



**Peconic Estuary Program  
Management Committee Meeting Summary  
March 9, 2016, 10:00am  
SCCC Culinary Center  
20 East Main Street, Riverhead**

Attendees: Seth Ausubel, Mark Woolley, Sherryll Jones, , Dawn McReynolds, Matt Sclafani, Julie Nace, Alison Branco, Kevin McDonald, Dorian Dale, Sheri Jewhurst, Dan Gulizio, Sarah Schaefer, Glynis Berry, Jim Dougherty, Becky Wiseman, Al Krupski, Larry Penny, Walter Dawydiak, Cameron Ross (phone) Lorraine A. Holdridge (phone)

1. Welcome and Introductions- **Seth Ausubel** (*USEPA Region 2*)
2. December 16th Management Committee Meeting Summary (**Seth Ausubel**)  
No comments, approved.
3. Update on NYS LINAP Process- **Dawn McReynolds** and **Lorraine Holdridge** (NYSDEC)
  - LINAP scope out for comment and final scope is planned to be completed in April 2016.
  - There are plans to hire 2 coordinators, one for the Long Island regional Planning Council (full time) and one for DEC Region 1 (part-time).
  - USGS groundwater watershed preliminary information will with sent to LINAP in early spring.
  - Currently coordinating with Suffolk County to blend nitrogen management efforts.
  - Nitrogen Loading Presentation/ Discussion/ Workshop- March 18<sup>th</sup> at TNC Cold Spring Harbor Office
    - Stephen Lloyd and Jamie Vaudrey will present. Discuss NLM options, data needs and attenuation coefficients.
    - Seth: Nitrogen Workgroup document should be shared with LINAP team and workshop attendees. Alison will try to add the document as an agenda item.
  - New funding available- \$6 million for a groundwater study with goals to protect groundwater and drinking water. Scope information is still needed from Carrie Meek Gallagher.
  - Suffolk County Early Actions RFP- **Walter Dawydiak** (Suffolk County Department of Health Services- Division of Environmental Quality)

- **ACTION:** Circulate RFP to MC/CAC (for polling and focus groups)
- Multi-department initiative to generate subwatershed nitrogen management information to serve as a first order waste water reduction plan that will serve as a cost- benefit plan for legislation and town management nitrogen management plans.
- Will look at status of groundwater now and compare the impacts of no action and the impacts of multiple actions.
- Innovative alternative onsite waste water treatment test sites- 19 donated and ¼ percent funded units in the ground and another round of test sites are planned soon.
- Plan to have Suffolk county sanitary code amended and authorize the use of alternative onsite waste water treatment systems by July 1<sup>st</sup>.
- Creation of wastewater district is recommended by Suffolk County Comprehensive Water Resources Management Plan. Vote for the district will be added to CPF referendum vote.
- Hired 2 new employees to manage projects- Justin Jobin (Environmental Projects Manager) and Ken Zegel (Associate Public Health Engineer)
- Plan to have RFP contract start by April 1<sup>st</sup>.
- Glynis: Are there any plans to change policies to stop cesspool grand-fathering or for nitrogen mitigation?
- Dorian: Those are eventual goals but he is unsure of the timeline for those actions.
- Jim: 14 test USGS test wells will be created in April on Shelter Island
- Walter: Suffolk County will complete a General Environmental Impact Statement (GEIS) as a part of the nitrogen plans
- Kevin: Will there be a growth cap on development as a result of SC work?
- Seth: Offsets from future growth should be considered in NLM. Need to continue discussion at another time to coordinate PEP's actions and available funding to coordinate and compliment SC nitrogen plans.
- Glynis: Suffolk County should make sure that all solutions are considered in cost benefit analysis for nitrogen management plans. Western Suffolk and Eastern Suffolk County should be treated differently when considering nitrogen management solutions.

4. Update on Nitrogen Workgroup Recommendations- **Matt Scialfani** (TAC Chair)
- Nitrogen Workgroup was created out of a need to provide guidance in evaluation different approaches that quantify and model nitrogen loading and groundwater transport that will yield appropriate management actions for the east end of Long Island.
  - Document was approved by the PEP TAC at the TAC meeting on February 17<sup>th</sup>.
  - Additional refinements from Suffolk County are welcome.
  - **ACTION:** Plan a meeting with modeling experts, PEP Nitrogen Workgroup, MC and select TAC members to discuss models. April?

- Attenuation coefficient will need to be discussed at March 18<sup>th</sup> nitrogen loading workgroup meeting.
- Alison: Cost-savings to do island-wide solute transport model- can take advantage of solute transport model work that is planned to be done in a few years by NYSDEC.
- Find out what we will need to do now with the money currently available so we can provide data and resources for the solute transport modeling efforts.
- Model needs to be user friendly and communicate results to the public.
  - Lorraine: DOS gateway could be an option as a planning tool. PEP and others need to reinforce that the model should be created as a planning tool, and outreach tool and a tool that can continue to be used in the future.
- **ACTION**: Submit proposal of idea to Carrie Meek Gallagher, Jim Tierney and LINAP management team for PEP to be “test case” for solute transport modeling and to present the value of accelerating work in the Peconic Estuary to compliment Suffolk County’s efforts.

5. 2015 Environmental Indicators report Update- **Sarah Schaefer** (PEP Program Coordinator)

- Draft sent out the TAC for review on 1/8/16, Habitat and Wildlife sections were presented and discussed at 2/17/16 TAC meeting.
- Monitoring Program review and discussion was initiated at 2/17/16 TAC meeting- may need to allocate more time to discussion for future meetings.
- Water quality and pathogen sections of the report will be presented and discussed at May TAC meeting.
- Report will then be edited and finalized.
- Plans to update Environmental Indicators Report every 5 years and State of the Bays will be updated every year on the new PEP website and function as a public communication tool for Environmental Indicators Report.

6. FY 2016 Budget Discussion and Recommendation to Policy Committee

- **ACTION**: Create workplan to outline actions and funding after March 18<sup>th</sup> meeting.
- Dawn: \$750,000 available within NYSDEC Ocean and Great Lakes under LINAP funding for nitrogen mitigation planning for PEP. A separate \$250,000 will be available in a few months but is intended for nitrogen mitigation.
- **ACTION**: Develop a communication strategy from all players- PEP, SC, LINAP, DEC etc.- to communicate what is currently being done concerning nitrogen mitigation and next steps forward for PEP.
- Alison- Community Preservation Fund
  - 20% of CPF will be used for water quality improvement and 10% of that can be allocated to the PEP-upcoming voter referendum in each town will pass this change.
  - Will send out graph to MC from EPA/NEP presentation

- It is to be determined if money generated will go into a pot for the Peconic Estuary or will the money only be spent in the town in which the money was generated.
- Each town must write a plan on how to spend the money and PEP can advise these management plans.
- Town resolution need to be ready before Labor Day 2016 and therefore town water quality improvement plans will need to be done over the summer (June/July).
- **ACTION:** Proposal identifying what actions PEP wants each town to consider and a rough budget

7. PEP Program Office Updates- **Sarah Schaefer** (PEP Program Coordinator)

- Approximately \$500,000 of unspent grant funds are set to expire in September, 2016- requesting a waiver through EPA- should get approved
- NEP/ EPA conference in D.C.- Alison presented on CPF, CCMP guidance and Program Evaluation guidance and discussion.
- PEP Protection Committee- Discussions with NYSDEC about waterbodies located in the PE watershed on the 303d list and MS4 permit revision in 11/2016. GIS workgroup created and compiling East End town land use data.
- RFP update- Upper Mills PEP Website Redesign and Development RFP advertised- Proposals due April 7<sup>th</sup>. Peconic Estuary Engineering Design and Permitting Services for Construction of a Fish Passage at the Upper Mills Dam- Proposals received and Evaluation Conference planned for March 11<sup>th</sup>. Climate Ready Assessment RFP and Conceptual Habitat Design RFP awaiting advertisement through Suffolk County Contracts Unit. CCMP Revision Support-RFP in drafting phase, will be advertised through NY Sea Grant.

8. Habitat Restoration and Stormwater Updates- **Julie Nace** (PEP State Coordinator)

- Indian Island Wetland Restoration- Planned to start project in Spring 2017
- Fish Passage projects:
  - Upper Mills Dam- RFP out and Evaluation Conference March 11<sup>th</sup> to select proposal.
  - Woodhull Dam- Fish passage design and permitting soon to be completed and Suffolk County Parks is applying for a NOAA grant to fund fish passage construction. Construction planned to begin in 2018- 95 acres of freshwater habitat will be opened with project completion.
  - Edwards Avenue Dam- construction underway of fish passage
  - Forge Rd- Plans underway for fish passage construction
- Conceptual habitat restoration planned for 4 sites in Conceptual Habitat Restoration Design RFP that is awaiting advertisement. 4 sites were nominated from the 2009 PEP Habitat Restoration Plan: Southold: Narrow River Road, Southampton: Iron

Point Wetland Restoration, East Hampton: Lake Montauk Alewife Access and Habitat Enhancement, Riverhead: MH-2 Main Road Wetland Construction.

9. CAC Updates- **Sherryll Jones** (PEP E&O Coordinator)

- 2/27 CAC meeting at Peconic Lane Schoolhouse, Peconic- great attendance and discussion. Reminded CAC that other smaller marine programs such as copper boat paint campaign and prescription drug drop off campaigns are important and should be promoted through the PEP CAC.
- Keep public outreach events- Good for political official appearances and spreading the PEP message throughout the community.
- PEP video is being finalized and should be ready to present at CAC meetings.
- Community Stormwater Stewardship Program at SCMELC in Southold- March 12th
- List of CAC meetings and locations will be posted soon.

10. TAC Updates- **Matt Sclafani** (TAC Chair)

- Environmental Indicators Report- reviewing Water Quality and Pathogen sections at May TAC meeting.
- Nitrogen Workgroup Summary Document created a nitrogen management modeling strategy for PEP moving forward.
- ***N Cycling in Muddy Sediments of Great Peconic Bay*** – Stuart Waugh presented at 2/17 TAC meeting. Presented valuable denitrification data and spoke about denitrification rate could be a potential environmental indicator for the Peconic Estuary.
  - Value of muddy sediment for denitrification.
  - Tipping point for denitrification rate in Peconic Estuary could be soon- Jamaica Bay is an example of an unbalanced system.
  - Could Stuart Waugh could write a piece about his presentation in the next PEP Newsletter?

11. New Business

Need to speak with Jim Dougherty about filling the MC representative spot for the PC.

12. Adjourn

## Nitrogen Workgroup Modeling Recommendations

February 11<sup>th</sup>, 2016

Nitrogen loading from human activities is causing significant impairments to Long Island's coastal ecosystems. The Peconic Estuary on the eastern end of Long Island is one such estuary that is showing symptoms of nitrogen pollution that require action. Increased nitrogen loads have resulted in eutrophication, low dissolved oxygen, degraded aquatic habitat that supports seagrass and wetlands, as well as increased harmful and toxic algal blooms. As a result, the Peconic Estuary Program (PEP) is focusing their management efforts to reduce nitrogen loading to the estuary, particularly from groundwater. This objective was stated during the Strategic Planning session that took place in January 2013, which specifically identified accelerating the implementation of the PEP Total Maximum Daily Load (TMDL) and increasing strategic focus on nitrogen reductions as critical to restoring the Estuary. This approach has more recently been formalized through the PEP's 2015-2018 Action Plan that lists a series of management actions to address this priority.

The Strategic Planning session had identified a general lack of information on the proportion in which various sources contribute nitrogen to groundwater as a barrier to effective communication about - and therefore action on - reducing nitrogen loading. The group also identified a lack of knowledge concerning the role of non-point groundwater flow and nitrogen loads to the estuary and how to recommend suitable management actions. The group recognized the need for expertise in these areas to provide guidance in evaluating different approaches that quantify and model nitrogen loading and groundwater transport that will yield appropriate management actions for the east end of Long Island.

### Nitrogen Workgroup: Scope and Goals

To move forward on resolving these issues, the Management Committee requested that the Technical Advisory Committee (TAC) provide technical guidance by forming a specialized workgroup consisting of members with expertise in nitrogen and groundwater source modeling and recruiting new members as needed. The Management Committee envisioned the final project would accelerate nitrogen TMDL implementation and strategically address groundwater nitrogen loading in order to develop a tool for communication between the PEP, policy makers and the public that would inform:

1. The most important load reductions that must be achieved from identified groundwater nitrogen sources in order to reach sustainable levels,
2. Recommended methods for achieving these reductions based on sources and conditions in the estuary (including technical support and cost/benefit assessment of various management options), and
3. Strategies for building public support for load reduction initiatives and for financing the implementation.

The findings from the Nitrogen Workgroup are intended to result in an updated implementation plan for the Peconic Estuary nitrogen TMDL that may include establishing updated load reduction goals for non-point source loads.

### Progress and Conclusions

The workgroup is an independent, non-advocacy based group, comprised of estuarine managers and professionals in the fields of hydrography, wastewater management, groundwater modeling (see list of participants at end of document). The workgroup focused their efforts on a technical review of existing nitrogen loading data and groundwater modeling, and evaluation of the need for existing model refinement or new modeling approaches for the Peconic Estuary. Specifically, the workgroup:

1. Reviewed and evaluated models that are currently used in other estuary programs throughout the country that address nitrogen loading and groundwater conveyance,
2. Determined the suitability of an existing model for the Peconic Estuary Program's needs, and
3. Identified assumptions and data gaps for application of existing models to the east end of Long Island.

In addition to reviewing the existing information on estuarine nitrogen loading and groundwater transport, the workgroup had three different guests present their nitrogen modeling efforts in other estuaries. This allowed the workgroup to learn from their expertise and evaluate the suitability of the approaches for Long Island. Presentations were given by Dr. Joe Costa (Director of Buzzards Bay National Estuary Program), Stephen Lloyd (The Nature Conservancy Long Island), and Donald Walter (United States Geological Survey (USGS)).

A review of existing models identified a variety of different numerical methods, but the workgroup concluded that the following two approaches used together had the most potential to achieve the management goals of the Peconic Estuary Program and should be explored:

1. Nitrogen Load Model, NLM (Valiela et al. 1997)
2. Solute/Mass Transport Groundwater model.

The workgroup focused on these two models, determining their suitability to the east end of Long Island and identifying their strengths, limitations, and assumptions that may require validation, as well as the data necessary to run the models. A combination of these approaches has been utilized by the Suffolk County for the Forge River watershed as part of the Suffolk County Comprehensive Water Resources Management Plan and the ongoing Forge River TMDL. Although the NLM was not used, a similar spreadsheet model was used to develop inputs to the mass transport groundwater model. A summary of the workgroup's review of both models is outlined below.

## I. Nitrogen Load Model

General Description	Uses existing land use data and septic loading data to quantify nitrogen sources to groundwater. Simple approach based on attenuation coefficients for nitrogen inputs into groundwater that categorizes current total nitrogen loads.
Strengths	Simple spreadsheet model summarizing nitrogen loads to the estuary based on current land use and land cover. Useful, 'visual' way to portray results and instantaneous loading to the aquifer. Can be used to predict loads from various nitrogen management scenarios. Designed as a comparative tool (e.g. between subwatersheds) - good for determining relative magnitude of sources. Published and peer reviewed, has been applied widely in the northeast. Because it does not account for groundwater travel times, is should only be used as a predictive tool within limited groundwater travel times (e.g. < 2 years). Outputs are made in pounds of nitrogen, not concentration, which is appropriate to feed into a solute transport model. Nitrogen loads can be entered into a calibrated water quality/hydrodynamic model to get estuarine concentrations.
Limitations	Only a "snapshot" of loadings at one time. Does not calculate instantaneous loading to the estuary because it does not incorporate a time variable, but can estimate loadings to the aquifer at one moment in time. Not a dynamic model. Many assumptions in attenuation coefficients that require validation. Cannot be used predictively as it does not account for complex groundwater movement (dispersion) or long-travel times. Model is sensitive to particular attenuation coefficients. Cannot be used to directly predict concentration in receiving waters, only load. Difficult to verify with field measurements because it cannot predict instantaneous concentrations.



Costs	The Nature Conservancy has already developed and run the NLM for the east end of Long Island. Additional costs incurred to the program would be to improve model assumptions or to collect field data and verifications as needed.
Other Considerations	

<b>II. Solute Transport Model</b>	
General Description	Solute transport models are used to trace mass spatially through time and 3-dimensional space, based on hydrodynamics and geological characteristics. These numerical models provide estimates for loads into a receiving waterbody of nitrogen. The models are dynamic (i.e. not static) enabling initial conditions to vary and provide simulations for different management options (i.e. predictive models). The ability to provide accurate simulations is, however, directly related to how well the model can be calibrated to current and historical conditions.
Strengths	They are existing well developed and peer reviewed models that are widely accepted among the scientific community - open source codes are available (e.g. flow model-USGS MOD FLOW) and readily available to use and develop. Suffolk County has an existing regional groundwater flow model of the entire County that can readily be refined to use for the nitrogen transport and loading estimates to the Peconic Estuary. Likewise, the USGS is developing a new Long Island regional groundwater flow model, with refined representation of surface waters and aquifer properties, for use in improved source-area (groundwatershed) delineation and other applications. They are dynamic models and effective for tracing solutes in groundwater

	<p>transport. Dynamic model simulations are very useful to predict anticipated outcomes from changes in land use or nitrogen inputs and therefore, helpful for planning and management. Tracks “concentrations” of mass and can be readily integrated with a hydrodynamic model of the estuary for predicting changes to water quality. Can be calibrated and/or verified with field measurements. These models are the most appropriate method to evaluate nitrogen loading to an estuary. The NLM can be used to provide loading inputs for historical land use types. Those loads are run in the transport model and can be compared to concentrations measured from water supply and monitoring wells. Solute transport model inputs are in mass per unit time (lbs./day) and the output is in concentration.</p>
<p>Limitations</p>	<p>Require high quality historical land use data (particularly if historically the land use was not open space and was used for agricultural purposes). These models require training to run and process the results and can have a steep learning curve.</p>
<p>Costs</p>	<p>Resource intensive in terms of computing power and technical expertise, requires more types of input data than spreadsheet models. These models currently exist as they were previously developed for the Suffolk County Department of Health Services (SCDHS) and Suffolk County Water Authority (SCWA), and by the USGS largely with Federal funding, so much of the baseline work is finished. Some refinements should be made, but the cost of doing so is relatively small compared to starting “from scratch”.</p>
<p>Other Considerations</p>	<p>Sources and magnitudes of uncertainty in model input and output, datasets may be evaluated through a variety of well-established techniques.</p>

## Recommendations from the Nitrogen Workgroup:

- A solute transport model should be used in conjunction with the results of the Nitrogen Load Model to draw on the strengths and weaknesses of both.
- For evaluating different nitrogen management actions, a solute transport model is the preferred model for the Peconic Estuary because this model:
  - ❑ Is a spatially explicit, three-dimensional, time varying groundwater model that can accurately predict inputs to surface waters by tracking the time varying movement and transformations of solutes within the aquifer,
  - ❑ Is needed to predict long-term trends from greater travel distances, which the Peconic Estuary is known to display (e.g. Peconic River recharge area),
  - ❑ Can be used to assess historical, current and (or) projected, future loads to surface waters, and
  - ❑ Is able to predict long-term trends from greater travel distances such as in the Peconic River corridor.

In addition:

- It would be beneficial to link the solute transport model with a coupled hydrodynamic-water quality model of sufficient spatial resolution to set appropriate nitrogen load targets by subwatershed, based on the ecological endpoints. Current nitrogen TMDL end-points are based on dissolved oxygen (DO), which is important, but there needs to be consideration of additional endpoints such as water clarity, healthy seagrass, healthy wetlands, elimination of harmful algal blooms and productive fisheries.
- NLM can provide a “snapshot” of the estuary loadings based on groundwater travel time. This information can be used as a valuable communication tool for outreach purposes to illustrate relative contributions of nitrogen from each source. The NLM can determine what sources are contributing the greatest amounts of nitrogen to the aquifer at a single point in time. However, to understand the loading to receiving surface water, the load, receiving water hydrodynamics and nitrogen processing, determine the surface water ambient nitrogen concentration.
  - NLM should be viewed as a qualitative tool for management scenario evaluations within the shortest (e.g. 2 year) groundwater travel times, It is not designed for groundwater simulation; particularly with long travel times, but may prove useful for short travel times as a loading tool if underlying assumptions are met and land use data are accurate. Improved definitions of groundwater discharge to surface waters will improve NLM results in regards to management scenarios.
  - NLM can identify priority areas for early “no-regrets” action and to test load reduction scenarios in the 2-year zone.

- The PEP must establish good baseline information from which to better understand the sources of nitrogen, the relative magnitudes of the existing loads, and to quantify the reductions needed. To provide optimal output for management and planning, these models must be based on accurate, up-to-date input data and be validated with field collected (real-world) data measurements.
- The Peconic Estuary Program and its partners need to keep in mind that it may take decades to see the results of nitrogen management efforts in the ecosystem. Similarly, for some locations where groundwater of particularly long travel time discharges, nitrogen loads may still be increasing due to the legacy of the past land uses and practices. Management decisions need to be made considering these facts.

### **Intermediate Steps**

- Update the watershed boundary beyond the shallow-water contributing area in the Peconic River according to the work being completed by the NY State Department of Environmental Conservation (NYSDEC) and USGS Groundwatersheds Project that will be done in 6 to 18 months. This may change the loadings considerably in the western Peconic River recharge area where significant water quality impairments are known to exist. This is essential to complete before the CCMP is updated or extensive nitrogen load modeling is conducted.
- Establish monitoring schedule to collect field data to improve NLM, and validate assumptions and predictive output from the models:
  - Sample solute (nitrogen) concentrations at points along groundwater flow paths from entry at the water table to exit at streams and other discharge locations,
  - Determine extents of denitrification in groundwater by examining nitrogen exchange and transformations in the hyporheic zone,
  - Collect field data on dissolved organic carbon (DOC) and DO in aquifers to validate attenuation coefficients (particularly in agricultural areas), Collect field data, especially in areas with high nitrogen input, to better understand concentrations of nitrate, nitrite, nitrous oxide and ammonium concentrations and what controls concentrations; and
- Collect data regarding other sources of freshwater entering the estuary. Calculate septic load per tax parcel for septic loading data input to NLM and solute transport model.
- Investigate loadings from groundwater affected by legacy land use and practices. Examine private well data to determine inputs from 10, 20, and 50 years ago that are still present in the system and assess if we are on an increasing or decreasing trend in nitrogen load locally and system-wide. GIS files for existing base flow contributing areas were already developed for Suffolk County as a part of the Comprehensive Water Resources Management Plan and can be acquired.
- Re-examine atmospheric deposition in the western portion of the Peconic Bay and consider what U.S. Environmental Protection Agency (USEPA) expects for reductions based on atmospheric regulations. Look at NLM output data in relation to atmospheric

deposition and review cost-benefits of different land-based reductions and how much nitrogen we can expect to remove from the system.

- Determine most appropriate and consistent way to handle atmospheric deposition to the water's surface, especially in the eastern estuary which is not enclosed and where boundaries are arbitrarily defined.
- Consider using modeling load outputs to develop recommendations for nitrogen concentrations which can be used as a measurement for BMP/technology implementation. Both nitrogen load in mass (lb or Kg) and nitrogen concentration (based on receiving waterbody hydrodynamics) are essential to analyze nitrogen management approaches.
- Create a results delivery method to share model results with the public and stakeholders.

#### Nitrogen Workgroup Participants

Alison Branco – PEP Director

Dana Flint - USEPA

Cathy Haas - NYSDEC

Gilbert Hanson - Stony Brook University

Ruth Izraeli - USEPA

Sheri Jewhurst - USEPA

Anthony Leung - NYSDEC

Julie Nace - PEP State Coordinator

Daniel O'Rourke - CDM Smith

Ronald Paulsen - SCDHS, Office of Water Resources

Jennifer Pilewski - NYSDEC

Cameron Ross - NYSDEC

Sarah Schaefer - PEP Program Coordinator

Christopher E. Schubert - USGS

Matthew Sclafani - Cornell Cooperative Extension of Suffolk County, Chair of PEP TAC

Harold Walker - Stony Brook University

**Management Committee, March 9, 2016**  
**FFY 2016 Budget Projections for Discussion**

Activity	TOTAL PROGRAM BUDGET	SOURCE				
		EPA \$320	NYS DEC	Suffolk County	USGS Cost Share	NYS Budget Line Item
<b>PROGRAM OFFICE</b>	<b>\$367,000</b>	<b>\$367,000</b>				
Program Director	\$135,000	\$135,000				
Program Coordinator*	\$98,000	\$98,000				
State Coordinator	\$117,000	\$117,000				
NEIWPC Program Management	\$7,000	\$7,000				
Travel	\$8,000	\$8,000				
<b>MONITORING</b>	<b>\$355,000</b>	<b>\$115,000</b>	<b>** \$200,000</b>	<b>\$125,000</b>	<b>\$50,000</b>	
Monitoring - County Water Quality	\$195,000	\$70,000		\$125,000		
Monitoring - USGS Water Quality	\$115,000	\$0	\$200,000		\$50,000	
Monitoring - Atmospheric Deposition***	\$15,000	\$15,000				
Monitoring - Seagrass***	\$30,000	\$30,000				
<b>EDUCATION AND OUTREACH</b>	<b>\$100,000</b>	<b>\$100,000</b>				
E&O Contract for services 2017	\$100,000	\$100,000				
<b>IMPLEMENTATION PROJECT</b>	<b>\$250,000</b>	<b>\$0</b>				<b>\$250,000</b>
Mini grants	\$18,000	\$18,000				
Groundwater Solute Transport Model	\$700,000	\$0	\$700,000			
Hydrodynamic Model	\$300,000	\$0	\$300,000			
<b>TOTAL</b>	<b>\$2,090,000</b>	<b>\$600,000</b>	<b>\$1,200,000</b>	<b>\$125,000</b>	<b>\$50,000</b>	<b>\$250,000</b>

|

\*Continues new Program Coordinator position for another year

\*\* Surplus funding will provide USGS Water Quality Monitoring funding for multiple years and full amount is not reflected in 2016 budget total

\*\*\*Annual seagrass & atmospheric deposition monitoring have been an ongoing part of the PEP's base program for many years. It was not included in the 2013 and 2014 budget tables because this monitoring had been forward-funded for those years.

DRAFT