

Florida Department of Environmental Protection



Upper Wakulla River & Wakulla Springs Basin Management Action Plan (BMAP) Kick-Off

January 18, 2013





Welcome

- Charlie Gauthier – FDEP Administrator of the Watershed Planning and Coordination Section





BMAP Team Members

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Meeting Overview

- Total Maximum Daily Load Being Implemented.
- Basin Management Action Plan Components.
- Upper Wakulla River and Wakulla Springs BMAP Development Process and Approach.



Total Maximum Daily Load

Total Maximum Daily Load (TMDL) Being Implemented





What is a TMDL?

- **Formal definition:** A TMDL identifies the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards.
- **Informal definition:** A TMDL establishes numeric water quality goals to restore the health of a lake, river, stream, spring, or estuary.



Purpose of the TMDL Program

- Identify scientifically based quantitative goals for restoration of waterbodies that do not meet State of Florida water quality standards.
- Implement a scientifically based plan to achieve those goals.
- Local information and stakeholder involvement is the foundation for development of restoration goals which will achieve success.



TMDL Development

- Specific to a waterbody and a pollutant.
 - Nitrates for the Upper Wakulla River.
- Steps:
 - Identify effects of the impairment and specify current water quality conditions.
 - Identify potential sources.
 - Determine “assimilative capacity” (i.e., water quality restoration target).
 - Calculate pollutant reductions needed to meet the target.



Upper Wakulla River Impairment

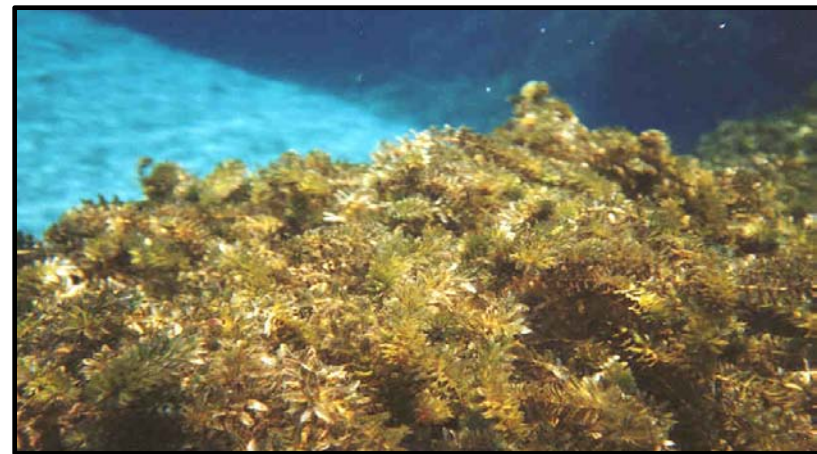
- Inability of the Upper Wakulla System to meet the State of Florida water quality standard for a healthy biological community require categorization as “impaired water.”
- Nitrate is the pollutant identified by the TMDL as directly related to the impairment exhibited by the biological community.
- Scientifically confirmed high nitrate levels cause algal blooms and resultant low dissolved oxygen (DO), stressing the biological community .
- The Clean Water Act is the federal statute requiring a TMDL be developed for an impaired water.

Conditions Stressing the System

- Water quality:
 - Elevated nitrate levels;
 - Low DO;
 - Excessive algal mats cause lower DO and shade out desirable submerged grasses (*Vallisneria*); and
 - Native and desirable submerged aquatic vegetation (SAV) such as *Vallisneria* replaced by less beneficial Hydrilla SAV.



Cladophora spp.



Native submerged aquatic vegetation degeneration

What is the Effect?

- Biological impacts:
 - Of the last 27 biological sampling events, 20 or **75% scored as unhealthy.**
 - Hindered system health due to collaborative interactions of multiple water quality stressors:
 - Algal blooms;
 - Loss or greatly reduced species presence and richness;
 - Loss of native submerged aquatic vegetation (SAV); and
 - **Invasive and nuisance species** often are promoted by stresses to the native communities related to degraded water quality conditions.



Floating Algal Mats (*Cladophora* spp.)



Problems Exhibited

- Native and desirable submerged aquatic vegetation (SAV) such as *Vallisnaria* at Wakulla Springs State Park (mid 1990's) overgrown with Hydrilla.

Hydrilla is the “fluffy”, coon-tail shaped plant.

Hydrilla replaces native grasses

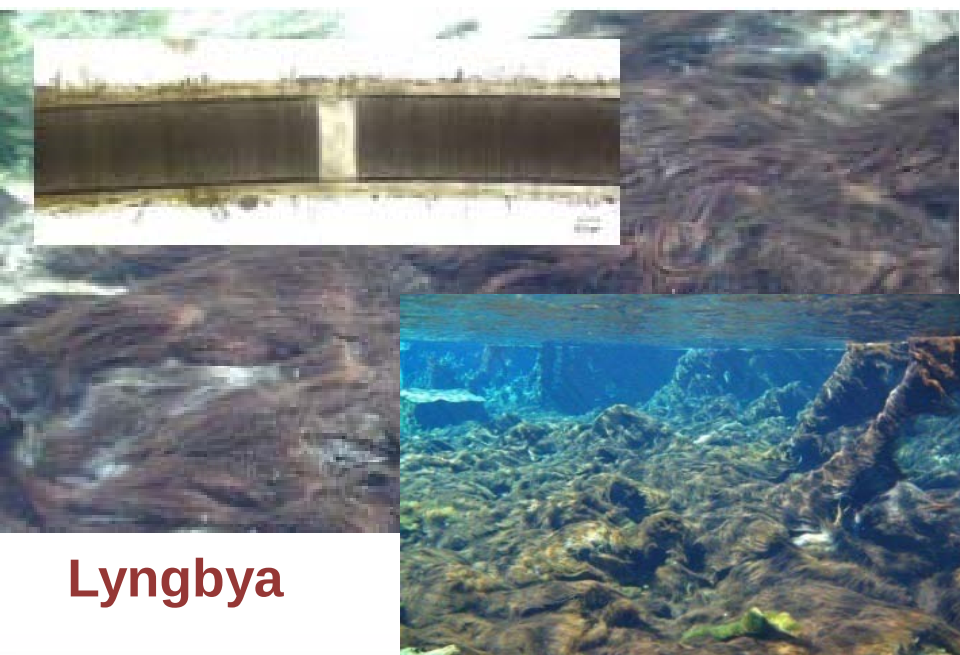


Note Hydrilla dominates .

Desirable *Vallisnaria* can be seen as lone leaf in lower right corner.

Problems Exhibited

- Lyngbya (cyanobacteria): Tourists suffer swimmer's itch. The system suffers algal mats ~0.5 meter thick.
- Excessive growth and cover of *Vaucheria* is negatively impacting SAVs and has been correlated around the state with increased nitrate.



Lyngbya





TMDL Development

- Specific to a waterbody and a pollutant.
 - Nitrates for the Upper Wakulla River.
- Steps:
 - Identify effects of the impairment and specify current water quality conditions.
 - Identify potential sources of nitrate.
 - Determine “assimilative capacity” (i.e., water quality restoration target).
 - Calculate pollutant reductions needed to meet the target.



Sources in the TMDL

- Wastewater treatment facilities;
- Domestic wastewater residuals;
- Municipal separate storm sewer systems (MS4s);
- Septic tanks;
- Agriculture;
- Fertilizer;
- Atmospheric deposition; and
- Sinking streams.



TMDL and Restoration Target

- A TMDL includes the following components in determining in-stream pollutant assimilative capacity (i.e., water quality restoration target).
 - Wasteload allocation (WLA) for point sources:
 - Wastewater (ww); and
 - Stormwater (sw).
 - Load allocation (LA) for nonpoint sources.
 - Margin of safety (MOS).
- THE TMDL calculated an in-stream nitrate target concentration of 0.35 mg/L as the restoration target.



TMDL Nitrate Reduction

WBID	Parameter	TMDL TARGET (mg/L)	TMDL % Reduction
Upper Wakulla River (WBID 1006)	Nitrate, as monthly average	0.35	56.2%

- TMDL requires the 0.35 mg/l target be met as an in-stream monthly average.
- TMDL % reduction was based on loadings at the time of development, nitrate reductions achieved since that time could reduce the % reduction required to meet the target.



Road Forward From the TMDL

- The TMDL identifies the target pollutant load reduction required for the impaired waters to regain a balanced biological community.
- **BMAPs are the primary means of plan development to achieve the TMDL water quality target.**



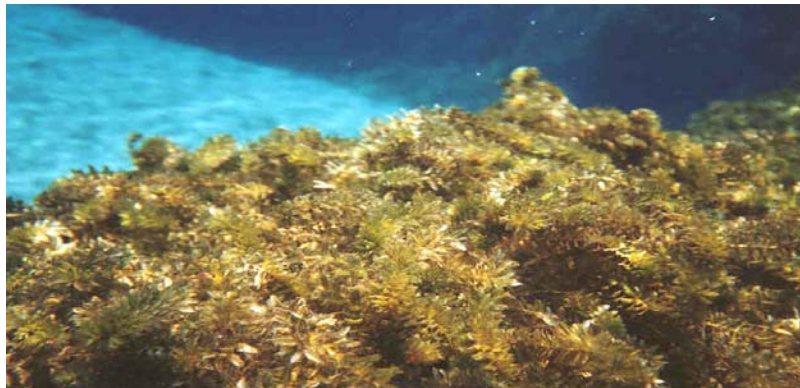
Questions on the TMDL?





Basin Management Action Plan (BMAP)

Basin Management Action Plan Components





BMAP Components

- Specify water quality restoration goals (based on TMDL).
- Identify existing and needed projects to reduce pollutant loadings (local/regional, structural/nonstructural, permitted/not permitted).
- Identify restoration commitments (responsible entity, timelines, and funding).
- Evaluate future growth impacts on achieving restoration goals.
- Examine considerations for the next BMAP phase.
- Monitor progress in meeting restoration goals .



BMAP Development Tools

- Identifies actions needed to achieve the TMDL and who is responsible for implementing those actions.
- Guided by provisions of Section 403.067(7), Florida Statutes (F.S.).
- Developed collaboratively with stakeholders.
- Integrates the best available scientific information.
- Includes completed and planned projects.
- Involves critical evaluations, studies, and research.
- Includes an adaptive management component.
- Provides equity among stakeholders and sources.



Anticipated BMAP Stakeholders

- Leon County
- Wakulla County
- Gadsden County
- City of Tallahassee
- City of Gretna
- City of Midway
- City of Quincy
- Town of Havana
- Friends of Wakulla Springs
- Wakulla Springs Alliance
- Citizens within BMAP Area
- Northwest Florida Water Management District
- Florida Department of Agriculture and Consumer Services
- Florida Department of Transportation District 3
- Talquin Electric Cooperative
- St. Joe Corporation
- Federal Correctional Institution
- Florida State University
- Florida Agricultural and Mechanical University
- Florida Geological Survey
- Others (please let us know)?



BMAP Enforcement

- Adopted by the Secretary of the Florida Department of Environmental Protection (FDEP)

Entity	Enforcement Mechanism	Specific Information
National Pollutant Discharge Elimination System (NPDES) point source	Permit	Effluent limit
MS4	Permit	Specific projects to be implemented
Agriculture	BMAP	BMP implementation or monitoring
Other nonpoint sources	BMAP	Specific projects to be implemented



Questions on BMAP Components?





Basin Management Action Plan (BMAP)

Upper Wakulla River and Wakulla Springs BMAP Approach and Process

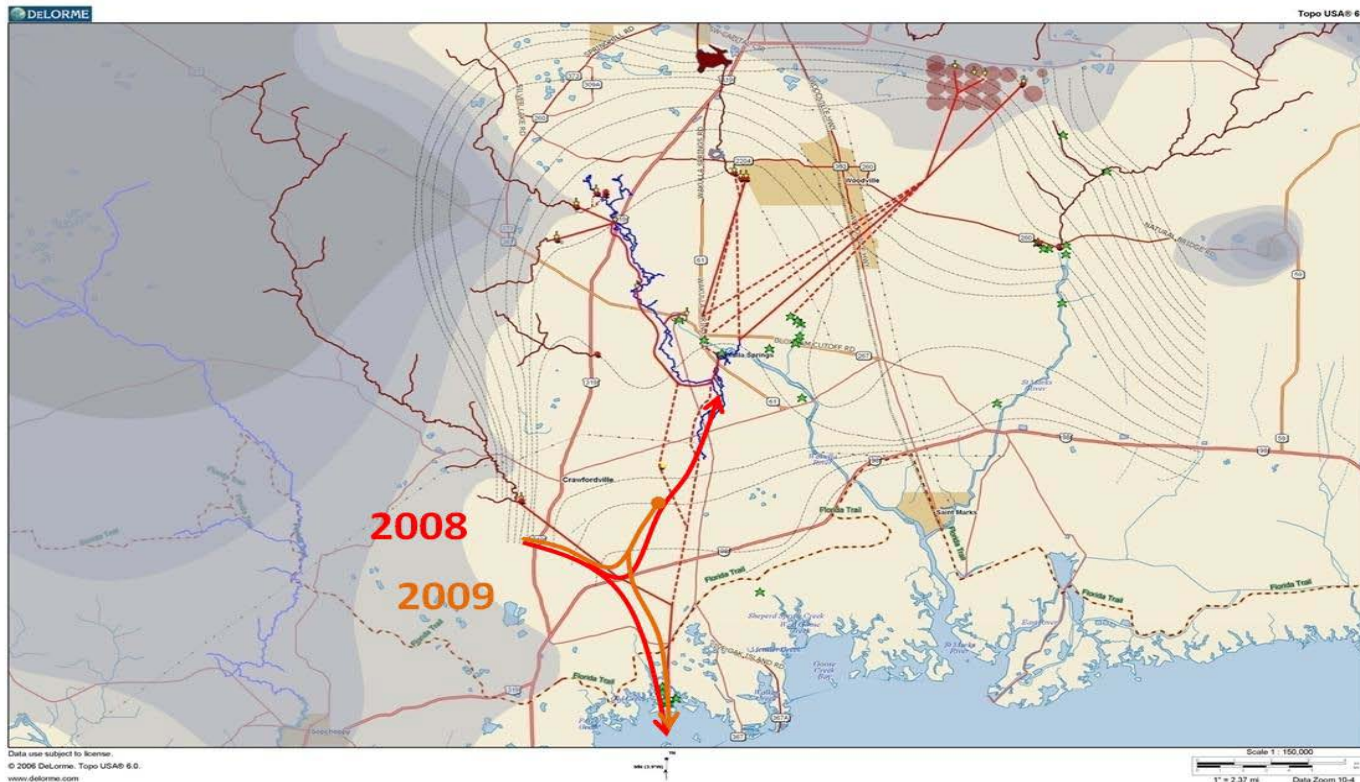




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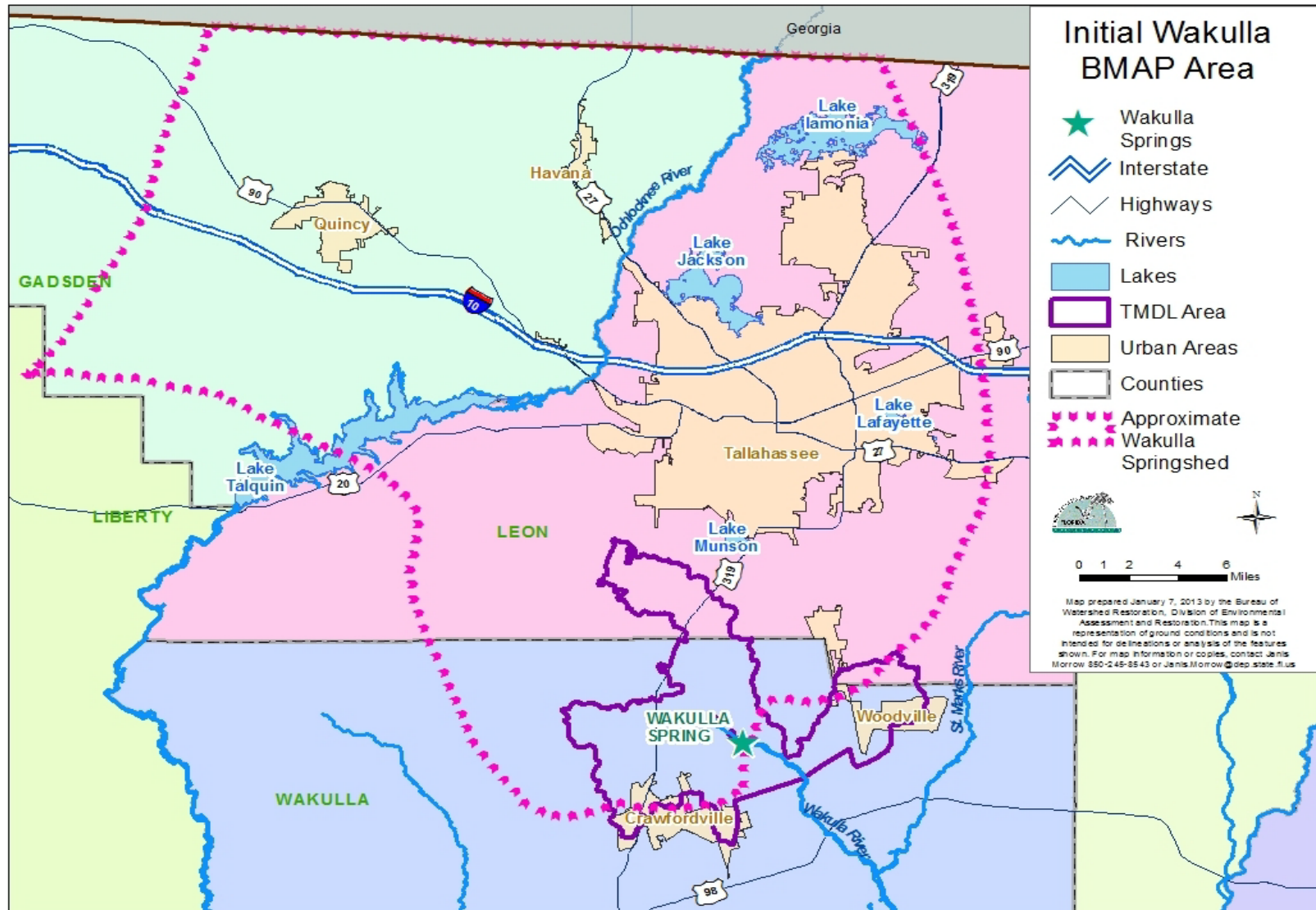
Extent of Springshed?

Extending the springshed, to and from the Gulf of Mexico?



This linkage of the Upper Wakulla River to an extensive springshed system extends issues beyond the boundaries of the impaired area noted in the TMDL (WBID 1006).

Initial BMAP Area





Upper Wakulla River and Springs BMAP

- The BMAP will be developed:
 - Through open meetings with public involvement; and
 - Joint decision making with local partners.
- Local information and stakeholder involvement is the foundation for development of effective restoration actions which will achieve a successful BMAP.



Technical Meetings

- The purpose of the meetings is for fact-finding by technical staff to provide supporting information for the BMAP.
- All technical meetings will be held approximately monthly, and noticed in the Florida Administrative Register (FAR) and open to the public, in conformance with the Sunshine Law.



Policy Briefings and Workshops

- BMAP briefings or workshops may be held as needed or as requested to promote effective and efficient development of the plan.
- Separate meetings may be held with management level representatives.
- The purpose of these meetings is for FDEP to brief the decision makers on the BMAP process and obtain feedback on the BMAP approach.



BMAP and Sunshine Law

- Florida's Government-in-the-Sunshine Law provides a right of access to governmental proceedings.
- The BMAP process will adhere to the applicable requirements in Government-in-the-Sunshine Law.
- For public meetings the Department will:
 - Give notice not less than seven days in advance;
 - Assure the meeting is open to the public; and
 - Record minutes of the meetings.



Sufficiency of Effort Approach

- Given the difficulty in estimating loading from different sources to the springs, detailed allocations are not anticipated in the BMAP.
- Instead, a sufficiency of effort approach will be used.
- Completed, ongoing, and planned activities will be compared to identified hotspots in the basin.
 - A lot of efforts have already been implemented in the basin.
- A determination will be made if each hotspot is sufficiently addressed by actions provided.
- If a hotspot is not sufficiently addressed, FDEP and stakeholders will discuss other potential actions.



Questions on the BMAP Approach?





Wakulla BMAP Contact

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<http://publicfiles.dep.state.fl.us/DEAR/BMAP/UpperWakulla/>



Public Comment?





REMEMBERING THE GOAL!

