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Recycling Money to Fund Estuary Projects The Clean Water State Revolving Fund

The Clean Water State Revolving Fund (CWSRF) is a powerful financing tool available to coastal managers and National Estuary Programs to implement water quality projects across the country. Though traditionally used to offset the costs of wastewater treatment improvements, the CWSRF is intended to fund all types of water quality projects. Included in a long list of eligible loan recipients are communities, individuals, citizens groups, and nonprofit organizations. The CWSF program issues about $3 billion annually. The CWSRF programs-one is located in each state and Puerto Rico-are set up like banks, using federal and state contributions to issue low or no-interest loans, allowing funds to be repaid over long periods of time (up to 20 years), and recycling the money back to support other water quality improvement projects.

Many state and local water quality officials are more familiar with grants and, consequently, may not be utilizing this valuable financial resource. In fact, a loan may be a better deal. Why?

- No cash upfront. Most grant programs require significant cost shares (as much as 40% or more). A CWSRF loan can cover 100% of project costs with no cash up front.

- Significant Cost Savings. CWSRF loans provide significant cost savings over the life of the loan. A CWSRF loan at 0% interest will cost approximately 50% less than the same project funded by a grant program where the 50% cost share (match) is financed by a commercial loan at the market rate of 7.5%.

- Streamlined Federal Requirements. Financing a project with a CWSRF loan means fewer federal requirements than most federal grant programs. Plus, the CWSRF program staff is experienced in helping applicants through the loan application process.

The National Estuary Program and the SRF

Projects or activities listed in an approved Comprehensive Conservation and Management Plan are eligible for funding under the CWSRF. Funding of estuary management projects is one of three major categories of projects (others include publicly-owned wastewater treatment facilities and nonpoint source projects) eligible for funding under the CWSRF. Current nonpoint source and estuary protection projects/activities being funded include: conservation tillage equipment, structural erosion controls, agricultural waste compost facilities, habitat restoration, riparian zone protection, conservation district stormwater controls, and septic system upgrades.

Success Stories

Washington State, through the Washington State Department of Ecology's management of the CWSRF, has been exemplary in demonstrating the many uses of the CWSRF for estuary projects in the Puget Sound Basin. In all, 16 projects have been funded with more than $7.5 million in SRF loans. Their pursuit of nontraditional CWSRF projects ranges from stormwater system enhancement and septic system upgrades to purchasing wetlands. Example projects include:

The City of Kent, utilizing a $1.5 million CWSRF loan, constructed a detention basin and a wet pond designed to reduce suspended solids and capture floatables, remove heavy metals, and allow for nutrient uptake through planted vegetation and infiltration.

The City of Port Townsend used a $500,000 CWSRF loan to purchase the Winona Wetlands, part of a larger hydrologic system which discharges into the Strait of Juan De Fuca. Future CWSRF funds will be used for land acquisition and related activities to preserve the Winona Wetlands, its buffers, and the critical drainage corridor between Winona Wetlands and the Chinese Gardens Lagoon.

A $300,000 CWSRF loan issued to the Bremerton-Kitsap County Health District is providing financial assistance to homeowners to repair failing sewage disposal systems, and to small farms to implement best management practices for protecting water quality. The area of assistance will be county-wide, with

priority being given to protection of drinking water supplies and marine shoreline areas. Costs of the program will be covered by a combination of permit fees and interest collected on loans.

Sources of Loan Repayment

Many users of the CWSRF have demonstrated a high level of creativity in developing sources for their loan repayment. The source of repayment need not come from the project itself. For example, the City of Port Townsend, Washington, used part of their $5 per household stormwater utility fee to repay an SRF loan.

Other possible sources include:

- fees paid by developers on other lands
- recreational fees
- dedicated portion of local, county, state tax fees
- property owner's ability to pay
- donations or dues made to nonprofit groups and associations
- stormwater management fees
- wastewater user charges

Challenges

As the CWSRF steps up its effort to fund projects from the National Estuary Program, several challenges have emerged, including misconceptions and lack of public outreach regarding the use of CWSRF for estuary projects, and inexperience issuing loans for estuary projects. To overcome some of these limitations, the Washington State Department of Ecology conducts statewide workshops which describe what projects are eligible, what kinds of projects have been most successful, and how to fill out loan applications.

Another challenge of using CWSRF loans can be restrictive state legislation or administrative provisions. For instance, several states have laws prohibiting loans to individuals. To address this issue, Washington State developed a system where they lend CWSRF money to counties. These counties, in turn, conduct outreach, develop plans, and eventually disperse the loan money to various projects within their geographic area, much like a "mini-CWSRF" program. The counties are responsible for paying back the loan to the state.

Interested in receiving CWSRF funds for estuary projects? The key is to learn how your state CWSRF program works, and begin participating in the state's annual process which determines what projects will funded.

For the Clean Water State Revolving Fund list of state contacts or further information, contact The Clean Water State Revolving Fund Branch, U.S. Environmental Protection Agency, 401 M Street, SW

(Mailcode 4204), Washington, DC 20460;

phone: 202-260-7359; fax: 202-260-1827; E-mail: srfinfo@epa.gov ; or visit the website: www.epa.gov/OWM.

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Preventing Pollution is Win-Win for Businesses and the Chesapeake Bay

In the Chesapeake Bay watershed, businesses are learning that preventing pollution is smart business. It's also a great way to protect a valuable natural resource-the Chesapeake Bay. With the help of Businesses for the Bay, facilities located within the 64,000-square mile watershed are learning how they can be part of this win-win situation for business and the environment.

Businesses for the Bay is the Chesapeake Bay Program's voluntary pollution prevention program. Since Businesses for the Bay began in 1996, over 250 facilities, ranging from marinas and gas stations to utilities and chemical manufacturers, have proven that good business practices can also be good for the bay. In 1998, participants prevented more than 222 million pounds of waste from entering the bay watershed by implementing a variety of pollution prevention activities, including developing preventative maintenance programs, improving procurement practices, using alternative, less-toxic products, and modifying manufacturing processes. How was this good for business? As a result of these efforts, participants saved over $1.4 million.

However, most businesses didn't stop there: they wanted to teach others how to be part of this win-win proposition. For those folks, Businesses for the Bay created the Mentor Program. To date, more than 80

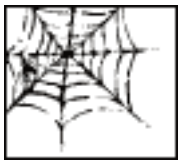
individuals have volunteered to share their knowledge and success stories with other businesses that may lack the resources or the technical expertise needed to prevent pollution at their facility. There are no requirements to join the Mentor Program, but mentors must agree to provide technical assistance free-of-charge and to help promote Businesses for the Bay. Because many pollution prevention techniques are not limited to a specific industry, businesses seeking assistance are matched to a mentor, based on the mentor's area of expertise, rather than by facility type. In addition to providing one-on-one assistance, many mentors also volunteer to speak at the various technical assistance workshops Businesses for the Bay sponsors throughout the watershed.

As part of the Mentor Program, Businesses for the Bay selects one individual who has demonstrated strong leadership, provided technical assistance, and recruited new participants in Businesses for the Bay to receive the annual Mentor of the Year Award.

When asked why they participate in the Mentor Program, most mentors say that it's simply the right thing to do, both for their business and the bay. But doing the right thing isn't the only incentive for joining Businesses for the Bay and the Mentor Program. Businesses for the Bay works to provide positive publicity for these forward-thinking companies. Participants are also eligible for the Businesses for the Bay Excellence Awards, which are presented annually by the Chesapeake Executive Council. In order to ensure that there is fair competition among the applicants, awards are presented in categories based on facility size.

Although Businesses for the Bay is relatively new, it's been very successful. Last year, Businesses for the Bay won two national awards: one from the National Pollution Prevention Roundtable for its overall program achievement, and one from the National Environmental Education and Training Foundation for the technical assistance efforts of the Mentor Program. A large part of Businesses for the Bay's success comes from the fact that it is a program by businesses for businesses. Through a series of roundtables, business and industry were consulted to ensure Businesses for the Bay would be an effort that met their needs and was one in which they wanted to participate. Feedback from participants is still solicited and taken into careful consideration when making programmatic decisions. The result has been a strong, effective partnership with business and industry, and one that is a win-win for them and the bay.

For further information about Businesses for the Bay, contact Kelly Mecum, Businesses for the Bay Coordinator, Chesapeake Bay Program Office, 410 Severn Avenue, Suite 109, Annapolis, MD 21403; phone: 1-800-YOUR -BAY, x719.



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Samish Bay Shellfish Get Boost from the Small Towns Environment Program

With its expansive oyster beds and sweeping views of the San Juan Islands, Samish Bay is renowned as one of the prettiest and richest shellfish areas in Puget Sound. Less well known is the equally rich character and dedication of the people who live in this rural watershed, located midway between the metropolitan areas of Seattle,

Washington, and Vancouver, British Columbia. When water quality problems became headline news, residents around Samish Bay took action and found solutions that today serve as models for other communities across the country.

In 1994, the Washington Department of Health downgraded over 2,700 acres of commercial shellfish beds in Samish Bay because of declining water quality and an outbreak of illnesses associated with oysters harvested from the bay. Four years later, because of better pollution controls and water quality improvements, the Department of Health upgraded 835 acres. While not yet a complete success, the upgrade is a great achievement.

At the time of the downgrade, area residents and resource agencies were already hard at work on a number of projects and were developing a long-term water quality plan for the Samish watershed. Most notable in all this work, and most influential in the bay's restoration, was the resolution of long-standing sewage problems in the small, shoreline towns of Blanchard and Edison, with populations of 100 and 125 respectively. Powered by self determination, technical support from public and private organizations, and over $2 million in public and private grants and loans, Edison residents constructed a community sewage system, and Blanchard residents repaired and upgraded their individual on-site sewage systems.

Contributing greatly to the success of these sewage projects was a program created and sponsored by The Rensselaerville Institute of New York, which was piloted in 1994 by the Washington Department of Ecology. Called the Small Towns Environment Program or STEP, the program emphasizes do-it-yourself approaches to help small communities improve their quality of life through infrastructure improvements. Blanchard and Edison were selected as pilot communities in the program's startup year. STEP aims to:

- Save money--communities utilize their own resources instead of paying retail costs;
- Save time--when communities assume responsibility and actively direct their projects, timelines are often reduced;
- Offer technical options--simpler and more appropriate solutions are often found, lowering initial costs as well as operating and maintenance expenses; and

- Protect the environment--cost-effective approaches help small communities protect and safeguard their environment.

The Department of Ecology has now partnered with more than a dozen Washington communities under the program.

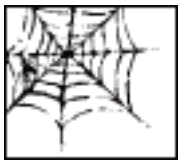
STEP makes it possible to involve people in virtually all aspects of a project. Such was the case in Blanchard and Edison, where residents completed personal income surveys, wrote grant applications, monitored water tables, acquired engineering services, developed a debt repayment mechanism for the Edison system, collected demographic and scientific data for planning and environmental documents, and performed other tasks too numerous to list. And the work paid off at every stage in the process. While all benefits and cost savings have not been counted, Ecology estimates savings of 30 to 50 percent in the construction phase of the typical STEP project--lofty margins that can easily spell the difference between failure and success.

Although STEP has yielded impressive results in Samish Bay, it doesn't work for all communities. Participants must understand the importance of the project, be tenacious and committed to making it happen, be ready to move on a problem, and have a community leader--a "sparkplug"--who can organize and inspire citizens. Agencies can provide funding and technical information, but vision and commitment have to come from within a community.

Blanchard and Edison are not exceptions, rather models for community action, problem-solving and public-private partnerships in environmental protection. Tackling infrastructure projects can draw out the best qualities in a community while also attracting the attention and support of agencies and organizations that are anxious to solve problems and get results. Resources are limited, but they are also increasingly directed to communities who are taking action to solve their own problems. STEP is a tool to make it happen.

For further information on Samish Bay, contact Stuart Glasoe, Puget Sound Water Quality Action Team, P.O. Box 40900, Olympia, WA 98504-0900; phone: 360-407-7319; E-mail: sglasoe@psat.wa.gov.

For further information on the Small Towns Environment Program, contact Jane Schautz, The Rensselaerville Institute, 63 Huyck Road, Rensselaerville, NY 12147-0128; phone: 518-797-3783; E-mail: thetute@crisny.org; or visit the website at www.crisny.org/not-for-profit/thetute/index.htm.



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Making Pollution Prevention Fun

Each year, thousands of useful and informative educational materials are distributed to the public, promoting pollution prevention and protection of the environment. All too often, these printed materials are tossed into the trash and are no longer "at your fingertips" when they're needed the most. Recently, the Santa Monica Bay Restoration Project debuted a new educational product for the boating community that was designed to be a "keeper," something that would never be tossed aside-the Southern California Boater's Guide! In developing this guide, the goal was to:

- Give boaters something they could use-a recreational cruising guide.
- Lace it with important information-clean boating practices.
- Put it in a format they would never throw away-a desirable, long-lasting publication.

What's in the Guide?

The Guide is both an environmental and recreational cruising reference, which covers Santa Barbara, Ventura, Los Angeles, Orange and San Diego County harbors. It promotes clean boating in a fun, attractive and user-friendly format, making it the first of its kind in Southern California. The Guide

focuses on the importance of maintaining a boat in the most environmentally-friendly manner possible, and the potentially adverse impacts that a poorly maintained boat can have on coastal waters.

Within its three primary sections (General Boating, Harbors, and Boating Clean and Green), the Guide contains a wealth of information relevant to boaters, 21 custom-made harbor/island maps, more than 60 scenic pictures, and 15 aerial photos of the regions harbors. More specifically:

- The General Boating section addresses boating safety, communications, navigation, rules and regulations and vessel equipment requirements, registration and operation.

- The Harbors section provides information about each of the region's 15 harbors, including overviews, what to do upon arrival, maps, the locations of waste disposal facilities for used motor oil, sewage, hazardous waste and trash, and finally, a host of recreational opportunities (e.g., boardwalks, restaurants, shopping districts, fun-zones, beach rentals). EPA's national hotline number, 800/CLEAN-UP, is even included as a resource for boaters to obtain additional information on proper disposal practices. This section also provides practical harbor information, such as the total number of guest slips and how to find one, emergency phone numbers, entrance obstacles, local rules and ordinances, and maintenance and repair services.

- The Boating Clean and Green section discusses, in detail, the types of boating-related activities that could potentially pollute marina and coastal waters, and how to prevent such pollution. It addresses hazardous waste disposal, plastics and trash, oil and fuel, sewage discharges, smart shopping, boat maintenance and repair, and greywater.

How it Came Together

Development and production of the Guide was a collaborative effort. Grants from the California Department of Boating and Waterways and the US EPA National Estuary Program funded its initial development. An additional $75,000 was then raised from both public and private organizations for design, layout and printing. Countless individuals provided information for the Guide, reviewed text for accuracy, edited its contents, and donated photographs. Over 9,000 books are now being made available to boaters, marinas and harbors throughout Southern California.

Does it Work?

To gauge the effectiveness of the Guide as an educational tool, an evaluation card was placed inside the front cover (hoping such a strategic placement would encourage recipients to return the cards). When handing out the Guide, harbor masters and marina personnel are encouraging boaters to fill out the evaluation cards as a "trade-off" for the free book. The cards are just starting to come in and the results are overwhelmingly positive-the boating community loves it. Boaters are both using and learning from the Guide. It works!

For further information on how to obtain a copy of the Southern California Boater's Guide, contact Stephanie McDonald of the Santa Monica Bay Restoration Project; phone: 323-266-7667; E-mail: smbrp@earthlink.net.

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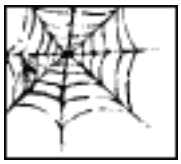

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New Coastal Air Deposition Monitoring Sites

The EPA has established one year seed funding for NEPs to establish coastal air deposition monitoring sites. Each NEP selected will be responsible for raising funds to operate the site for an additional four years. The sites will be part of the National Atmospheric Deposition Program-National Trends Network (NADP-NTN) that includes over 200 air deposition monitoring sites, almost all of which are inland. The NADP monitors rainfall (wet deposition) weekly for nitrate, ammonia, sulfate, chloride, and pH. NEPs that are interested in monitoring for additional parameters such as mercury, PAHs, or other toxins may do so in addition to the basic NADP parameters. By April, NEPs should be in the selection process, hoping to fund up to a dozen new sites.

For further information about the NEP coastal air deposition monitoring seed fund, contact Tamara Saltman, EPA Coastal Management Branch, phone: 202-260-1459 or saltman.tamara@epa.gov.

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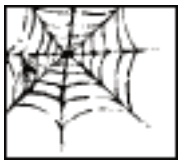

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Rookery Bay's Barrier Island Restoration Project Battling Invasive Species

The Rookery Bay National Estuarine Research Reserve recently was awarded two grants, totaling $375,000, to aid in the removal of invasive Australian pine trees (Casurina spp.) from Keewaydin Island. Originally from Australia, the pines were introduced in Florida near the turn of this century as wind breaks for agricultural fields. Known for their salt tolerance, they later became popular in landscaping and shading for beaches, displacing native wildlife habitat and altering ecosystem functions. The taller Casurina trees shade native species and cause a decrease in growth and biodiversity of the natural community. The shallow root system does not provide adequate anchoring, causing the trees to topple--which in turn increases shoreline erosion, interferes with sea turtle nesting and limits beach area available to the public.

Keewaydin Island is an eight-mile long, primary barrier island, approximately 1,300 acres in size, and is located in southwest Florida between the City of Naples and Marco Island. The natural communities on the island consist of Coastal Scrub, Pine Flatwoods, Tropical Hardwood Hammocks, Coastal Strand, Mangrove Forests, and Open Beach. The island is part of the Rookery Bay National Estuarine Research Reserve (NERR) and Aquatic Preserve. This pristine barrier beach represents a habitat under threat of development, especially in Naples, which continues to expand at an alarming rate. The majority of this island (90%) has been purchased by the state using Preservation-2000 funds through the Rookery Bay

Conservation and Recreation Lands Project.

Lessons Learned

Choosing a Battle Strategy

In March of 1998, a restoration project was undertaken to control the growth and spread of Casurina trees on Keewaydin Island and a number of smaller islands in close proximity. Developing a strategy to eliminate the Australian pine consisted of several elements-eliminating mature plants, minimizing the ability of the species to grow back, and reducing damage to native species during the project.

In areas of high public use along the Gulf of Mexico side of the island and where state-owned lots are mixed with privately owned lots, trees were cut and piled utilizing techniques to minimize damage to native vegetation and the sandy substrate of the island. Fallen Casurina trees were removed from the beach prior to sea turtle nesting season, and were placed into piles for burning. By the end of May, over 50,000 Casurina trees, encompassing more than 250 acres had been cut and stump treated on Keewaydin Island. Another 20 acres of trees were removed this past winter. To address the regrowth issue, piles of tree debris were burned along with the duff layer produced by the Casurina trees, in hopes of killing seeds and removing the thick layer of duff that acts as a mulch bed. This past winter the burning phase was completed, after it had been delayed due to a lack of rain and extensive wildfires in the northern part of Florida.

Bringing in Reinforcements

Partnerships among the Rookery Bay staff, private landowners, volunteers and community groups are being developed for long-term maintenance to remove the Australian pine seedlings and other invasive plant species following removal of the mature trees. There are approximately 50 private landowners on Keewaydin Island. Eight of these landowners, representing approximately 15 acres, subcontracted with the state's contractor to have the Australian pine and another invasive species, the Brazilian pepper tree, removed from their lots. This work translates into another $25,000 of private funds being used to aid in restoring the native communities.

Staff and volunteers are monitoring this restoration project by documenting native plant recovery, reinvasion by exotic species, shoreline migration, bathymetry, gopher tortoise population fluctuations, sea turtle nesting activity and fish abundance. Upon completion, the removal will open beaches for shorebirds, sea turtles and the public; re-establish native plant communities; and mitigate erosion caused

by the fallen trees. To date, burrowing owls and mangrove cuckoos have been sighted utilizing the areas that were cleared and are now being recolonized by native vegetation.

Lessons Learned

A priority for any manager involved in a restoration project is to have a clear understanding of the desired results and the methods to monitor and evaluate the recovery process. A solid monitoring effort will aid in determining the positive and negative points of the project. The data collected through this restoration project should produce useful information for future restoration efforts at Rookery Bay, as well as for other coastal managers when planning, executing, and monitoring large-scale restoration projects.

For further information, please contact: Judy Haner, Rookery Bay NERR, 300 Tower Road, Naples, Florida 34113; phone: 941-417-6310; fax: 941-417-6315.

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Walter B. Jones Memorial and NOAA Excellence Awards - Call for Nominations

The National Oceanic and Atmospheric Administration (NOAA) is accepting nominations for the 1999 Walter B. Jones Memorial and NOAA Excellence Awards for Coastal and Ocean Resource Management. Entries must adhere to the strict submission and judging criteria and must be received by June 30, 1999. There is no entry fee.

In the spirit of The Coastal Zone Management Act of 1972, the late Congressman Walter B. Jones authorized NOAA to honor American people and organizations for outstanding contributions in helping the nation maintain healthy coastal and ocean resources, and balance them with human use. The program is open to individuals, organizations, state and local government agencies and their employees.

The award categories are:

Walter B. Jones Memorial Awards

- Coastal Steward of the Year
- Excellence in Coastal and Marine Graduate Study

- Excellence in Local Government

NOAA Excellence Awards for Coastal and Ocean Resource Management:

- Volunteer of the Year
- Non-Government Organization (NGO) of the Year
- Excellence in Promoting Diversity in Coastal or
- Ocean Resource Management
- Excellence in Business Leadership
- Excellence in Innovative Coastal Management

For information call NOAA's National Ocean Service (NOS) 301-713-3070, ext. 170 or visit www.nos.noaa.gov/jones_award.html.

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Six Legal Ground Rules for Regulatory Management

Local government and local regulations, in large part, determine the amount of environmental protection given to water resources. How much information must local government possess before it can adopt watershed or coastal resource protection regulations? Coastal managers, land use planners, and others involved in the regulation of private property for resource protection should consider the following six ground rules to guide regulatory actions.

Rule Number 1:
Does the Power Exist to Regulate Private Property?

Power, as provided by the state or federal government, is the first and most important prerequisite to a local government's ability to regulate private property for water resource protection.

All municipal governments are authorized to act only in accordance with their specific authority to act; local governments have no inherent police power of their own. The sources of local government power are limited to home rule powers and powers delegated by specific acts of the state legislature.

Home Rule and Delegated Powers

Home rule powers originate from a state's charter or constitution and differ markedly from state to state. However, two important restrictions apply throughout the country.

First, a local government regulation may not conflict or be inconsistent with a state (or federal) law or regulation. Second, a local government cannot enter into a field of regulation where it has been pre-empted by either state or federal law.

While it is clear that a city or town cannot enact and enforce a regulation that is inconsistent with state law, in many cases it may amplify or expand upon a state or federal regulation. In cases where the local regulation is in keeping with the intent and purpose of the state law, even if the regulation goes further in its restrictions or prohibitions, the regulation will be upheld.

Rule Number 2:
Is the Regulation and the Maps on Which it is Based Clear, or Will it Be Void for Vagueness?

Regulations, such as those adopted to protect coastal watersheds, must be drafted such that the areas they regulate, and the language of the regulation are clear, precise, and understandable. This is particularly important with regard to the maps used to delineate resource areas. For example, if the scale of the map used to delineate a watershed is too large, application of the regulation on a parcel by parcel basis becomes too arbitrary. Regulations that rely on such arbitrary determinations, if challenged, are likely to be ruled void, simply because they are too vague.

Rule Number 3:
Does the Regulation Comply with Procedural Due Process Requirements?

Procedural due process is defined simply as "fairness." Did the adoption process comply with state and local rules governing public hearings, abutter notifications, and so on? In addition, procedural due process often refers to fairness in the administration of a regulation. For example, is the ordinance being enforced fairly and equitably among all the landowners affected by it?

While all states have minimum requirements governing procedural rules for ordinance adoption and enforcement, it is not uncommon for local governments to misinterpret these rules, or sometimes ignore them altogether. Ironically, the most common ground for local regulations being voided by state courts is violation of procedural due process mandates.

Rule Number 4:
Does the Regulation Comply with Substantive Due Process Requirements?

The phrase "substantive due process" refers to a regulation's furtherance of public health, safety, and welfare goals. This should be interpreted as requiring local governments to draft regulations that are in conformance with a plan or program to protect the resource in question.The protection of coastal, and, indeed, all natural resources, has advanced to the point where rudimentary delineation of watersheds is

simply not a sufficient basis for land use regulations. While interim delineations are acceptable, and land use controls can be developed around these temporary results, local governments should upgrade and update interim delineations as soon as practicable.

The protection of public health, safety, and welfare is a police power responsibility of local governments. Clearly included in this definition is the protection of water resources and supplies. Put a different way, a landowner challenging the basis or substance of a regulation designed to protect coastal water resources bears the burden of proof in a court of law. This point is worth repeating. Local government regulation of land uses to protect public health is presumed a valid exercise of the government's police powers.

Rule Number 5:
Does the Regulation Violate the Equal Protection Clause?

The equal protection clause of the Fourteenth Amendment to the United States Constitution requires that classifications in land use regulations be justified by a legitimate governmental purpose. This purpose, of course, is the protection of public health, safety, or welfare. Equal protection concerns arise in the protection of water resources as government regulates land within a watershed differently than land outside this delineated resource. Does this differential land use regulation give rise to an equal protection violation? The short answer is no. The explanation is simple. Land within the watershed and protection area is different than-distinct from-land outside the protection area and can, therefore, be treated differently. No equal protection violation has occurred, as the land parcels are not equal; one provides recharge to a sensitive resource, the other does not.

Rule Number 6:
Does the Regulation Unlawfully Take Private Property without Just Compensation?

Perhaps the most controversial issue raised in the regulation of private property for coastal resource protection lies within the Fifth Amendment to the United States Constitution, "...nor shall private property be taken for public use without just compensation." The "just compensation" clause requires that government neither physically take private property nor effectively destroy all value of private property without granting compensation to the landowner.

A full discussion of the "takings" issue will appear in a future issue of Coastlines.

COASTLINES
Information About Estuaries and Near Coastal Waters

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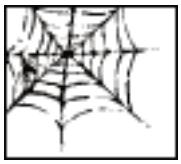
Coastal Zone 99 Conference

The 11th Coastal Zone 99 (CZ99) will be held in San Diego, July 24 - 30, 1999. Designed to elicit creative thinking and healthy debate, CZ99 will be solution-oriented and will place greater emphasis on international participation. CZ99 is entitled The People, the Coast, the Ocean: Vision 2020. The conference sessions will center around four major themes: the Human Dimension, the Ocean Realm, the Watershed Perspective, and the Public Connection. CZ99 aims to reach out to a broad range of domestic and international participants, and to encourage them to address the increasing challenges of coastal zone management by sharing lessons learned from the past and by identifying innovative and effective approaches for solving unresolved issues in the future.

Who should attend? Conference participants at past CZ conferences have included public and private sector policy-makers, non-government organizations, planners, industrialists, scientists, managers, and academics.

Look to the next issue of Coastlines to focus on several of the themes for this upcoming conference! For further information on the conference, visit the CZ99 website at http://omega.cc.umb.edu/~cz99/.



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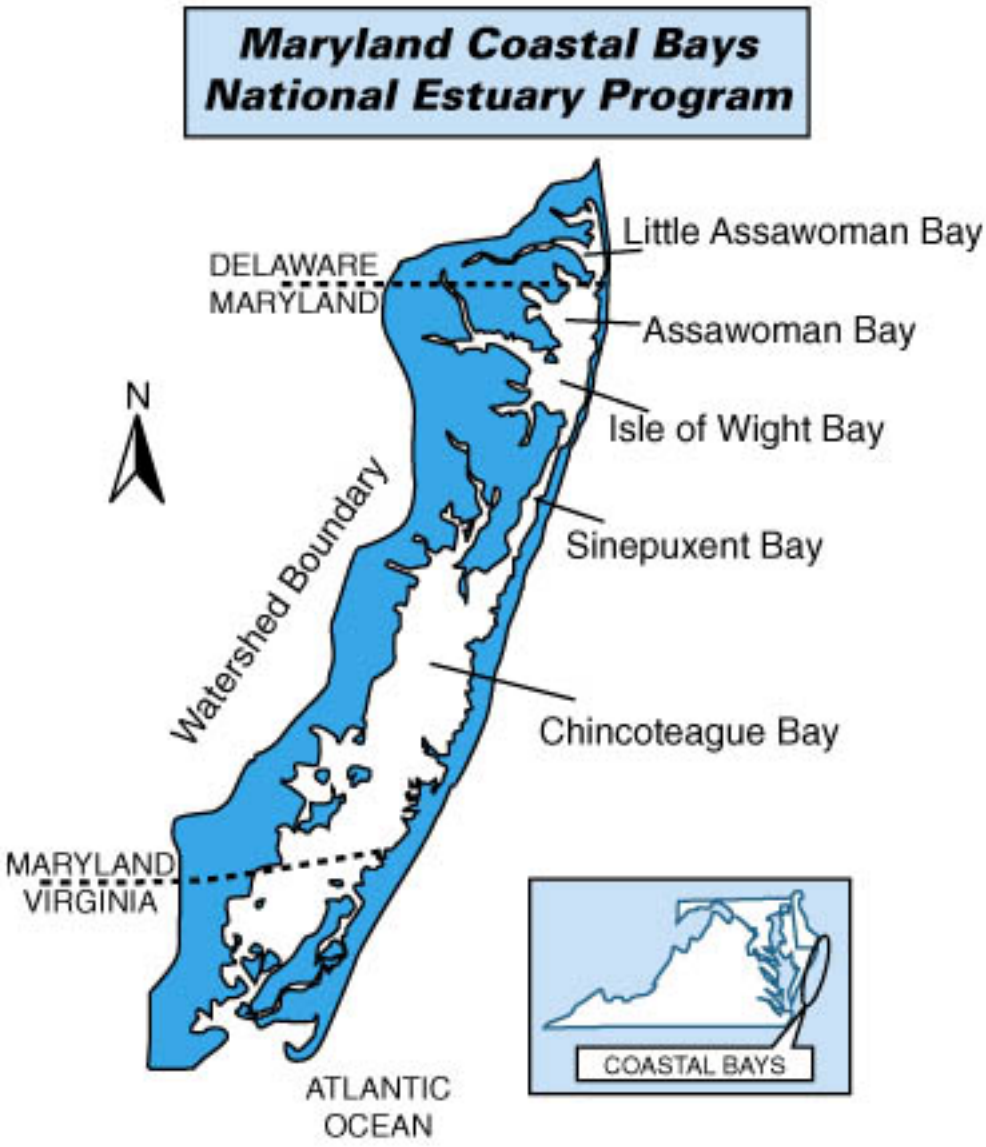
Bay Scallop Restoration Project in Chincoteague Bay

Characteristics



The Coastal Bays' estuary system includes Assawoman, Isle of Wight, Sinepuxent, Newport and Chincoteague Bays, plus 23 creeks and tributaries which feed the bays. These bays are shallow water lagoons, located behind Ocean City and Assateague Island, where freshwater and saltwater mix. The entire system covers 175 square miles, with an average depth of approximately four feet. The Coastal Bays are surrounded by a year-round population of 27,000 residents, however, during the summer vacation season, that number swells to more than 250,000 people each week.

The Coastal Bays' watershed, the land area draining into the bays, has a relatively small land-to-water ratio--meaning the land area is a little less than twice the size of the bays themselves. Unfortunately, this means that anything placed, spilled, sprayed, drained or buried in the watershed, has a good chance of eventually ending up in the bays. Compounding this problem is the bays' slow flushing rate. There are only two openings from the ocean to the bays--through Ocean City and Chincoteague inlets--this constricted access means it takes 63 days for 99% of the water in Chincoteague Bay to be replaced by tidal exchange.

The Problem:

Currently, large bivalves are at historically low levels in the coastal bays--oysters because of parasites, predators and fouling organisms -- hard clams due to overharvesting. These species serve an important role in the bays as important filter feeders and prey species. Filter feeding bivalves are important in cycling organic matter from the water column to the bottom, and serve as a key trophic link between primary producers and higher consumers. Over the past six decades these ecological roles have considerably diminished in the bays with the demise of the bays' larger bivalve species.

Historically, this region once supported large populations of bay scallops. The ribbed mollusks, -- a vital link in the coastal bays food chain -- were wiped out in the 1930s when eelgrass was eliminated due to an eelgrass blight which devastated the East Coast. The blue eyed bivalves need the grasses to escape

predators and siltation -- when those grasses died, so did the scallops. Although eelgrass has recovered, the bay scallop has not returned, in large part due to the absence of any broodstock population close enough to repopulate the area.

The Project

In an effort to restore scallops to the Coastal Bays area, the Scallop Restoration Project was implemented. The purpose of the Scallop Restoration Project in Chincoteague Bay was to provide and protect broodstock by planting hatchery-reared juvenile scallops in predator exclosures. The scallops are expected to mature, reproduce and begin to restore this lost resource.

Introduction to the Maryland Coastal Bays Program

For more than a century, life on the Coastal Bays has depended on the ocean, bays, and their tributaries. Fishing, hunting, agriculture and more recently tourism, which support this coastal community are all dependent upon the land and water resources of the bays area.

An environmental characterization of the bays has found excessive levels of nitrogen resulting in algal blooms that reduce oxygen levels in bay waters; loss of natural habitats for fish, crabs, birds and other wildlife; declines in numbers of fish, clams, crabs and other important species; local bacterial contamination; and negative impacts from boating, dredging, and other water-based activities.

Seagrass communities, which had been decimated, have begun to recover in the southern and eastern sides of the bay, particularly in Chincoteague Bay, but continue to be sparse in the northern bays. In general, living resource communities are more degraded in the northern bays and artificial canals, while the southern bays are comparatively healthier.

The Maryland Coastal Bays Program, established in 1995, is actively involved in the development of a management plan to address these issues. In a collaborative partnership of citizens and elected officials from Worcester County, Ocean City, and Berlin, Maryland with representatives from various federal and state governmental agencies, it is hoped that realistic and common sense solutions to these problems will be developed.

Overview of the Project

Over 60 years ago, the bay scallop (Argopecten irradians) disappeared from Chincoteague Bay soon after a disease virtually wiped out eelgrass (Zostera marina) beds in the region. Although eelgrass has since repopulated a substantial portion of Chincoteague Bay, bay scallop populations have not recovered. In 1998 small numbers were discovered in the Maryland and Virginia portions of Chincoteague Bay, this appears to be a range expansion of the North Carolina sub-species.

In 1996, Maryland's Department of Natural Resources' Shellfish Monitoring Program initiated

investigations into restoring the bay scallop in Chincoteague Bay. Scallops require vertical structure, such as seagrasses, for settlement, to avoid predators and suffocation from silt. The scallops also require salinities over 20 ppt, along with clean, hard packed sand substrate throughout their life cycle. Such conditions were found to exist in a number of areas along the eastern side of Chincoteague Bay. That same year, the Shellfish Monitoring Program applied for and received funding from NOAA's Fishing Industry Grant Program (FIG) to begin a bay scallop restoration project.

In October, 1997, 533,000 seed bay scallops were purchased from a hatchery and transplanted to Chincoteague Bay. The 8 mm bivalves were placed into 80-foot square predator exclusion pens, constructed in about 3 feet of water over seagrass beds. Records were kept on growth and survivorship, along with measurements of recruitment success. By mid-November, the scallops had tripled in size and survivorship exceeded 85%. Overwintering mortality, usually substantial throughout its geographical range, was relatively minor, on the order of 25-30%.

Implementing the Project

In May, 1998, evidence of spawning was found in the transplanted scallops and the larvae were collected from the water column. This initial spawning continued through early August, a second reproductive event occurred in late September. Spat collector bags were deployed to catch the setting larval scallops and were retrieved in November. In addition, the seagrass beds were surveyed for juvenile scallops using a suction dredge sampler, which is non-destructive to eelgrass.

The original FIG grant provided for two years of scallop seedlings. The second year was supplemented with a Maryland Coastal Bays Program mini-grant, allowing the planting of over 700,000 seed bay scallops with an average length of 20 mm. The larger size should enhance survivorship and reproductive effort next summer. Three additional 100-foot square exclosures, in proximity to the first pens, have been constructed to protect the young scallops. Baited crab pots were placed within the pens to further control and monitor predators.

Success Stories

The combined reproductive effort of the protected scallops, along with the progeny of last year's planting, presumably will overwhelm predation pressure sufficiently to allow a self-sustaining population of bay scallops to become established. Monitoring by the Maryland Department of Natural Resources and the Virginia Institute of Marine Science discovered 'wild' bay scallops in Chincoteage Bay this past summer. These observations mark the return of this ecologically and economically important species to Chincoteague Bay after a 60-year absence. Scientists anticipate restoring the scallops to their ecological niche will positively impact everything from fish to water clarity.

Future Management Implications

Scallop restoration is just one part of the picture, the recent comeback of seagrasses is integral to the

return of these once ßimperiled mollusks. Although seagrass beds have been re-establishing in Maryland's Coastal Bays, expansion to its historical range may be limited by many factors, including increased nutrient runoff from land, as well as physical impacts from recreational boating and commercial fishing activities, particularly hydraulic clam dredging.

Nutrients from stormwater runoff, atmospheric deposition, and groundwater continue to threaten seagrass recovery in some areas. Eutrophication may further impact the scallops by increasing macroalgal populations, which can smother existing seagrass. Projects are underway to develop habitat criteria, i.e., water quality, sediment type, and wave exposure for seagrasses within the bays.

Impacts from recreational and commercial boating activities are also being studied in an effort to protect the resource. Hydraulic clam dredging has been identified as a potentially significant factor impacting seagrass in the northern Isle of Wight Bay. Restoring the scallop population will increase scallop harvesting, therefore management measures to protect seagrasses during scallop harvesting need to be in place to avoid ruining the resource.

Seagrasses must be protected from all of these threats in order to allow the scallops to survive. Because the grasses serve as a nursery for almost every species of crab and fish sought by recreational and commercial fisherman, scientists hope management tools for the grasses will boost the local economy and, along with it, the local ecology.

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