

MAP OF MOBILE BAY

To be completed *BEFORE* your visit.



Using the map of Mobile Bay above, label the following areas around Mobile Bay:

- | | | | |
|------------------|-------|-----------------------|-------------------|
| Dauphin Island | South | Gulf of Mexico | Bon Secour Bay |
| Mobile Bay | East | Dog River | Fowl River |
| Ship Channel | West | Mobile | Mississippi Sound |
| Middle Bay Light | North | Fort Morgan Peninsula | |

Draw a circle around the Mobile Delta area.

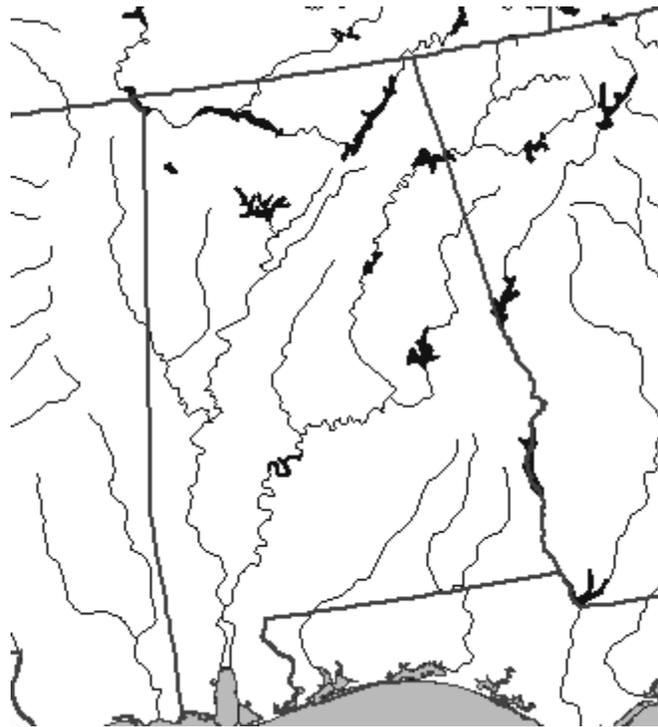
MOBILE BAY WATERSHED

To be completed *BEFORE* your visit.

A watershed is an area of land that drains to a particular body of water. Watersheds are complex systems of rivers, lakes, streams, groundwater, and wetlands that eventually drain into the same body of water.

Using the map provided (www.nationalatlas.gov), begin at Mobile Bay, and trace the rivers and streams that are connected to the bay. Draw a line to encompass these rivers and streams, being careful not to cross rivers that don't connect to the bay. This will outline the watershed of Mobile Bay. Shade the area.

Do you live in the Mobile Bay watershed? _____



Water from more than two-thirds of the state of Alabama, and parts of Mississippi, Tennessee, and Georgia eventually flows into Mobile Bay, which drains into the Gulf of Mexico. Upstream activities in a watershed can impact the quality of waters downstream. If your town is within the large Mobile Bay watershed, your activities that affect a creek in your backyard or a river in your town can directly affect the Mobile Bay estuary and the Gulf of Mexico many miles away.

At the Estuarium

9th – 12th Grade Activity

Name: _____

What is the Estuarium?

The Estuarium is an aquarium exhibiting plants, animals, and habitats of coastal Alabama. An *estuary* is a place where fresh water from land mixes with salt water from an ocean. Your visit through the facility will take you from the fresh water *delta* to the salty Gulf waters.

This worksheet is divided into the galleries that you will find as you tour the Estuarium. Read the panels, observe the tanks, and ask docents and staff to help you find the answers.

Mobile Delta Gallery

1. **Before the Delta:** Describe how our continent looked different 75 million years ago, during the late Cretaceous Period, when mosasaurs lived on earth. _____

2. How big is the Mobile-Tensaw Delta (measured in acres)? _____

3. What is Alabama's state reptile? _____ What specific range in Alabama does it occupy? _____

4. What are Streamside Management Zones (SMZs)? _____

Name three benefits of using SMZs. _____

5. Name two photosynthetic, carnivorous organisms in this gallery. _____

_____ They can be found in what ecosystem? _____

What are two threats to this ecosystem? _____

6. What are invasive species? _____

Mobile Bay Gallery

1. By volume of water, Mobile Bay is the _____ largest drainage basin (watershed) in the United States.

2. How does the present-day coastline of Alabama differ from Alabama's coastline of 15,000 years ago? _____
Why was it different? _____

3. What animal did people avoid eating in summer months? _____
How do these animals feed? _____

How can these two factors (summer months, and their manner of feeding) contribute to making people sick when they consume these organisms?

4. How does water's ability to dissolve particles affect *our* food web? _____

5. Explain three problems caused by piers and bulkheads along shorelines. _____

Barrier Island Gallery

1. Name two important benefits of barrier islands to mainland coastal areas. _____

2. Below is a cross section of a barrier island. Label the following habitats:
beach fresh water wetland dune maritime forest salt marsh



For each habitat, label one plant or one animal found there. Explain why the sand dunes can be a harsh environment for plants and animals. Give at least three examples. Explain at least three adaptations that allow some plants and animals to survive these challenges.

3. **Soup of the Sea:** Use each answer only once.
- A. phytoplankton B. red tide C. zooplankton D. meroplankton E. nekton
1. ____ radiolarians 2. ____ moon jellies 3. ____ diatoms 4. ____ sharks
5. ____ dinoflagellates

Gulf of Mexico Gallery

1. Name an invasive jellyfish sometimes spotted in Mobile Bay and the northern Gulf of Mexico. _____

2. Name four types of structures that have been sunk in Alabama waters to create artificial reefs. _____

Why have people created these artificial reefs? _____

3. Explain the environmental problems caused by paving surfaces. _____

4. **Underwater Exploration:** What value is there to exploring the deep ocean?

1. **Oil Spill:** What do dispersants do? _____

What were two concerns some people had about the dispersants being put on the Deep Water Horizon oil spill? _____

1. **The Weather Station:** Record these current weather conditions:

Air Temperature	_____	Wind Speed	_____
Water Temperature	_____	Wind Direction	_____
Dissolved Oxygen mg/L	_____	Salinity	_____

* Don't forget to include units of measure.

Would the amount of dissolved oxygen usually increase, decrease, or stay the same with increased depth through the water column? *Hint: you will not find the answer written on a sign; you will have to think about it.* _____

_____ Some of the contributing factors are listed below. Give brief explanations of how they relate to water depth and dissolved oxygen.

Pressure: _____

Air-water interface: _____

Temperature: _____

Photosynthesis: _____

Living Marsh Boardwalk

The Living Marsh Boardwalk is located outside the Estuarium. This area was once the site of a septic tank used by the Air Force. In 1993 the Dauphin Island Sea Lab removed the sewage-septic tank and rebuilt the marsh. Use the panels and audio kiosks on the boardwalk and your own observations to answer the following questions.

1. Plants that live in salt-water environments have means of resisting the harmful effects of salt. Name two of these techniques. _____

2. On average, how deep is Mobile Bay? _____ How long is Mobile bay? _____ How wide is Mobile Bay? _____
3. How real is the threat of an oil spill from the rigs you see just offshore? _____

4. Compare the form and function of the existing Estuarium parking lot to a hypothetical, typical, paved parking lot in the same place. _____

Invertebrate Trail

On the Invertebrate Trail, locate animals that represent the phylum Arthropoda (which means "jointed legs"). Use a crayon (or pencil) to make a rubbing of one of these animals.