Managing Nutrients in the National Estuary Program

A Watershed Academy Webcast

Monday, March 1, 2010
1:00pm – 3:00pm Eastern

Bernice L. Smith, *Chief,* Coastal Management Branch
Holly Greening, *Executive Director,* Tampa Bay Estuary Program
Kimberly Paulsen, *Peconic Estuary Program Coordinator,*
Suffolk County New York Department of Health Services
Ed Lewandowski, *Director,* Delaware Center for the Inland Bays

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National Estuary Program

- The National Estuary Program or NEP is a community-based program designed to restore and maintain the ecological integrity of estuaries of national significance.
- Established under the 1987 Clean Water Act Amendments, the NEP operates through partnerships among EPA and other Federal, State, and local organizations; industry; academia; environmental and business groups; and community residents.
- EPA is a participant and provides management guidance, along with financial and technical assistance.

There are 28 NEPs along the Atlantic, Gulf, and Pacific coasts each with a Director and staff in an office working with local stakeholders to improve the health of their estuary.

NEP Management Plans (CCMP)

- Together the group works to articulate common goals and take action to address a wide range of issues in a management plan they develop and implement called a CCMP or Comprehensive Conservation and Management Plan.
- The CCMP contains specific actions designed to improve water quality, habitat, and living resources in and surrounding the estuary.
- To develop the CCMP, each NEP uses an inclusive consensus decision-making process. Through collaboration with its many partners, NEPs implement the CCMP by using available regulatory tools to address point and nonpoint source pollution, and innovative restoration and protection methods and techniques to address habitat loss and degradation.
- These approaches are uniquely tailored to local environmental conditions, and to the needs of local communities and constituencies. At the same time, the national structure provided by the NEP has facilitated the sharing of management approaches, technologies, and ideas.

Impacts of Nutrients

One significant challenge facing our estuaries and NEPs is nutrient management. As we know, nutrients such as nitrogen and phosphorus are necessary for growth of plants and animals and support a healthy aquatic ecosystem.

We also are aware that in excess, however, nutrients can cause ecological damages to waterbodies stimulating algal blooms.

Impacts of Nutrients (con't)

- These blooms can:
  -prevent penetration of sunlight destroying submerged aquatic vegetation,
  - result in fish disease and fish kills, and low dissolved oxygen or hypoxia, and
  - reduce spawning grounds and nursery habitats.

  - Excessive nutrients also pose public health risks in drinking water, and respiratory and neurological problems in swimmers.

- Point and nonpoint sources of nutrients include sewage treatment plant discharges, stormwater runoff from lawns and agricultural lands, faulty or leaking septic systems, sediment in runoff, animal wastes, and ground water discharges.

Nutrients

- EPA issued a proposed a rulemaking involving numeric nutrient criteria for the four water body types in Florida: lakes, streams, springs and clear streams, and canals.

- While this is certainly very relevant as part of the nutrient management discussion, this is not the topic of today's discussion.

If you have questions about the proposed numeric nutrient criteria rule, please contact Danielle Salvaterra at 202-564-1649 or salvaterra.danielle@epa.gov.

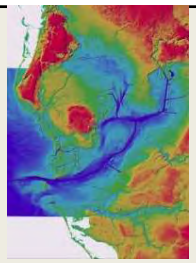
Today's Presentations

You will now hear from three of our NEPs about their collaborative efforts involving local stakeholders to address this nutrient problem.

Tampa Bay NEP
Nitrogen Management Consortium
Holly Greening

Peconic Bay
Fertilizer Ordinance
Kimberly Paulsen

Delaware Inland Bays
Pollution Control Strategies
Ed Lewandowski



Cooperative Strategies for Nutrient Management: an example from Tampa Bay, Florida

Holly Greening, Tampa Bay Estuary Program
February 2010

Tampa Bay	
Open water: 1,036 sq km	
Watershed: 6,734 sq km	
Average water depth: meters	4
Watershed population: million	2.3
Top 10 Ports in the U.S.	
Flushing rate: 3-100 days, average 13 days	

Tampa Bay in the 1970s

- Phytoplankton and macroalgae dominated
- 50% loss of seagrass between 1950 and 1980
- Newspapers declared Tampa Bay “dead”
- State-conducted modeling results indicated little recovery possible even with all nitrogen sources removed due to residual nutrients in the sediments

Photo courtesy of JOR Johansson

Tampa Bay Estuary Program

- Inter-governmental program
- Started in 1991
- science-based management plan

Tampa Bay Seagrass Restoration Goal

Difference between 1950 and 1990 seagrass cover

Seagrass Restoration Goal:

Restore seagrass acreage to that observed in ~1950.

Tampa Bay Nitrogen Management Strategy Paradigm

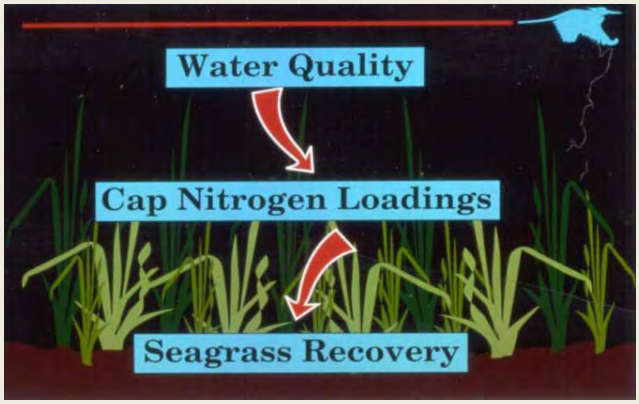
TN Load → Chlorophyll → Light Attenuation

Seagrass Light Requirement

Seagrass Growth & Reproduction

Seagrass Goal:
Restore and protect 38,000 acres of seagrass in Tampa Bay over time.

2008 acreage: 29,647 acres



Nitrogen Management Goal:
Maintain nitrogen loading at 1992-1994 average level to reach chlorophyll concentration and light levels necessary to support seagrass expansion.

Tampa Bay
Nitrogen Management Consortium

- The Nitrogen Management Consortium (made up of TBEP government and regulatory agency participants, local phosphate companies, agricultural interests and electric utilities), formed in 1996, accepts responsibility for collectively meeting nitrogen load reduction goals.

- Consortium members may choose to implement any combination of projects to reach their reduction goals.

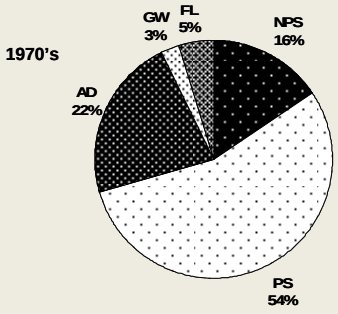
250 projects implemented between 1996-2009

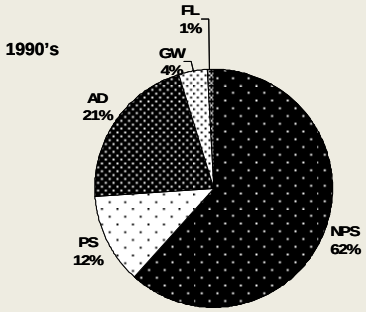
Residential actions

Improved fertilizer handling at ports

Reduced industrial and municipal nitrogen loading to the bay

Reduced atmospheric deposition from power plants





Significant nutrient reductions

- Overall nitrogen load reduction and large shift in predominant sources, from point source to NPS.

- Total nitrogen loading in 1970s about 10,000 tons/year

- Total nitrogen loading 1998-2007 about 5,000 tons/year.

Greening and Janicki 2006

Historical chlorophyll-*a* compliance

AWT Standards take effect

Stormwater regulations enacted

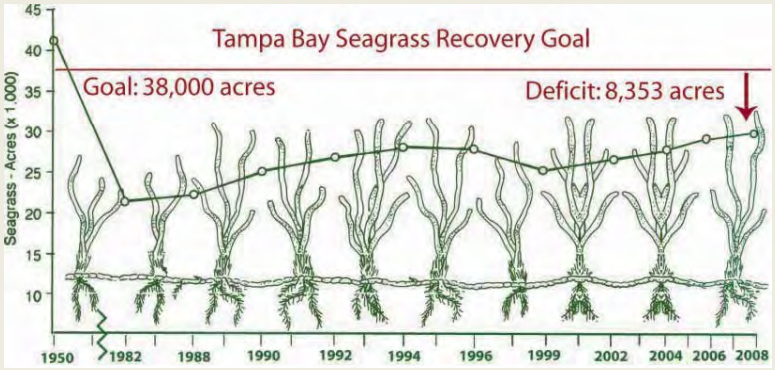
Consortium actions initiated

chl *a* targets:

- Hillsborough Bay: 15.0 ug/L
- Old Tampa Bay: 9.3 ug/L
- Middle Tampa Bay: 8.5 ug/L
- Lower Tampa Bay: 5.1 ug/L

Year	Old Tampa Bay	Hills. Bay	Mid. Tampa Bay	Lower Tampa Bay
1974	No	No	No	Yes
1975	No	No	No	Yes
1976	No	No	No	Yes
1977	No	No	No	No
1978	No	No	No	Yes
1979	No	No	No	No
1980	No	No	No	No
1981	No	No	No	No
1982	No	No	No	No
1983	No	No	No	No
1984	Yes	Yes	No	Yes
1985	No	No	No	Yes
1986	No	No	Yes	Yes
1987	No	Yes	No	Yes
1988	Yes	Yes	Yes	Yes
1989	No	Yes	Yes	Yes
1990	No	Yes	Yes	Yes
1991	Yes	Yes	Yes	Yes
1992	Yes	Yes	Yes	Yes
1993	Yes	Yes	Yes	Yes
1994	No	No	No	No
1995	No	No	No	Yes
1996	Yes	Yes	Yes	Yes
1997	Yes	Yes	Yes	Yes
1998	No	No	No	No
1999	Yes	Yes	Yes	Yes
2000	Yes	Yes	Yes	Yes
2001	Yes	Yes	Yes	Yes
2002	Yes	Yes	Yes	Yes
2003	No	Yes	Yes	Yes
2004	No	Yes	Yes	Yes
2005	Yes	Yes	Yes	No
2006	Yes	Yes	Yes	Yes
2007	Yes	Yes	Yes	Yes
2008	Yes	Yes	Yes	Yes
2009	No	Yes	Yes	Yes

Baywide Seagrass Coverage, 1950 - 2008



Data source: SWFWMD

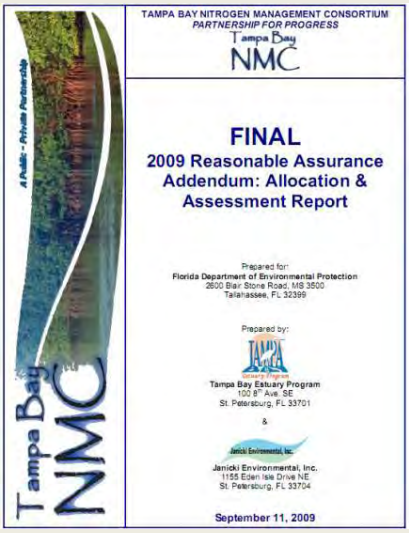
- Goal: Recover an additional 8,353 acres of seagrass over 2008 levels, while preserving the existing 29,647 acres baywide.
- Status: Since 1999, 4,800 acres increase- an average of more than 500 acres per year.

EPA Region 4 TMDL Approval

- FDEP submitted a TMDL, and in June 1998, EPA Region 4 approved the TN loads for 1992-1994 as the TMDL for nitrogen for Tampa Bay.
- Nitrogen load targets were developed for the major bay segments and not individual sources. This allows flexibility in the way the loads are controlled.
- Recognized the Nitrogen Management Consortium Action Plan as the implementation plan
- Allocations to be incorporated into NPDES permits in 2010

Nitrogen Management Consortium

- 40+ public and private partners throughout watershed
- Collaborative approach to meeting regulated water quality goals
- Consortium developed and agreed to voluntary limits on nitrogen loads for 189 sources in Sept. 2009



Key elements of allocations

All nitrogen sources within the Tampa Bay watershed, permitted and unpermitted, receive nitrogen load allocations. The cumulative allocated load is equal to the 1998 federally-recognized TMDL. Existing loads meet TMDL requirements.

Key elements of allocations

- Annual nitrogen loads are 'hydrologically normalized' to the 1992-1994 TMDL period.
- Annual hydrologic normalizations are not applied to WWTPs and other sources which do not fluctuate with rainfall.

Key elements of allocations

- Rainfall-driven sources, including MS4s, are provided a set percentage of the remaining total (hydrologically normalized) allocation each year, based on their percent contribution in 2003-2007.

- These rainfall-driven sources are assessed on a “sliding scale” related to rainfall, allowing higher nitrogen loads during wet years and requiring lower during dry years.

Example allocations from Old Tampa Bay

Set point source allocation

‘Sliding scale’ MS4 allocation

Entity	Source	5-yr Annual Average Allocation	
		Proposed Set Allocations (tons/year)	Proposed Remaining Source Allocation of Remaining Load (%)
Cheval West	MS4		0.2%
City of Clearwater	MS4		2.7%
	Point Source - Clearwater East SW	9.3	
	Point Source - Clearwater East RE	0.1	
	Point Source - Clearwater Northeast SW	16.6	
	Point Source - Clearwater Northeast RE	1.1	
Heritage Harbor	NPS		0.2%

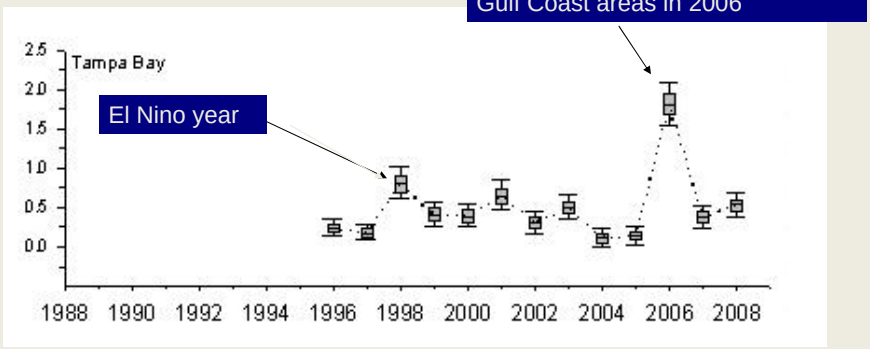
The Challenge Ahead

- Accepted allocation limits will result in wastewater plants & stormwater permits that are based on loading levels for 2003-2007
- New or expanded nitrogen sources associated with growth will have to show offsets to be permitted
- Offsets can include new N reduction actions or transfers between sources.

Ongoing Issues

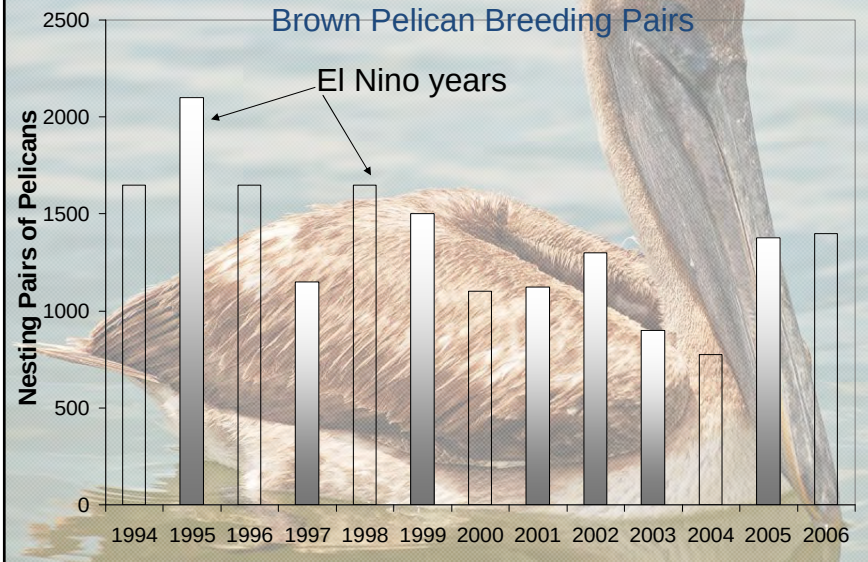
- TMDL and allocation complete
- EPA Nutrient Criteria Rules - general approach for Florida
- Working with EPA to ensure that TMDL and Nutrient Criteria are not in conflict for Tampa Bay
  - 2010 - Freshwater rule has “Downstream Protective Loads” for estuarine waters
  - 2011- Estuarine Nutrient Criteria

Existing loads also maintain phytoplankton-based food web in Tampa Bay



YOY Recruitment: Striped Mullet in Tampa Bay constant, with increases in El Nino year and 2006 (source: FWRI)

Existing loads maintain baitfish-feeding bird species nesting in Tampa Bay: Brown Pelican Breeding Pairs



Hodgson et al 2006; Audubon of Florida

FINDINGS SUMMARY

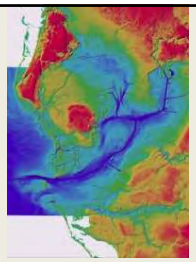
Existing TN and TP loads to Tampa Bay support full aquatic life protection and designated uses by providing a balance of adequate water clarity for healthy and expanding seagrass beds, and adequate phytoplankton production to support the bay's fish and wildlife populations.

TBNMC REQUEST

Acknowledge existing TN and TP loads to Tampa Bay as Downstream Protective Loads for freshwaters and as Estuarine Nutrient Criteria

Key Elements in Tampa Bay's Cooperative Strategy for Water Quality Improvement

- Science-based numeric goals and targets
- Public/private collaborative actions
- Regulated and regulators at the table
- Written concurrence from high-level FDEP and EPA at each step
- Watershed-based, not smaller segments
- Long-term monitoring
- Recognized "honest broker" to facilitate
- Assessment and adjustment- adaptive



For more information:

www.tbeptech.org
Tampa Bay Nitrogen Management Consortium

Questions?

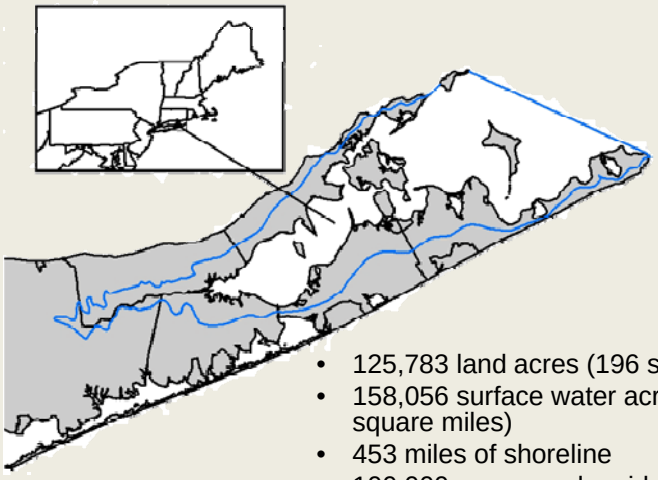
Holly Greening, Executive Director
Tampa Bay Estuary Program
hgreening@tbep.org

Nutrient Reduction in the Peconic Estuary:

Suffolk County Fertilizer Nitrogen Pollution Reduction Law

Suffolk County Department of Health Services
Kimberly Paulsen
Peconic Estuary Program Coordinator

Peconic Study Area Numbers



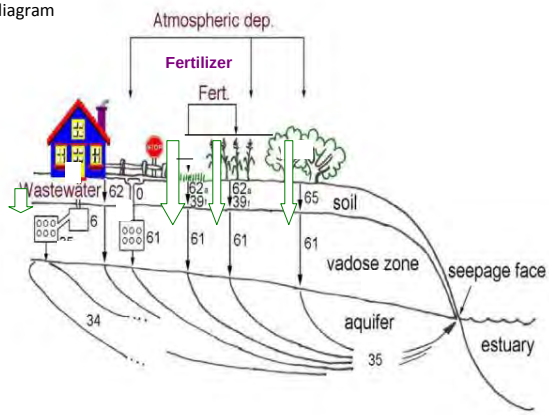
- 125,783 land acres (196 square miles)
- 158,056 surface water acres (247 square miles)
- 453 miles of shoreline
- 100,000 year round residents
- 280,000 residents during the summer
- Vast majority of watershed unsewered and relies on conventional on-site disposal systems

Nutrients are critical for maintaining the marine ecosystem, but can be harmful at excessive levels.

Nitrogen is the nutrient of concern in the Peconic Estuary.

Sources of Nitrogen to ground water

Nitrogen source diagram



Note: Nitrogen is highly soluble and readily leaches into ground water with our permeable sandy soils; transport via stormwater runoff is generally minimal

Impacts to ground water Quality from:

- Wet and Dry Atmospheric Deposition
- Wastewater (on-site disposal systems)
- Fertilizer (agricultural & residential)
- Other (pet waste, soil mineralization etc.)

Sources of Nitrogen to the Peconic Estuary

Local studies have shown that residential use of fertilizers contributes approximately one-half of the total nitrogen load to ground water from unsewered medium density residential development

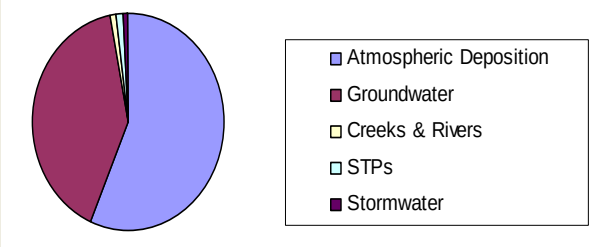
41

Sources of Nitrogen to the Peconic Estuary

- Ground Water Inputs
- Atmospheric Deposition
- Sewage Treatment Plants
- Stormwater
- Duck Farms

42

System-wide Baseline Nitrogen Load Summary



Nitrogen Source	Total Annual Nitrogen Load (pounds)
Atmospheric Deposition	3,015,041
ground water	2,175,031
Creeks & Rivers	66,242
STPs	53,689
Stormwater	47,361
Total	5,357,364

What's the Problem with Excess Nitrogen?

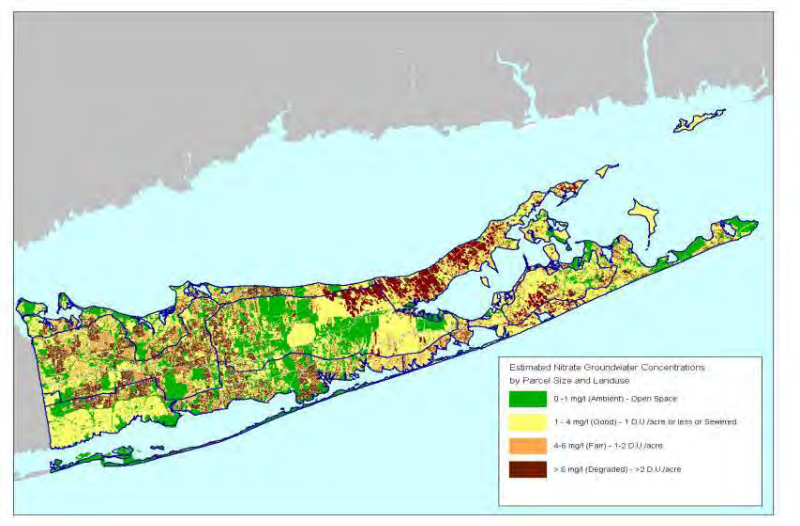
- Fuels nuisance algal blooms (potentially brown tide blooms)
- Leads to low dissolved oxygen situations (and diurnal fluctuations)
- Contributes to decreased water clarity
- Direct impacts on eelgrass
- Changes to the overall food web
- Impacts to drinking water

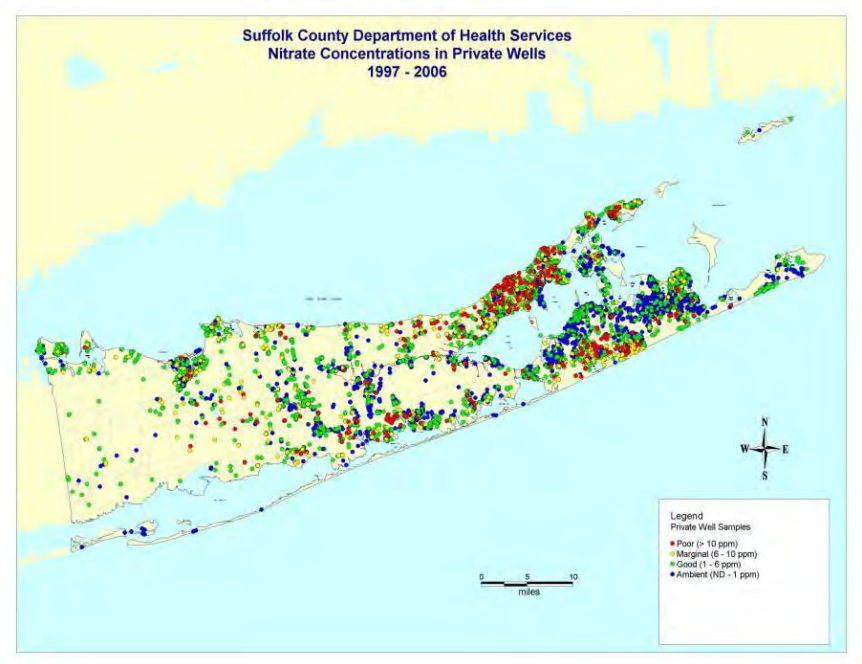
Nitrogen & Ground Water Protection

Suffolk County Comprehensive Water Resources Management Plan (January 2008)

- Nitrate levels have increased in all three aquifers over the study period from 1987 to 2005
  - Nitrate concentrations of public water supply (PWS) wells screened in the upper glacial aquifer increased by 38% (to an avg 3.38 mg/L)
  - Nitrate concentrations of PWS wells screened in the Magothy aquifer increased by 67% (to an avg 1.6 mg/L)
- Nearly 10% of private wells exceed drinking water maximum contaminate levels for nitrate nitrogen

Land Use vs. Ground Water Concentrations of Nitrogen

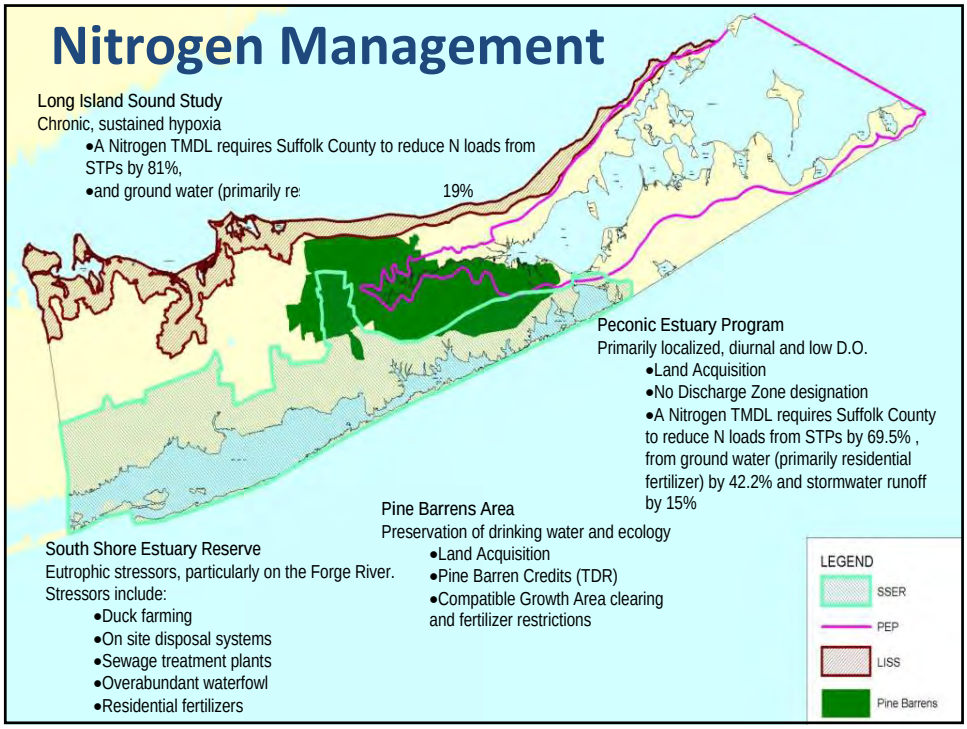




Nitrate Concentration in Private Wells

Time Period	# Samples	# >10 mg/L	% >10 mg/L
1972-1983	18,870	1,447	7.7
1984-1994	27,115	1,961	7.2
1997-2006	10,277	994	9.7

Nitrogen Management



Nitrogen Management

- Atmospheric deposition
  - Clean Air Act requires 31% reduction by 2014
- Fertilizer applications
  - **Agricultural** Environmental Stewardship 5–Year program to significantly reduce nitrogen leaching & run-off with Cornell Cooperative Extension
  - PEP program with 31 East End **golf courses** to reduce fertilizer applications
  - **Residential** use has not been previously regulated

Nitrogen Management

- Nitrogen Total Maximum Daily Load
  - A TMDL or Total Maximum Daily Load is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources.
  - Peconic Estuary N TMDL Approved by EPA in October 2007
  - This document will serve as a guide to reduce Nitrogen loading within the Peconic Estuary. It specifically focuses on portions of the estuary which area listed as *Impaired Waterbodies* under Section 303(d) of the Clean Water Act (CWA).

*Report can be accessed via www.peconicestuary.org/pdf/NTMDLDocument.pdf

Nitrogen Management

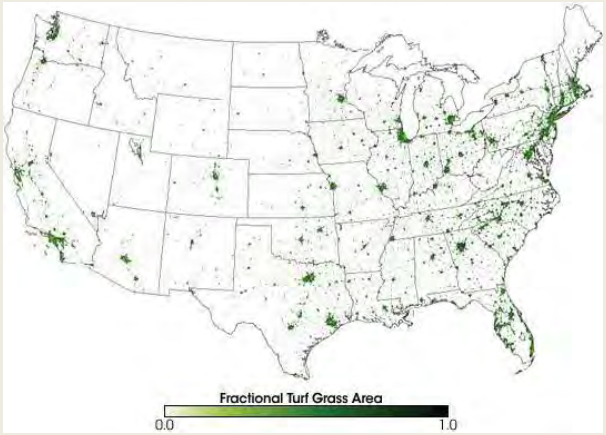
- Suggested Implementation mechanisms to ensure N TMDL requirements are met:
  - **Residential Sources**
    - Developing recommendations and regulatory elements for reducing impacts associated with landscaping uses on residential, commercial and public properties
      - » Secure funding to develop and carry out an education and outreach program aimed at working with property owners and landscapers

Nitrogen Management

Local Law 41-2007, A local law to reduce nitrogen pollution by reducing use of fertilizer in Suffolk County

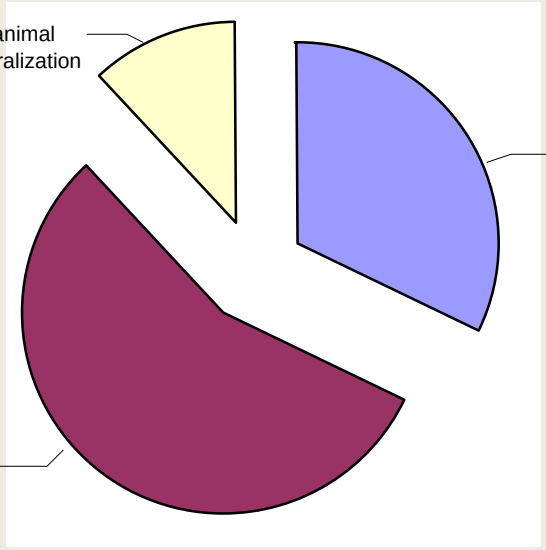
Legislation directed at reducing the last major unregulated source of nitrogen contamination – residential fertilizer applications

Lawn Coverage in the U.S.



Residential Total Nitrogen (TN) Loads

(lbs/day)



* Based on PEP medium/low density land use data

Nitrogen Management

Local Law 41-2007

1. Application of fertilizer to Suffolk County owned property are prohibited, except:
   - County golf courses, which must adhere to County Organic Maintenance Plan
   - Suffolk County Farm (Yaphank), which must implement Agricultural Environmental Management practices
   - County athletic fields must implement BMPs
   - Newly seeded areas

2. Application of fertilizer to any turf in Suffolk County between November 1 and April 1is prohibited
   - Farm operations as defined in Ag & Markets Law are exempt

Nitrogen Management

Local Law 41-2007

Requirements:

1. Stores shall post signs and informational brochures furnished by the county in the fertilizer display area

2. Home improvement contractors (licensed by Consumer Affairs), who apply fertilizer shall take a turf management course approved by Suffolk County Dept of Environment & Energy

3. Public education & outreach

Nitrogen Management

Local Law 41-2007

- Enforcement: SC Dept of Health Services
- Penalities: “not to exceed $1,000 per violation”
- Effective Date: January 1, 2009

Questions?

Kimberly Paulsen, Peconic Estuary Program Coordinator
Suffolk County New York Department of Health Services
kimberly.paulsen@suffolkcountyny.gov

www.peconicestuary.org
http://legis.suffolkcountyny.gov/resos2007/i2117-07.htm

Public Talk – Real Choices

A public engagement process to develop nutrient reduction strategies for Delaware's Inland Bays

Ed Lewandowski, Executive Director
Delaware Inland Bays Estuary Program

DELAWARE
Limulus polyphemus
CENTER FOR THE INLAND BAYS
Rehoboth Indian River Little Assawoman

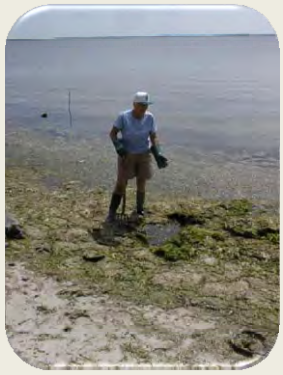
Delaware's Inland Bays

- Rehoboth Bay, Indian River Bay, and Little Assawoman Bay
- 32 square miles of surface water
- 300+ square mile drainage area
- ~80,000 people in the watershed

CENTER FOR THE INLAND BAYS

OUR PROBLEM

- Excessive nutrients (N & P) = **Eutrophication**
  - Rapid and abundant plant growth
  - Loss of habitat
  - Alteration of food web
  - Fish & shellfish kills
  - Human health effects



Sea lettuce (*Ulva*) collecting on shoreline

$CO_2 + H_2O + N + P \leftrightarrow$ Organic Matter + O_2

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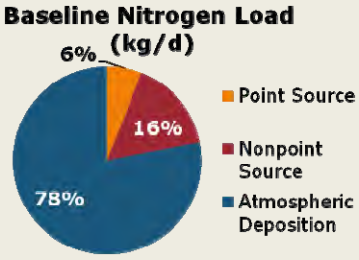
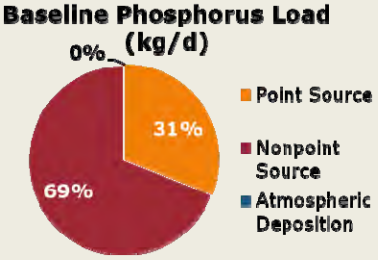
Sources of N & P





Baseline= 1990

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Source Reduction!

- Agriculture
- Stormwater
- Treated Effluent Discharges

Total Maximum Daily Load: **Maximum amount of a pollutant that can enter surface waters and still meet water quality standards**

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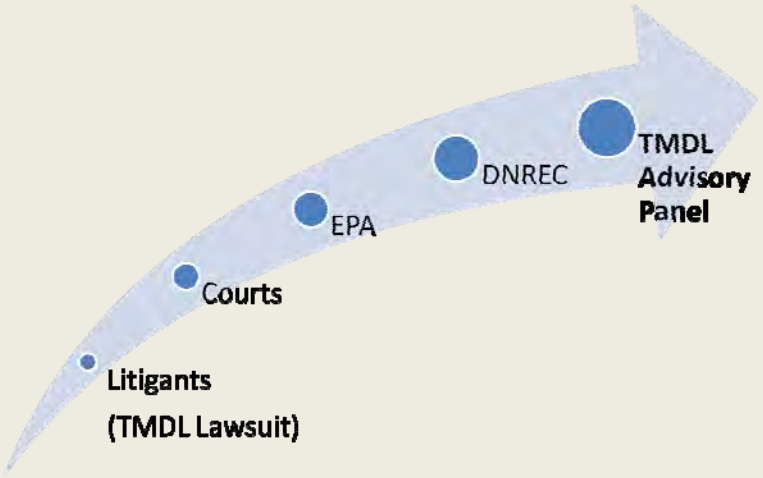
Establishing TMDLs



CENTER FOR THE INLAND BAYS

TMDL Advisory Panel

- 77-member “blue ribbon” panel
- Published a report
- Public workshops
- Public hearings
- TMDL’s established in DEC ‘98

CENTER FOR THE INLAND BAYS

INLAND BAYS TMDL (N & P)

- Systematic elimination of all point sources of N & P
- Remove 40%-85% of nonpoint N
- Remove 40%-65% of nonpoint P
- 20% reduction in atmospheric deposition of N via Clean Air Act
- Attainment via implementation of Pollution Control Strategies

ABC's of Public Reaction

Angered	**C**onfused	**E**nraged
Bewildered	**D**isillusioned	**F**rustrated

CENTER FOR THE INLAND BAYS

Who would be responsible for developing **Pollution Control Strategies?**

The public and resource agencies need
and deserve a better way to work together
that produces sustainable decisions

CENTER FOR THE INLAND BAYS

Public Engagment Model:
PUBLIC TALK – REAL CHOICES

- Purpose is to move formulation and creation of a major public policy decision from a public agency to the public for dialogue and deliberation ("front-load" the public)
- "Local people – Local problems – Local solutions"
- Engages the public in:
  1. Learning about the issue
  2. Weighing costs and consequences through dialogue with each other
  3. Coming to public judgment

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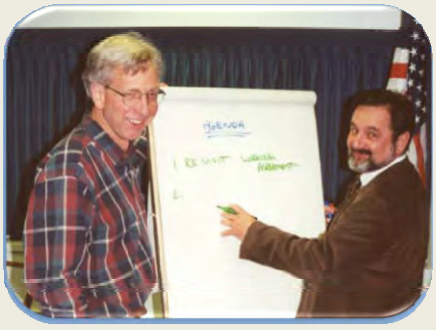

Facilitated Process

1. Organization of work team
2. Education
3. Issue framing
4. Evaluation of the issue framework
5. Public forums & Choice work
6. Recommendations

COOPERATIVE EXTENSION
UNIVERSITY OF DELAWARE
College of Agriculture & Natural Resources

Sea Grant
Delaware

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Organization of Work Team

- Assembled a Tributary Action Team (TAT) in FEB '99
  - ✓ Represented by a variety of stakeholder interests
- Identified clear mission and objectives
- Established ground rules!

Brings the public agency and public - the Tributary Action Team - into agreement as to what needs to be accomplished.

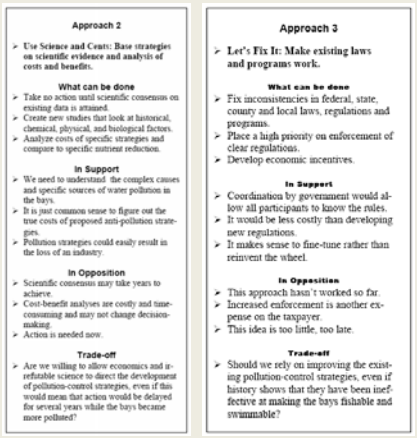
Education

- Ensured everyone understood the problem
- Provided numerous technical presentations & tours
- Reached agreement on definitions!
- Lengthy and time consuming process

Builds upon the knowledge of the process shared in the organizational discussions and then adds information necessary to frame the issue.

Issue Framing

- Described broad “choices” and “arguments” for public consumption
- Should represent the voices of all impacted by the issue



Approach 2

- **Use Science and Costs: Base strategies on scientific evidence and analysis of costs and benefits.**

What can be done

- Take no action until scientific consensus on existing data is attained.
- Create new studies that look at historical, chemical, physical, and biological factors.
- Analyze costs of specific strategies and compare to specific nutrient reduction.

In Support

- We need to understand the complex causes and specific sources of water pollution in the bays.
- It is just common sense to figure out the true costs of proposed anti-pollution strategies.
- Pollution strategies could easily result in the loss of an industry.

In Opposition

- Scientific consensus may take years to achieve.
- Cost-benefit analyses are costly and time-consuming and may not change decision-making.
- Action is needed now.

Trade-off

- Are we willing to allow economics and irrefutable science to direct the development of pollution-control strategies, even if this would mean that action would be delayed for several years while the bays became more polluted?

Approach 3

- **Let’s Fix It: Make existing laws and programs work.**

What can be done

- Fix inconsistencies in federal, state, county and local laws, regulations and programs.
- Place a high priority on enforcement of clear regulations.
- Develop economic incentives.

In Support

- Coordination by government would allow all participants to know the rules.
- It would be less costly than developing new regulations.
- It makes sense to fine-tune rather than reinvent the wheel.

In Opposition

- This approach hasn’t worked so far.
- Increased enforcement is another expense on the taxpayer.
- This idea is too little, too late.

Trade-off

- Should we rely on improving the existing pollution-control strategies, even if history shows that they have been ineffective at making the bays fishable and swimmable?

Framework must be unbiased, represent the undergirding values embedded in policy choices and articulate the basic costs and consequences of the choices.

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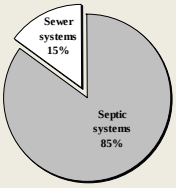
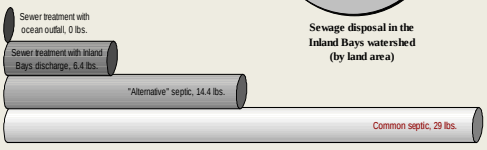
Evaluate the Framework



Sewage disposal in the Inland Bays watershed (by land area)



Annual nitrogen load into the Inland Bays watershed per household, by various treatment methods

- Published an issue book called “Saving Our Bays: Our Challenge – Our Choice” (20,000 copies)
- Offered “scientifically defensible” choices for policy options with associated facts, figures, and pertinent information
- Designed to provoke discussion

Charge an impact fee (“flush tax”) for septic systems and place the revenue in a fund for future sewer plant upgrades

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Public Forums

- Cornerstone of *Public Talk – Real Choices*
- Hosted 9 gatherings throughout the watershed
- The "F" word…. **FEEDBACK!**
- Must result in some form of common ground for action!

Significant representation of the public must deliberate the issue; occurs through successful planning and selection of venues for forums

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Recommendations

1. What is valuable?
2. What are the costs and consequences of the choice?
3. Where is the tension?
4. Where is the common ground for action?

- TAT sifted through and analyzed the public's "voice" heard during the forums
- Developed recommendations
- Submitted to agency

The Agency spent considerable time reviewing the recommendations before responding; TAT completed several revisions and resubmitted

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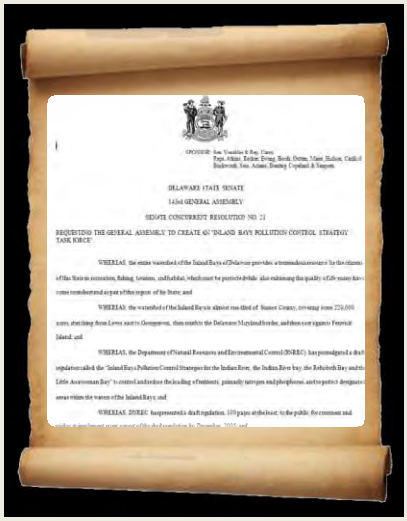

DELAWARE STATE SENATE

144th GENERAL ASSEMBLY

SENATE CONCURRENT RESOLUTION NO. 21

REQUESTING THE GENERAL ASSEMBLY TO CREATE AN "INLAND BAYS POLLUTION CONTROL STRATEGY TASK FORCE"

WHEREAS, the entire watershed of the Inland Bays of Delaware provides a tremendous resource for the citizens of this State in recreation, fishing, tourism, and habitat, which must be protected while also enhancing the quality of life many have come to understand as part of this region of the State; and

WHEREAS, the watershed of the Inland Bays is almost one-third of Sussex County, covering some 224,000 acres, stretching from Lewes and its Georgetown, then south to the Delaware/Maryland border, and then east against Fenwick Island; and

WHEREAS, the Department of Natural Resources and Environmental Control (DNREC) has promulgated a draft regulation called the "Inland Bays Pollution Control Strategies for the Indian River, the Indian River bay, the Rehoboth Bay and the Little Assawoman Bay" to control and reduce the loading of nutrients, primarily nitrogen and phosphorous, and to protect designated areas within the waters of the Inland Bays; and

WHEREAS, DNREC has presented a draft regulation, 109 pages in the least, to the public for comment and

The "Politics"

- TAT members co-hosted several public workshops in watershed to introduce proposed PCS
- Special interest groups objected to a number of recommendations
- Incidentally, these same special interests were early participants on TAT, but abandoned the process
- Delaware General Assembly intervened with proposed legislation (SCR21) to halt the Pollution Control Strategies

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"THE DELAWARE WAY"

- SCR21 tabled when DNREC committed to meet privately with special interests who had organized a body known as **The Coalition**
- Purpose was to craft revised Pollution Control Strategies that addressed *The Coalition's* concerns
- Unfortunate outcome was somewhat weakened revised Pollution Control Strategies

"The whole purpose of a democracy is that we may hold counsel with one another as not to depend on the understanding of one person but to depend on the counsel of all." — Woodrow Wilson, 1912

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Buffer System Regulation Comparison

	Proposed	Revised
Tidal waters/wetlands	100’	50’
Isolated wetlands	100’	No buffer
Federal reg. wetlands	100’	No buffer
Perennial streams	100’	50’
Perennial ditches	100’	50’
Intermittent waterways	100’	No buffer

Hopkins Prong- PCS V.1

Area in Buffer = 459 ac. 8% of subwatershed

Hopkins Prong- PCS V.2

Area in Buffer = 80 ac, 1% of subwatershed

Secretary's Order No. 2008-W-0054

Re: Adopting Final Regulations Governing the Pollution Control Strategy for the Indian River, Indian River Bay, Rehoboth Bay and Little Assawoman Bay Watersheds

Date of Issuance: **October 15, 2008**
Effective Date: **November 11, 2008**

Under the authority vested in the Secretary of the Department of Natural Resources and Environmental Control ("Department" or "DNREC") under *29 Del. C. §§8001 et seq.*, 29 *Del. C. §§10111 et seq.* and 7 *Del C.§6010 (a)*, the following findings, reasons and conclusions are entered as an Order of the Secretary in the above-refereneed rulemaking proceeding.

Governor Minner during PCS signing ceremony @ CIB

Inland Bays Pollution Control Strategies promulgated as regulations in autumn 2008!

DELAWARE CENTER FOR THE INLAND BAYS

Questions?

Ed Lewandowski, Director
Delaware Center for the Inland Bays
director@inlandbays.org

Speaker Contact Information

Bernice L. Smith, Chief
Coastal Management Branch
smith.bernicel@epa.gov

Holly Greening, Executive Director
Tampa Bay Estuary Program
hgreening@tbep.org

Kimberly Paulsen, Peconic Estuary Program Coordinator
Suffolk County New York Department of Health Services
kimberly.paulsen@suffolkcountyny.gov

Ed Lewandowski, Director
Delaware Center for the Inland Bays
director@inlandbays.org

Next Watershed Academy Webcast

Monitoring and Assessment Under the Clean Water Act

Wednesday, April 7, 2010

1:00 – 3:00 PM Eastern

Registration will open approximately three weeks prior to the Webcast at: **www.epa.gov/watershedwebcasts**

Participation Certificate

If you would like to obtain participation certificates for multiple attendees, click the link below:

www.epa.gov/owow/watershed/wacademy/webcasts/pdf/2010_3_1_certificate.pdf

You can type each of the attendees names in and print the certificates