

# THE DELAWARE:

CHALLENGES AND OPPORTUNITIES AFFECTING A  
WORKING AND ENVIRONMENTAL RIVER



*Delaware Water Policy Forum Series No. 6*

held on the University of Delaware Newark Campus, Monday, October 16, 2006



co-sponsored by  
**DWRC** Delaware Water Resources Center



April 5, 2007

Dear Water Colleagues:

We are pleased to deliver the proceedings of the Delaware Water Policy Forum Series No. 6 titled: *The Delaware: Challenges and Opportunities Affecting a Working and Environmental River*. The forum was held on Monday, October 16, 2006, at John M. Clayton Hall on the University of Delaware campus in Newark, Delaware. The Water Resources Agency in the Institute for Public Administration (IPA-WRA) at the University of Delaware (UD), The Water Resources Association of the Delaware River Basin (WRADRB), Delaware Water Resources Center (DWRC), Delaware Section of the American Water Resources Association (DE AWRA), and Delaware Department of Natural Resources and Environmental Control (DNREC) co-sponsored the event.

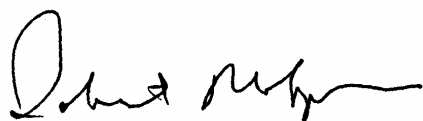
This policy forum, the sixth in a series that examines statewide and regional water policy issues, was designed to explore the Delaware River and the benefits and challenges associated with this working and environmental river. Over 100 attendees heard the speakers discuss a variety of topics affecting the river, including living resources, water supply, maritime and industrial uses, emergency response, environmental concerns, and legal issues. Forum speakers, panelists, and presenters included representatives of the U.S. Army Corps of Engineers, DNREC, Delaware River Basin Commission (DRBC), Partnership for the Delaware Estuary, Rutgers University, Philadelphia Water Department, U.S. Coast Guard, Maritime Exchange for the Delaware River and Bay, and several regional law firms and addressed the benefits and challenges of the Delaware River.

The keynote address, by Robert Molzahn of the Water Resources Association of the Delaware River Basin kicked off the day with an overview of the Delaware River and the surrounding watershed. Mr. Molzahn also discussed the competing environmental, industrial, and economic uses of the Delaware River. Following the keynote address, panels of speakers provided expertise on the challenges and opportunities affecting a working and environmental river and commentary from the environmental community. The day concluded with a panel of lawyers who discussed recent developments in water law and possible effects within the Delaware River Basin.

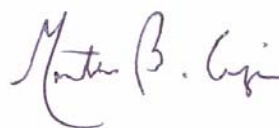
We thank the speakers and participants who committed their time to attend this event. Special thanks are offered to the water policy forum's organizing committee for their contributions, namely: Amy Boyd, Martha Corrozi, Andrew Homsey, Gerald Kauffman, Dr. Jerome Lewis, Angelina Micheva, Nicole Minni, Robert Molzahn, Dr. Tom Sims, and Melissa Zechiel.

These proceedings can be found online at [www.wr.udel.edu](http://www.wr.udel.edu). We urge you to mark your calendars for October 2007, the month in which the next annual Delaware Water Policy Forum will be held.

Regards,



Mr. Robert F. Molzahn  
President  
Water Resources Association of the Delaware River Basin



Martha B. Corrozi  
Watershed Analyst  
Water Resources Agency  
Institute for Public Administration  
University of Delaware

*Proceedings Editors: Angelina Micheva and Melissa Zechiel, Graduate Research Assistants, Water Resources Agency, Institute for Public Administration, University of Delaware.*



## AGENDA

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7:30 **Registration and Refreshments**

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8:30 **Welcoming Remarks**

*Dr. Jerome Lewis, Director, Institute for Public Administration (IPA), University of Delaware (UD)*

*Dr. J. Thomas Sims, Director, Delaware Water Resources Center (DWRC), UD*

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8:50 **Keynote Speaker – Overview of the Delaware River Basin and the Competing Environmental, Industrial and Economic Issues in the Basin**

*Robert Molzahn, President, Water Resources Association of the Delaware River Basin (WRADRB)*

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9:25 **Panel – Challenges and Opportunities for a Working River**

*Moderator: Robert Tudor, Deputy Director, Delaware River Basin Commission (DRBC)*

- **Regulatory Initiatives**

*Kevin Donnelly, Director, Division of Water Resources, Delaware Department of Natural Resources and Environmental Control, (DNREC) and Alternate Commissioner to the DRBC*

- **Maintaining the River**

*Mike Arabatzis, Chief of Planning Division, U.S. Army Corps of Engineers, Philadelphia District*

- **Emergency Response**

*Gerald Conrad, U.S. Coast Guard*

- **Water Supply Concerns**

*Christopher Crockett, Ph.D., P.E., Philadelphia Water Department*

- **Maritime Issues**

*Dennis Rochford, Maritime Exchange for the Delaware River and Bay*

- **Industry Perspectives**

*Marc Gold, Esq., Manko, Gold, Katcher & Fox, LLP*

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10:30 **Break**

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10:45 **Panel – Challenges and Opportunities for an Environmental River**

*Moderator: Gerald J. Kauffman, P.E., Director of Watershed Policy, IPA-WRA, UD*

- **Reporting on “The State of the Delaware River Basin” Report**

*Jessica Rittler Sanchez, River Basin Planner, DRBC*

- **Living Resources: Flora and Fauna in the Delaware Estuary**

*Kathy Klein, Executive Director, Partnership for the Delaware Estuary*

- **Successes in Fish and Shellfish Restoration in the Delaware Estuary**

*Roy Miller, Administrator of Fisheries, Division of Fish and Wildlife, DNREC*

- **Water Quality and Restoring Oysters in Delaware Bay**

*Dr. John N. Kraeuter, Associate Director, Haskin Shellfish Research Laboratory, Institute of Marine and Coastal Sciences, Rutgers University*

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11:45 **Panel – Audience Survey: Feedback and Discussion**  
*Moderator: Gerald J. Kauffman, P.E., Director of Watershed Policy, IPA-WRA, UD*

- **Environmental Comments**  
*Richard A. Fleming, Ph.D., Advocate, Delaware Nature Society*

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12:30 **Buffet Lunch**

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1:45 **Panel – Recent Developments in Water Law and Possible Effects within the Delaware River Basin**

*Moderator: Robert Collins, Esq., Schnader Harrison Segal & Lewis LLP*

- **Kenneth Warren, Esq.**  
*Wolf, Block, Shorr and Solis-Cohen LLP and General Counsel to DRBC*
  - **Timothy Weston, Esq.**  
*Former Commissioner Representing Pennsylvania, DRBC and Kirkpatrick & Lockhart Nicholson Graham LLP*
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**The Delaware: Challenges and Opportunities Affecting a Working and  
Environmental River  
Delaware Policy Forum Series No. 6  
University of Delaware, Clayton Hall  
Monday, October 16, 2006**

**Welcome to the Delaware Policy Forum Series**

*Dr. Jerome Lewis, Director, Institute for Public Administration, University of Delaware*

*Dr. J. Thomas Sims, Director, Delaware Water Resources Center, University of Delaware*

***Abstract:***

Dr. Jerome Lewis and Dr. J. Thomas Sims welcomed attendees from government, academia, industry, nonprofit organizations, and the general public to the sixth annual Delaware Water Policy Forum addressing the Delaware River and the challenges and opportunities affecting this working and environmental river. The speakers acknowledged the people involved in the event preparation and thanked them for all of their efforts in organizing this event. Both Dr. Lewis and Dr. Sims introduced the theme of the forum, the Delaware River, and they noted the significance of the river in the Mid-Atlantic region. They spoke of the different aspects of the river and noted that the nature of the activities related to the river range from biological, recreational, water supply, marine operations, and industry-resource based, and these issues would be incorporated into the forum discussion. Gerald Kauffman introduced the keynote speaker.

***Biographies:***

Dr. Jerome Lewis is the first Director of the University of Delaware's Institute for Public Administration (IPA), which was founded in 1973. Dr. Lewis is a member of the faculty in the School of Urban Affairs and Public Policy and teaches graduate courses in public administration and public policy. IPA links the research and resources of the University of Delaware with the management, information, and leadership needs of schools and local, state, and regional governments in the Delaware Valley. IPA provides assistance to agencies and local governments through direct staff assistance and research projects as well as training programs and policy forums.

Dr. J. Thomas Sims has had a long professional career at the University of Delaware as Director of the Delaware Water Resources Center (DWRC), Director of the Institute of Soil and Environmental Quality, Professor of Soil and Environmental Chemistry, and currently as the Associate Dean for Academic Programs and Research in the College of Agriculture and Natural Resources. Dr. Sims earned a B.S. in Agronomy in 1975 from the University of Georgia, an M.S. in Soil Fertility and Plant Nutrition in 1978 from the University of Georgia, and a Ph.D. in Soil Chemistry in 1982 from Michigan State University. Dr. Sims has organized and participated as an invited speaker in 12 symposia at ASA/CSSA/SSSA national meetings and 26 symposia in international meetings and for other professional societies. He has also served as a technical advisor at state, regional, national, and international levels for agencies responsible for water quality protection (Cooperative Extension, local soil Conservation Districts, USDA-NRCS, USGS, USEPA) on development and implementation of nutrient management strategies and environmental policies that prevent nonpoint source pollution of surface and ground waters.

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## Keynote Speaker – Overview of the Delaware River Basin and the Competing Environmental, Industrial and Economic Issues in the Basin

*Robert Molzahn, President, Water Resources Association of the Delaware River Basin*

### **Abstract:**

Extending 330 miles from its headwaters to its mouth where it enters the Atlantic Ocean, the Delaware River is the longest un-dammed river east of the Mississippi. Its 12,765-square-mile drainage area in four states serves 15 million people, or about five percent of the nation's population, with a drinking water supply. It also provides water for agriculture, mining, industry, oil refineries, and electric power production facilities. The ports in Philadelphia and Wilmington comprise the largest freshwater port complex in the world and the fifth largest port in the nation, receiving 2,700 vessels each year.

**The Delaware:  
An Incredible River**

- It is the longest un-dammed mainstem river east of the Mississippi extending 330 miles from Hancock, NY to the mouth at Delaware Bay.
- It has 216 tributaries.
- It has 12,765 square miles of drainage- 50.3% in PA, 23.3% in NJ, 18.5% in NY and 7.9% in DE.
- It serves 15 million people (5% of the nation's population) who rely on the Delaware for water supply needs.
- It provides a water supply (out-of-basin) of up to 800 MGD to NYC and up to 100 MGD to northern NJ.
- Yet, the Delaware Basin watershed is only 0.4% of the continental U.S. land area and only a days drive from 23% of the U.S. population.

Source: DRBC

**WATER RESOURCES ASSOCIATION  
OF THE DELAWARE RIVER BASIN**

Despite the working nature of the Delaware, three quarters of the non-tidal river is now included in the National Wild and Scenic Rivers system. Downstream from the New York City reservoirs, the river supports a wild trout fishery and an important regional economy. American shad and other species of herring have returned to the Delaware as well as a thriving striped bass population. Canoeing, kayaking, and tubing in the upper and lower Delaware (above Trenton) are important recreational activities. One of the largest heron rookeries in the northeast United States is on Pea Patch Island near New Castle, Delaware. Riverfront restoration projects on the Philadelphia, Camden, Chester, and Christina River waterfronts are in high gear and provide wonderful opportunities to the region for tourism and recreation.

Yet the Delaware is not without controversy, and some major challenges and opportunities exist. The Delaware/New Jersey/Pennsylvania borders and their governance are continuing issues. The dredging of the shipping channel to 45 feet and locating dredge spoils have been contentious issues that are still unresolved. Likewise, achieving the polychlorinated biphenyls (PCBs) Total Maximum Daily Load (TMDL) and other TMDLs as they are developed will be long-term challenges.

Other challenges to consider will be:

- Developing pollutant trading policies and implementation procedures.
- Managing droughts and floods on the Delaware River.
- Making room for more power plants.
- Assuring water supply protection (both quality and quantity).
- Importing, storing, and/or processing fuels including ethanol.
- Sustaining fisheries resources.
- Planning, reacting to, and monitoring emergencies (EWS).
- Reviewing and developing new MOUs of permitting/enforcement responsibilities between DRBC and each basin state.

- Updating and developing a comprehensive water use and supply database in all four basin states.
- Implementing other parts of the Delaware Basin Water Resources Plan signed in September 2004.

The Delaware is many things to many people. The challenge and opportunity we face is to use the river wisely and with forethought.

***Biography:***

Robert Molzahn has over 35 years of experience in the environmental and water resources field. He has been the President of the Water Resources Association of the Delaware River Basin (WRADRB) since June 2001, a nonprofit advocacy and educational organization focusing on issues that affect the Delaware River Basin and its users. Prior to his appointment as President, Mr. Molzahn served on WRADRB's Board of Directors starting in 1978 and later on its Executive Committee. He also is the current Chairman of the Delaware River Basin Commission's Water Management Advisory Committee. Mr. Molzahn recently completed an environmental consulting assignment for the Riverfront Development Corporation of Delaware where he served as the Project Manager for the Russell W. Peterson Urban Wildlife Refuge and Visitor Center. The Refuge's 211-acre marsh restoration effort is now complete and is a major component of the Christina Riverfront redevelopment project in downtown Wilmington, Delaware.

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**Panel – Challenges and Opportunities for a Working River**

*Moderator: Robert Tudor, Deputy Director, Delaware River Basin Commission (DRBC)*

***Biography:***

Robert Tudor was appointed Deputy Executive Director of the Delaware River Basin Commission on October 1, 2001. The DRBC is an interstate/federal commission that provides a unified approach to water resource management without regard to political boundaries. Prior to joining DRBC, Mr. Tudor served more than twenty years in several capacities with the New Jersey Department of Environmental Protection (NJDEP). As Deputy Commissioner, he oversaw Planning and Science, Land Use Management, and Historic Resources functions. Mr. Tudor was also Assistant Commissioner for Environmental Planning and Technology, Division of Watershed Management, Coastal Planning and Program Coordination, and the Office of Air Quality Management. He was Administrator of the Office of Environmental Planning from 1996 to 1998, served as Program Director for the Delaware Estuary Program from 1993 to 1995, and prior to that was the Administrator of the Land Use Regulation Program. Mr. Tudor is a graduate of Rutgers College and the University of Connecticut.



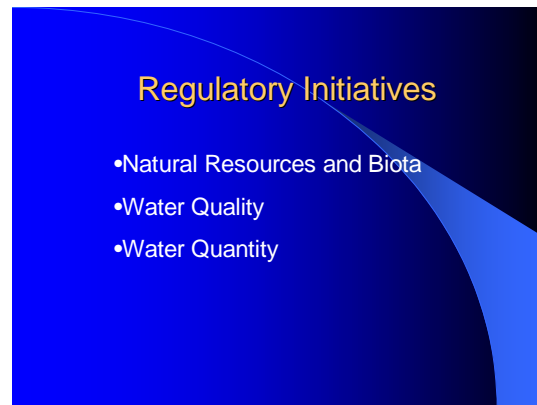
## Regulatory Initiatives

*Kevin Donnelly, Director, Division of Water Resources, DNREC and Alternate Commissioner to the DRBC*

### **Abstract:**

The working nature of the Delaware River results from its significance as a resource base for many industries and the economic development of the region. For this reason, regulatory activities are necessary to better manage and operate the river as such. For the Delaware River and Bay, the issues can be grouped in three major categories: natural resources, water quality, and water quantity.

Traditionally, focus is given to the effects of impingement/entrainment on fish and other organisms by non-contact cooling water pumped in the river. The July 2004 EPA regulation pertaining to acid cooling intakes for power plants requires reducing fish mortality by 80-95 percent. This reduction goal presents challenges to facilities because they must assess sediment and debris mainly up and down river as well as navigation needs in order to implement their intake filters.



Within the natural resources and biota, fisheries are also an important industry, particularly harvesting oysters, horseshoe crabs, and finfish. Some of the recent actions undertaken concerning these species include:

- Oyster restoration projects
- Finfish: consumption advisories
- Habitat: bottom mapping, the Partnership for the Delaware Estuary key habitat inventory, main channel deepening, and implication of upstream flow management regimes

The passing of the federal legislation for TMDLs introduced a new regulation requirement related to water quality. In addition, the TMDL requirements for PCBs in Zones 2–6 need to be set. An expected development is the adoption of TMDLs for dioxin scheduled for 2011. Other regulatory initiatives concerning water quality feature discharger track-down studies and pollution minimization plans. A recent illustration of a water quality issue is the case of the hydrolysate substance that is slated to be transported to DuPont for treatment and the implications of its potential disposal into the Delaware River. The federal agencies' (EPA and CDC) response has been an objection based on the expected fish kills and health concerns.

Water quantity marks the other big category of regulatory activities along the Delaware River. The initiatives in this area usually target flood management and modeling in order to meet drinking water needs. The following are items on the water quantity regulation agenda:

- Governor's request
- RFAC activities
- Up-basin and down-basin issues: flood control and drinking water
- Tributaries
- Special protection designation(s)

**Biography:**

Kevin C. Donnelly has served as the Director of the Division of Water Resources at DNREC since September 1999. As Director, Mr. Donnelly represents the state on the DRBC, the Statewide Labor Management Commission, several national estuary programs, the Association of State and Interstate Water Pollution Control Agencies, and various USEPA regional committees. Prior to becoming Director, Mr. Donnelly served eight years (1991–1999) as the Environmental Program Administrator for District Operations in the Division of Soil and Water Conservation, DNREC. In March 2004, he was awarded the Water Resource Association Samuel S. Baxter Memorial Award. Mr. Donnelly also worked for the Delaware Department of Agriculture as a planner in Agricultural Lands Preservation and as a forester with the State Forest Service. From 1989–1990 Mr. Donnelly became the first Department of Agriculture employee in the Governor’s Management Fellows Program. From 1988 until 1992 he served as Vice-Mayor and elected member of the Wyoming Town Council. He also served as Chair of the Camden-Wyoming Sewer and Water Authority from 1991–1992. Mr. Donnelly received a B.S. with Distinction in Forestry with a minor in Land Use Planning from the University of Maine in Orono and successfully completed the USDA-Forest Service continuing Education Program for Natural Resource Managers.

**Maintaining the River**

*Mike Arabatzis, Chief of Planning Division, U.S. Army Corps of Engineers, Philadelphia District*

**Abstract:**

The U.S. Army Corps of Engineers faces significant challenges, as well as opportunities, in the years ahead. The shrinking federal budget, particularly in regard to water resource agency funding, will necessitate solving problems in a creative, cost-effective manner.

Specific to the Delaware River Basin, the geographic responsibility of the Corps’ Philadelphia District, major challenges and opportunities include:

- Flood damage reduction
- Environmental enhancement and sustainability
- Maintenance of a competitive port system
- Beneficial use of dredged material



*Flood Damage Reduction:* As evidenced by recent recurrent flood events, most notably the June 2006 storm, flooding is a major problem in the basin. Particularly as a result of steadily increasing development, impermeable surfaces are created that continually limit places for stormwater to safely run off and infiltrate into the ground. Innovative solutions will be required, with the evaluation of a mix of structural and nonstructural measures to reduce recurrent flood events.

*Environmental Enhancement and Sustainability:* Philadelphia District has been a strong advocate for the environment. Ecosystem restoration has been the primary purpose of a number

of recently constructed projects, including enhancement of migratory bird habitat in Lower Cape May Meadows, construction of fish ladders at the Batsto and Cooper Rivers in New Jersey, and demolition and removal of an obsolete local dam on the Neversink River in New York. Environmental restoration of abandoned mines will also alleviate problems to the ecosystem caused by acid mine drainage.

*Maintaining a Competitive Port System:* The Philadelphia District maintains more than 550 miles of navigable waterways, including the 40-foot deep Delaware River channel, which extends from Philadelphia to the Atlantic Ocean. The Delaware River ports handle in excess of 100 million tons of commerce annually. The proposed channel deepening to 45 feet holds promise to allow the region to remain competitive, particularly as the next generation of larger container vessels call on the ports situated along the U.S. East Coast.

*Beneficial Use of Dredged Material:* A collaborative effort with our stakeholders is necessary to solve the looming problem of a potential shortfall in sufficient capacity for the disposal of dredged material resulting from maintenance of the region's navigation channels. The potential use of dredged material to restore abandoned mine areas offers a two-fold accomplishment: freeing up disposal capacity to maintain a competitive navigation system, while restoring surface-mined land and improving the adverse ecosystem effects from acid mine drainage.

***Biography:***

Mr. Minas M. (Mike) Arabatzis assumed his current duties as Chief of the Planning Division for the Philadelphia District, Corps of Engineers in March 2003. Mr. Arabatzis started his career with the New York District, Corps of Engineers in February 1975 as an engineering intern, and in 1978, Mr. Arabatzis transferred to the North Atlantic Division, Corps of Engineers, where he served most of his career in the Plan Formulation Branch, Planning Division. During his 31-year career with the Corps, Mr. Arabatzis served as a regulatory engineer, planning studies manager, DERP-FUDS program manager, and, most recently prior to becoming Chief of Planning at Philadelphia, as the Team Leader of the Plan Formulation and Quality Assurance Team at the North Atlantic Division where he was responsible for overseeing the Civil Works Planning program for the five districts within the region (New England, New York, Philadelphia, Baltimore, and Norfolk). He has extensive experience in the Corps' Civil Works missions for Flood Control, Navigation, Environmental Restoration, and Hurricane and Storm Damage Reduction.

Mr. Arabatzis received a B.S. in Civil Engineering from City College of New York and a Masters degree in Civil Engineering (Water Resources) from the Polytechnic Institute of New York.

## Emergency Response

Gerald Conrad, U.S. Coast Guard

### **Abstract:**

The diverse nature of the uses of the Delaware River translates to both challenges and opportunities when it comes to emergency response. The need to be timely, prepared, and ready to act requires constant communication and coordination.

With regard to communication, it is essential to involve multiple stakeholders and cover the wide-scope of activities related to the uses of the river. As the territory of the Basin is part of three states and extends to two federal/EPA regions, managing this process can be challenging and requires effort to ensure the interests of all sides are considered.

The Delaware River's significance in the region brings together many issues ranging from the environment to the economy, which leads to the accumulation of a lot of information. To further complicate matters, there are many organizations, agencies, and staff members, whose roles and capabilities are not always defined clearly with regard to providing assistance to the Coast Guard in emergency response.

Since security and environmental work are processes, it is important to maintain the public's interest and fight apathy. The fluctuating participation in the Area Committee and Area Maritime Security Committee can be a good indication of the level of public involvement. The efficiency of the technical equipment and the consistency of the hardware and software are additional factors to consider in ensuring coordinated action. With the rapid rate of technology development, the government is not always up-to-date in utilizing the capabilities of security innovations, and improving these capabilities can lead to better results. Unfortunately, limited resources make it difficult to keep up with the increasing demands of the environment in which the Coast Guard operates.

**Emergency Response**

**Challenges:**

- Communication
- Maintaining Interest/Fighting Apathy
- Managing Information
- Identifying and Including All Maritime Stakeholders
- Resource Limitations

**Opportunities:**

- Geographic Location
- Maritime Stakeholders Have a Great Deal of Experience and Expertise
- Active Area Maritime Security Committees

On the positive side, the location of the basin presents certain advantages. For example, Philadelphia hosts the regional headquarters of EPA, FEMA, and USACE, thus facilitating coordination among the federal agencies in the basin. In addition, a variety of industries utilize the river for commercial purposes, and these industries have been an impetus for various initiatives that apply the industries' expertise and experience. Both the Area Committee and Area Maritime Security Committee have been very active entities. In addition, the Area Committee has been in operation for a long time, making it possible for many participants to become familiar with each other and assist in the cooperation of the entities in the basin.

The existence of the Area Contingency Multi-hazard Plan can also be added to the list of accomplishments. This plan addresses the occurrence of oil spills, radiological incidents, hazardous substances release, biological incidents, and terrorist events. The plan places greater emphasis on preplanning for incidents, and sensitive areas are well documented in the plan. Another accomplishment is the creation of the Federal Advisory Committee that consists of 27

representatives from various organizations who will report on ways to prevent and respond to oil spills on the Delaware River and Bay. An Ecological Risk Assessment has also been initiated.

**Biography:**

Mr. Jerry Conrad is a civilian employee of the Coast Guard and a Master Chief in the Coast Guard reserve. Mr. Conrad was mobilized for Desert Storm, serving in a Port Security Unit in Saudi Arabia. He was also on active duty for two years after the September 11th attacks in 2001 and served in various capacities throughout the Port of Philadelphia. After his two-year activation, he accepted a position as the Contingency Planning Division Director for Sector Delaware Bay. In this role, Mr. Conrad’s responsibilities include the maintenance of the Area Contingency Plan, the Development of the Continuity of Operations Plan, the Port of Safe Refuge guidelines, Maritime Firefighting Plan, and other Coast Guard-specific response plans.

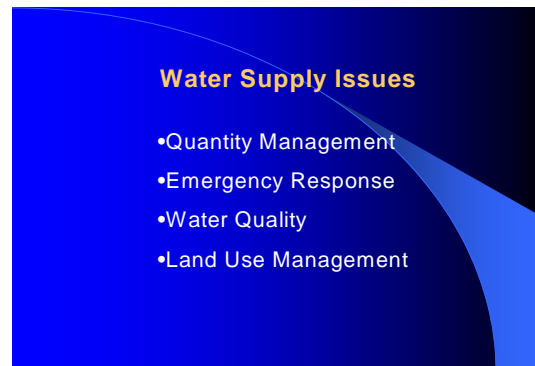
**Water Supply Concerns**

*Christopher Crockett, Ph.D., P.E., Philadelphia Water Department*

**Abstract:**

Traditionally water supply managers were responsible for water management only during floods and droughts. However, now it is essential to consider new issues related to water supply. Some aspects added to the agenda include: quantity management, emergency response, water quality, and land use management.

As stated in previous presentations, there is a 20 percent increase in the water quantity demand in the basin. This increase is a cumulative effect of development and growth. Due to this increase in water demand, water supply managers need to be prepared to answer questions such as whether the system will be able to handle population growth and settlement in the green areas of the basin. The change in the land use patterns is also indicative of the trend of development and rising demand. The water supply concerns should not be underestimated because, as history has shown, ancient civilizations collapsed due to the failure to manage water supply.



Security and emergency response bring additional responsibilities to water supply managers as there are 5,000 NPDES sites, 10,000 regulated sites (e.g., superfund sites, oil, arsenic, and cyanide spills, etc.) in the watershed. These pollutant sources have a major impact because the quantity of one spilled barrel can shutdown half of the water supply. A catastrophic event causing a situation where the water supply must be cutoff is not an “if situation” but a “when situation,” and strategic plans must be in place to ensure that citizens will have access to water in these types of emergency situations. Water supply managers are concerned that there are not TMDL standards for drinking water contaminants.

**Biography:**

Dr. Christopher Crockett is Manager of Watershed Protection for the Philadelphia Water Department’s (PWD) Office of Watersheds. He is responsible for managing PWD’s stormwater, drinking source water protection, and watershed partnership programs. Dr. Crockett has been an integral part and leader in the teams that have received over three million dollars in grant funding, won seven regional and national awards, and developed national models for environmental integration. A few of the highlights of his regional and national environmental accomplishments include: serving as a founding member of the Schuylkill Action Network, developing a model for Stormwater Management Requirements for Development in Philadelphia, and creating the Delaware Valley Early Warning System.

In addition to these accomplishments, Dr. Crockett is also a member of the Board of the Water Resources Association of the Delaware River Basin and is an adjunct professor in Civil and Environmental Engineering at Drexel University. He is also a board member of the Greenwoods Charter School in Philadelphia.

**Maritime Issues**

*Dennis Rochford, Maritime Exchange for the Delaware River and Bay*

**Abstract:**

The Delaware Maritime Exchange has been in operation since 1875, providing a means for regional collaboration and advocacy of port interests and commercial activity on the river among Delaware, New Jersey, and Pennsylvania.

Maritime operations represent a significant part of the economies of the three states. In addition, it is expected that during the 2005–2015 period the amount of exports and imports to the United States will double, thus generating additional business. As the Pacific imports increase, the West Coast ports will be full and excess cargo will shift to the East Coast. Anticipating these developments is a main issue facing the maritime operations on the Delaware River and drives the need to deepen the channel from 40 to 45 feet. The channel deepening will allow the ports to be suitable for bigger ships and will retain the river’s competitiveness. This improvement will ensure sustainability of jobs and port-related activities.

The needs of the industry must be defended and considered as the Transport Security Administration (TSA) and Coast Guard regulations move to Phase I of the Transportation Worker Identification Credential (TWIC) Program deployment. The industry also endorses amendment of the Water Resources Development Act concerning the decommissioning of Corps Hopper Dredge McFarland. It is acknowledged that security is an ongoing process and needs to be supported by grant funding. Sufficient resources should be provided to the Coast Guard, Customs Border Protection (CBP), and other agencies to manage their increased responsibilities.

**Maritime Issues**

- Support Delaware River Main Channel Deepening Project and Financing.
- Support the Amendment to the the Water Resources Development Act Regarding the Decommissioning of the Corps Hopper Dredge McFarland.
- Defend the Needs of Industry as TSA and Coast Guard move into Phase I of TWIC deployment.
- Support Ongoing Port Security Grant Funding.
- Provide Sufficient Resources for the Coast Guard, CBP, and Other Agencies to Handle Increasing Responsibilities.



**Biography:**

Dennis Rochford is President of the Maritime Exchange for the Delaware River and Bay, a non-profit trade association serving port businesses throughout Pennsylvania, New Jersey and Delaware. In addition to managing the association’s staff and overseeing the development of the port community’s automation network, Mr. Rochford represents the regional port community to government officials in Washington, DC., Harrisburg, Pa., Trenton, NJ., and Dover, Del., concerning a range of key issues critical to the success of the Delaware River regional port complex. In November of 2001, Mr. Rochford organized the Free Trade in Steel Coalition (FTSC), an alliance of more than 80 U.S. port authorities, terminal operators, maritime labor unions, and related transportation organizations concerned about the loss of port and transportation jobs resulting from the Section 201 tariffs. Mr. Rochford is a founding member and Past President of the National Association of Maritime Organizations and serves as Chairman of the North Atlantic Ports Association Maritime Committee. He serves on the Board of Directors of the American Institute for International Steel, Ports of Philadelphia Maritime Society, the Port of Wilmington Maritime Society, the Chilean American Chamber of Commerce, and the PENJERDEL Council. Mr. Rochford was elected a Member of the American Bureau of Shipping in 2001. He also serves on the Board of Directors of the Kalmar Nyckel Foundation and is a member of the Delaware Health Care Commission and the Delaware Health Fund Advisory Committee.

**Industry Perspectives**

*Marc Gold, Esq.*

*Manko Gold Katcher & Fox LLP*

**Abstract:**

The industry takes a practical approach toward issues regarding the working aspect of the Delaware River. It acknowledges the need to apply a holistic approach for identifying priority concerns and developing strategies to address them. All functions are part of a system and if this is taken into consideration solutions will be more effective.

Assessing competing and overlapping regulatory regimes can eliminate duplicating efforts and can facilitate industry operations. Instead of adding to the list of burdensome procedures, the regulated community should participate and collaborate in the development of unconventional solutions to prioritize environmental issues without the overlay of current pollution control laws.

A recommended principle for this process is greater reliance on good science, as opposed to policy determination driven by political considerations.

Mature industries are seeking ways to improve and solve identified problems. The presentation pointed out that the existing laws may have a “chilling effect” on those who voluntarily attempt to implement solutions fearing that their new approach will become mandated with penalties and enforcement. The advancement of environmental objectives will be more

**Industry Perspectives**

- Take a holistic watershed approach to identify priority issues and develop strategies to address them.
- Assess the competing and overlapping regulatory regimes to eliminate duplication of effort.
- Rely more on good science and less on policy determinations driven by political considerations.
- Look for opportunities to encourage the regulated community to participate collaboratively in developing unconventional solutions to priority environmental issues without the overlay of current pollution control laws.

successful if the legal structure is harmonized with the industry will. A suggested strategy is to replace the command and control approaches of the early environmental movement with more progressive programs aimed at solving real environmental problems using more effective measures of progress, for example the NPDES program.

**Biography:**

Marc E. Gold is a founding partner of Manko, Gold, Katcher & Fox, LLP, a 25 – lawyer firm which concentrates its practice exclusively in environmental law and litigation. He currently serves as the firm’s Managing Partner. Formerly, Mr. Gold served as a Section Chief in the Legal Branch of the USEPA, Region III. As an Adjunct Assistant Professor at Temple University’s School of Engineering, he taught a course on environmental regulations. Mr. Gold has more than thirty years of experience in environmental law. His practice focuses on all aspects of environmental regulation and counseling covering solid waste, site remediation, and water pollution issues including the TMDL program. Mr. Gold assisted in developing the Pennsylvania Land Recycling and Environmental Remediation Standards Act of 1995, the cornerstone of Pennsylvania’s brownfields and site remediation program. As part of that work, he participated in developing the regulations and policy guidance that supports the Pennsylvania remediation program. In addition, he has handled several significant matters involving water quality issues including TMDLs, NPDES permits, and sewage facilities planning.

Mr. Gold is a frequent lecturer and author on a myriad of environmental law topics relating to site contamination and brownfields issues, environmental auditing, and water quality programs. He has been listed in *The Best Lawyers in America* since 1989 and is also listed in *International Corporate Law’s Guide to Environmental Law Experts*. Mr. Gold received his J.D. from Villanova University School of Law and received his B.A. from American University.

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**Panel – Challenges and Opportunities for an Environmental River**

*Moderator: Gerald J. Kauffman, P.E., Director of Watershed Policy, Water Resources Agency - Institute for Public Administration, University of Delaware*

**Biography:**

Gerald Kauffman is the Director of Watershed Policy at the Water Resources Agency (WRA) of the Institute for Public Administration (IPA) at the University of Delaware. Mr. Kauffman is responsible for providing watershed technical and policy assistance to state and local governments in Delaware and the Delaware Valley through the university’s public service, education, and research role. These responsibilities include appointments as the State Water Coordinator (by state law), the Delaware Co-coordinator for the Christina Basin Clean Water Partnership, and member of the New Castle County Resource Protection Area Technical Advisory Committee.

Mr. Kauffman teaches courses in Regional Watershed Management, Water Resources Engineering, and Watershed Engineering, Planning, and Design and was co-founder of the University of Delaware’s Experimental Watershed. Mr. Kauffman received a Master of Public Administration (MPA) degree with specialization in watershed policy from the University of Delaware’s School of Urban Affairs and Public Policy. He earned a B.S. in Civil and Environmental Engineering with a concentration in water resources from Rutgers University and



is a Certified Public Manager awarded by the Rutgers University Graduate Program in Public Administration. Mr. Kauffman is a registered Professional Engineer (P.E.) who has been licensed in four states (New Jersey – 1988, Wisconsin and Illinois – 1990, and Delaware – 2000) and has over twenty years of experience in water resources management.

## Reporting Environmental Conditions: The First State of the Basin Report

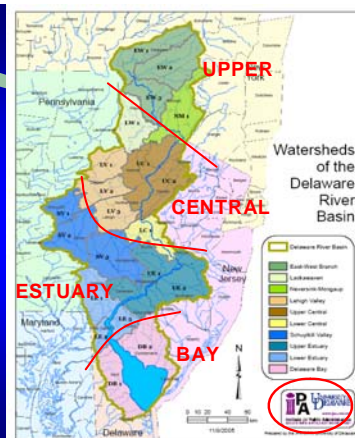
Jessica Rittler Sanchez, River Basin Planner, Delaware River Basin Commission

### Abstract:

The Delaware is the longest un-dammed river east of the Mississippi, provides water for a number of users — some extraordinarily finicky about quality, including pharmaceuticals and drinking water for 15 million people — and is home to the world’s largest freshwater port complex, which generates \$19 billion in economic activity annually. Sharing its 13,000–square–

**Reporting Units**

- 4 Regions
- 10 watershed groups
- 21 watershed reporting units
- Main stem river



mile watershed with six nuclear reactors, chemical plants, oil refineries, and cities and housing developments, are expanses of productive wetlands, mountains of sheltering forests, rest stops for millions of migratory birds, and thousands of miles of cold water streams that offer some of the most outstanding trout fishing in the world. Protecting this complex of life so that it sustains all of us is the responsibility of many. For this purpose, establishing the conditions in the Delaware River Basin is an essential step towards setting standards and prioritizing

issues that have to be addressed. The outcome of this process will also make it possible to evaluate performance on the goals outlined in the Water Resources Plan for the Delaware River Basin. In addition, the need for reporting stems from the requirement in the Commission Directive for a report on the main stem and the tributaries every five years.

The significance of the river on a regional level brings together diverse actors and makes the initiative a collaborative effort based on the principle for partnership. The compilation of the State of the Basin Report has a comprehensive nature that required introduction of a structure of analysis and categorization of collected data. Five main fields were identified for which conditions would be reported: water quality, hydrology/geomorphology, water supply/uses, land use and population, and living resources. The data collection and reporting process was based on the subwatershed level, derived from the original ten watersheds in the four regions of the basin for the purposes of the project. Twenty-one subwatersheds and reporting units were developed, responsibility for which was assigned based on geographical and other considerations.

The analysis relied primarily on existing data sources and no new data was collected, therefore some considerations applied to the data collection were data availability, data consistency, length of record of the data, and stressors/conditions related to the data. This method has limitations, but allows for the identification of gaps in monitoring, and inconsistent standards and assessments that can be turned into recommendations for improvements in future initiatives.

Recommendations for consideration for the next State of the Basin Report include: creation of indices, creation of a more sophisticated scale-dependent methodology, an earlier start, identification of additional funding sources, expansion of collaboration, and the addition of socio-economic indicators relevant to water resources.

**Biography:**

Jessica Rittler Sanchez is the River Basin Planner for the Delaware River Basin Commission (DRBC). Prior to joining DRBC, she was the Environmental Projects Coordinator with the New Jersey Office of State Planning. In that capacity, she was responsible for reviewing policy and program initiatives for water supply, wastewater management, stormwater management, sensitive landscape protection and watershed planning for the state of New Jersey. Since joining DRBC, her principal focus has been on the development and implementation of a 30-year Water Resources Plan for the Delaware River Basin, which was released in September 2004. That Plan has been supported by the Governors of New Jersey, New York, Pennsylvania, and Delaware as well as six participating federal agencies. Dr. Sanchez is currently working on the first State of the Basin Report, which DRBC expects to expand and revise on a five-year cycle. Her primary interests continue to focus on the value of cooperative regional planning for sustainable resource management. Dr. Sanchez holds a Master of City and Regional Planning (MCRP) and a Ph.D. from Rutgers University.

**Living Resources: Flora and Fauna in the Delaware Estuary**

*Kathy Klein, Executive Director, Partnership for the Delaware Estuary*

**Abstract:**

The Partnership for the Delaware Estuary (PDE) is a non-profit organization operating since 1996. It is one of the 28 National Estuary Programs authorized under the Clean Water Act. The Partnership works with the tidal portion of the Delaware River Basin. The focus of the Delaware Estuary Program’s works is a better understanding of the relationships between flora and fauna in the estuary that would enable improved resource prioritization and allocation for restoration work and protection.

Some distinguishing characteristics of the Delaware Estuary are that it includes 134 miles of the main stem river, has 784,000 acres of wetlands and open water habitats, is home to six million residents in its territory, and it is the habitat of the largest breeding horseshoe crab population in the world. An attempt to summarize and make public the variety of species living in the estuary is the publication of the book *Living Resources of the Delaware Estuary* that describes two hundred of the estuary’s flora and fauna inhabitants.



A particular approach that the PDE is trying to introduce is to look at the “community element of living resources” — the repeating assemblages of interacting species. Their effort in this direction has resulted in the development of *A Guide to the Natural Communities in the*

*Delaware Estuary and Key to Delaware Estuary Ecological Systems and Natural Communities.* These publications were produced in collaboration with NatureServe and other partners and concentrated on terrestrial communities.

The Partnership is currently completing a conceptual framework for defining natural resources and signature issues in the Delaware Estuary. This effort is being undertaken using a science-based approach, representing the first-ever attempt by the science and management community of the estuary to build consensus on what distinguishes this system from other nationally important estuaries. Based on information presented at the 2005 Delaware Estuary Science Conference and captured in the 2006 White Paper, this conceptual framework outlines ecologically significant fauna, flora, and habitats along with the greatest environmental threats to the Delaware Estuary. The framework will be broken up into the upper and lower estuary to show the differences in species between the two areas. The conceptual framework will be disseminated in a new brochure and will be used as the organizational basis for the new Delaware Estuary Information Gateway at the Partnership for the Delaware Estuary's website ([www.DelawareEstuary.org](http://www.DelawareEstuary.org)).

***Biography:***

Kathy Klein has served as the Executive Director of the Partnership for the Delaware Estuary, Inc. for the past eight years. During her tenure in this position, the organization has grown to include a staff of 11 with an annual budget of over \$2.5 million. Previously, Kathy was the Partnership's Program Director for two years. From 1992 – 1996, Kathy was the Director of Development and Communications for the Pennsylvania Environmental Council. In total, Kathy has over 22 years experience developing and implementing innovative environmental programs. Through these programs, Kathy has developed strong working relationships with people from local and region-wide community groups, non-profit organizations, government agencies, and the private sector. She holds a B.S. in Environmental Conservation from the University of Colorado.

**Successes in Fish and Shellfish Restoration in the Delaware Estuary**

*Roy Miller, Administrator of Fisheries, Division of Fish and Wildlife, DNREC*

***Abstract:***

Six species of anadromous fish range throughout the Delaware Estuary, and one of these (American shad) undergoes regular spawning migrations to the uppermost reaches of the basin into the East and West Branches of the Delaware River. Anadromous species have been the best indicators of water quality changes in the Delaware Estuary. After a long history of gross industrial and municipal waste discharges, the Delaware Estuary is a premier water pollution control success story that began in the 1930s, culminating when the last of the major municipal sewage treatment plants went online in 1987.

Improvements in dissolved oxygen concentrations in the main stem of the Delaware River were dramatic between the late 1960s and late 1990s. Although serious problems with less visible pollutants remain today and have resulted in fish consumption advisories for much of the Delaware Basin, the estuary as a whole has greatly benefited from these pollution control efforts and today supports viable sport and commercial fisheries throughout its length.

The most shining of these success stories is the restoration of the striped bass to the Delaware Estuary. Delaware stocks lagged behind Chesapeake and Hudson stocks when the East Coast states instituted harvest controls that triggered the restoration process beginning in the middle 1980s. Since the Delaware spawning stocks had been nearly extirpated, they had the longest road to recovery, but are now considered fully restored. Abundance surveys conducted annually on the Delaware River spawning grounds since the early 1990s will give managers advance warning if stocks should begin to decline. Other anadromous species such as American shad and the two species of river herring showed some definite signs of improvement in the 1990s, but the restoration for American shad in particular has stalled somewhat since the middle 1990s. Fish ladder installation and/or the removal of migration barriers show promise for the shad and herring family's future in the Delaware drainage systems. Delaware now has ten Alaska Steeppass ladders installed on Delaware tributaries to benefit primarily river herring migrations.



Shortnose sturgeons remain on the federal list of endangered species and Atlantic sturgeon may join them when ongoing reviews are completed. In the meantime Atlantic sturgeons remain protected from harvest, but their recovery projection is in decades rather than years. Among Delaware Bay species, summer flounder have not been fully restored, but their biomass coast-wide is on a trajectory to recovery. Unfortunately, the same cannot be said of weakfish, as rising natural mortality rates caused by predation and/or competition have stalled and apparently reversed the stock restoration process that looked promising in the middle 1990s. Among the shellfishes, Eastern oysters have suffered the most from shellfish pathogens and stocks are near all time lows. However, even here there is reason for optimism as massive public shell plantings to enhance oyster habitat in New Jersey and Delaware promise to benefit oyster spat sets and reverse the trend of recruitment failure that has driven down allowable harvest quotas to very low levels. Horseshoe crab stocks apparently were over-harvested in the middle 1990s, but institutional controls since then have resulted in improvements in recruitment. On the whole, there is reason for optimism concerning fish stocks in the Delaware Estuary, but we managers must be ever vigilant.

***Biography:***

Roy Miller is the Administrator of Fisheries for the Delaware Division of Fish and Wildlife within DNREC. Mr. Miller is a 31-year employee of the division, and he administers both freshwater and marine fisheries applied research and management programs for the state. Over the course of his 36-year career, his research and management interests have included anadromous fish restoration, aquatic vegetation control, power plant impacts to fishes, horseshoe crab management, fish diseases and fish contaminants, fish stocking, and interstate management of near-shore marine species.

Mr. Miller received a B.S. in Biology from Lafayette College and a M.S. in Fishery Biology from Cornell University. He is certified by the American Fisheries Society as a Fishery Scientist.

## Water Quality and Restoring Oysters in the Delaware Bay

*Dr. John N. Kraeuter, Associate Director, Haskin Shellfish Research Laboratory, Institute of Marine and Coastal Sciences, Rutgers University*

### **Abstract:**

Dr. Kraeuter discussed several major aspects of oyster population in the Delaware Estuary, specifically the significance of salinity levels for disease resistance, enemy and influence factors, and results of the application of a restoration technique.

In the estuary, salinity ranges from 28 parts per million (ppm) in the bay to 10 ppm upstream. Research has established a connection between the level of salinity and the distribution of disease, in particular MSX and Dermo. Long-term data (over 50 years worth) are available on basic oyster biology in the Delaware Bay. This data show trends in the oyster population and many of the fluctuations in the population can be attributed to these two oyster diseases. At present, an unprecedented period (six years) of low spat set has been observed, and there has been a relatively intense rate of disease found in the higher salinity areas. In addition to the disease caused by these parasites, oysters have numerous natural controls like space competition, drills, predation, and human activity. In spite of these challenges, placing shells in the appropriate areas greatly enhances settlement.

New Jersey and Delaware are in the process of restoring the natural oyster beds by providing clean substrate (shell) at the time of the year when oysters attach (set). The results from the New Jersey shell-planting project indicate positive outcomes that were expressed in the following: approximately 16,500 bushels of spatted cultch recovered and transplanted out of the 25,000 clamshell planted, 30 million oysters transplanted to the restoration site, and an estimated 13,393 bushel contribution to the 2006 oyster harvest. The accomplishments of the restoration program were backed by elected officials, and the project received additional funding to continue the revitalization efforts.

### **A Shellplanting Program**



- One of the most effective methods to increase oyster production is the planting of clean shell (cultch) at the appropriate time to provide a clean surface for the attachment (setting) of oyster larvae.

Water quality, or salinity, also impacts the oyster population. Sea level rise has undoubtedly increased the salinity level in the bay. In addition, human activities such as altering river discharges (dams), out-of-basin water transfers, removal of groundwater for drinking and irrigation, and channel deepening exacerbate the trend toward higher salinity. Drought has also caused saline incursion, which reduced protection against disease. In combination with environmental factors, such as disease, these man-induced changes in water quality pose a threat to the oyster population. The configuration of the Delaware Estuary leaves very little area for the oyster community to respond to changes in salinity levels.

### **Biography:**

Dr. John Kraeuter is the Associate Director of Haskin Shellfish Research Laboratory, Institute of Marine and Coastal Sciences, Rutgers University. He was educated at Florida State University (B.S.), College of William and Mary (M.S.), and University of Delaware (Ph.D.) and spent two



years as a Post Doctoral Associate at the University of Georgia Marine Institute. Most of his work has been on nearshore marine and estuarine benthos and fish and shellfish aquaculture.

Dr. Kraeuter has been active on scientific advisory panels at the federal, state, and local level and has testified before Congress. He has been involved with a number of scientific societies and has served in elected offices including president of these organizations. His current research is focused on bivalve mollusks, including the oyster and hard clam.

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## Panel – Audience Survey: Feedback and Discussion

*Moderator: Gerald J. Kauffman, P.E., Director of Watershed Policy, Water Resources Agency-Institute for Public Administration, University of Delaware*

## Environmental Comments

*Richard A. Fleming, Ph.D., Advocacy  
Delaware Nature Society*

### **Abstract:**

Delaware Nature Society (DNS) is the largest environmental organization in Delaware. It was established in 1964 with 30 full-time employees. DNS has been working in an advocacy role for the Delaware River, and there have been many changes over time in the issues and concerns related to the river. The competitive needs for the river have increased over time. The river provides a variety of benefits, and laws and regulations need to serve to balance these competing needs.

The increased public awareness of rising pollution levels and their detrimental consequences has led to “landmark” federal and state legislation in this field (Clean Water Act, National Pollutant Discharge Elimination System, Coastal Zone Act, etc.). Laws and regulations serve to balance the competing needs of the Delaware River. DNREC has enforcement responsibilities to protect and manage the state’s vital natural resources. The public has oversight interests and responsibilities to protect the natural resources and hold the industries and governing organizations accountable.

There are many challenges in managing the Delaware River. The challenges facing the Delaware involve finding ways to balance the competing commercial and quality-of-life interests in a way that preserves the Delaware River’s environmental assets, yet also protects this enormously valuable waterway for the benefit of future Delawareans. This results in challenges in the advocacy role as well. For example, a management tool like the Coastal Zone Act (CZA) 1971 (CZA signed into law) and 1999 (regulations became effective) is designed to protect Delaware’s coastal area from the destructive impacts of heavy industrialization and offshore bulk product transfer facilities. The Act is intended to protect the natural environment of the coastal areas and safeguard their use primarily for recreation and tourism. Although a great example of environmental protection, this act had a 28-year gap (1971

### **3. ENVIRONMENTAL CONCERNS\***

- |                        |                            |
|------------------------|----------------------------|
| 1. Process             | 5. <b><u>“Windows”</u></b> |
| 2. Liability           | 6. “Beneficial use”        |
| 3. Spoils sites        | 7. Monitoring              |
| 4. Dredging techniques | 8. Blasting                |

... and ...

### **9. “Surprises”**

\* DNREC, 4/12/2002

RAFleming, 10/16/2006



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– 1999) in its enforcement as a result of several parties’ concerns with the regulations, including industry’s economic concerns, environmentalists’ concerns that the laws were too vague, and the public’s concerns related to health. In this law, regulatory trade-offs are gained, the environment must be improved by a coastal zone project (industry concession), and an offset can be used to achieve improvement (public/industry concession). Although this law has been somewhat challenging in its acceptance and implementation, the results of the CZA to date are positive and the regulations have provided a clear path for industry permitting.

A looming issue for the Delaware River is channel dredging. Dr. Fleming discussed DNS’s opposition to dredging the Delaware River. He stated that the cost is grossly underestimated and according to his estimates, will be \$1 billion versus the \$277 million estimate that are currently being considered for this project. There are dozens of ways to calculate the costs of this project. Which costs are being estimated or talked about? In addition, the benefits of dredging are overstated; there is a hope for 23,000 jobs and \$100 million revenue. There are also unfavorable factors that must be considered such as 26 million cubic yards of spoils to dispose of once the dredging is complete. Another issue is that the environment will not be protected. Environmental concerns include: process, liability, spoils sites, “windows” for migration (animal lifecycles need to be agreed on to prohibit dredging during these times), and additional environmental concerns that must be considered. The liability issue for this project is not resolved. Who pays for the surprises that may be found or the cleanup that is necessary once the dredging process begins? Overall, there is a concern that there have been 55 deficiencies in the permits that have been identified. Dr. Fleming stated that the DNS does not support the dredging proposition in its current state.

***Biography:***

Dr. Richard Fleming is the Co-Chair of the Advocacy Committee at the Delaware Nature Society. Since 1995 Dr. Fleming has worked extensively on environmental issues in Delaware, primarily as a Delaware Nature Society (DNS) volunteer. He has served on the DNS Board of Directors and represented DNS on 20 committees established by Delaware governors or DNREC. In DuPont Research and Development, Mr. Fleming worked with a variety of hazardous chemicals and later managed programs leading to the commercialization of families of modified polymers for industrial and consumer use. Following retirement in 1991, he consulted in areas involving the manufacture, use, recycling, and safe disposition of plastics and other chemicals. He brings both environmental and industry perspectives to the discussion of environmental issues. Dr. Fleming received his Ph.D. in Physical Chemistry from Iowa State University.

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**Panel – Recent Developments in Water Law and Possible Effects within the Delaware River Basin**

*Moderator: Robert Collins, Esq., Schnader Harrison Segal & Lewis LLP*

***Biography:***

Robert Collins, Esq. is a member of the Executive Committee for Schnader Harrison Segal & Lewis LLP, and the former chair of their Litigation Department. Mr. Collins has more than 25 years of regulatory and litigation experience in environmental law and hazardous substance issues. A former enforcement attorney and manager at the U.S. Environmental Protection Agency, he now represents manufacturing, transportation, financial services, retail, and real

estate businesses with permit needs, claims, and transactional matters involving environmental or regulatory issues.

Mr. Collings received his B.A. cum laude from Harvard University in 1972 and his J.D. from Boston College in 1977. He has been a member of the Philadelphia Bar Association (1984-2005), the Pennsylvania Bar Association (1984-2005), and the American Bar Association. Mr. Collings has authored and lecturing on a variety of topics in the field. He has been listed in *Who's Who in American Law* (2005), *The Best Lawyers in America* (2005-2007), *The Chambers USA Guide* as among the top practitioners in environmental law in Pennsylvania (2004-2006); and was noted as a "Pennsylvania Super Lawyer" for environmental/land use law (2004-2006). In addition, he received the Water Resources Association Achievement Award in 1996 and the Environmental Protection Agency Bronze Medal in 1979 and 1981.

### **Kenneth Warren, Esq.**

*Wolf, Block, Shorr and Solis-Cohen LLP and General Counsel to DRBC*

#### **Abstract:**

The Delaware River is a modest resource when compared to the more grandiose rivers to the west. Americans asked about major rivers are far more likely to name the Mississippi, the Colorado, and the Columbia rivers than to think of the relatively small Delaware River. Nevertheless, the Delaware River is vital to millions of people who rely on it for drinking water, industrial production, agriculture, recreation, navigation, and other uses.

Recognizing the value of the river resource and the benefits to be gained from exercising their sovereign powers in a joint and coordinated manner, the basin states and the federal government formed the Delaware River Basin Commission in 1961 to provide the vehicle for their cooperative management of the River. The signatory parties to the compact conferred upon the commission's broad authority to manage water quantity and water quality as the governors of the basin states and a representative of the President may direct.



In light of the floods in 2005 and 2006, the basin states have asked the commission to examine mechanisms to increase flood protection within the basin, except where the commission declares a drought or catastrophe, the 1954 Supreme Court Decree in New Jersey v. New York, 347 U.S. 995 (1954), requires the unanimous consent of all decree parties, including New York City, to any action that may affect the diversions and compensating releases provided in the decree. At its September 27, 2006 meeting, the commission adopted a spill mitigation program for New York City's Delaware Basin reservoirs with the approval of the decree parties. The commission also established an interstate task force to develop a set of recommended measures for mitigating flooding impacts along the Delaware River and its tributaries. Reconciling flood mitigation goals with water supply, drought protection, navigation, fisheries enhancement, endangered species protection, water quality, recreational, and other needs and complying with the decree presents unique legal, policy and technical challenges.



Two additional initiatives that the commission is pursuing concurrently with its flood mitigation efforts are noteworthy. Regarding the non-tidal portion of the river, the commission has designated the Lower Delaware River as Special Protection Waters (SPW) on a temporary basis until water quality data are fully analyzed, impacts on the regulated community further examined, and existing water quality determined. SPW designation is designed to preserve water quality in river reaches that are of exceptional value. As a result of the temporary designation, some but not all of the SPW regulations are in effect for the Lower Delaware. Among the innovative aspects of the SPW program are requirements to control nonpoint source runoff.

The commission is also continuing to refine the TMDL for polychlorinated biphenyls (PCBs) in the Delaware River Estuary. The commission is already requiring certain dischargers to prepare pollutant minimization plans to reduce their PCB loadings. The commission and its Implementation Advisory Committee are considering methods of achieving water quality standards cost-effectively over time. The commission and other regulatory agencies are also discussing the advisability of proposing an adjustment to the existing PCB criteria and its implication for implementing the TMDL. Finally, the commission has performed the necessary modeling and scientific analysis for the PCB TMDL for the Delaware Bay and is refining the TMDL for the remaining portion of the estuary.

***Biography:***

Kenneth Warren, Esq. is a partner in Wolf, Block, Schorr & Solis-Cohen LLPs Philadelphia, Pennsylvania, office and serves as Chair of its Environmental Practice Group. He is a Past Chair of the American Bar Association Section of Environment, Energy, and Resources. He serves as an industry stakeholder representative on the Executive Council of the United States Environmental Protection Agency's National Environmental Justice Advisory Council. He represents clients in environmental litigation, regulatory, and transactional matters. He serves as outside general counsel to the Delaware River Basin Commission, a federal-interstate agency managing the water resources in the Delaware River Basin. He is listed for environmental law in *The Best Lawyers in America*, *International Who's Who of Environmental Lawyers* and Chambers USA's *America's Leading Lawyers for Business*. He graduated *magna cum laude* from the University of Pennsylvania School of Law in 1979 where he served on the law review.

**Timothy Weston, Esq.**

*Former DRBC Commissioner representing Pennsylvania now with Kirkpatrick and Lockhart Nicholson Graham*

***Abstract:***

Significant developments have occurred in the law governing water quantity and quality management over the past several years, including (1) evolving cases concerning the scope of federal jurisdiction over waters; (2) decisions concerning water transfers and NPDES permit requirements; (3) expanded and more stringent pass-by flow requirements; and (4) Clean Water Act §316(b) cooling water intake requirements and imposition of more stringent thermal limitations on certain uses.

The U.S. Supreme Court's June 2006 decision in *Rapanos v. United States* has created further uncertainty as to the precise limits of federal regulatory jurisdiction under the Clean Water Act,

both for purposes of wetland regulation and broader water quality regulation. In a classic 4-1-4 split decision, a plurality of four justices opined that federal jurisdiction should not attach to a wetland or waterway unless (1) the adjacent channel contains a water of the United States (i.e., a relatively permanent water body connected to traditional interstate, navigable waters), and (2) the wetland has continuous surface connection with that water, making it difficult to determine whether the water ends and the wetland begins. Justice Kennedy concurred with the result, but on the basis of a broader test requiring a “significant nexus” be found between the area to be regulated and traditional navigable waters, with that “significant nexus” to be judged on the basis of the statute’s goals and whether the area to be regulated significantly affects the chemical, physical, and biological integrity of other covered waters. As a result of the *Rapanos* decision, both EPA and Corps jurisdiction over areas such as intermittent streams, drainage ditches, and wetlands not directly connected with surface waterways has been thrown into considerable doubt. State laws and basin commission regulations are, in many cases, broader in scope; and we may anticipate increased emphasis on state and basin commission programs to address these areas where federal jurisdiction is in serious question.

Numerous public water systems in the Delaware Basin rely upon transfer of water between watersheds. The U.S. Supreme Court’s 2004 decision in *South Florida Water Management District v. Miccosukee Tribe of Indians* did not answer the question of whether or not an NPDES permit is required for such transfers. In *Catskill Mountains Chapter of Trout Unlimited v. City of New York*, the Second Circuit Court of Appeals ruled that the discharge of water drawn from one watershed into another bearing “pollutants” such as sediment requires an NPDES permit and attendant effluent limitations and treatment mandates to protect the receiving stream. Recently, EPA proposed controversial federal water quality rule amendments to expressly exclude from regulation under the NPDES program water transfers that convey water from one waterway to another, without subjecting the water to intervening industrial, municipal, or commercial use. The precise scope of what is or is not be subject to such permitting will significantly affect both existing operations and future water management.

#### Some key developments

- ❖ Cases concerning scope of federal jurisdiction under Clean Water Act
- ❖ Decisions concerning water transfers and NPDES permit requirements
- ❖ Expanded pass-by flow requirements, extensions to groundwater withdrawals
- ❖ Clean Water Act §316(b) cooling water intake requirements and more stringent thermal limits – implications for consumptive use

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Throughout the eastern United States, state and basin agencies are becoming increasingly aggressive in imposing pass-by flow conditions limiting not only surface water diversions, but also groundwater withdrawals, with the objective of protecting fish habitat. These regulatory impositions have been developing often with limited understanding of their cumulative impact on current and future water supply reliability, siting, storage requirements, and long-term implications for basins as a whole.

Implementation over the next several years of EPA regulations under Clean Water Act §316(b), dealing with cooling water intakes, coupled with imposition of more stringent thermal limitations on some dischargers, has broad implications for future consumptive use in the basin. The shift from once-through to recirculating cooling systems may result in lower withdrawal amounts, but significantly higher consumptive water use, with attendant impacts on low flows and drought management regimes.

**Biography:**

Timothy Weston, Esq. is a partner in the Harrisburg, Pennsylvania, office of Kirkpatrick & Lockhart Nicholson Graham, LLP, with more than 34 years of experience in environmental counseling and litigation, energy development, administrative, and legislative issues. His practice includes the representation of diverse interests, including both private enterprise and public agencies, in project development, natural resource management, and regulatory matters. Mr. Weston is a nationally recognized practitioner in the field of water law and natural resources management, and has published a variety of articles in the field. He has been honored with listings in *Best Lawyers in America*, Chambers USA's America's Leading Lawyers for Business, and *Super Lawyers*.

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**Exhibits**

Throughout the conference, displays were exhibited in the lobby by the following organizations:

- Partnership for the Delaware Estuary
- New Castle Conservation District
- Delaware Envirothon
- Delaware Section of the American Water Resources Association
- Delaware Water Resources Center
- University of Delaware, Institute for Public Administration-Water Resources Agency
- Water Resources Association of the Delaware River Basin
- White Clay Creek Wild and Scenic Management Committee

## 2006 Water Policy Forum Participants

Tobias Ackerman

Michael Albert  
Planner  
City of Dover

Kate Anderson  
Water Resources Engineer  
Johnson, Mirmiran & Thompson

Mike Arabatzis  
Chief of Planning Division  
U.S. Army Corps of Engineers/Phila. Dist.

Colleen Arnold  
Water Quality Manager  
City of Wilmington

Dominique Baron  
Environment Advocate  
Delaware Nature Society

Chuck Barscz  
Wild & Scenic Rivers Manager  
National Park Service

David Blair  
Vice President  
Metcalf & Eddy, Inc.

Steve Blanchard  
Delaware River Master  
U.S. Geological Survey

Anthony Bonasera  
Senior Hydrogeologist  
Maser Consulting

Jennifer Bowman  
Planner I  
DNREC

Amy Boyd  
Program Coordinator  
Delaware Water Resources Center

Laura Boyer  
Environmental Scientist  
DNREC

James E. Brown

Katherine Bunting-Howarth  
Principal Planner  
DNREC

Jennifer Campagnini  
Environmental Scientist  
DNREC

Chris Canning  
Verde Works LLC

Wayne Carvell  
Agricultural Engineer  
USDA-NRCS

Marianne Cinaglia  
Naamans Creek Watershed Advocate

William Cocke  
Water Supply Manager  
DNREC

Rachael Coffey  
Student  
University of Delaware

Kimberly Cole  
Environmental Scientist  
Delaware Coastal Program, DNREC

Priscilla Cole  
Delaware Center for Horticulture

Robert Collins, Esq.  
Schnader Harrison Segal & Lewis LLP

Paula Connolly  
Philadelphia Water Dept.

Gerald Conrad  
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Sven Conventz  
Graduate Research Assistant  
UD, IPA

Shelley Cook  
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Martha Corrozi  
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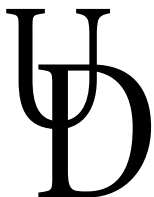


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