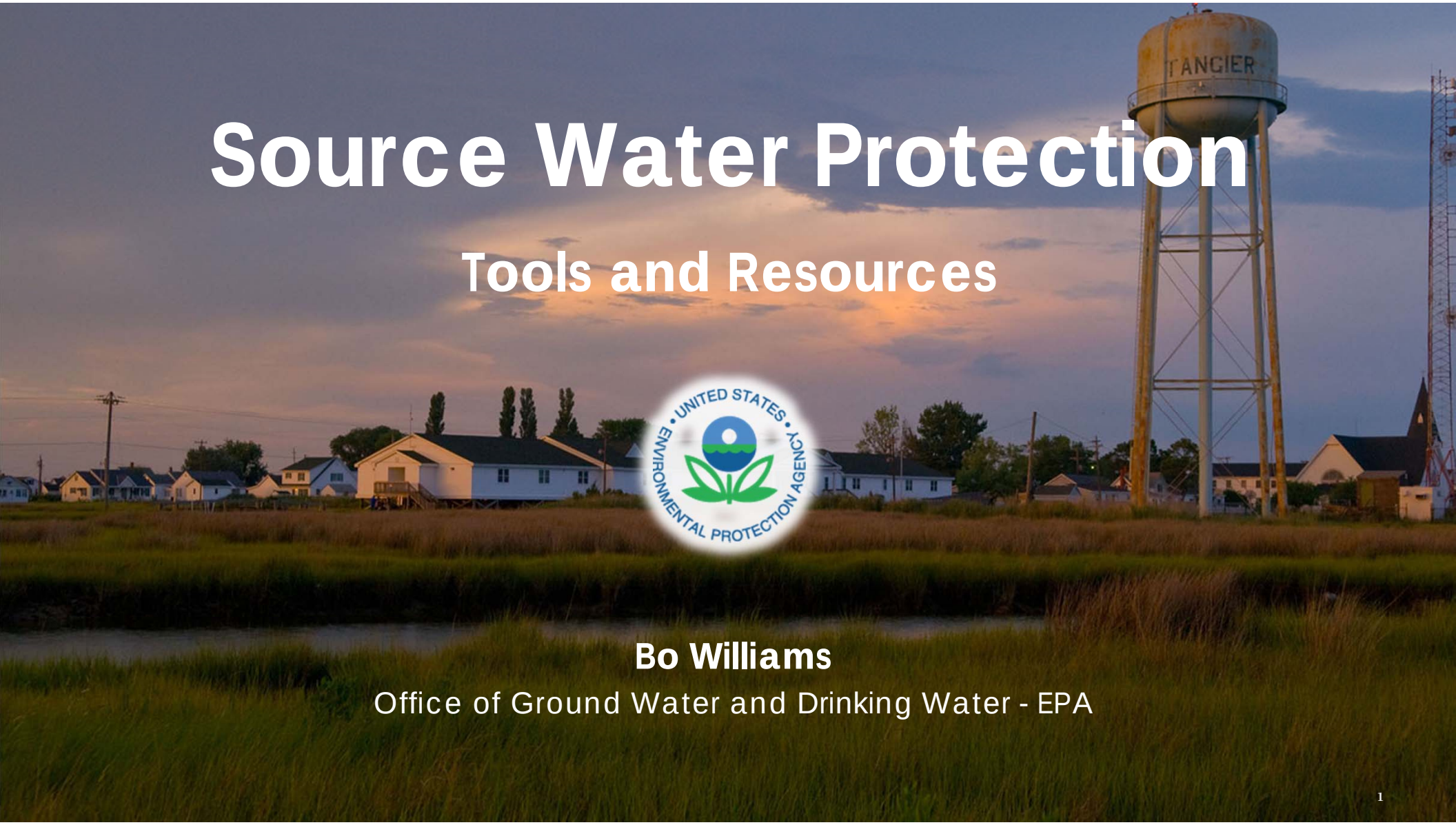


Source Water Protection

Tools and Resources

Bo Williams

Office of Ground Water and Drinking Water - EPA

Watershed Management: Mitigation and Prevention

Control and Removal

Physical

- *Mechanical mixing*
- *Aeration*

Biological

- *Floating treatments*
- *Shade*

Chemical

- *Algaecides*
- *Flocculation*

Prevention

Drivers:

- Nutrient pollution
- Hydrologic alteration
- Temperature pollution

Sources:

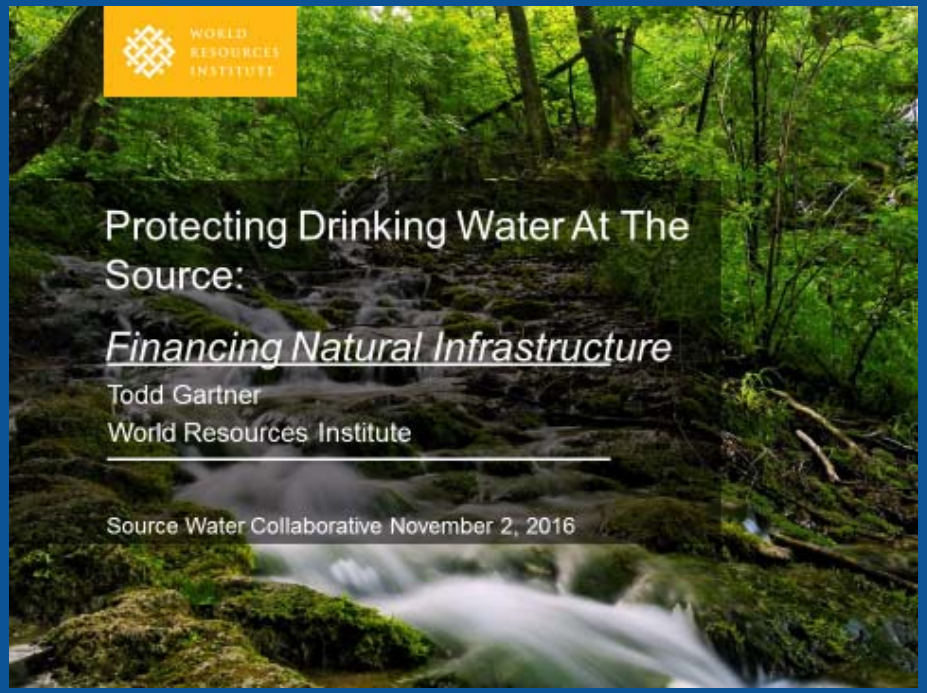
- Agricultural and Urban runoff
- Atmospheric Deposition
- Point sources

Solutions & Practices

- Conservation measures
- Land management
- Stream and wetland restoration
- Forest Management
- Land preservation

Partnership Building Tools

SWC How to Collaborate Toolkit



WRI: Protecting Drinking Water at the Source

WRI: Lessons from U.S. Watershed Investment Programs

PHASE OF PROGRAM DEVELOPMENT	DESCRIPTION	LESSONS
Building momentum	Identifying a clear need and purpose for a watershed investment program; securing commitment from key stakeholders	1. Identify risks (wildfire, drought, etc.) and seize opportunities to rally support 2. Build partnerships to fill essential roles and responsibilities 3. Articulate a clear vision of success 4. Cultivate champions and advocates to build support (from water utilities, local government, NGOs, landowners, etc.)
Designing the program	Assessing the scientific and economic underpinnings of the program; creating a strategy to achieve program goals	5. Develop a scientifically informed watershed plan 6. Evaluate the business case for investment 7. Identify investors (water utilities, companies, foundations, etc.) and financing mechanisms for initial and long-term funding
Implementing the action plan	Actively and adaptively managing the program to make investments; tracking the results of those investments	8. Engage landowners and public managers to conserve, restore, and sustainably manage natural infrastructure 9. Define roles and plans for program administration 10. Monitor and evaluate performance (acres of forestland protected, acres treated for fire risk reduction, pounds of sediment avoided from filling waterways, etc.)

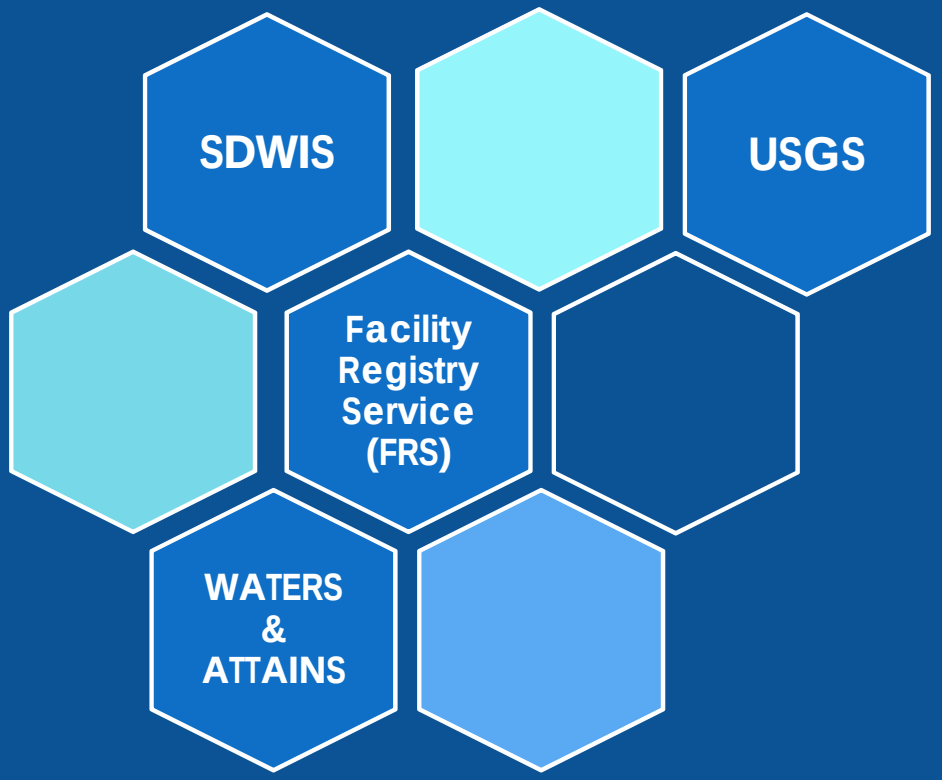
World Resources Institute, 2016

Mapping Tools: DWMAPS

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

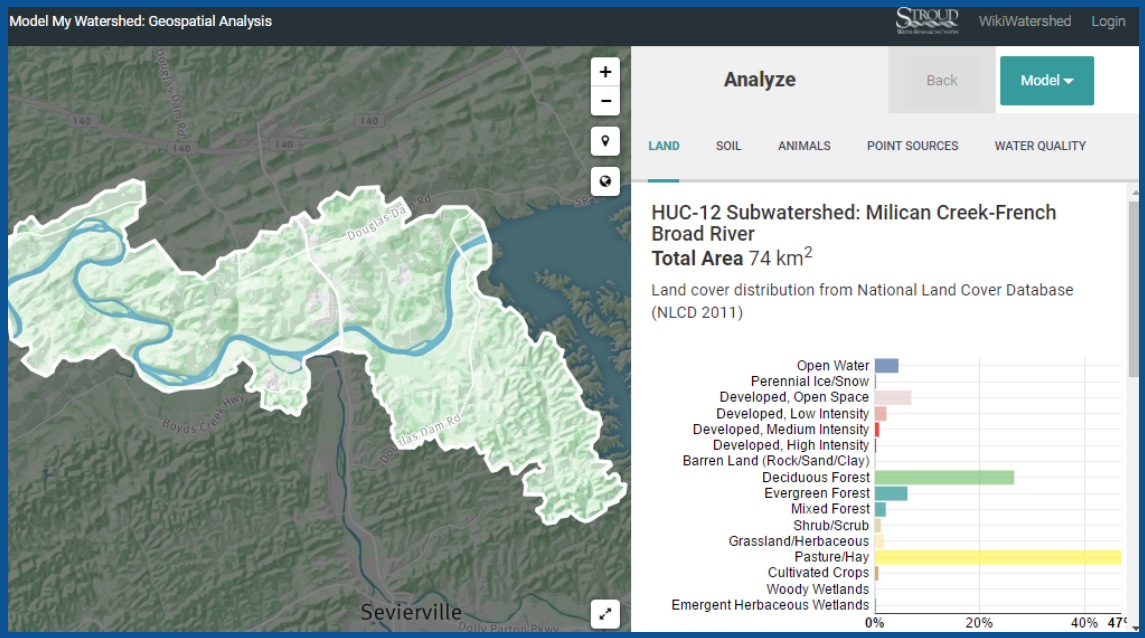


DWMAPS Uses

- ✓ View drinking water and watershed data to support source vulnerability assessments
- ✓ Identify HAB risk factors, including point and non-point pollution
- ✓ Prioritize protection strategies
  - ✓ Promote program integration (CWA-SDWA)

Mapping Tools: Wiki Watershed

- ✓ View N & P sources by watershed scales
- ✓ View water quality data
- ✓ Model N& P runoff and water quality impacts with professional models
- ✓ Compare conservation and management scenarios

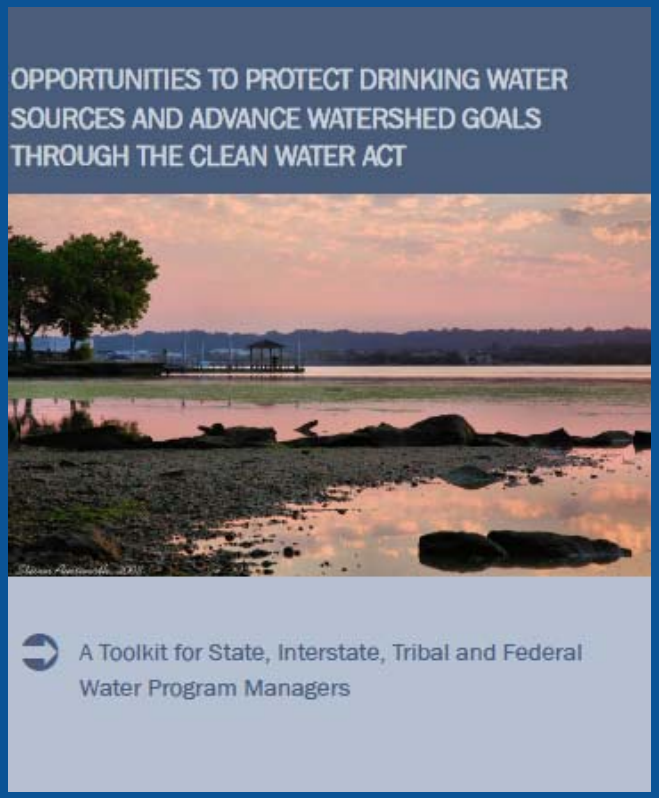


Project of STROUD WATER RESEARCH CENTER

CWA-SDWA Integration

CWA-SDWA Toolkit:

- Water Quality Standards
  - Designated Uses
  - Water Quality Criteria
- Monitoring and Assessments
- TMDL priority setting
- **319 program**



CWA-SDWA Integration Toolkit

Source to Tap Infographic

Thank you!

Williams.james@epa.gov

Links

- DWMAPS: https://geopub.epa.gov/DWWidgetApp/
- Esri ArcGIS online: http://www.arcgis.com/home/index.html
- EPA Source Water Protection: https://www.epa.gov/sourcewaterprotection
- How to Collaborate Toolkit: http://sourcewatercollaborative.org/how-to-collaborate-toolkit/
- WikiWatershed: https://wikiwatershed.org/
- SWC Source to Tap: http://sourcewatercollaborative.org/infographic/
- SDWA-CWA Coordination Toolkit: http://www.gwpc.org/cwa-sdwa-coordination-toolkit