The ‘One Water’ Approach

AN INTEGRATION OF WATER RESOURCE MANAGEMENT
Today’s Presenters

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One Water Task Force
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What is the Scope of IWRM & Planning

- Groundwater
- Surface Water
- Water Quality
- Water Quantity
- Land Use
- Water Use
Why do IWRM?

- Acknowledge that the 6 Components are collectively a “single system” of water resources
- Acknowledge that the 6 Components are all inter-connected and inter-dependent
- Manage human activities in a manner that holistically sustains the water resources system as closely as possible to nature
How is IWRM different from “Traditional Planning”? 

- Which comes first? The Chicken or the Egg? Land Use Projections or Water Use/Needs

- Focus is on Sustainability
- Data Driven—Best if GIS based
- Input from Stakeholders
How do we accomplish IWRM?

- Coordination of the 6 Components through:
  - Stakeholders
  - Geographic Layers

Enables Leadership for Implementation
Geographic Layers

- Water Use Data
- Water Quality Data
- Land Use Data
- Hydrography
- Political Subdivisions
- Roads
- Topography
- Impervious Cover

- Land Cover
- Population Density & Urbanized Areas
- TMDLs
- Impaired Waters
- Floodplains
- Water System Jurisdictions
- ......and many more
Input from Stakeholders!

- Open Houses
- Newsletters
- Social Media
- Surveys
- E-News
- Local Television Programs
- Local Events
Why don’t we use IWRM?

- Cost $
- Time/Effort to Start-Up
- Lack of Training
- Lack of understanding Benefits
- Lack of Staff
- Lack of Statewide Planning Support from State Agencies
- Etc.....

What happens if we don’t move towards IWRM?
How do We Implement IWRM?

- Local - ?
- County - ?
- Region - ?
- State/Others - ?
- Federal - ?
Planners Checklist

- What Data is Available?
  - In-House
  - Free from outside source
    - Verifiable for accuracy
  - Or, create your own
    - Interns
# One Water Datasets

## Natural Drainage Features
- **Watershed boundaries**
- **Hydrography**
  - Streams
  - First Order Streams
  - Lakes and other water bodies
- **Wetlands**
- **Designated uses for all water bodies and their watersheds** (e.g., EV, HQ, CWT, etc.)
- **Streams listed by DEP as impaired**
- **Source of impairments**
- **Cause of impairments**
- **Areas with TMDLs**
- **AMD sources**
- **Protective Designations:**
  - Rivers Conservation Plans
  - Federal Wild & Scenic Rivers
  - PA Scenic Rivers, Natural Heritage Areas
- **USGS Stream Gages**

## Groundwater
- **Aquifers/recharge areas**
- **Areas served by on-lot residential water wells**
- **Locations of public supply wells**
  - Well withdrawal data
  - Well head protection areas
- **Locations of commercial/industrial wells**
- **Existing groundwater pollution:**
  - RCRA/CERCLA sites
  - LUST remediation sites
  - Other (e.g., elevated nitrates, industrial contaminants, etc.)
- **Locations of potential groundwater impacts** (underground mines, drilling operations, etc.)
## One Water Datasets (continued)

### Water Supply
- Locations of surface water withdrawals for:
  - Public water supplies
  - Industrial/commercial (non-potable) water supplies
- Water supply distribution system
- Location of water supply reservoirs
- Source water protection zones (for any water supply systems that have completed source water protection plans)
- Public water supply service areas
- Public water supply franchise areas

### Sanitary Sewer Information
- Areas Served by On-lot disposal Systems
- On-lot disposal system maintenance records
- Public wastewater service areas
- Public wastewater franchise areas
- Wastewater collection systems
- Location of wastewater discharges (industrial/commercial/WWTP, etc.)
- Data about discharges

### Stormwater System Information
- Areas covered by Act 167 plans
- 2010 Urbanized Area
- Municipalities within your planning area that are designated as MS4s
- Stormwater infrastructure (inlets/pipes/bmps, etc.)
  - Municipal
  - Private
  - Locations of Stormwater Problems

### Flood Data
- 100 yr (1%) floodplain boundaries
- Detailed flood zone data (including cross-sections & BFEs)
- Floodway boundaries
- 500 yr (0.5%) floodplain boundaries
- Locations of LOMAs/LOMRs
- Repetitive loss/severe repetitive loss properties
- Locations of other flood problems
- Insured properties
- Flood control facilities (dams, levees, regional detention basins, etc.)
- Dams Emergency Action Plans & dam breach inundation zones

### Landscape Factors
- Topography (<10’ contour)
- USDA Soils
- Land use or land cover
- Municipal jurisdiction boundaries
- Roadways
- Population distribution
  - Current
  - Projected future
- Geology
- Agricultural preservation lands
- Permanently preserved lands
- Aerial photography < 10 yrs old
- PNDI resource areas/sensitive habitats (Conservation Planning Polygons)
- Recreational resources and parks
- Water based recreational features/locations
- Locations of marinas
- Navigation channels/water transportation infrastructure
- Current planning units/areas from county comprehensive plan
Three Elements = Greenway Network
Trail Network Map
Pipelines

Berks County

Northampton County

Lehigh County
Economic Development

Web Map Tool

• Created for Economic Development Outreach

Ranked from most suitable to least suitable

► Ranks sites based upon infrastructure
  ► On-site water
  ► On-site sewer
  ► Distance to interchanges
  ► Distance to major routes
  ► Environmental Hazards (ranking is impacted negatively if hazard is present)

► Zoning Classification
A Call to Action

**One Water** is based upon the idea that all water within a watershed is hydrologically interconnected and is most effectively and sustainably managed using an integrated approach. One Water advances the rationale for managing water supply, wastewater, and stormwater as one resource—because that is how it exists in nature. The benefits of One Water include improved resource sustainability (greater reliability, security, and resilience), conservation of natural waters and related ecosystems, and flood avoidance. (Source: American Planning Association, “Planners and Water”, 2017)
Integrated Water Resources Management is:

“The coordinated planning, development, protection, and management of water, land and related resources in a manner that fosters sustainable economic activity, improves or sustains environmental quality, ensures public health and safety, and provides for the sustainability of communities and ecosystems.”

— American Water Resources Association
American Water Resources Association asserts that clean water is a basic human right and an economic and ecological necessity and explains that implementing Integrated Water Resources Management involves commitment to the following:

- Planning for long term sustainability,
- Participatory decision making,
- Management based on sound science and hydrologic units,
- Realistic measurement of outcomes, and
- Continuous improvement of institutional capacity at all levels.
Increased awareness and application of One Water PA principles at the state and local levels are essential to help address many increasingly complex planning and growth management issues that revolve around water in Pennsylvania.
Legal & Policy Issues

- Narrow scope of fragmented existing State Water Laws and agency regulations
- Failure to update the PA State Water Plan at the specified 10 Year interval spelled out in the 2005 Plan
- Lack of an over-arching designated LEAD State Agency for Water Planning Issues
- Need for Leadership by the State Planning Board
- Need for stronger policy support from CCAP + PSAB + PSAB
Integration of One Water into the PA State Water Plan

- Implementation
- Implementation
- Implementation....
Where do we go from here?

- Planners – Municipal + Regional and County Planning agencies + State Planning Board + APA/PA need to PUSH HARD for improved State Agency Policy and allocation of grants to undertake Water-Related Planning Studies and Policy Development to include upgrading of SALDO and Zoning Ordinances.

- Planners need to engage municipal and regional Water Authorities as well as private water companies who own and operate water supply and distribution systems.

- County Planners need to organize/coordinate new county-level or multi-municipality Water Authorities/Entities who can legally exercise jurisdiction to protect Source Water resources.
And...

- Need to engage Watershed organizations and other interested groups such as local chapters of Trout Unlimited + Fishing Clubs

- Planners need to explain the importance of proactive water resource planning and management to local business leaders and Chambers of Commerce so they see the ROI (Return On Investment) for public sector investments that will enable future economic development and community fiscal viability

- Improved communication between agencies and across state lines
Priority Actions of CPDAP

Participate with the State Geospatial Board and GIS Pro in their activities.

Create opportunities to increase the capacity of County GIS and Planning Departments.

Design steps to **Implement the State Water Plan**.

Identify and assist in next generation of county IWRM Plans.

Compile a comprehensive list of needed datasets for counties, agencies, major players in the realm of water.
“The Pennsylvania Constitution vests a right to pure water and the values of the natural environment in all Pennsylvanians, and imposes a duty to conserve and to maintain public natural resources for this generation and generations yet to come.”

— Commonwealth of Pennsylvania, State Water Plan, 2009