

Water quality on the Gulf of Mexico coast: Lessons from the Grand Bay estuary

Our human footprint

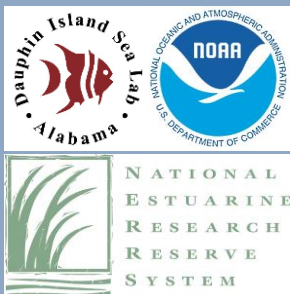
On the Mississippi-Alabama coast, local income and recreation are largely water-dependent, including commercial and recreational fishing, fish processing, and eco-tourism.

Increased residential and industrial development during the past 60 years has affected water quality by increasing **nutrients** (nitrogen, phosphorus) and **microbes** (bacteria, viruses) delivered to the water from human wastewater and stormwater runoff.



What do we know?

- Nutrients and microbes in sediment, water, and oysters show increasing wastewater inputs to waters surrounding the Grand Bay system due to sewage and stormwater.
- Most areas are in the early stages of change, but Bayou Chico, in a highly urbanized watershed in Mississippi, is impaired compared to other Grand Bay area waters.
- Nutrients from wastewater can increase food supply for shellfish, but microbes in wastewater can lead to fishing area closures and public health concerns.
- When properly maintained and operated, municipal wastewater treatment can reduce microbe inputs and help to improve water quality on the Gulf coast.



To sustain water quality and keep shellfisheries safe for harvest, communities must work together to **balance land use with water quality priorities** and **implement and maintain** suitably designed **wastewater treatment**.

This study was conducted by the Dauphin Island Sea Lab, Grand Bay NERR, University of Southern Mississippi, & the US FDA with funding from the NOAA NERR Science Collaborative (2010-2014).

What did you see today?

Sources of nutrients and microbes to coastal waters are nearly everywhere, but often unnoticed. Learn to recognize these sources as a first step to avoid, minimize, and mitigate them during your daily activities.



- ✓ **Outfall pipes** deliver fertilizers, animal waste, road runoff, and other debris via stormwater, and some homes have unpermitted connections to stormwater drains.

Did you know: Most stormwater drains empty into local streams and rivers that discharge to bays and estuaries without treatment.

What you can do: Properly dispose of yard debris and other litter, pick up after your pets, and maintain your vehicle to avoid leaks.



- ✓ **Houseboats & fish camps** can be sources of wastewater, delivering microbes such as *E. coli* and fecal coliforms to the water.
- ✓ **Failing septic systems & pumping stations** can leak untreated wastewater into groundwater, streams and estuaries.

Did you know: About 850 billion gallons of untreated sewage and stormwater are released to US waters each year¹.

What you can do: Lawfully dispose of human waste and maintain septic systems. Support maintenance of wastewater infrastructure and facilities.



- ✓ **Impervious surfaces** (roads, parking lots, driveways, sidewalks, buildings) increase runoff into coastal waters.

Did you know: Most of the world's largest cities are on the coast.²

What you can do: Use porous building materials when possible and design landscapes to include planted areas. 1.42

Learn more

- See our data, learn how you can improve local water quality, and report possible spills or other concerns at www.disl.org/wastewaterfootprint
- Share, modify, and use copies of this factsheet in your office or classroom to continue improving water quality on the Mississippi-Alabama coast.
- Learn about pollutant sources and how to incorporate clean water tips into your daily life at www.cleanwaterfuture.com

