

Total Maximum Daily Loads and Agricultural BMPs in Florida¹

Kati W. Migliaccio, Kelly T. Morgan, and Brian J. Boman²

Introduction

In 1972, Congress passed the Clean Water Act, which set forth federal requirements for identifying polluted or impaired water bodies. These rules were passed down to the states by the US Environmental Protection Agency (EPA), which required states to establish a prioritized list of impaired water bodies and to develop estimated loads that the water bodies could receive of each pollutant while meeting water quality standards (DeBusk, 2001).

These estimated loads determined for each water body are called Total Maximum Daily Loads (or TMDLs). TMDLs are defined as **the maximum amount of a pollutant that a water body can receive and still meet the water quality standards as established by the 1972 Clean Water Act. Section 303(d) of the Clean Water Act requires states to submit lists of surface waters that do not meet applicable water quality standards and to establish TMDLs for these waters on a prioritized schedule.**

In response to state TMDL requirements, the Florida Watershed Restoration Act (FWRA) (s. 403.067 F.S.) was passed in 1999. This act identified the methods that the Florida Department of Environmental Protection (FDEP) would use to develop and implement TMDLs.

In addition, FWRA

- directs Florida Department of Agriculture and Consumer Services (FDACS) to develop Interim Measures and Best Management Practices (BMPs) to address agricultural nonpoint pollution sources,
- provides growers implementing BMPs that are adopted by rule (by FDACS) and verified by FDEP as effective with a “Presumption of Compliance” with applicable state water quality standards,
- directs FDEP to allocate pollutant loads between point, nonpoint, and background sources, and
- allows cost-share of BMPs, with funds to support the program for agriculture originating from the Florida Forever Act Amendments.

In addition, the legislature, through the Florida Right to Farm Act (s. 823.14 F.S.), provides that a local government may not adopt any ordinance, regulation, rule, or policy to prohibit, restrict, regulate, or otherwise limit an activity of a bona fide farm operation where growers are utilizing best-management practices or interim measures developed by FDACS.

Florida TMDL Development

Evaluation and development of TMDLs for Florida is a daunting task, with 52,000 miles of rivers and streams, 800

1. This document is ABE362, one of a series of the Agricultural and Biological Engineering Department, UF/IFAS Extension. Original publication date April 2006. Revised May 2009, March 2013, and April 2016. Visit the EDIS website at <http://edis.ifas.ufl.edu>.
2. Kati W. Migliaccio, professor, Department of Agricultural and Biological Engineering, UF/IFAS Tropical Research and Education Center; Morgan T. Kelly, professor, Department of Soil and Water Science, UF/IFAS Southwest Florida REC; and Brian J. Boman, professor, Department of Agricultural and Biological Engineering, UF/IFAS Indian River REC; UF/IFAS Extension, Gainesville, FL 32611.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For more information on obtaining other UF/IFAS Extension publications, contact your county's UF/IFAS Extension office. U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A & M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Nick T. Place, dean for UF/IFAS Extension.

lakes, 700 springs, and 4500 square miles of estuaries. FDEP has developed a five-year rotating plan to assess each water body within the state. The water basins in each of FDEP's six districts have been divided into five groups (Table 1), and the timeline for assessments within each district will be based on the group number (FDEP, 2006).

FDEP has identified these basic steps for the TMDL program:

- Access the quality of surface waters—are they meeting water quality standards?
- Determine which waters are impaired—that is which ones are not meeting water quality standards for a particular pollutant/s.
- Establish and adopt, by rule, a TMDL for each impaired water for the pollutants of concern—the ones causing the water quality problems.
- Develop, with extensive local stakeholder input, Basin Management Action Plans (BMAPs).
- Implement the strategies and actions of BMAPs.
- Measure the effectiveness of BMAPs, both continuously at the local level and through a formal re-evaluation every five years.
- Adapt BMAPs to local conditions by changing the plan and changing the actions if things are not working.
- Reassess the quality of surface waters continuously.

Draft and final TMDL documents are available on the FDEP website (draft TMDLs at http://www.dep.state.fl.us/water/tmdl/draft_tmdl.htm and final TMDLs at http://www.dep.state.fl.us/water/tmdl/final_tmdl.htm).

BMAPs, which are a comprehensive set of practices and strategies to manage a basin in order to reduce pollutant loads to achieve TMDL goals, have been developed for some basins (e.g., Upper Ocklawaha, Orange Creek, Long Branch, and Lower St. Johns River). BMAPs are posted electronically by FDEP (<http://www.dep.state.fl.us/water/watersheds/bmap.htm>).

While FDEP is responsible for Florida TMDLs, the agricultural nonpoint source pollution portion of the TMDL process is being guided by the Florida Department of Agriculture and Consumer Services (FDACS) (IFAS, 2006).

TMDLs and Agricultural Best Management Practices

When a water body is identified as impaired and a TMDL is established, pollutant loads are divided among the different stakeholders (e.g., agriculture, urban). Normally, each stakeholder would implement a set of management practices expected to reduce its contribution to meet its designated load. These practices are commonly referred to as Best Management Practices (BMPs) and can be defined as **a practice or combination of practices determined by the coordinating agencies, based on research, field-testing, and expert review, to be the most effective and practicable on-location means, including economic and technological considerations, for improving water quality in agricultural and urban discharges.**

Agricultural BMP manuals are written by FDACS with cooperation of UF/IFAS and FDEP and adopted by rule. Selection of BMPs for agriculture is no easy task because of Florida's agriculture diversity and dramatic geographical differences. Hence, BMP manuals are commodity and regionally specific. Some of the areas where BMPs have been developed are: cow/calf operations, citrus, vegetable and agronomic crops, nurseries, equine operations, specialty fruit and nut crops, sod operations, agriculture wildlife, and dairy operations. Although some water bodies do not have designated TMDLs as of yet and therefore do not legally require BMPs, many agricultural producers have adopted and implemented the BMPs.

For a more complete list and additional information on specific BMP manuals, visit the FDACS Office of Agricultural Water Policy website: <http://www.freshfromflorida.com/Divisions-Offices/Agricultural-Water-Policy>.

UF/IFAS is actively involved in the BMP process, including BMP research, development, and education. Extension agents and UF/IFAS state specialists play a critical role in the adoption of BMPs by educating agricultural producers in the need to implement BMPs as well as in their proper use once implemented. For more information on the involvement of UF/IFAS in BMPs and our role in the Florida BMP program see the UF/IFAS Best Management Practices website (<http://bmp.ifas.ufl.edu/>).

The primary benefit for growers implementing agricultural BMPs (even without a designated TMDL) is that if a BMP program is in place, an agricultural producer is considered to be operating under a Presumption of Compliance with water quality standards. This protects the farmer from

liabilities to the state when water quality standards are not met (UF-IFAS, 2006).

BMP implementation is different if a TMDL has already been established for a particular basin. Pursuant to Section 403.067(7)(b)2(g) of Florida law, a nonpoint source discharger included in a basin management action plan shall demonstrate compliance with the pollutant reductions established pursuant to subsection (6) by either implementing the appropriate best management practices established pursuant to paragraph (c) or conducting water quality monitoring prescribed by the department or a water management district. This means that if a TMDL has been established for a basin, agricultural producers are required to either implement a BMP plan or they must conduct water quality monitoring to prove discharges meet state water quality standards.

FDEP (Florida Department of Environmental Protection). 2006. Watershed Management Basin Rotation Project. Accessed at <http://www.dep.state.fl.us/water/basin411/default.htm>.

IFAS (Institute of Food and Agricultural Sciences - University of Florida). 2006. Citrus BMPs. Accessed at <http://citrusbmp.ifas.ufl.edu/>.

Adopting a BMP Program

Agricultural producers interested in formally adopting a BMP program should follow several important steps. If you have questions about this process, contact your local UF/IFAS Extension office or FDACS OAWP.

1. Identify the BMP manual applicable to the commodity in question. BMP manuals are available on the FDACS OAWP website <http://www.freshfromflorida.com/Divisions-Offices/Agricultural-Water-Policy>
2. Contact the FDACS OAWP staff member for your county to coordinate a free assessment of the property to determine which BMPs are applicable. Contact information for the person assigned to each county is available on the FDACS OAWP website.
3. Complete the BMP checklist and sign the Notice of Intent (NOI) to implement BMPs.
4. Keep a copy of the checklist and signed NOI in your records.
5. Implement and maintain the applicable BMPs and keep adequate records to maintain a resumption of compliance with state water quality standards.

References

DeBusk, W. F. 2001. *Overview of the Total Maximum Daily Load (TMDL) Program*. SL188. University of Florida, Institute of Food and Agricultural Sciences, Gainesville.

Table 1. Florida basins divided into their TMDL groups

Group 1	Group 2	Group 3	Group 4	Group 5
Ochlocknee- St. Mark	Apalachicola-Chipola	Choctawhatchee - St. Andrews	Pensacola	Perdido
Suwannee	Lower St. Johns	Upper St. Johns	Nassau - St. Marys	Upper East Coast
Ocklawaha	Middle St. Johns	Sarasota Bay - Peace - Myakka	Withlacoochee	Springs Coast
Tampa Bay	Tampa Bay Tributaries	Caloosahatchee	Kissimmee River	Indian River Lagoon
Lake Okeechobee	Charlotte Harbor	Lake Worth Lagoon - Palm Beach Coast	Fisheating Creek	Everglades
Everglades West Coast	St. Lucie - Loxahatchee		Southeast Coast - Biscayne Bay	Florida Keys