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Information About Estuaries and Near Coastal Waters

June 2002 - Issue 12.3

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Table of Contents

- [Watersheds and TV Weather Reporting](#)
- [From Timbuktu to Coral Reefs: The African Dust Connection](#)
- [Boaters, Industry and Government Join Forces for Cleaner Marinas in Connecticut](#)
- [\\$10,000 Grant to Continue Horseshoe Crab Conservation](#)
- [Sarasota County Florida Passes Unique Landscape Water Conservation Ordinance](#)
- [Volunteers Make a Difference in TMDL Implementation](#)
- [Coastlines Welcomes Lisa Beever!](#)
- [An Incentive-Based Approach to Protect Water Quality in Georgia](#)
- [New EPA Initiative to Protect America's Watersheds](#)
- [How Much is the Coast Worth?](#)
- [Two-Day NEP Conference this Fall in NYC](#)

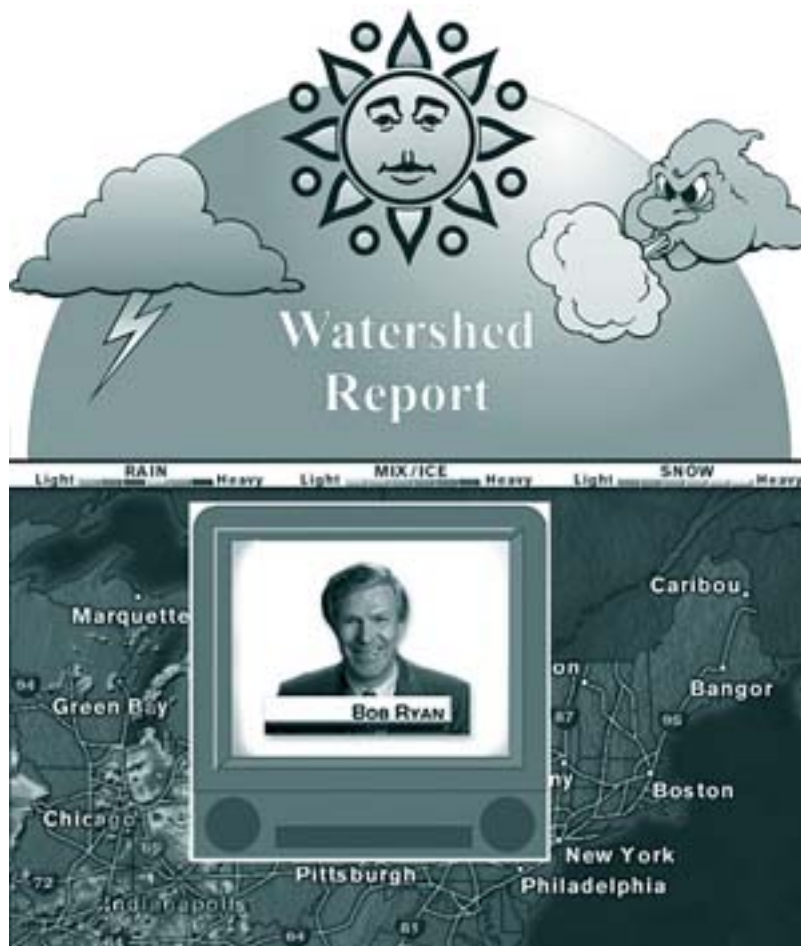


U.S. Environmental Protection Agency National Estuary Program



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Watersheds and TV Weather Reporting



Thanks to an exciting new partnership, meteorologists in Washington, DC, are not just talking about rain - they're also talking about watersheds! The National Environmental Education and Training Foundation (NEETF) and US EPA have teamed up with a number of public and private partners on an innovative effort to

educate the public about watersheds. NEETF, Stormcenter Communications, EPA, the National Ocean Service, the United States Forest Service, several foundations and others have joined together in a collaborative project to employ local TV weather reports as a means to teach people about watersheds and to raise the environmental I.Q. of the American public.

On February 28, Chief Meteorologist Bob Ryan, with WRC-TV in Washington, DC launched the first airing of the new pilot project with an interview with EPA Administrator Christine Todd Whitman. Administrator Whitman explained how many citizens' activities impact the Chesapeake Bay watershed, including, for example, the improper disposal of used motor oil. In addition to his regular weather forecast, Bob Ryan presented a three-minute feature about the Chesapeake Bay and showed a dramatic zoom-in from outer space down to a close-up of the 64,000 square-mile bay watershed. The zoom-in, developed by Dave Jones of Stormcenter Communications, utilized a series of stunning NASA satellite images and provided viewers with a powerful visualization of the expansive Chesapeake Bay watershed.

To complement information on-the-air, NEETF, Stormcenter Communications, and WRC-TV worked cooperatively to develop a new web page, Where the Atmosphere Meets the Earth.

([http://www.watershed.interactive-](http://www.watershed.interactive-environment.com/main/)

[environment.com/main/](http://www.watershed.interactive-environment.com/main/) , which Ryan and other WRC-TV

meteorologists can surf on-the-air. The site is also prominently featured on WRC-TV's popular WeatherNet 4 web site, which receives 2 to 3 million hits a month. It includes three-dimensional satellite images of the Chesapeake Bay's watersheds where visitors can type in their zip code or click on a map to locate their watershed and view its environmental profile. In addition to offering a series of seasonal and weather-related "watershed tips" on how to prevent and minimize pollution in the home, lawn and garden, citizens can also learn how they can get involved in local watershed protection and restoration efforts. Clicking on an interactive watershed graphic brings up information about drinking water quality, wetlands, floods and droughts, urbanization, and other watershed topics. Animated movies compiled from satellite and radar technology replicate moving 'fly overs' of the bay, the Potomac, and the Anacostia watersheds. A "watershed quiz" challenges viewers to test their knowledge about the Chesapeake Bay watershed.



Since the February launch, Bob Ryan and the WRC-TV Weather Team have had four watershed-related stories on-the-air, including promotions for the annual Potomac River Watershed cleanup. They encouraged viewers to visit the web site to find out more information. So far, feedback has been overwhelmingly positive: "This site is probably the smartest thing I have seen a television station do in a long time. Finally I can find out how to participate in cleaning up my neighborhood. Kudos to Bob Ryan and his weather team!"

I have always watched the weather on Channel 4 and it is good to know I have chosen a winner!"

Dan Parks, Rockville, MD

While the Chesapeake Bay watershed is the focus for this pilot project, the long-term goal is to train other broadcast meteorologists across the country to talk about weather, watersheds, and other timely environmental issues. Weather events, such as droughts, floods, and hurricanes directly impact the quality of our water resources. Teaming up with local news meteorologists could be an extremely effective tool to teach people about watershed issues. Consider the following:

- More people tune in to the weather report on television than any other segment of local news reporting, including sports.
- Weather reports use visual images to communicate complex scientific terms and ideas. 'Satellite data' and 'doppler radar' are two examples that now are part of the mainstream vernacular.
- Web sites affiliated with local news broadcasts receive millions of 'hits' each month.
- Weather broadcasts and watersheds are a natural link. The very 'functioning' of a watershed begins with the weather.

EPA-sponsored focus groups identified broadcast meteorologists as an effective vehicle to convey information about runoff and nonpoint source pollution.

A 1998 NEETF/Roper survey found that fewer than a third of American adults could select the definition of a watershed from a simple multiple choice quiz, and there is reason to believe that fewer than 1 percent could define one if you asked them point blank. Just 25 percent of Americans even know where their water originates, even though the vast majority consumes water directly from the tap.

The weather reports provide a unique opportunity for public understanding of complex natural systems. Moreover, a TV meteorologist can incorporate into the weather report a series of 'dos and dont's' around the house and lawn. In the long-term, weather forecasts offer the ideal opportunity for meteorologists to convey important environmental information to the American public - information that is relevant to their daily lives.

To encourage other areas of the country to follow suit, EPA is collaborating with the American Meteorological Society (AMS) on an upcoming 'Eyes on the Environment' watershed workshop at AMS' annual Broadcast Meteorologist Meeting in Williamsburg, Virginia, in June, 2002. At the meeting, AMS will showcase WRC-TV's pilot Chesapeake Bay project to approximately 400 broadcast meteorologists who typically attend the meeting and represent many of the major media markets, including Atlanta, Chicago, Boston, Dallas, Detroit, Houston, Miami, Los Angeles, New York, San Francisco, and Washington, DC. These weathercasters reach millions of viewers daily through their local and national weather reporting. EPA Administrator Whitman is scheduled to give an address, and other workshop presenters will help provide important background information to meteorologists to enhance their understanding of watersheds and how they function.

EPA's Office of Water has a cooperative agreement with NEETF to support this pilot project in the Chesapeake Bay. Other project partners include: the American Meteorological Society, the Center for Watershed Protection, the Chesapeake Bay Program Office, the National Oceanic and Atmospheric Administration, the US Forest Service, the National Aquarium in Baltimore, the Maryland Department of Natural Resources, River Network, the University of Maryland Center for Environmental Sciences, Virginia Cooperative Extension, the Virginia Institute of



Marine Science, and the Washington Metropolitan Council of Governments. Private philanthropic funders include: the Morris and Gwendolyn Cafritz Foundation, The Moriah Fund, the Compton Foundation, Inc. and the Henry P. Kendall Foundation.

This project represents an important first step in meeting one of the key recommendations that emerged from last year's National Watershed Forum. The delegates to the Forum endorsed a national media campaign to educate Americans about watersheds. If the vision for this project is ever fully realized, 'watershed' may one day become a household word.

For further information, contact Patricia Scott, US EPA, Office of Wetlands, Oceans and Watersheds. Ariel Rios Building, 4501T, 1200 Pennsylvania Avenue, NW, Washington, DC. 20460; Phone: (202) 566-1292; E-mail: scott.patricia@epa.gov.



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From Timbuktu to Coral Reefs: The African Dust Connection

In December 2001, a coral reef ecologist from the USGS traveled from St. Petersburg, Florida, to Bamako, Mali, to set up an air chemical-contaminants sampling station to complement the microbial sampling station that had been installed there the previous year. The trip was exceptionally productive: the samplers were installed, local scientists were trained, and samples were successfully collected. What was a coral reef ecologist doing sampling air in the African Sahel, the semi-arid area in Western Africa bordering the Sahara desert? She was collecting data to test a hypothesis that microbial and chemical contaminants carried in African dust may play a role in the decline of Caribbean coral reefs and may pose a risk to human health.



Coral diseases in the Caribbean region were first noticed in the 1970s. While the exact mechanisms of coral reef diseases are not well-understood, natural disturbances (storms, fresh water input, extreme sea water temperatures, diseases) and human activities (boat groundings, fishing and fishing gear - including explosives and chemicals, nutrient input from sewage and runoff, sediment from land clearing) - have been proposed as factors contributing to coral reef declines in the Caribbean. In addition, dust transport to the Caribbean and the southeastern United States from Africa increased beginning in the 1970s, coincident with drought conditions in the Sahel. Periods of higher dust correlate to some coral disease outbreaks, although a cause-and-effect relationship has not been proven.

Every year, hundreds of millions of tons of African dust are carried from the Sahara and Sahel across the Atlantic to the Caribbean and the southeastern United States. In the Caribbean, the sky becomes hazy, visibility decreases to a few kilometers, a fine red dust settles on surfaces, and residents complain of sinus problems, coughs, and other ailments said to be caused by the dust. Although the dust has been carried to the Caribbean for thousands of years, the amount transported varies from year to year and has increased drastically since the early



1970s with the beginning of the drought in the Sahel.

Composed primarily of soil particles so small (less than 2.5 micrometers) that our lungs cannot expel them, the African dust may transport various microorganisms and chemicals that hitchhike on the small particles. On his 1845 voyage, Charles Darwin collected African dust in the Atlantic and, using a microscope, saw live microorganisms on the soil particles.



In 1997, a group of researchers hypothesized that living microbes carried with the dust may be significant factors in coral reef decline. In December 1997, the known sea fan disease pathogen (*Aspergillus sydowii*) was isolated and identified in its active, pathogenic form from air samples taken during a dust event in the Virgin Islands. Since that time, *A. sydowii* has been isolated only from samples taken during dust events in the Virgin Islands (but not during nondust periods), from diseased sea fans, and from air samples from Bamako, Mali. To date, other researchers have isolated more than 150 species of viable bacteria and fungi from Virgin Islands air samples taken during dust events; samples collected during nondust periods contain few microorganisms.

In December 2000, a sampling station in Bamako, Mali, was installed to collect air samples to be analyzed for microorganisms. While there, the USGS ecologist realized that microorganisms transported with the dust might not be the only concern. In Mali, all forms of waste are burned for fuel and to fertilize the thin ribbons of arable land along the flood plain of the Niger River, which is the third largest river in Africa. Until 15 years ago, garbage was predominately animal and plant waste; now, plastic bags and various plastic products are a major component. Garbage burning today severely degrades air quality during periods of clear weather and dust storms and may release dioxin and concentrate heavy metals. These contaminants may "stick" to dust particles and be transported to the Caribbean along with microorganisms.

In addition, the Niger River is the depository for sewage, pesticides used on croplands, and excreted pharmaceuticals and antibiotics. When the Niger floods each year, these contaminants are deposited on the flood plain along with fertile soil. The fine soil particles readily pick up many of the chemical contaminants carried by the river, such as pesticides, plasticizers, pharmaceuticals, and combustion products. Strong convective storms can pull these small particles, along

with their chemical and microbial hitchhikers, into the atmosphere, where they can be transported thousands of kilometers to the west and potentially deposited in the Caribbean.

Currently, researchers from the USGS are in the process of identifying and quantifying chemical contaminants, viable microorganisms, and radioactive isotopes in samples of African and Asian dust from a number of locations. Chemicals known to be toxic, carcinogenic, or disruptive of endocrine systems that are found on dust particles will be tested for their toxicity on marine organisms. Coral reef organisms will be tested with dust collected from various sites and with individual chemical and microbial components to determine the effects of dust on corals. Next, scientists will examine coral skeletons from the Cape Verde Islands, Caribbean, Florida, Hawaii, northern Pacific and Japan to develop the history of dust deposition from Africa.

For more information, contact Ginger Garrison, Marine Ecologist, United States Geological Survey, 600 Fourth Street South, St. Petersburg, FL 33701; Phone: (727) 803-8747 ext. 3061; Fax: (727) 803-2030; Email: ginger_garrison@usgs.gov.



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Boaters, Industry and Government Join Forces for Cleaner Marinas in Connecticut

Connecticut's Clean Marina program illustrates how well industry and government can work together to protect the environment. The Clean Marina program is a voluntary, incentive-based education and outreach campaign with the goal of reducing nonpoint source pollution at the state's 350 coastal and inland marinas and boatyards.



By earning recognition as Clean Marinas, marina and boatyard operators are authorized to fly a Clean Marina flag and use the Clean Marina logo on their publications and letterhead. Local and transient boaters can participate too! Through the campaign, local and transient boaters are provided with simple clean-boating tips. Once boaters take a pledge to follow the clean-boating tips they are given a decal identifying them as Clean Boaters.

The program, jointly managed by the Connecticut Department of Environmental Protection's (CT-DEP) Boating Division and the Office of Long Island Sound Programs, was developed in conjunction with a group of industry volunteers beginning in 2001. It originated as a component of Connecticut's Coastal Nonpoint Source Pollution Control Program, but was quickly expanded beyond the original scope of improving stormwater management at marinas and boatyards to include daily non-stormwater related issues.

The overall goal of the Clean Marina Program is to improve the environmental practices of marina operators and their clients. The Program's Clean Marina Guidebook is a great resource that describes the best management practices (BMPs) to reduce nonpoint sources of pollution from the state's marinas. It also lists the environmental standards for certification as a Clean Marina, and explains the federal and state laws applicable to marinas and



boatyards. By following the Guidebook, marina operators can take steps to become recognized by CT-DEP as a Clean Marina, or simply use it as a compliance guide.

CT-DEP is also kicking off a Clean Boater Program this boating season to further the efforts of the Clean Marina Program. Boaters will be asked to make a pledge to use clean boating practices and to demand higher environmental standards from the facility they choose. Seasonal CT-DEP "dockwalkers" and the state's boat pump-out operators will distribute clean boating outreach materials outlining environmental issues associated with boating and listing tips for clean boating to boaters at marinas and boat launch ramps.

Using Clean Water Act Section 319 funds to develop and implement this program, CT-DEP established two advisory committees. One is a thirteen-member Internal Advisory Committee comprised of CT-DEP staff representing the agency's regulatory and non-regulatory marina-related programs. The other is an external Steering Committee, which includes key marina operators and industry representatives. The CT-DEP held an open informational session for all of the state's marina operators in March, 2001, out of which came the roughly 20 active members on the Steering Committee. By defining the group of program volunteers early on in the process, the program managers were given direct access to experts in different marina-related disciplines. The expertise of the two advisory committees has proven invaluable in the development and implementation of this project.

The external Steering Committee has been the program's biggest asset from the beginning. At the group's first meeting, the Committee broadened the scope and utility of the Clean Marina Guidebook well beyond what was originally proposed by CT-DEP to include both the legal requirements and best management practices for a much wider range of issues. Regular meetings with the group have also provided a vehicle for ongoing input and support from a core group of industry volunteers.

Statewide, regional and national support was also essential to the success in

program development. The Connecticut Marine Trades Association (CMTA), which has been involved in this program from its inception, recently completed a series of environmental compliance workshops for its members and others. The Northeast Region Waste Management Officials' Association worked with EPA's Region 1 to organize a Marina Working Group for New England and New York state representatives to transfer and share clean marina information. Similar Clean Marina Programs in Maryland and Florida have also served as valuable examples for Connecticut. The Clean Marina Program continues to evolve and improve. The next steps include distributing the Clean Marina Guidebook to marina operators and launching the Clean Boater Campaign during the 2002 boating season. CT-DEP will also be hosting workshops to explain the process for becoming a Clean Marina, and plans to provide one-time small grants to marina operators to implement BMPs. Down the road, the Clean Marina Program plans to distribute packets containing oil absorbent pads to Connecticut boaters, and to distribute a Clean Marina newsletter.

For further information, contact Elke Sutt, Clean Marina Program; Phone: (860) 424-3034; E-mail: elke.sutt@po.state.ct.us; or Kim Czapla, Clean Boater Program; Phone: (860) 434-8638, E-mail: kim.czapla@po.state.ct.us.



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\$10,000 Grant to Continue Horseshoe Crab Conservation

The National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service has awarded a \$10,000 grant to Ecological Research and Development Group (ERDG), a Delaware-based horseshoe crab conservation organization. The conservation group will use the funds to protect thousands of horseshoe crabs by providing a no-cost way for mid-Atlantic conch and whelk fishermen to use fewer of the prehistoric arthropods as bait.

The decline of horseshoe crabs on the Atlantic coast in recent years has led to state and federal restrictions on their harvest. These restrictions have caused bait shortages for whelk fishermen who use whole crabs as bait in whelk pots.

ERDG will use the funds to distribute simple devices, known as bait bags, free-of-charge to whelk fishermen.

Constructed of plastic netting, bait bags are placed in the bottom of the whelk pots and secured with a bungee cord. The bags prevent undesirable species from devouring the horseshoe crab bait, resulting in higher whelk catches. The use of bait bags is currently mandated in the Virginia whelk fishery, and fishermen already using the bait bags have reported a 75 percent reduction in the amount of



horseshoe crab bait they need.

Last year NOAA Fisheries worked with ERDG to promote bait bag use throughout the Mid-Atlantic. This year's project will provide over 7,000 bags to conch fishermen in New York, Connecticut, Rhode Island and Massachusetts.

For further information, visit the NOAA website at: or visit the ERDG website at:

<http://www.publicaffairs.noaa.gov/releases2002/feb02/noaa02r108.html>

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or visit the ERDG website at <http://www.horseshoecrab.com/>.

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Sarasota County Florida Passes Unique Landscape Water Conservation Ordinance

Coastal communities throughout the United States are increasingly faced with the challenge of coping with limited water resources. On Florida's Gulf Coast, Sarasota County is using a combination of public education and regulation to address the need to conserve water and protect the integrity of their coastal waters.

In Southwest Florida, the impacts of a significant drought within the past two years, coupled with continued growth, has put serious pressure on water resources. Traditionally, Sarasota County has used high water rates and education to discourage water waste. For example, the Florida House Learning Center, a unique demonstration education facility, shows citizens how to conserve water and other resources in their own homes and yards.

In 2001, the Florida Legislature amended statutes to require that all counties and municipalities examine the feasibility of establishing water-conserving ordinances.

The Sarasota County Commission directed staff to draft an ordinance that passed unanimously in November, 2001, and became effective January 13, 2002. The ordinance applies to all new development and to significant renovations to existing development. Although the ordinance was primarily developed to conserve water, the ordinance is based on environmentally sensitive landscape practices learned through the Florida Yards and Neighborhoods Program and others addressing pollution and resource conservation.

The ordinance was also developed in conjunction with customers, such as the local homebuilders association. The effort resulted in a 'self-regulating' ordinance that Sarasota County believes will be both simple and positively impacting. The ordinance does not impose fees nor does it require plan reviews or inspections. Instead, it relies on a Compliance Certification Checklist, which is completed by licensed builders and landscape and irrigation contractors, confirming that the landscape plant and irrigation installation follows ordinance stipulations.

The new ordinance focuses on two elements: (1) irrigation system efficiency and (2) limiting plants requiring the most supplemental irrigation. Exempt from the ordinance are landscaping with no in-ground irrigation system, athletic fields and golf course play areas, grass in stormwater management areas and public rights-of-way, cemeteries, agricultural production operations, and community play areas.



Highlights of the Sarasota County Ordinance include:

- Applies only to landscape areas irrigated by a permanent in-ground system;
- Grass and annual flowers are limited to 50% or less of the irrigated area;
- Separate irrigation zones are required for grass and tree/shrub/groundcover beds;
- Low volume micro-irrigation is required for plant beds along with a filter;
- No plant rootballs or spray irrigation is permitted under roof overhangs;
- No popup spray heads and rotors can be mixed in the same zone;
- Lawn spray patterns must overlap 75-100%;
- Plants will not interfere with spray coverage;
- Impervious surfaces in the planted area are limited to 10% or less;
- No grass will be planted in strips narrower than 4 feet except next to contiguous properties;
- Reclaimed water will be used for irrigation if available;
- The building contractor will leave an as-built drawing of the irrigation system for the homebuyer; and
- The contractor will also leave a maintenance checklist produced by the County for the homebuyer.

The maintenance checklist is a key element to get the homebuyer started in conserving landscape maintenance practices. To satisfy this requirement, a unique checklist and calendar was produced cooperatively by the County Extension Service, and Environmental Services in full color laminated 11"x 14" format designed to be kept next to the irrigation controller in the garage for easy reference. Included in this article, this product is designed for the Central and Southwest Florida climate zone. Adaptation to other areas of the country would require some revisions.

Since the ordinance depends on self-regulation, the Extension Service obtained a grant from the Southwest Florida Water Management District to fund a professional to work in the field with contractors to help them become familiar with correct installation practices. This will include developing Best Management Practice information in both written and electronic form, touch-screen computer kiosks, exhibits and displays, model landscapes, and "friendly informal inspections" of landscape and irrigation installations.

For further information, contact Michael J. Holsinger, Extension Agent and Director of the Sarasota County Extension Service of the Institute of Food and Agricultural Sciences, University of Florida; Phone: (941) 316-1000; E-mail: mjhr@gnv.ifas.ufl.edu.

A Maintenance Checklist for a *Water-Efficient Landscape*

- Check and clean/repair irrigation distribution components monthly
- Set the controller according to season
- Check the functioning of the rain shutoff device quarterly during dry season and monthly during the rainy season
- Check micro-irrigation filter quarterly
- Prune plants and grass around sprinkler heads or raise them to minimize interference with irrigation spray coverage
- Replenish organic mulch at least annually
- Calibrate irrigation zones yearly

For additional landscape water conservation information:

- Call the County Extension Service at 316-1000. Visit the Web site at <http://sarasota.extension.ufl.edu>
- Visit the Florida House Learning Center demonstration landscape on the campus of the Sarasota County Technical Institute at Beneva and Proctor Roads in Sarasota or call 316-1200.
- Additional water conservation information is available from Sarasota County Environmental Services at 378-6859. Visit the Web site at www.SCESonline.org



Written and produced by
Sarasota County Environmental Services and
the Sarasota County Extension Service.





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Volunteers Make a Difference in TMDL Implementation

What is a TMDL and how can volunteers get involved in them? A total maximum daily load (TMDL) is a report that presents an estimate of a surface waterbody's pollutant loading capacity. It defines the load allocations for the various point and nonpoint pollutant sources contributing to the waterbody. A TMDL also includes background information describing the waterbody (usually a stream, lake, or estuary), its designated uses, and the sources and impacts of the pollutant (or pollutants) of concern. TMDLs are prepared by states and approved by EPA. EPA has produced protocols for developing TMDLs for three of the most common pollutants - sediments, nutrients, and pathogens.



For Maine's Cobbossee Lake, a TMDL may be the difference between detrimental algal blooms and a healthy lake system and volunteers are making a difference.

Volunteer Monitoring and TMDL

The Cobbossee Watershed District (CWD) in cooperation with the Maine Department of Environmental Protection recently developed a phosphorus TMDL for Cobbossee Lake.

Cobboossee Lake historically has suffered from periodic algal blooms, which have landed the lake on the list of impaired waterbodies in need of a TMDL for phosphorus. Cobboossee Lake is a large lake with a 217-square-mile watershed that includes ten towns. Work done by local volunteers was integral to fulfilling the required elements for the phosphorus TMDL, which requires public participation. Ultimately, the goal of the TMDL is to reduce the frequency of algal blooms in the lake by reducing phosphorus loadings by 14%. How did volunteers get involved in the Cobboossee Lake TMDL?

Element 1. *Description of waterbody, pollutant, and sources.* CWD used a long-term water quality monitoring data set of Cobboossee Lake, dating back to 1973, to identify the primary lake pollutant, phosphorus. Volunteers collected this data.

Element 2. *Numeric water quality target.* In Maine, as in most states, water quality standards currently contain only narrative criteria for phosphorus, so the CWD's task was to define a numeric goal or 'cap' for phosphorus that would be low enough to prevent algal blooms. The CWD used water quality data collected by volunteers during the 1980s and 1990s, including data on chlorophyll a, total phosphorus, Secchi-disk transparency, and dissolved oxygen, to identify phosphorus levels at which algal blooms were likely to occur. These levels were used as the basis for setting a target maximum concentration of 15 micrograms per liter ($\mu\text{g/L}$) for the lake for all seasons.

Element 3. *Loading capacity.* Loading capacity was estimated by assessing existing land uses in the watershed with the help of volunteers. Volunteers provided or field-checked information about land uses and pollution sources (e.g., location of storm drains, waste piles, pasture areas, and eroding stream banks). Using this data the CWD estimated that it would be necessary to reduce current phosphorus loading from the watershed by 14% to meet the water quality target.

Elements 4, 5, and 6. *Load allocations, wasteload allocations, and margin of safety.* A full accounting of the pollutant loading to a waterbody includes pollutant loadings from both point sources, such as industrial and municipal dischargers, and nonpoint sources, such as agricultural and urban runoff. The TMDL is calculated as the sum of all the point sources (termed 'waste load allocations') and nonpoint sources (termed 'load allocations'), plus a "natural background" and a 'margin of safety.' In the case of Cobboossee Lake, the waste load allocation was set to zero since there were no point sources of phosphorus identified.

Elements 8, 9, and 10. *Monitoring, implementation, and reasonable assurances.* Although the official 'required' TMDL process ends when the loading numbers are

set, determining load allocations will not improve water quality unless actions are taken to reduce loading, therefore, most TMDLs include implementation and monitoring plans. Only the point sources are subject to regulations at the federal level, mainly through National Pollution Discharge Elimination System (NPDES) permits. Because nonpoint sources are not subject to federal regulation, control of these sources generally relies on the voluntary use of 'best management practices' (BMPs), which range from fencing animals out of streams and sweeping streets to changing agricultural management practices and installing stormwater treatment systems.

For the Cobbossee Lake TMDL, the CWD identified a variety of BMPs, such as fertilizer management plans on hayland, better road maintenance, and shoreline vegetation strips, that could be used to reduce phosphorus loadings. Volunteers will continue to play a central role in implementation of water pollution controls and in monitoring lake water quality, including biweekly monitoring during the open-water months for Secchi-disk transparency, dissolved oxygen, temperature, total phosphorus, chlorophyll a, total alkalinity, and pH.

Cobbossee Lake is an excellent example of how volunteers can help ensure that TMDLs are not just paper exercises. Volunteers are particularly important in the more difficult cases like Cobbossee Lake where the only pollutant sources are nonpoint sources. In these cases, volunteers may be the only source of key water quality and land use data, and may be the motivation and the means for implementing the necessary BMPs.

For further information, contact Alison Simcox, EPA New England TMDL Coordinator, US EPA Region 1, 1 Congress St., Suite 1100, Boston, MA 02114-2023; Phone: 617-918-1684; E-mail: simcox.alison@epa.gov.

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Coastlines Welcomes Lisa Beever!



In March, Lisa Beever, Ph.D., was appointed the new director of the Charlotte Harbor National Estuary Program, located on the west coast of Florida. For the past six years Dr. Beever has been the director of the Charlotte County-Punta Gorda Metropolitan Planning Organization (MPO). During her tenure, the MPO won national awards in transportation and the environment planning. Dr. Beever has a Masters of Landscape Architecture with a concentration in natural resource management, and a Ph.D. in Urban and Regional Planning.

Welcome Lisa!!

For further information on the Charlotte Harbor Estuary Program, visit the website at: <http://www.charlotteharbornep.org/>. [EXIT disclaimer ►](#)



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An Incentive-Based Approach to Protect Water Quality in Georgia



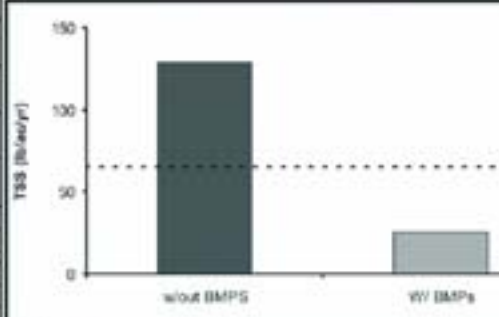
Convincing developers to participate in protecting water quality is a continual challenge. In Georgia, Clayton County and the Clayton County Water Authority (CCWA) are implementing a watershed management plan to protect drinking water and surface water quality that has new development requirements that encourage developers to do the right thing. The new development requirements are one component of a Watershed Management Plan that also includes a countywide framework for BMPs and improving/protecting watersheds, affected areas programs, and countywide surface water monitoring.

The new development requirements are intended to preserve and protect current aquatic integrity of streams and potable water supply watersheds. As part of the Clayton County Watershed Assessment, total suspended solids (TSS) were



identified as a parameter of concern with a strong correlation to many other parameters that impact water quality. A maximum allowable TSS load was instituted by Clayton County of 65-pounds/acre/year to protect water quality and ensure stream health.


To assist developers with complying with the new TSS load limits, a simple spreadsheet tool, the WISE model, was developed to determine the post-development TSS load. Developers input land use acreage into the WISE model, based on four predetermined land cover categories: impervious surfaces, disturbed pervious surfaces (areas that were graded and re-vegetated), preserved upland areas, and undisturbed stream buffers. Developers have the option of modifying land use or using BMPs to achieve the 65-pounds/acre/year criteria. The TSS reduction credit is higher for BMPs that treat water quality, versus the traditional detention pond technology.

		<h2 style="margin: 0;">Clayton County</h2> <h1 style="margin: 0;">WISE Review Form</h1>			
Name of Developer:		Waggoner Place	Name of Engineer:		Mr. Wise, P.E.
Development Name:		Waggoner Place	Tracking #:		
Development Type:		Residential	Date Submitted:		
Area of Development (ac):		52.73			
			<input type="button" value="BMP Distribution"/> <input type="button" value="BMP Eff."/>		
Land Use Distribution & Pollutant Loads:					
Land Use Category	Area (acres)	TSS Rate (lb/ac/yr)	Avg Annual TSS Load (lbs)	LEGEND FOR GRAPH: 	
Impervious Area <small>(streets, rooftops, parking lots, etc.)</small>	11.51	400	4,604		
Disturbed Pervious Area <small>(lawns, gardens, porous pavement, etc.)</small>	31.22	65	2,029		
Undisturbed Upland Area <small>(woods, prairies, etc.)</small>	0.00	30	0		
Undisturbed Stream Buffers	10.00	15	150		
Totals	52.73		6,783		
TSS Loading Rate w/out BMPs (lb/ac/yr):			129		
TSS Loading Rate w/ BMPs (lb/ac/yr) :			26		
TSS Criterion for New Development (lb/ac/yr):			65		
Reviewed By:				BMPs Chosen:	
Date Approved:				<input checked="" type="checkbox"/> Stormwater Ponds <input type="checkbox"/> Enhanced Swales	
Conditions of Approval:				<input type="checkbox"/> Stormwater Wetlands <input type="checkbox"/> Filter Strips (vegetated) - Limited App.	
				<input type="checkbox"/> Sand Filters <input type="checkbox"/> Gravity (D/G/K) Separator - Limited	
				<input type="checkbox"/> Infiltration Trenches <input type="checkbox"/> Dry Detention Ponds - Limited Applic.	

Clayton County codified these new development requirements in September, 2001. Between September, 2001, and January, 2002, thirteen new developments were submitted. Through use of the WISE model, developers reduced the cumulative pollutant loading from these developments by 35%-from 1,464 lbs/acre/year to 517-lbs/acre/yr. County staff has also noted that many of the developments include an

increase in preserved stream buffer and preserved upland areas. Developers are selecting BMPs that treat both water quality and storm flooding; and they seem to appreciate the incentives offered by the WISE model.

To reward the developers for their additional efforts and innovative methods of preserving streams, Clayton County and CCWA created a "WISE Award" that will be awarded to two extraordinary developments per year. Recipients will receive a plaque in recognition of their development and a sign to place at the development. The first two award recipients, named in February, were thrilled to receive this honor.

CCWA and Clayton County are pleased with the success of the WISE model. The incentive approach offered by the WISE model, combined with the regulatory TSS requirements, protects water quality in a politically feasible fashion. The WISE model is available at: <http://www.ccwa1.com/public/default.htm>. 

For further information, contact Kim Zimmerman or Mike Thomas at Clayton County Water Authority, 1600 Battle Creek Rd., Morrow, GA 30260; Phone: (678) 422-2838; E-mail: KZimmerman@CCWA1.com.



National Estuary Program



Note: This information is provided for reference purposes only. Although the information provided here was accurate and current when first created, it is now outdated.

New EPA Initiative to Protect America's Watersheds

On January 25, 2002, the Bush Administration announced it was including \$21 million in its fiscal year 2003 budget request for a new EPA initiative to protect, preserve, and restore watersheds across the country. Up to 20 of this country's most highly-valued watersheds will be selected by EPA to receive grants through a competitive grant process. The initiative will also support local communities in their efforts to expand and improve existing protection measures through additional tools, training and technical assistance. EPA intends to work cooperatively with state governors, tribes and other interested parties in the design of this initiative, and plans to publish a Federal Register notice with a 60-day comment period in mid-May seeking public input on ways to structure the program, should it be approved by Congress in EPA's FY2003 appropriations bill.



For additional details, please visit

<http://www.epa.gov/owow/watershed/initiativefs.html>, or contact Carol Peterson, EPA Headquarters; Phone: (202) 566-1304; E-mail: peterson.carol@epa.gov.



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How Much is the Coast Worth?

Many people think about how pleasant it is to visit the coast or even better, how nice it would be to live there. Swimming and surfing beautiful beaches, watching fishermen land their catch, sailing at sunset, and the sheer enjoyment the ocean brings are just a few of the pleasures the coast can offer to people. The coast also contains valuable natural resources, providing habitat for shorebirds, finfish and shellfish, seagrass and eelgrass. But the coast is much more. It is a place of working ports and international commerce: a hot real estate market, the site of much construction and shoreline restoration; of offshore mineral production; a thriving tourism and recreation industry and many more economic activities. According to a report published by the Federal Reserve Bank of Kansas City, entitled "The US as a Coastal Nation," coastal tourism is one of the largest industries in the US, and coastal counties, which represent only 13% of the country's land, are home to more than 50% of Americans. In fact, coastal counties produce eight times more income than inland counties per square kilometer.



With all this interest and high regard for the coast, one might think economic data on the value of the coast was abundant. After all, scientists collect information about all sorts of coastal related issues: the collapse of fisheries, coastal erosion, and shoreline pollution, to name a few. In reality, little economic information is available when it comes to valuing the coast and decision-makers are unsure exactly how they could use economic information to solve coastal problems.



The National Ocean Economics Project

The National Ocean Economics Project (NOEP) is carrying out the unprecedented task of estimating the value of the coast and coastal ocean in the United States. This is a multi-year project, sponsored by NOAA and EPA to build a database that reflects the value of the coast and ocean in the US economy.

The end product will be an on-line information system available to the public. It will contain economic data and allow those interested to assign economic values for:



- Eight economic sectors of the ocean economy: tourism and recreation, ship and boat building, maritime transport, coastal real estate, offshore mineral development, living resource production, coastal construction and restoration, and research and development;
- Natural resource values for living resources, offshore minerals, beaches, estuaries, coral reefs, clean coastal waters, etc.;
- Non-market use values, such as a day at the beach or a view of the ocean; and
- Public expenditures for the coast and oceans at both state and national levels.

When this information system is completed, anyone will be able to compare the value of the coastal real estate industry in Maine and Florida, determine trends in fishing catch and values and compare them among states, estimate the value of coastal reefs in Florida, and answer a myriad of other coastal economic queries.



The goal of this project is to produce an understandable, consistent and accurate database reflecting the 'Ocean Economy.' The NOEP research group, made up of experts from University of Southern California, University of Southern Maine, and Woods Hole Oceanographic Institution, is currently estimating the value of Long Island Sound for the National Estuary Program. NOEP is also collaborating with individual state coastal program managers to assist them with their own state ocean economic studies, which will ultimately become part of this national data system. All coastal states will ultimately be able to evaluate the contribution the ocean makes to their own economies as well as to the national economy. The NOEP anticipates most state studies will be done within a year, and the information system should be available for use by the end of 2003.

How Better Economic Data Can Lead to Better Decisions

Coastal decision-makers struggle every year to prevent further coastal pollution while arguing about who will pay the costs and how to come up with the money. It is hoped that this new economic database will help formulate a broader understanding of the full costs of coastal problems and possible solutions. An example of the kind of data that might be helpful to coastal decision-makers includes developing current estimates of the value of commercial and recreational fishing industry and comparing these with the loss to the fishing industry from fish consumption advisories or bans on areas where fish were too contaminated to eat.

Another example of how better economic data might help decision-makers is developing better estimates of the billions of dollars of contributing annual revenues associated with the estimated 180 million people who visit US shores annually. Considering the amount of revenues dependent upon the coast, the costs associated with good management decisions may turn out to be significantly lower in comparison. This kind of cost comparison is very difficult to do with current available economic data.

While policy solutions are not solely based on economics, key elements of economic data are required to assist in decisions. Most decision-makers strive to

make broad-based and well-informed decisions, but until now the economic information to assist them has been limited. This new tool is meant to fill that gap and lead to better decisions about coastal and ocean resources.

For further information, contact Judith T. Kildow, University of Southern California; Phone: (213) 740-5539; E-mail: jkildow@usc.edu.



U.S. Environmental Protection Agency

National Estuary Program



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Two-Day NEP Conference this Fall in NYC

This fall, the New York/New Jersey Harbor Estuary Program Habitat Workgroup will sponsor a two-day National Estuary Program conference focusing on ecological sustainability, research, restoration and habitat protection at the American Museum of Natural History in New York City. This conference will include representatives from other Estuary Programs who will be presenting program innovations focused on land acquisition, restoration, monitoring and preservation.

Many topics covered in the New York/New Jersey Harbor Estuary Habitat Workgroup 2001 Status Report will be part of the conference's agenda. These topics include: 1) habitat restoration, monitoring and research progress, funding and practice; 2) parkland acquisition methods and cost-effective alternatives to land conservation; 3) zoning mechanisms and creative programs for habitat protection; 4) methods of quantifying the economic value of wetlands; and 5) different types of creative landscape buffers and their significance.

For further information or if you have ideas for the conference, contact Robert Nyman, HEP Director, US EPA Region II; Telephone 212-637-3809; E-mail: nyman.robert@epa.gov.

For further information on the New York / New Jersey Harbor Estuary Program, visit the website at: <http://www.harborestuary.org/>. [EXIT disclaimer >](#)