

# Gulf Coast Ecosystem Restoration



## Stormwater And Fisheries Restoration Discussion



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# Stormwater and Fisheries Restoration Discussion

- This presentation will address the following:
  - Impervious surface relationships
  - Why stormwater is an issue
  - What is in it
  - What we can do about it
  - How stormwater management affect fisheries

# Impervious Surfaces

In a Landscape Analysis, EPA Found  
the % Impervious Surfaces in a  
Watershed to Be the Factor Most  
Correlated With Water Quality  
Degredation.

Impervious surfaces create  
stormwater.

# Why Is It an Issue?

- Stormwater degrades water quality
- Water quality issues affect all of us
- Ecosystem effects
- Economic effects
- Health effects

# What Is in It?

- Sediment
- Pesticides
- Heavy Metals
- Hydrocarbons
- Nutrients
- Pathogens
- Solid waste

# What Can We Do About It?

- Effective construction site runoff reduction
- Stormwater retention ponds
- Constructed wetlands (I-10 examples)
- Greenshores type projects

# How Does stormwater Management Affect Fisheries

- Toxins in stormwater accumulate in organisms and cause disease and death
- Sediments in stormwater cover and kill immobile organisms like clams and oysters and cloud water
- Nutrients in stormwater promote algal growth that can lead to hypoxia and cloudy water which can kill seagrasses
- Projects such as Greenshores improve water quality and create valuable habitat that supports fish



# How Wetlands, Marshes, and Submerged Seagrass Treat Stormwater and Enhance Fisheries

- Wetlands absorb nutrients, allow sediment to settle, create organic matter that locks-in toxic materials and metals
- Produces productive habitat where fish, shrimp, crabs and mollusk can hide and find food
- Primary productivity—as high as intensive agriculture



# Fisheries and Water Quality

- Fisheries and water quality are a two-way street
- Fish and shellfish need good water quality to survive
- Good water quality depends on consumers such as fish and oysters to maintain water quality, without consumers algae accumulates and can create hypoxia

# Factors Affecting Fisheries in Escambia Bay

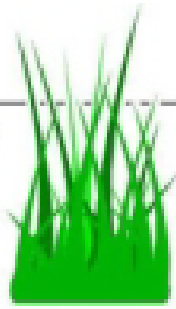
– Point is Stormwater is not the only issue

- Nutrients
- Habitat loss
- Types of Algae—diatoms, picocyanobacteria
- Shrimping

# Examples of Projects

- Greenshores, a marsh restoration project
- Bruce Beach, a wetland mitigation project
- Deadman's Island, a shoreline erosion project
- Veterans Park Stormwater Pond
- Snorkle Reefs

# **PROJECT GreenShores**



Note—Remember Ivan

# Bruce Beach Wetland Mitigation



Photo from Heather Reed

# Ecodisc Wavebreaks with Oysters



Photo courtesy of Heather Reed

# Deadman's Island EcoDisc Wavebreak



Photo from Heather Reed

# Importance of Oysters

- Oysters filter and clean the water, up to 3 gallons per hour
- Oysters create habitat for invertebrates like crabs, shrimp, invertebrates
- Fish like redfish are attracted to oyster reef habitats



# Fish Attracted to Wavebreak



Photo from Heather Reed

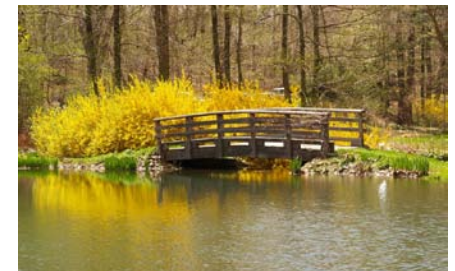
# Suggested Criteria for Projects

- Durability of the project
- Effects on environment and fisheries
- Amount of habitat and productivity of habitat
- Community involvement and educational aspects
- Economic Impact



# Benefits of Projects

- Sustained effects on water quality and fisheries
- Aesthetic habitat
- Educational and community involvement
- Economics, increased tourism, property values



# Suggested Areas for Projects

- Scenic Hwy outfalls
- Big Lagoon
- Inland areas
- Upland areas

# Escambia Bay Bluffs Stabilization and Restoration Project

Mary Gutierrez, Executive  
Director, Earth Ethics, Inc.

# Stormwater Pond at Veterans Park





Pensacola Bay Sunset, courtesy of Heather Reed