

TOWN OF SOUTH BETHANY

Minutes – Canal Water Quality Committee Meeting May 18, 2012 (10:00am) at the South Bethany Town Hall

- **Meeting Called to Order At 10:00 am** – Members present were George Junkin, Dave Wilson, Al Allenspach, Ron Wuslich, Sue Callaway, Jack Whitney, Frank McNeice, Pat Voveris and Gene Hendrix.
- **Minutes from December 8, 2011 Meeting** – The minutes were reviewed in detail since there were numerous action items that needed discussion. These included:
 1. **Oyster Gardening – The need to get more people involved** – Al Allenspach reported that the CIB is much more interested in oyster gardening. They want to get the state to open it up to commercial oyster fisherman to help get oysters reintroduced to the Inland Bays. Al said that interested people should call him and he would coordinate with EJ Chalabala at the CIB. (Mr. E.J. Chalabala, Restoration Coordinator restoration@inlandbays.org.)
 2. **Inspection/Recommendations/Documentation W. Side Storm Drains** – George is organizing this effort. Dave Wilson and Frank McNeice have volunteered to help. Jack Whitney suggested that we recruit volunteers from people who live on the streets with storm drains to help perform the tasks on their streets. This would divide up the work (there are about 80 – 100 storm drains on South Bethany right of ways. It would also help educate more homeowners on the canal water quality issues associated with storm water runoff. These drains will be inspected and documented to determine the design of each system (diameters of pipes, perforated pipes, relative location of pipes, French drains, etc.) Recommendations will be made for improvements. One recommendation that has already been made is to raise the level of the pipe going to the canal. See last pages for information relative to the recommendation. A second recommendation for storm drains in low areas is to put check valves in the pipe going to the canals so that extremely high tides do not back flow into the low streets. Steve from GMB suggested www.tideflex.com. See last pages. **The time line for the above task is to be completed by the end of the summer.**
 3. **“Adopt-A-Canal” Program – Clean Up Trash & Debris** – Sue suggested that we change the name of this activity to **“Volunteers for Cleaner Canals”** to avoid confusion with the Community Enhancement Committee’s “Adopt a Canal/Road End” activity. No one disagreed with Sue. Jack Whitney volunteered to lead this effort. Al Allenspach volunteered to be responsible for New Castle Canal. George Junkin agreed to be responsible for West 7th Canal.
 4. **East Side Route 1 Bioretention Areas** – George reported that he has spoken with Bart Wilson who is Chris Bason’s replacement as Science Coordinator for the CIB. Chris has been promoted to Executive Director of the CIB. George conducted an onsite review with Bart of all the projects that the Canal Water

Quality Committee is involved in that are aimed at making the canals “fishable and swimmable” again. He also took Bart on a tour of the town to show him the issues and the projects. Bart was interested in making the east side project work and was ready to work with South Bethany to solicit grant money for such a project. Figures showing the project concept are presented at the end.

- **March/April Algae Bloom** – George reported that DNREC finally got the harvester fixed and were doing an outstanding job at cleaning up the algae. This was the worst algae bloom in the history of South Bethany. Over 5 huge dump trucks of algae were removed. It was estimated to be about 100 tons. Harvesting the algae certainly makes the canal appearance better and keeps boat heat exchangers from being fouled, however it also removes a significant amount of nutrients from the canal. If the algae had been left to die and rot. The nutrients would go back into the water to support more algae growth. Ron Wuslich presented a letter on the topic from Frank Piorko as directed by Secretary O’Mara from DNREC. It is attached at the end of the minutes.
- **Oyster Gardening** – Al Allenspach reported that there were a lot of new oyster garden volunteers after last year’s Bull Roast. EJ Chalabala at the CIB has developed a new, simpler, less expensive oyster basket that does not require the Taylor Float. There will be a “basket making” party for oyster gardener volunteers at the James Farm in June. There is a new initiative at the CIB. Chris Bason and CIB staff are working on new legislation that would permit the state to lease areas for commercial oyster gardening. The CIB is looking at “staking out” parts of the three Inland Bays that would be most appropriate for oyster gardening for profit. The initiative would be an economical boost for the state while also improving water quality for the Inland Bays. Harvesting the oysters has the beneficial effect of removing the nutrients that the oysters filtered out of the water. If the oysters die, then the nutrients that they had removed from the water are returned to the water. Oysters do very well on Rip-Rap. Al said he is still looking for some more oyster volunteers. He also reported that the algae bloom did not appear to adversely affect the oysters as his are still thriving.
- **Canal Water Quality Monitoring** – Dave Wilson reported:
 - Volunteer Monitors for the canals are: Sue Callaway, Glenn Dallas, Bryant Hopkins, Frank McNiece, Dick Oliver, Jack Whitney, Dave Wilson
 - Volunteer Monitors for Little Assawoman Bay are: George Junkin (Boat Captain), Jay Headman, Frank McNiece, Ron Wuslich
 - University of Delaware – South Bethany Data Summary, Sept 2006-August 2011 – Dissolved Oxygen – Five of Nine Sites Below DO Limit ~50% of the time – See chart next page.

- University of Delaware – South Bethany Data Summary, Sept 1 2006-August 31 2011 – Five Year Average Bacteria and Nutrients
 - Nitrogen 2x limit at end of Anchorage
 - Phosphorous 1.3x limit at end of Anchorage
 - Bacteria count 1.7-2.3x limit at ends of Anchorage and Petherton

Test Site Code	Test Site Location	# of TSS Samples	Average TSS (mg/L)	# of Chl a Samples	Average Chl a (µg/L)	# of DIP Samples	Average DIP (µM) [Std=0.3]	Average DIP (mg/L) [Std=0.01]	# of DIN Samples	Average DIN (µM) [Std=10.0]	Average DIN (mg/L) [Std=0.14]	# of TE Samples	Marine Water TE geomean (MPN/100ml) [Std=35]
Little Assawoman Bay Watershed													
LA10	Assawoman Canal @ Kent Ave Bridge	58	52.4	58	9.3	58	0.33	0.010	58	18.5	0.259	59	244.1
SB01	Anchorage Canal @ Rt 1	51	37.0	51	23.6	51	0.40	0.012	51	20.9	0.293	59	58.9
SB02	Anchorage Canal near elbow											16	13.0
SB04	Petherton canal/rt1											59	82.0
SB07	Layton Canal, South Bethany	52	52.3	52	9.7	52	0.15	0.005	52	10.9	0.153	63	20.2
SB09	Carlisle canal											16	19.5
SB10W	Russell Canal west dead end											19	15.9

Aquatic Life Use Support fails if 2 or more DO Samples are less than 4.0 mg/L				
Test Site Code	Test Site Description	# of DO Samples	Average DO (mg/L)	# of DO Samples less than 4.0 (mg/L)
Little Assawoman Bay Watershed				
JC08B	SB, Jefferson Creek Basin between Assawoman canal extensions, by boat	18	5.30	2
LA10	Assawoman Canal @ Kent Ave Bridge	85	5.02	33
LA15B	Near red channel marker #12, by boat	17	5.88	
LA19B	Mid Dirickson Creek off Swann Keys, by boat	18	5.02	3
LA42B	Narrows, South of state beach at point, by boat	18	5.15	1
SB01	Anchorage Canal @ Rt 1	112	4.42	57
SB02	Anchorage Canal near elbow	99	5.76	24
SB04	Petherton canal/rt1	110	4.61	57
SB05	Petherton canal, between lots 156 and 162	76	5.68	17
SB07	Layton Canal, South Bethany	145	5.84	30
SB09	Carlisle canal	107	4.91	52
SB10E	Russell Canal east dead end	110	4.19	56
SB10W	Russell Canal west dead end	132	4.40	63
SB12	Jefferson Canal West side @ tidal gage	109	5.79	25

- 2012 Peak Algae Occurred One Month Earlier Than Past Years

	2009	2010	2011	2012
1st Day of Peak Sites	5/19/2009	5/25/2010	5/3/2011	4/3/2012
No. Sites	4	4	8	7
Water Temp C	18	21.5	19.5	13
Nom Salinity	14	18	20.6	24.5
DO Range mg/l	3.3-7.0	4.3-6.3	3.1-8.3	7.0-15.0
Most Algae	SB04	SB10W	SB04	SB09

- **Discussions on Bacterial Levels in Canals** – With the levels shown above swimming is not recommended in the South Bethany Canals. Ron Wuslich cited the January 2001 report, *Volume and Characteristics of Collected Storm Water Discharge into the Loop Section of the Anchorage Canal*, which states that the discharge into the Anchorage Canal “is equal to an annual discharge of over 500,000 gallons of untreated domestic sewage with a BOD [biochemical oxygen demand] of 250 mg per Liter. This translates into 1,400 gallons per day.”
- **Diffuser Pilot Project** – George reported that the EPA is scheduled to announce whether South Bethany was selected for a grant for the Diffuser Pilot Project in the August time frame. Also the SB Town Council approved funding, that would be available for the project, to be used if the grant is not funded by EPA. The SBCWQC decided that the pilot project would be in the Petherton Canal and that the east end of the Brandywine Canal would be the end control. Dave Wilson agreed to start monitoring the east end of the Brandywine Canal for temperature, salinity, dissolved oxygen and water clarity. George mentioned that Ed Whereat stated that he could probably handle one additional bacteria sample. Dave agreed to solicit Ed to verify that the U of D could handle an additional bacteria sample from the Brandywine Canal. The west end of the Anchorage Canal will be used as the west end control. George stated that he was developing an Statement of Work (SOW) that would be included in the RFP for the diffuser project. The SOW would include permitting, design, procurement, installation and maintenance and a draft SOW should be available in July. *A comment was made that we should solicit DeIDOT to clean out the Anchorage Fore Bay on an annual basis.* George will call Marianne Welch at DeIDot.
- **Route 1 Bio-Retention/Rain Gardens** – George and Sue report that the Median Bio-Retention Areas have been completed and that the West Side Rain Gardens would be completed by May 25. The East Side Bio-Retention Areas have been discussed above. Jack Whitney asked that we get a report from the CIB relative to the status of all water quality improvements recommended for the Anchorage Water Shed.
- **Home Owner Education Program**
 - **Voluntary Disconnection – Outside Showers**
 - **Voluntary Disconnection – Rain Water Down Spouts**
 - **Impervious Surfaces** – Al Rae supplied an e-mail with his report that Sally Boswell from the CIB was working on preparing a one page document addressing this topic.

Sue Callaway presented a document that could be sent to homeowners asking that they disconnect outside showers and rain water down spouts from entering the South Bethany canals. There was a lot of discussion as to whether the SBCWQC should recommend to the Town Council that “grandfathering” be removed from the ordinance. The consensus was that “grandfathering” should be removed. Independent of that George, Sue and Pat should work on Sue’s document to add pictures, a logo, and generally make it more “readable” and to ask homeowners to voluntarily disconnect.

- **Ron Wuslich Report on Inland Bays Foundation** – Ron reported that the recently formed Inland Bays Foundation currently has about 20 members and is looking for more

members. He passed out applications for those who might be interested. He reported that the Clean Water Act is not being properly enforced in Delaware and that the Inland Bays Foundation has the ability to lobby the legislature and enter into litigation.

- **Tidal Pump** – Jack Whitney suggested that maybe we should relook at the Tidal Pump. George said that he would send Jack the information that he had on the Tidal Pump.
- **Meeting Adjourned at about Noon**

Figure 28 – Recommendation from GMB Report

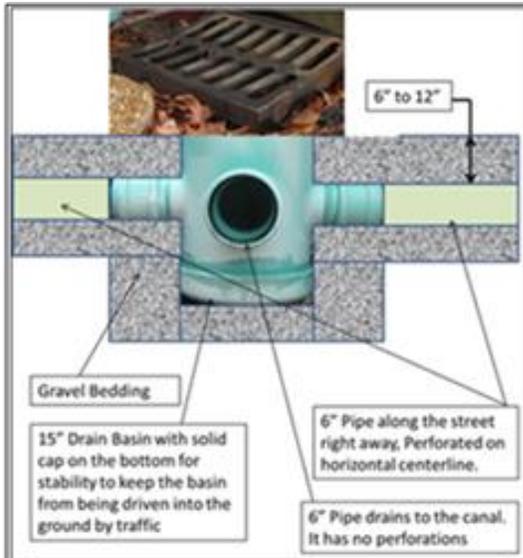
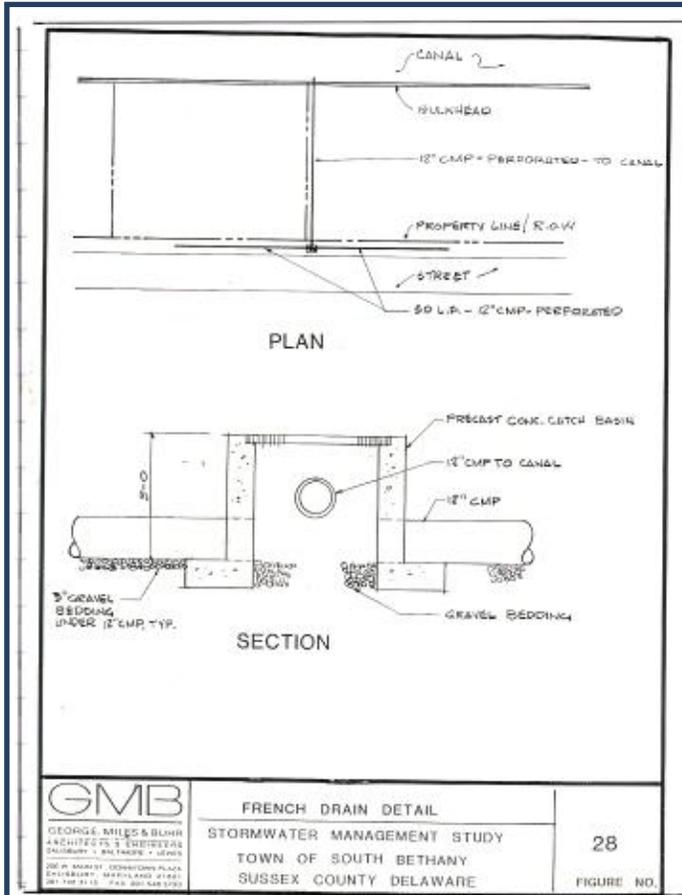


Figure 2 Most Recent Storm Drain Retrofits

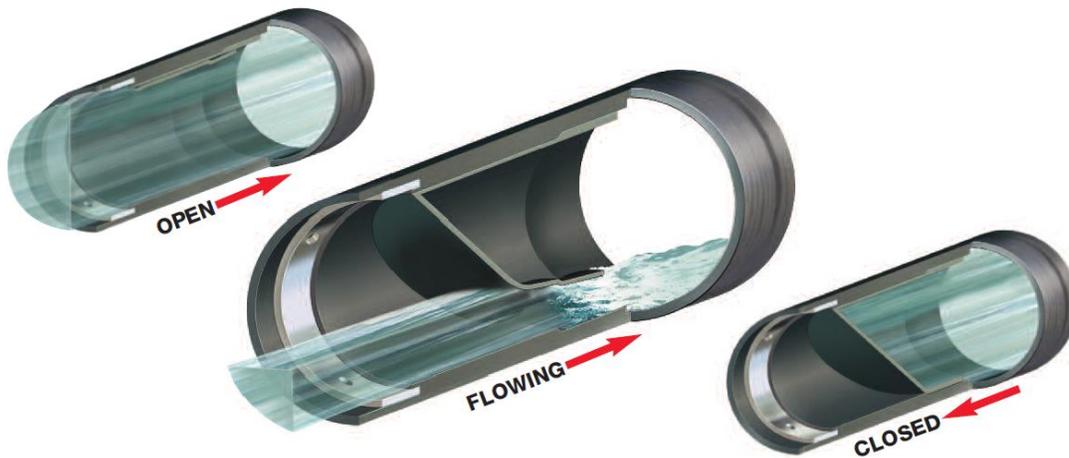
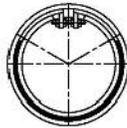
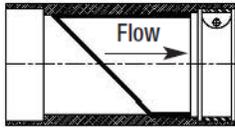


- Retrofit the inside of existing drain basins with a 4" elbow and pipe so that the entry to the canal pipe is just below the existing grate.
- Drill large holes in the bottom of the existing drain basins so that water can drain into the soil.

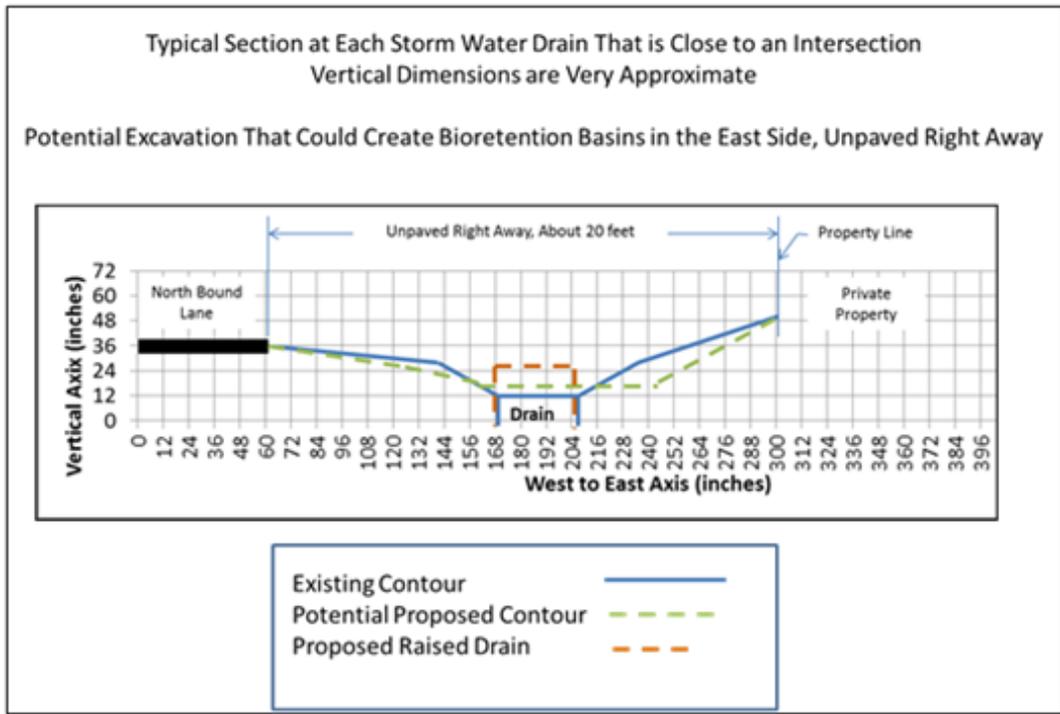
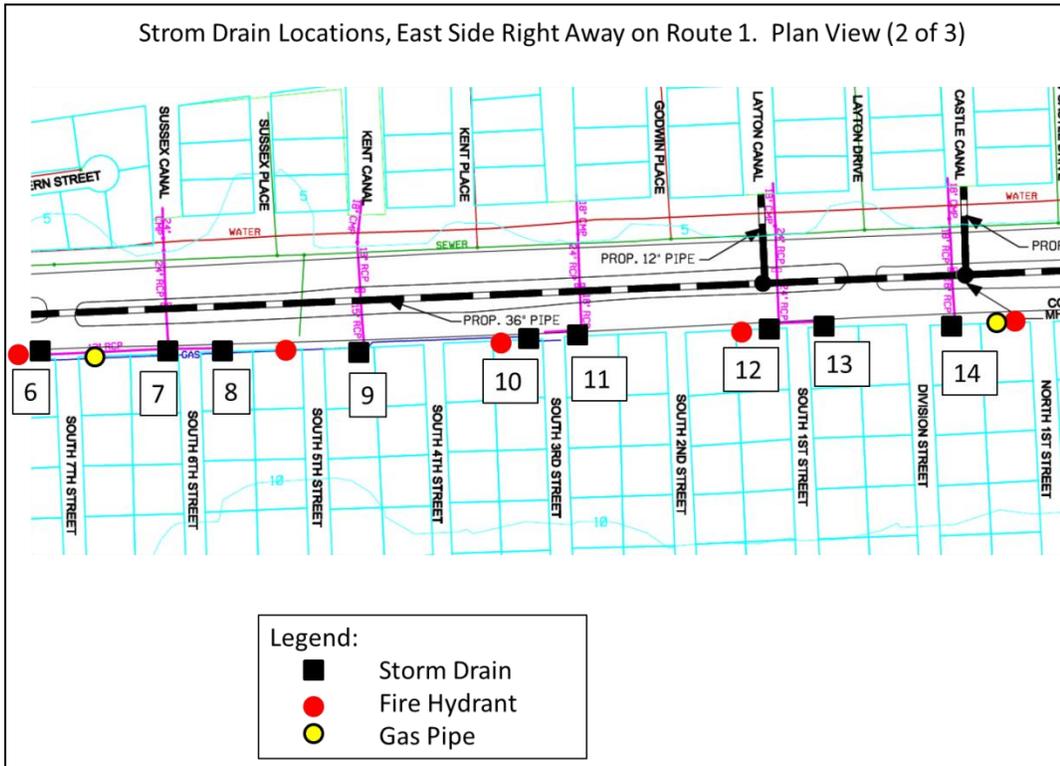
Figure 3 Recommended Improvement to the Recent Retrofits

The Checkmate Valve designed for inline service fits inside the existing pipe and does not protrude into the canal. Its cracking pressure is less than 2 inches of head pressure.

Downstream Clamp



East Side Route 1 Bioretention Areas –There are 23 storm drains in the DE Route 1 east side right away. The charts below are typical, showing the concept to retrofit the east side to improve water quality.





STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
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April 26, 2012

Mr. Ronald Wuslich
130 Petherton Drive
South Bethany, Delaware 19930

Dear Mr. Wuslich:

Thank you for your e-mail correspondence dated April 17, 2012, regarding the massive algae growth that currently exists in the lagoons of South Bethany and the overall water quality of our Inland Bays. Governor Markell and Secretary O'Mara appreciate you sharing your thoughts with them on these important issues. Secretary O'Mara has asked me to respond directly to your concerns.

The major factors contributing to the algae bloom in South Bethany are the unseasonably warm water temperatures due to the mild winter and favorable water clarity conditions, which allow the algae to grow using nutrients that have accumulated in the lagoons for many years. The Department's Macro-algae Harvesting Team began harvesting operations in South Bethany on Monday and will continue until the current problem is alleviated. Later this spring when the water temperatures rise, the remaining macro-algae growth will most likely be stymied by a microscopic bloom of algae that will cloud the water in the lagoons and prevent light from reaching the bottom, thereby depriving the algae of light that it needs to grow.

With regard to the overall water quality conditions of the Inland Bays, you are correct in that the Bays and many of the streams draining into them are impaired by excessive levels of nitrogen and phosphorus and these nutrients contribute to nuisance algal blooms. DNREC, along with our partners at the University of Delaware, have been monitoring these conditions for years and have documented the impairments in our watershed assessment reports to the EPA. As you are aware, Total Maximum Daily Loads (TMDLs) for both nitrogen and phosphorus were established in the Inland Bays watershed in 1998 (for the Rehoboth Bay, Indian River, and Indian River Bay) and 2005 (for Little Assawoman Bay and the tributaries and ponds draining to all three of the Bays).

Over the course of more than a decade, a Pollution Control Strategy (PCS) was developed for the Inland Bays Watershed and it outlines numerous voluntary and regulatory actions to reduce nutrient inputs. While the buffer portion of the PCS regulations was deemed void and unenforceable through a court decision, the stormwater and onsite wastewater (septic) portions of those regulations are in effect and are being implemented. In addition, both the *Sediment and Stormwater Regulations* and the *Regulations Governing the Design, Installation, and Operation of On-Site Wastewater Treatment and Disposal Systems* are currently being revised. Pollution reduction actions developed in the Inland Bays watershed have been refined and in some cases, strengthened, in both sets of these proposed statewide regulations.

Delaware's good nature depends on you!

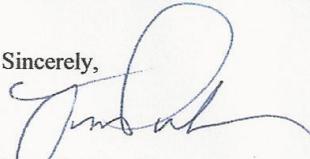
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The Inland Bays PCS also heavily relies on the voluntary implementation of many best management practices, especially in the agriculture sector. Some progress has been made on this front, but the current economic climate has resulted in limited resources for cost share programs and grants for various types of implementation projects. More education and outreach is also needed to inform residents and visitors alike of the cost effective actions that can be taken to improve the condition of the Inland Bays, so that they remain a tourist destination and support the local economy. The Center for the Inland Bays has long been a leader on these fronts and we look forward to continuing to work with that organization as well as the new Inland Bays Foundation to advance the water quality improvement efforts.

Our recent work developing a Watershed Implementation Plan (WIP) for the Chesapeake Bay watershed has introduced us to some new tools and processes that could be implemented in other parts of the state. In that watershed, the Chesapeake Bay Program jurisdictions agreed to implement all practices necessary to achieve water quality goals by 2025, essentially setting an ultimate end date. The jurisdictions also agreed to assess progress by setting 2-Year Milestones in order to assure progress occurs in a timely fashion and allows for adaptive management if progress does not proceed as anticipated. The Chesapeake WIP also describes the roles of local partners and establishes who will do what and when so that all parties are aware of their responsibilities and will maintain accountability. Again, it would be our hope that we can work with partners in the Inland Bays watershed to adopt these approaches that will hopefully accelerate progress.

Thank you again for your e-mail. Please contact me if you have any additional questions or concerns regarding these matters. My staff and I will be happy to assist you. I can be reached at 739-9921 or via e-mail at Frank.Piorko@state.de.us.

Sincerely,



Frank M. Piorko
Director

cc: The Honorable Jack Markell, Governor
Collin O'Mara, Secretary, DNREC
John Schneider, DNREC, Division of Watershed Stewardship
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