire. It is bordered by seven towns. Three rivers flow directly into Great Bay (four others into Little Bay), mixing with the salt water carried by high tides through the Piscataqua River into Little Bay. Great Bay is farther from the coast than almost any other estuary in the nation.

PRIMARY - FIND GREAT BAY

SUPPLIES:

- map of New Hampshire worksheet (*supplied*)
- crayons

1. Color New Hampshire green.
2. Color the ocean blue.
3. Color the rivers yellow.
4. Salt water from the ocean comes into Great Bay; fresh water from rivers also comes into Great Bay, so Great Bay should be colored both blue and yellow.
5. Draw a black line around Great Bay.
6. With the help of the teacher, make an x on the map to mark where your school is.

INTERMEDIATE - MAP READING

SUPPLIES:

- road maps of New Hampshire
- Great Bay National Estuarine Research Reserve brochure
- pencils

1. In teams of 3-4 students, examine a road map of New Hampshire. Find your town. The Sandy Point Discovery Center is located on the Stratham/Greenland town line in the southwestern corner of Great Bay. Find its location on your map and make a small dot to indicate the Center.
2. What roads would you take to get to the Discovery Center from your community?
3. Find the rivers that flow into Great Bay. These are the fresh water connections to Great Bay. What are the names of these rivers? (the Squamscott, the Winnicut, and the Lamprey rivers) How else could fresh water get to Great Bay? (recall Water Cycle unit: runoff from watershed, groundwater) Which river is closest to the Discovery Center? (Squamscott River)
4. How could you go by boat?
Look at the Great Bay brochure to find the nearest boat launch site near your town.
5. Find Portsmouth. That's where the ocean meets the Piscataqua River, which flows into Little Bay which meets Great Bay at a narrow passage at Adams Point. This is the salt water connection. In pencil, trace the path tides take to enter Great Bay.
6. How do you think Little Bay and Great Bay got their names?
7. Where did the names of the Squamscott and Piscataqua rivers come from? (Native American names)
8. Use the scale on the map to find out how far Great Bay is from the ocean. Which ocean? (One of the unique features of Great Bay, that distinguishes it from other estuaries, is its great distance from the sea.)
9. Look at the symbols on a map. What do some of them mean? Where they are explained? (in the *legend*)

ADVANCED - MAP MAKING

SUPPLIES:

- maps of New Hampshire and Great Bay
- Great Bay Research Reserve brochure
- paper
- pencils
- crayons or markers

1. Look at a map of New Hampshire and find Great Bay. The Sandy Point Discovery Center is located on the Stratham/Greenland town line in the southwestern corner of Great Bay.
2. Find the rivers that flow into Great Bay. These are its fresh water connections. Name them. (the Squamscott, the Winnicut, and the Lamprey rivers) How else could fresh water get to Great Bay? (recall Water Cycle unit: runoff from watershed, groundwater) Which river is closest to the Discovery Center? (Squamscott River)
3. Find Portsmouth, where the Atlantic Ocean meets the Piscataqua River, which flows into Little Bay which meets Great Bay at a narrow passage at Adams Point. This is Great Bay's salt water connection.
4. How far is Great Bay from the Atlantic Ocean? (One of the unique features of Great Bay, that distinguishes it from other estuaries, is its great distance from the sea.)
5. Look at the symbols on a map. What do some of them mean? Find the scale; find the compass rose. Review the use of scale with students.
6. Calculate the distance between your town and the Sandy Point Discovery Center. What roads would you take to get there?
7. Have teams of 2-4 students draw their own maps of Great Bay.
Color green: Atlantic Ocean
Color blue: rivers leading into Little Bay and Great Bay
Color blue-green: Piscataqua River, Little Bay, and Great Bay
to illustrate that salt water from the ocean and fresh water from rivers mix in Great Bay.
8. Add other landmarks, such as malls, Great Bay National Wildlife Refuge, school, town boundaries, Sandy Point Discovery Center, and major roads connecting their town to Sandy Point Discovery Center.
9. Include a scale, legend, and direction of North on student map.

FURTHER EXPLORATIONS

1. PLUMB THE BAY.

Use NOAA chart #13285 of Great Bay (available for about \$15 at marine supply stores or see one at Sandy Point Discovery Center) to answer these questions: What is the difference between a map and a chart? (one is for land, the other is for water) Where is the deepest part of Great Bay? How deep is it? What is the average depth of Great Bay?

2. HABITATS OF GREAT BAY

Most of the substrate (bottom type) of Great Bay is either mud flat (often with eelgrass beds) or salt marsh. Read the Great Bay Research Reserve brochure to find definitions for these habitats. Look at the NOAA chart of Great Bay. The chart tells you the different habitats that are within the Great Bay Reserve. There are: mud flats, rocky shore, salt marsh, tidal creeks (openwater even at low tide), uplands (field and forest). Look at the legend to figure out how each habitat is designated.

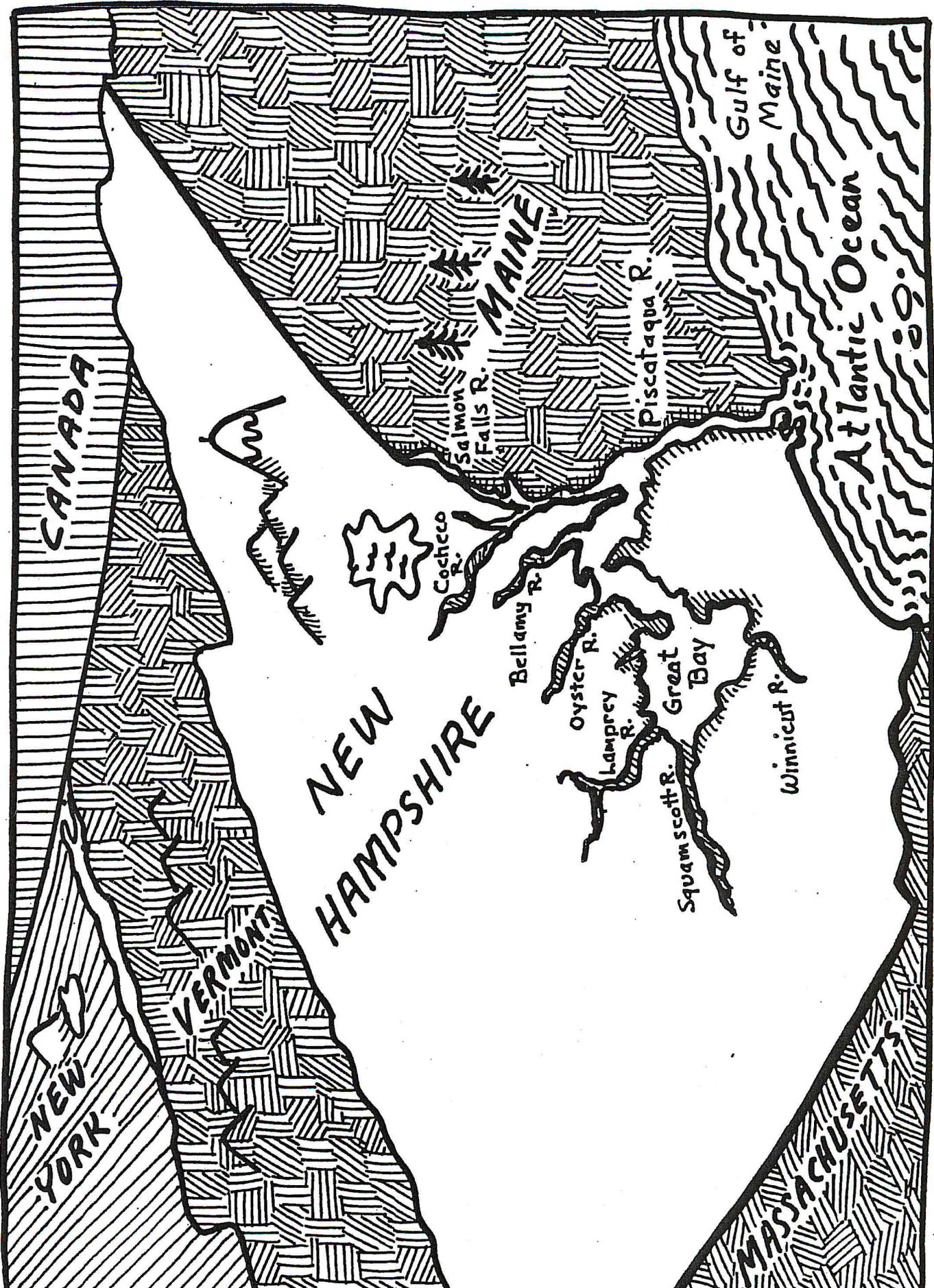
Use a length of string to measure approximate area covered by each habitat. Which habitat covers the most area? (mud flats) The least? (rocky shore)

3. GREAT BAY NATIONAL WILDLIFE REFUGE

The coastal property of the former Pease Air Force Base is now the Great Bay National Wildlife Refuge, which is managed by the U.S. Department of the Interior. Can you find it? Why is it designated grey in the Discover Great Bay Research Reserve brochure? (federal land)

4. EASY MAP READING

Do the map reading activities in the brochure Treasures, A Children's Guide to Great Bay. Challenge students to make up their own map-reading questions using the Treasures brochure, chart of Great Bay, or map of New Hampshire.



CANADA

NEW YORK

VERMONT

NEW HAMPSHIRE

MAINE

Gulf of Maine

Atlantic Ocean

Salmon Falls R.

Cocheco R.

Bellamy R.

Oyster R.

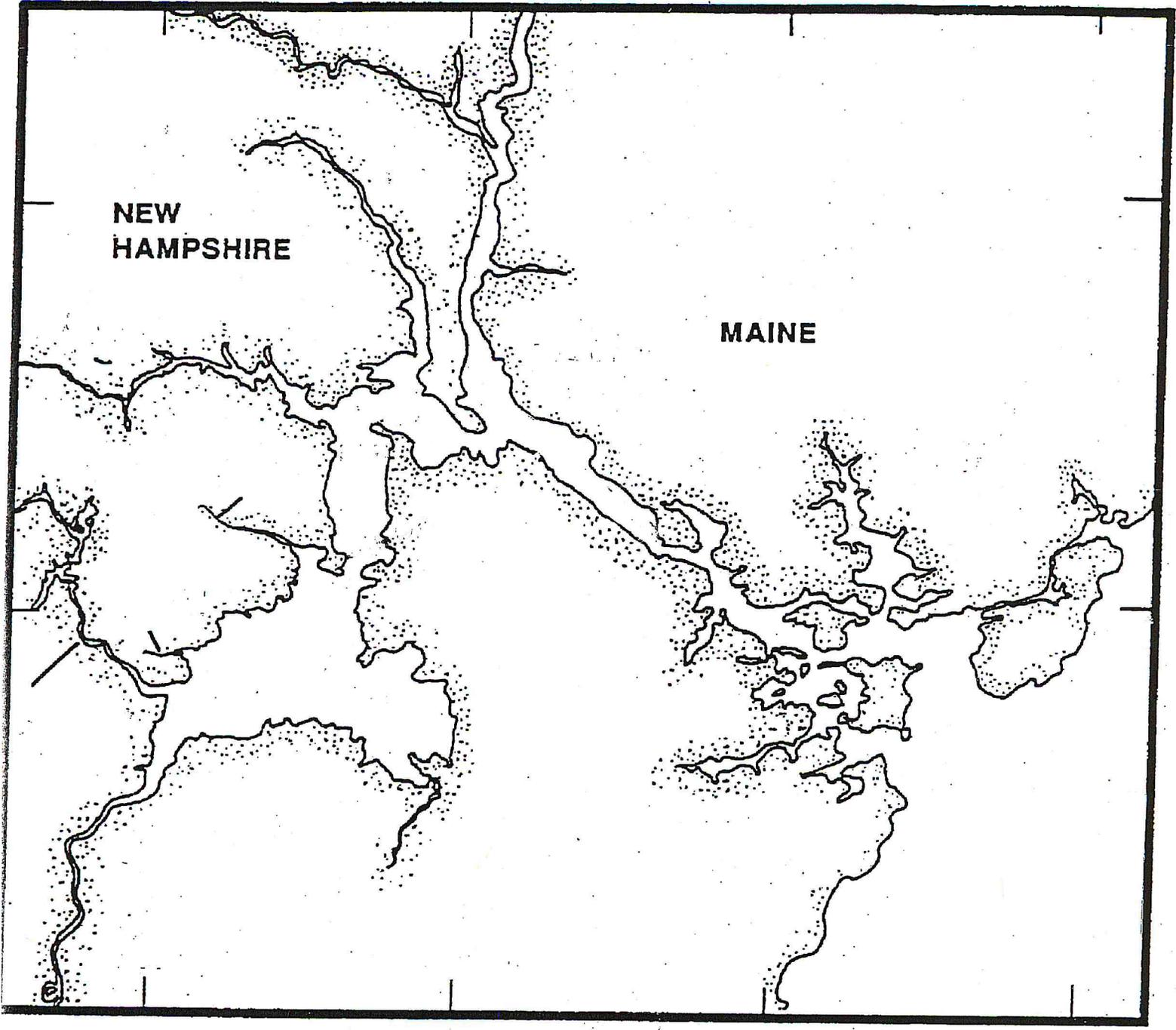
Lamprey R.

Squamscott R.

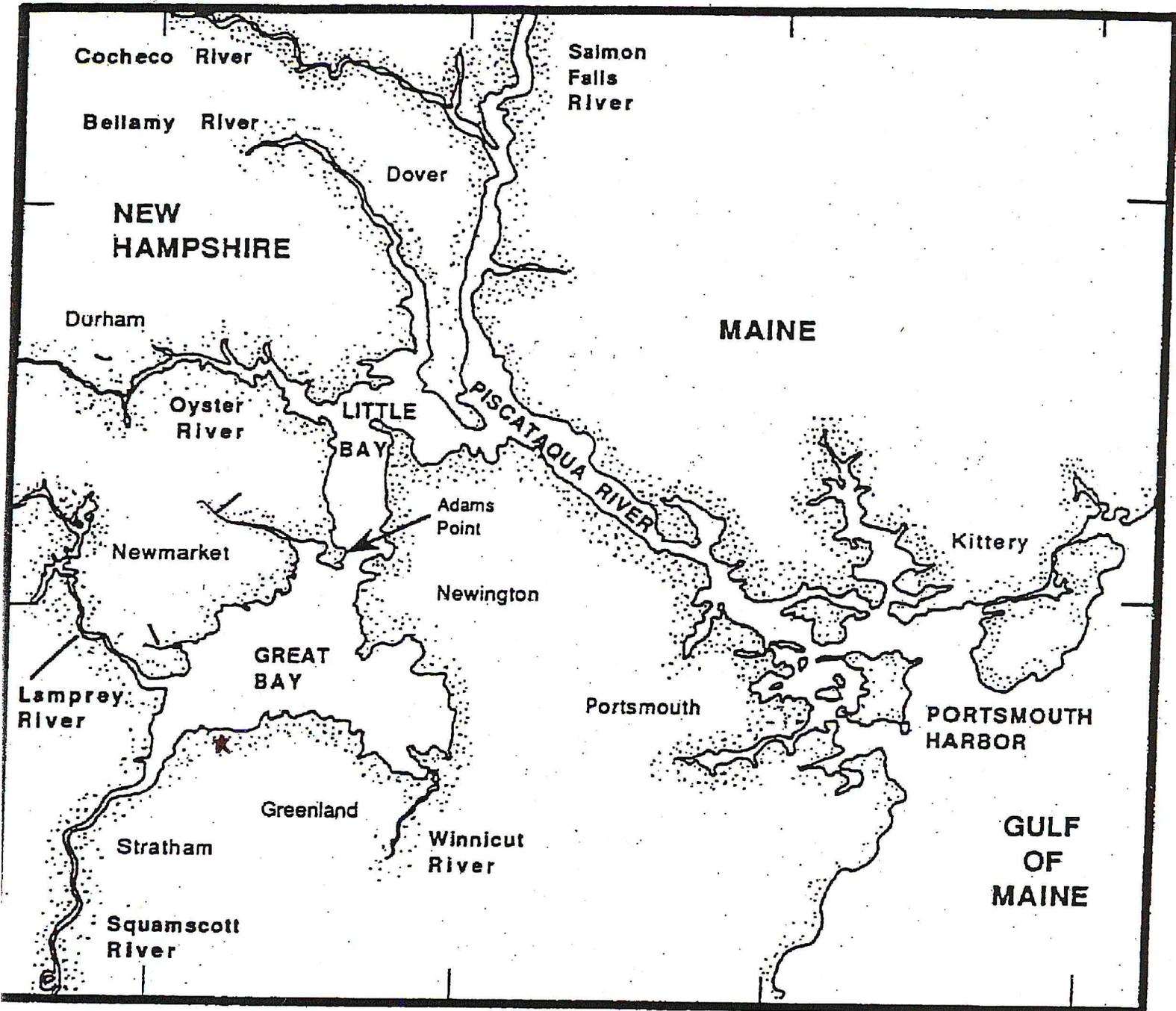
Winnicut R.

Piscataqua R.

Great Bay



- Color Maine dark green
- Color New Hampshire light green
- Color the water light blue
- Label the 8 rivers that contribute water to Great Bay
- Label Little Bay
- Label Great Bay
- Label the Gulf of Maine
- Label some of the towns that are around Great Bay
- Place a star where the Great Bay Discovery Center is located



Cocheco River

Salmon Falls River

Bellamy River

Dover

NEW HAMPSHIRE

MAINE

Durham

Oyster River

LITTLE BAY

PISCATAQUA RIVER

Adams Point

Newmarket

Kittery

Newington

GREAT BAY

Lamprey River

Portsmouth

PORTSMOUTH HARBOR

Greenland

Stratham

Winnicut River

GULF OF MAINE

Squamscott River

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