

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

## Our human footprint

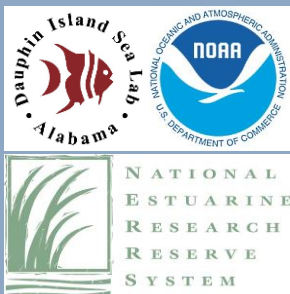
On the Mississippi-Alabama coast, local income and recreation are largely water-dependent, including commercial and recreational fishing, fish processing, and eco-tourism.

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 year<sup>1</sup>.

**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.<sup>2</sup>

**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](http://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](http://www.cleanwaterfuture.com)



## **Water Quality on the Gulf of Mexico Coast: Lessons from the Grand Bay estuary**

We invite you to use this edutainment packet/ factsheet as part of your ecotour business, in your classroom, at your agency, or any time during your daily activities.

If you use this tool, we want to know about it! We encourage you to contact us with new ideas and changes. If you find ways to modify this factsheet to better suit your purposes, let us know! Once approved, we will post a revised version on our website for you and others to use. Please email us at [wastewaterfootprint@disl.org](mailto:wastewaterfootprint@disl.org) with your feedback!

**To use in the field:** Print the factsheet double-sided and in color to create a single page. Laminate the page, distribute to your audience, and let them know about our project here on the Gulf of Mexico coast! You can find more information at [www.disl.org/wastewaterfootprint](http://www.disl.org/wastewaterfootprint).

To help us measure the impact of our factsheet tool, please distribute the **questionnaire** found below. Use the back of the factsheet as a guide to recognize potential sources of wastewater to our local waters and learn more about issues and concerns associated with these sources and how to reduce negative impacts on water quality.

Collect the completed questionnaires and send to Dauphin Island Sea Lab, Attn: Carmichael-Wastewater Footprint, 101 Bienville Blvd, Dauphin Island, AL 36528 or email us to arrange pick-up! You may request promotional materials, including a **free gift** for you and your guests or clients, which can be distributed upon completion of the questionnaire.

***Thank you for your interest in our program and dedication to improved water quality on the northern Gulf of Mexico coast!***

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**Please complete the questions below.**

1. Did you see any potential sources of wastewater today? Please circle: Yes or No
2. If yes, what did you see? Next to each source, please write how many you saw today.  

<input type="text"/> Outfall pipes	<input type="text"/> Houseboats or fish camps
<input type="text"/> Septic tank mound or pumping station	<input type="text"/> Impervious surfaces
<input type="text"/> Other; please explain: _____	
3. Did you learn anything new about water quality after reading and using this factsheet? If so, please tell us one piece of info you are taking home with you today.

4. How likely are you to incorporate our suggested tips/practices for improving water quality into your home, business, or community? Please circle your response below.

I am not interested/ I will not use these tips.

I am somewhat likely to use these tips.

I will definitely use these tips!