

# Watershed Education using Bivalves (WEB)

Tina Miller-Way

Discovery Hall Programs

Dauphin Island Sea Lab



# A BWET *'Exemplary'* Program

- Involves teacher training and student activities
- 3 year program
  - Yr 1 - training workshop, MWEE development, student activities
  - Yr 2 - training workshop, MWEE refinement, MWEE student activities
  - Yr 3 - MWEE student activities, concluding workshop
- Middle school level (AL curriculum, standards)
  - 18 teachers @ 9 schools
  - ~500 students per year

# Program objectives

- Content knowledge - PD
- Student field/lab activities
  - water quality across the watershed, bivalve biology (choice), Alabama heritage - history, ecology
- Technology skill development

# MWEE focus

- Field activities
  - One near school, one at Sea Lab
- Lab activities
  - Animal-based

# Project Partners

## ➤ WEB Advisory Team

- Dr. Ken Heck, Dauphin Island Sea Lab
- Dr. Bill Walton & Mr. Scott Rikard, Auburn University Marine Extension & Research Center
- Dr. Bill Deutsch, Alabama Water Watch
- Dr. Paul Johnson, Alabama Aquatic Biodiversity Center
- Mr. David Ruple, Grand Bay National Estuarine Research Reserve
- Dr. LaDon Swann, Mississippi-Alabama Sea Grant Consortium

# Other project elements

## ➤ Recruitment

- Key element - Mobile area and 'up-the watershed'
- Mobile County Public School System,  
Environmental Studies Center

## ➤ Evaluation

- Dr. Howard Walters, Ashland University (OH)
- Pre/post; attitudinal, rest - ?

# Timeline



## NEWS RELEASE ALABAMA DEPARTMENT OF PUBLIC HEALTH

RSA Tower 201 Monroe Street, Suite 914 Montgomery, AL 36104  
Phone 334-206-5300 Fax 334-206-5534  
[www.adph.org](http://www.adph.org)

### Alabama agencies expand precautionary advisories in Fort Morgan, Gulf Shores and Orange Beach

#### FOR IMMEDIATE RELEASE

##### CONTACT:

Donald Williamson, M.D.  
(334) 206-5200  
Major Chris Blankenship  
DCNR  
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The Alabama Department of Public Health and the Alabama Department of Conservation and Natural Resources, in consultation with the Alabama Department of Environmental Management, have expanded advisories due to the increased presence of oil in coastal areas.

In addition to the oil previously identified at Dauphin Island, oil has now been identified at Fort Morgan and Gulf Shores. Further spread of oil toward Orange Beach is likely. Because of the presence of visible oil and the likely wider impact of oil eastward, the Alabama Department of Public Health advises individuals not to swim in Alabama gulf waters or in bay waters immediately adjacent to Fort Morgan.

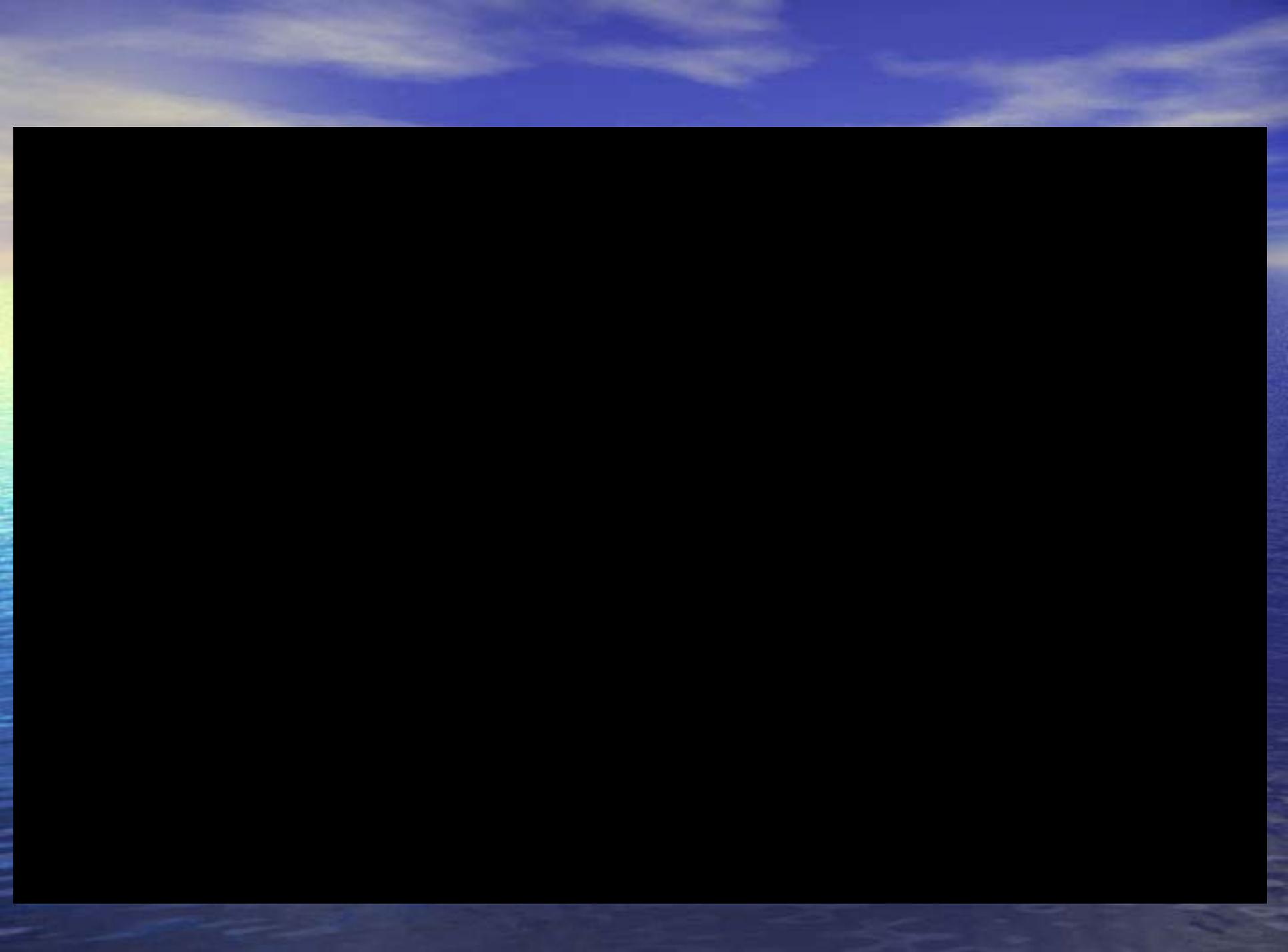
Dr. Donald Williamson, state health officer, said, "These are precautionary measures to protect the public's health. We will continue to monitor the situation and reassess the need for further advisories if the situation changes."

The Department of Conservation and Natural Resources, as a precautionary step, is closing the following Alabama waters to fishing at 6 p.m., June 4, 2010: All waters in the Gulf of Mexico including Pelican Bay and the waters of Mobile Bay east of the Mobile Ship Channel and south of a line from Mobile Ship Channel Marker Number 22 to Little Point Clear on the north side of Fort Morgan Peninsula. Maps of the state and federal waters closed to fishing can be found at [outdooralabama.com](http://outdooralabama.com).

Signs will be posted at the affected beaches. Residents should take the following additional precautions.

##### Protective Measures

- Avoid direct skin contact with the oil.
- If you get oil or tar balls on your skin, wash with soap and water.



# Suspension of plans

- Decision to cancel workshop for summer
- Consultation with teachers
  - Fall workshop?
  - Some teachers had to withdraw
  - Decision to push back plans
  - Request for NCE

# Accomplishments to date...

## (outputs)

➤ Conte

➤ Wa



Mobile Bay

# Content

- Water quality
- AWW
- AWW
- Activities (mymobilebay.com)
- Student

## ALABAMA WATER WATCH

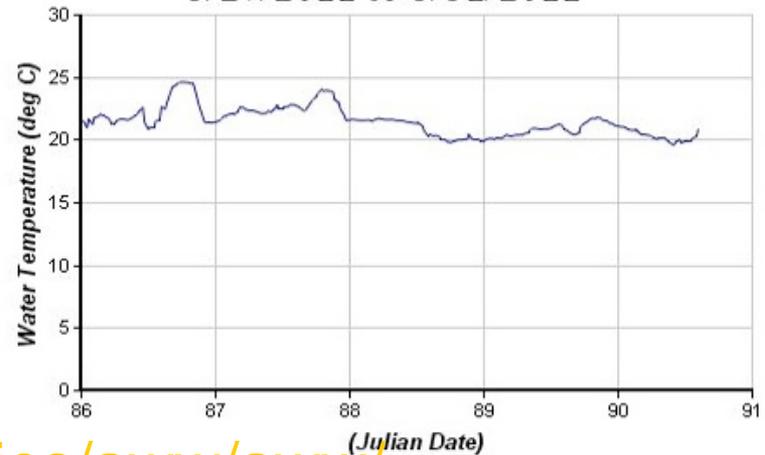
Hydrographic Information (Updated every 30 minutes)

 Water Temperature	69.5 ° F	( 20.9 ° C)
 Water Level	0.84 ft	( 0.3 m)
 Salinity	7.1 PSU	
 Dissolved Oxygen Percent	115.9 %	
 Dissolved Oxygen mg/L	9.9 mg/L	

Dissolved Oxygen (DO)	Rep #: <u>6.4</u> ppm Re
Specific Gravity / Salinity	S. G. _____ Salinity
% Oxygen Saturation	<u>6.5</u> Avg DO
Total Alkalinity	<u>4</u> # drops x 5 =
Total Hardness	<u>5</u> # drops x 10 =
Turbidity	<u>2</u> # 0.5 mL x 5 (50n) # 0.5 mL x 10 (25n)
Secchi Depth	<u>0.91</u> met
Other Chemistry Tests	
<b>Comments:</b> Note evidence of rainfall, runoff within previous smell, unusual color, cows or other animals in creek, etc.	
I hereby declare that at the time of this water sampling, my freshness of each reagent used for these tests.	
Signature: 	
	Alaba 250 Auburn Unit

Units:  Celsius  Fahrenheit

*Water Temperature 5 Days*  
 3/27/2011 to 3/31/2011



<http://www.aces.edu/dept/fisheries/aww/aww/>

<http://www.mymobilebay.com/>

# Content



y - new for DHP (choice)

ngia, mercenaria,

esses, shells, reproduction

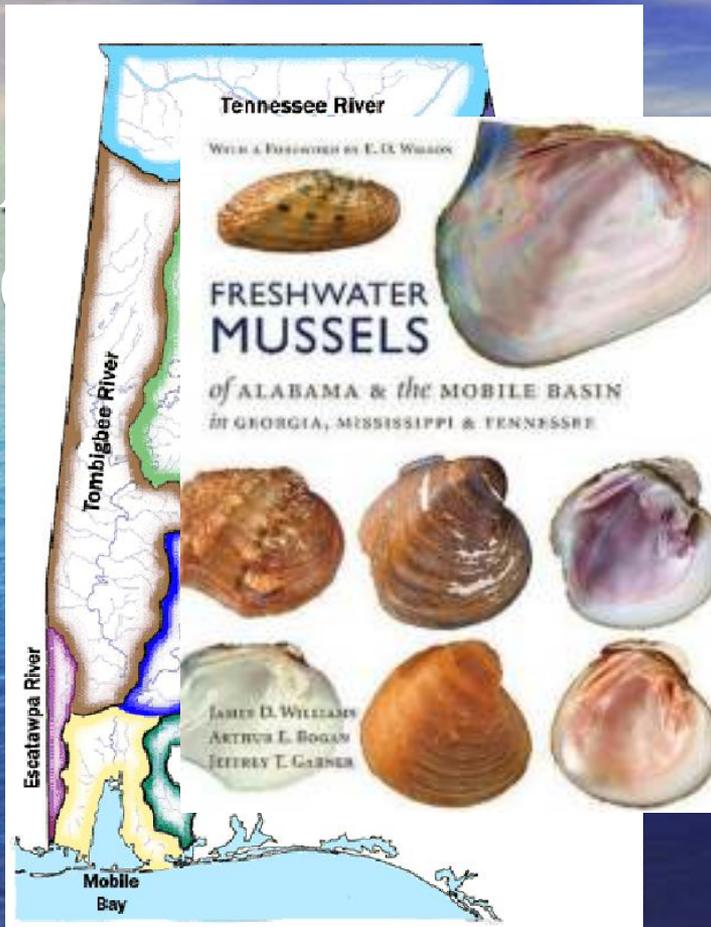
*Photo by Jayne Brim Box, USGS,  
FCSC, Gainesville, FL*

ecosystem services - water c

- Activity - laboratory - Tale of  
filtration/clearance, acidifica  
Watch data



# Content (con.)



<http://www.outdooralabama.com/research-mgmt/aquatic.cfm>

# Content (con.)



## Cooperation (N) of research



## Shoreline Habitat and Enhancing Fisheries

### Current Research

Scientists at the Dauphin Island Sea Lab, in a project funded by the National Oceanic and Atmospheric Administration and managed by The Nature Conservancy, are investigating artificial oyster reef designs for use as living shorelines. Experiments will determine which designs are the most effective at decreasing shoreline erosion, attracting crabs, shrimp, and fish and stabilizing sediments for seagrass and marsh growth. These living shorelines are located adjacent to Bay Front Park along the Dauphin Island causeway and along the eastern shore of Coffee Bay, a short boat ride from Bayou La Batre.

### Benefits of Living Shorelines

- Improve water quality and clarity
- Trap and filter pollutants from runoff
- Reduce erosion by absorbing wave energy
- Increase area of critical coastal habitats
- Provide habitat for commercially and recreationally important species of crab, shrimp and fish
- Maintain a natural transition between land and water



Mesh bags are filled with loose oyster shells and stacked on top of one another to provide a naturally appearing oyster habitat.



ReefBlok<sup>®</sup> systems are triangular, steel rebar cages filled with oyster shell. The empty spaces absorb wave energy and oyster shells provide an ideal surface for baby oysters to settle.



Reef Ball<sup>™</sup> units are concrete domes, made with strategically placed holes to slow waves as they pass and provide habitat for many species of fish and invertebrates, including oysters.

This display is part of a restoration effort entitled "Coastal Alabama Economic Recovery and Ecological Restoration Project: Creating jobs to protect shorelines, restore oyster reefs and enhance fisheries production." It has been made possible through generous grant support and donations from many partners, including:

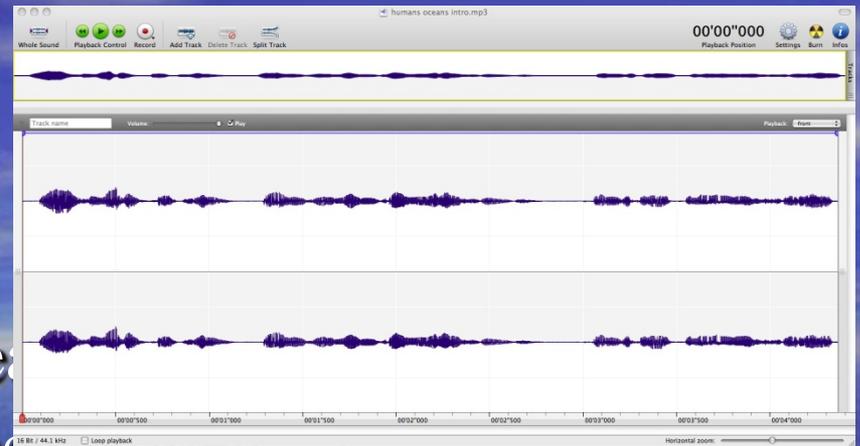


g  
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# Unique (?) twist



when written...)



audio & video files)

- Included training in workshop using audacity
- Upload files, post on specific
- Not require IT support / \$\$\$

via  
quip  
ho

SLIDE

## News & Events

### Bay Bytes

#### Creature Features



- [Horseshoe Crabs](#)
- [Seahorses](#)
- [Octopus](#)
- [Oysters](#)

#### The Gulf Region



- [Gulf of Mexico Size](#)
- [The Gulf of Mexico Watershed](#)
- [Mobile Bay Size](#)
- [The Mobile Bay Watershed](#)
- [Gulf of Mexico Depth](#)
- [Gulf of Mexico Volume](#)
- [Gulf of Mexico Economy](#)

#### Humans and the Ocean



- [Plastics in the Ocean](#)
- [Rip Currents](#)

# Plan now - new capabilities



# Plan now - rethink...



The screenshot shows the DHP High School Program website. At the top left is the logo for the Gulf of Mexico and Alabama. The main header reads "DHP High School Program". Below this is a "USER LOGIN" section with fields for "Username:" and "Password:", a "LOG IN" button, and a link to "Request new password". To the right of the login section are two blog posts. The first is titled "ALABAMA LOVE" and is dated "Posted Sat, 07/03/2010 - 13:01 by Achira". The text of the post reads: "It feels so weird to be at home and not see everyone or be at the classroom. I miss everyone this summer; the memories will definitely be unforgettable. I'm trying to think of my favorite them all :) . Some of my favorites were the mudfight, boat trips, New Orleans, snorkeling in classroom activities, etc. I love all of you and will miss everyone!". The second post is titled "STARS" and is dated "Posted Fri, 07/02/2010 - 15:46 by Jenny". It features a small image of a pink flower and the text: "They're all unique. They're all special. Some are the flower, marsh pink (Sabatia stellaris). Importantly, they care about people."

Technology has advanced as  
(at this part)  
workspaces programs

- Found that st
- Moderation of
- systems prob



The screenshot shows the Coastal America website. At the top left is the logo for Coastal America, featuring a white bird and the text "COASTAL AMERICA A Partnership for Action". The main header reads "9. Student Summit Program" and includes navigation tabs for "Page", "Discussion", "History", and "Notify Me". Below the header is a "PROTECTED" status indicator. The main content area is titled "Coastal America" and features the text: "3rd National Student Summit on Oceans & Coasts", "February 14-17, 2011", and "Washington, DC". Below this is a link to "Preliminary Agenda". At the bottom left of the page is a PDF icon and the text "Summit Program (FINAL).pdf".