Source Water Protection
Preventing HABs at the Source

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Presentation Overview

- Source Water Protection: Preventing HABs at the Source
- Building partnerships for watershed investment:
  - Tools for Collaboration: Overview of DWMAPS The Drinking Water Mapping Application to Protect Source Water
- Opportunities to protect drinking water
  - CWA-SDWA Integration
  - NRCS, USDA-FSA, USFS
  - Funding opportunities
Source Water in the News

Record bloom
The toxic-algae bloom on the Ohio River covers more than two-thirds of the river’s length. It started upstream of Wheeling, W.Va., and was first spotted on Aug. 19. As of Friday, the bloom stretched to Tell City, Ind., about 850 miles downstream. The bloom produces a toxin that can sicken people and kill pets, and it is costing water-treatment plants along the river hundreds of thousands of dollars to treat.

2014: 500,000 without water in Toledo, OH
600 miles bloom on Ohio River

Lake Erie
“...no water systems should have to provide more treatment that that which is necessary to address naturally occurring pollutant concentrations.”

--Tracy Mehan, AWWA
A “growing” problem

NLA: 2007-2012

8.3% Cyanobacteria: More lakes in “most disturbed” condition

9.5% Mycosystin: Lakes with detection

2015-2016 HAB-Related health Advisories

NOTICE
An algae bloom has made this area potentially unsafe for water contact. Avoid direct contact with visible surface scum.
Watershed Management: Mitigation

Control and Removal

- **Physical**
  - Mechanical mixing
  - Aeration
- **Biological**
  - Floating treatments
  - Shade
- **Chemical**
  - Algaecides
  - Flocculation

Treatment in the source?
Watershed Management: Prevention

Addressing HAB Drivers at Source

Drivers:
- Nutrient pollution
- Hydrologic alteration
- Temperature pollution

Sources:
- Agricultural and Urban runoff
- Atmospheric Deposition
- Point sources
  - POTW
  - CAFOS

Total Nitrogen Deposition, 2014
Watershed Management: Prevention

Addressing HAB Drivers at the Source

- **Solutions and Practices:**
  - Conservation measures
  - Land management
  - Stream and wetland restoration
  - Forest Management
  - Land preservation
  - Nutrient removal technologies
  - Enforcement
Partnerships: Building Momentum

- Identify and communicate risks
  - Share monitoring data

- Find opportunities to rally support and cultivate champions

- Articulate drivers of risk to build shared understanding and a vision of success

Toledo, OH and Lake Erie
Drinking Water… it’s popular!

Trust For Public Land’s LandVote
Partnerships: Identifying Opportunity

- Articulate drivers of risk
- Build shared understanding of opportunities
- Communicate vision of success

Beaver Water: https://www.youtube.com/watch?v=0DBs1jWTOGA
Tools for Collaboration

- DWMAPS (Drinking Water Mapping Application to Protect Source Waters)
- Source Water Collaborative How to Collaborate Toolkit
- WRI: Protect Drinking Water at the Source
  - 10 key lessons for building a watershed investment program
**Project Goal:** Provide a nationwide online mapping tool for data critical to drinking water source protection.

- Esri ArcGIS Online
- Public information (no secure)
- Data viewing and access

**Key Data Sources**

- SDWIS
- USGS
- Facility Registry Service (FRS)
- WATERS & ATTAINS
**DWMA PS Uses**

- View drinking water and watershed data to support source vulnerability assessments
- Identify HAB risk factors, including point and non-point pollution
- Manage and track water quality monitoring data
- Identify opportunity for protection strategies
  - Promote program integration (CWA-SDWA)
- Build strong partnerships and support program implementation
Collaboration Tools: DWMAPS

View Significance of watershed to source water protection

# of sources per HUC12 watershed
Collaboration Tools: DWMAPS

Integrated with Esri ArcGIS online platform

Ohio EPA SWAP Data viewed in DWMAPS
Collaboration Tools: DWMAPS

Upload and share monitoring data

Cyanobacteria cell density heat map
Collaboration Tools: DWMAPS

DWMAPS contaminant source data.

Point Source
- NPDES, RCRA, TRI, Oil & Gas, TSCA/ FIFRA, Superfund, Brownfields, Hazard material routes, railroads, landfills, more.

Links to facility reports
Collaboration Tools: DWMAPS

DWMAPS contaminant source data.

Non-point source:
- Land Use (NLCD)
- Impervious surfaces
- Natural Land Cover
- Protected Areas
- Parcel Data
- Zoning Maps

Land Use and Parcels
Collaboration Tools: DWMAPS

Present your findings & build partnerships:

Mapping applications and story maps.

Source Water Collaborative Nutrient Pollution Story Map
Collaboration Tools: DWMAPS

Identify opportunities for program integration:

Clean Water Act Opportunities:

CWA 305(B)
CWA Impaired Waters
303(d)
TMDL
NPDES

Waters Impaired for Nutrients
Opportunities: Clean Water Act

CWA-SDWA Toolkit:

- Water Quality Standards
  - Designated Uses
  - Water Quality Criteria
- Monitoring and Assessments
- TMDL priority setting
  - DW endpoints
- 319 program
- CWSRF & DWSRF

Source to Tap Infographic

CWA-SDWA Integration Toolkit
Opportunities: USDA, NRCS, USFS

- Participate in decision-making processes:
  - State technical advisory committee
  - EQUIP Subcommittee Meetings
- Share DW data and communicate water quality priorities (319) (NWQI)
- Communicate successes
- RCPP grants
- Forest Management Plans
Opportunities

- Public-Private Partnerships
- Corporations
- Local and regional land use planning
Thank you!

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Links

- DWMAPS: https://geopub.epa.gov/DWWidgetApp/#
- Esri ArcGIS online: http://www.arcgis.com/home/index.html
- Source Water Collaborative: http://sourcewatercollaborative.org/
  - Source to Tap: http://sourcewatercollaborative.org/infographic/
  - Planner’s Guide: http://sourcewatercollaborative.org/guide-for-land-use-planners/
- World Resources Institute: Protecting Drinking Water at the Source: http://www.wri.org/publication/protecting-drinking-water-source
- CWA-SDWA Coordination Toolkit: http://www.gwpc.org/cwa-sdwa-coordination-toolkit