

Agricultural Best Management Practices and a National Treasure: The Florida Experience

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INTRODUCTION

Americans rely heavily on fertilizers.¹ We apply them to our yards to make them beautiful; we use them to produce bountiful harvests for the world's dining tables.² On the other side of the coin, it is well known that fertilizing nutrients can be a source of impairment to our nation's waters.³ This article presents the Florida experience, with particular focus on how agriculture has coexisted with a national treasure, the Florida Everglades, and provides a model for consideration in the work of other states regarding the treatment of impaired waters pursuant to the Clean Water Act.

I. THE FLORIDA EXPERIENCE

The Everglades Agricultural Area (“EAA”) is comprised of 718,400 acres of highly productive land located south of Lake Okeechobee and north of Everglades National Park.⁴ Beginning with the early 1900s, governmental entities drained this area to promote development.⁵ Today, stormwater from approximately

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¹ *A Look at Fertilizer and Pesticide Use in the U.S.*, GRO INTEL. (June 10, 2018), <https://gro-intelligence.com/insights/a-look-at-fertilizer-and-pesticide-use-in-the-us>. [<https://perma.cc/3N8X-8BHG>].

² *Id.*

³ *Impaired Waters and Nutrients*, ENV'T PROT. AGENCY (Dec. 13, 2021), <https://www.epa.gov/tmdl/impaired-waters-and-nutrients> [<https://perma.cc/FL5Q-9AYR>].

⁴ BENITA M. WHALEN & PAUL J. WHALEN, NONPOINT SOURCE BEST MANAGEMENT PRACTICES PROGRAM FOR THE EVERGLADES AGRICULTURAL AREA, ASAE ANN. INT'L MEETING 2 (1996).

⁵ *Id.*

553 thousand acres drains to the northern Everglades.⁶ Of that, roughly 50 thousand acres comprise urban areas and the rest is in agriculture.⁷ According to Whalen and Whalen, writing in 1996:

The central drainage system for this region consists of five major canals and 4 large pump stations and water control structures operated by the [South Florida Water Management District]... Farm-level water management is controlled by privately owned and operated pumps and water control structures which are authorized to connect to the [District's] primary canals. The private water control structures, 310 total, each have a permitted maximum capacity based upon acreage served... The private structures range from gated culverts to 200,000 gpm pump stations, depending on acres served.⁸

While the total number of pumps may have changed over time, the description still affords a generalized view of the drainage system at the time the regulatory program described below was developed.

In 1991, (later amended in 1992 and several times thereafter), the South Florida Water Management District ("District") enacted Chapter 40E-63, Florida Administrative Code ("FAC").⁹ Entitled the "Everglades Program," the Chapter included this description of the resource sought to be protected:

The Everglades . . . has a high diversity of species, and provides habitat for large populations of wading birds and several threatened and endangered species, including wood storks, snail kites, bald eagles, Florida panthers, and American crocodiles. Large portions of the northern and eastern Everglades have been drained and converted to agricultural or urban land uses. Only 50 [percent] of the original Everglades ecosystem remains today. The remainder is the largest and most important

⁶ *Id.*

⁷ *Id.*

⁸ *Id.*

⁹ *Id.*

freshwater sub-tropical peatland in North America. The remaining components of the historic Everglades are located in the Water Conservation Areas ... and Everglades National Park.¹⁰

In the rule's statement of purpose and intent, the District recognized that nitrogen and phosphorus were derived mainly from rainfall before the creation of the EAA and that sawgrass, which is prevalent in the Everglades, has lower phosphorus requirements than other species of Everglades vegetation.¹¹ Having found the introduction of phosphorus from EAA drainage water resulted in ecological changes in areas of Everglades marsh, the rule was adopted to address total phosphorus loads from the EAA.¹²

A variable that farmers cannot always control is the amount of seepage water entering the farm from nearby areas, Lake Okeechobee and primary canals.¹³ Because of the unique nature of the EAA, the District opted to adopt an EAA Basin-wide compliance assessment approach, with water quality to be measured at the southern edge of the EAA.¹⁴ The formula for determining compliance is a complex one and is set out in Section 40E-63.145, FAC.¹⁵ Chapter 40E-63 was ratified by the Legislature in Section 373.4592, Florida Statutes, not long after its adoption.¹⁶

The regulatory program's goal is to reduce total phosphorus loads discharged from the EAA by 25 percent.¹⁷ The reduction is determined by comparing present discharged loads to a baseline established prior to implementation of required practices.¹⁸ More specifically, the "EAA Basin is out of compliance when the measured [Total Phosphorus] load in runoff is above the target

¹⁰ FLA. ADMIN. CODE ANN. r. 40E-63.011(1) (2022).

¹¹ FLA. ADMIN. CODE ANN. r. 40E-63.011(2) (2022).

¹² FLA. ADMIN. CODE ANN. r. 40E-63.011 (3), (5) (2022) (The rule was later expanded to cover an adjacent watershed called the C-139 Basin, which is not addressed in this Article).

¹³ Bottcher, Izuno and Hanlon, *Procedural Guide for the Development of Farm-Level Best Management Practice Plans for Phosphorus Control in the Everglades Agricultural Area*, UNIV. OF FLORIDA COOPERATIVE EXTENSION SERVICE CIRCULAR 1177 (1997).

¹⁴ FLA. ADMIN. CODE ANN. r. 40E-63.145 (2022).

¹⁵ FLA. ADMIN. CODE ANN. r. 40E-63.145 (2022).

¹⁶ FLA. STAT. § 373.4592 (2022).

¹⁷ FLA. ADMIN. CODE ANN. r. 40E-63.101 (2022).

¹⁸ FLA. ADMIN. CODE ANN. r. 40E-63.145(3)(a); Appendix A3, incorporated by reference at 40E-63.091(3)(2022).

load for three successive years or above the limit load in any one year, within the rule-designated rainfall range applicable to the baseline period.”¹⁹

The farmers in the EAA have collectively achieved and exceeded the 25 percent water quality compliance goal of the rule. With the Water Year 2021 results, the 26-year average annual Total Phosphorus load reduction for the program is 57 percent.²⁰ The rule provides for looking beyond the basin-wide compliance in instances where the basin-wide compliance is not achieved, but it has never been necessary to implement those features.²¹

How is this program implemented, and why has it been successful? Farmers discharging to District canals implement a twenty-five point Best Management Practices (“BMP”) program set out in permits and designed specifically to their individual circumstances.²² The statute defines BMPs as:

a practice or combination of practices determined by the [District], in cooperation with the [Florida Department of Environmental Protection (FDEP)], based on research, field-testing, and expert review, to be the most effective and practicable, including economic and technological considerations, on-farm means of improving water quality in agricultural discharges to a level that balances water quality improvements and agricultural productivity.²³

Noteworthy in this definition is the required balance between water quality improvements and agricultural productivity.²⁴

¹⁹ *Id.*; S. FLA. WATER MGMT. DIST., S. FLA. ENV’T REP. Appendix 4-1 (2021) (*Summarizing* a very complex compliance determination process.).

²⁰ 1 S. FLA. WATER MGMT. DIST., NUTRIENT SOURCE CONTROL PROGRAMS IN THE S. EVERGLADES, S. FLA. ENV’T REP. (Youchao Wang et al. eds., 2022) https://apps.sfwmd.gov/sfwmd/SFER/2022_sfer_final/v1/chapters/v1_ch4.pdf [<https://perma.cc/KJ8D-5DNC>].

²¹ FLA. ADMIN. CODE ANN. r. 40E-63.145(3)(e)(1)–(7) (2022).

²² FLA. STAT. § 373.4592 (2022) (Specifics about the BMP program are set out in individual permits for farmers with outflows that discharge directly to District works or in permits issued to water control districts that operate water control structures. In the latter case, the water control district is responsible for water management and farmers within the water control district must comply with other BMP requirements on their own farms. Smaller operations can qualify for a general permit); *See also* S. FLA. WATER MGMT. DIST., EVERGLADES INTERIM REPORT 5-12 (1999).

²³ FLA. STAT. § 373.4592(2)(b) (2022).

²⁴ *Id.*

Fundamentally, the statute recognizes that agriculture can coexist with nature through proper scientific implementation and agricultural management protocols and techniques.²⁵ The program breaks BMPs into three main categories: Nutrient Control Practices (Nutrient Application Control, Nutrient Spill Prevention and Soil Testing); Particulate Matter and Sediment Controls; and Water Management Practices.²⁶ These practice categories are analogous to a three-legged stool for the program; and each category has its importance.

Nutrient Control Practices are mandatory and their implementation yields ten points.²⁷ Soil Testing is an essential element for nutrient control.²⁸ The practice involves testing the soil to determine the availability of phosphorus to the plant so that only enough fertilizer is added to address the needs of the crop.²⁹ This is accomplished by testing a certain number of soil samples per field and comparing results to published literature and other information that lays out the nutrient needs of the crop.³⁰ Following these scientifically acceptable methods, farmers are able to apply proper quantities of fertilizer to their fields.³¹ Deviation from recommended application amounts for site or farm-specific circumstances must be justified.³² Fertilizer spill prevention and proper fertilizer application techniques are also important to ensure fertilizer does not unintentionally affect the water courses surrounding the farm.³³

Because the EAA is a low-lying area, control of water elevation becomes critical to a crop's survival. Excess water must

²⁵ FLA. STAT. § 373.4592(1)(e) (2022).

²⁶ RUSSELL FRYDENBORG & BECK FRYDENBORG, EFFECTIVENESS OF EVERGLADES AGRICULTURAL AREA BEST MANAGEMENT PRACTICES FOR TOTAL NITROGEN REDUCTION 4 (2015) (*Explaining* the operation of the BMPs and their coincidental effect on nitrogen removal.).

²⁷ Information about the points credited for particular practices described herein is listed in Exhibit 1 of individual permits issued by the South Florida Water Management District.

²⁸ S. H. DAROUB ET AL., BEST MANAGEMENT PRACTICES IN THE EVERGLADES AGRICULTURAL AREA: SOIL TESTING 1, UNIV. FLA. IFAS (2018).

²⁹ *Id.*

³⁰ *Id.* at 2.

³¹ *Id.*

³² The permits include a standard condition stating: "If the actual phosphorus application rate or quantity varies from the phosphorus recommendations, the permittee shall keep notes and provide technical justification to explain the logic for all variations."

³³ FRYDENBORG, *supra* note 26, at 12–13.

be removed, and irrigation water must be made available.³⁴ Water Management is another key element of the program. The Water Management Practice will yield between five and ten points.³⁵ The Practice involves detaining a certain amount of stormwater from a rainfall event before discharging off the farm into District canals. The number of points credited depends on the amount of water detained.³⁶ Farmers can operate drainage pumps after they have detained the specified quantity of rainfall on the farm or when water levels reach an approved start elevation.³⁷ Pumps must be shut down after reaching the approved stop elevation.³⁸ Exceptions are available in certain conditions such as during the planting and harvesting seasons and the approach of storms. The on-site stormwater detention process withholds nutrient-containing particles, which can be suspended in the water column and transported offsite. Water can be held in canals and ditches, and larger farms can recirculate water internally or store it in fallow fields.

The Particulate Matter and Sediment Control Practices can yield between 2.5 points and ten points depending on the number of practices implemented.³⁹ If a farm can hold an inch of rain before discharge, it will be credited with ten points for its Water Management Practices, and will round out the twenty-five with five points awarded for implementing four Particulate Matter and Sediment Control Practices.⁴⁰ If a farm can only hold half an inch of rain, it will be credited with five Water Management Practice points and must make up the other five points by implementing two additional Particulate Matter and Sediment Controls.⁴¹ A number of factors—including size, slope, and soil type—determine detention requirements.

There are eighteen Particulate Matter and Sediment Controls from which to choose: level fields, slow velocity in main canal, grassed waterways and field ditch connections to lateral canals, ditch bank berms, canal cleaning, aquatic weed control,

³⁴ Ronald W. Rice et al., *Phosphorous Load Reductions Under Best Management Practices for Sugarcane Cropping Systems in the Everglades Agricultural Area*, 56 AGRIC. WATER MGMT. 17, 21 (2002).

³⁵ S. FLA. WATER MGMT. DIST., EVERGLADES INTERIM REPORT 5-12 (1999).

³⁶ *Id.*

³⁷ Rice, *supra* note 34.

³⁸ *Id.*

³⁹ S. FLA. WATER MGMT. DIST., EVERGLADES INTERIM REPORT 5-12 (1999).

⁴⁰ *Id.*

⁴¹ *Id.*

field ditch drainage sumps, discharge barriers, constructed ditch-bank stabilization, slow filed ditch drainage, sediment sump in main canal, forage growth, filter strips or riparian buffers, vegetation cover in upland areas, soil stabilization infrastructure, cover crops, culverts above ditch bottoms, and canal vegetation.⁴² Other sediment control BMPs may also be available, to be approved by the District.⁴³

Farmers are required to maintain records of all BMP activities, and the District inspects both farms and farm records for compliance during periodic inspections.⁴⁴ Although water quality compliance is measured at the edge of the EAA, farmers are individually required to take twenty-one day composite samples of their discharges—usually using automatic samplers—and report them to the District every eighty-one days.⁴⁵ The District requires specific quality controls and performs audits of both the water quality results and the methods used to collect the data.⁴⁶ This information becomes relevant if the EAA as a whole does not achieve compliance; the rule then requires a review of the highest sources of phosphorus for possible implementation of additional BMPs or other solutions.⁴⁷

The BMP permit program is one of several tools Florida has adopted to address the water quality discharged from the EAA.⁴⁸ In 1988, the United States sued Florida alleging violations of phosphorus in the Everglades.⁴⁹ This litigation resulted in a settlement agreement approved by consent decree in 1992.⁵⁰

Under the consent decree, among other things, the State agreed to implement the above-noted BMP permit program and construct and operate massive regional stormwater treatment areas (STAs).⁵¹ These STAs remove nutrients from surface water flows before they enter into the Everglades Protection Area (which includes the National Park and Water Conservation Areas).⁵²

⁴² The eighteen practices are listed in Exhibit 2 of individual permits.

⁴³ FLA. ADMIN. CODE ANN. r. 40E-63.101(4) (2022).

⁴⁴ S. FLA. WATER MGMT. DIST., EVERGLADES INTERIM REPORT 5–14 (1999).

⁴⁵ FLA. ADMIN. CODE ANN. r. 40E-63.136 (2022).

⁴⁶ FLA. ADMIN. CODE ANN. r. 40E-63.136(2)(a)–(h) (2022).

⁴⁷ FLA. ADMIN. CODE ANN. r. 40E-63.145(3)(e)(1)–(7) (2022).

⁴⁸ U.S. v. S. Fla. Water Mgmt. Dist., 847 F. Supp. 1567 (S.D. Fla. 1992) *aff'd in part, rev'd in part*, 28 F.3d 1563 (11th Cir. 1994).

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ *Id.* at 1569–71.

⁵² *Id.*

Another significant element of the settlement was the requirement to adopt a water quality criterion for phosphorus.⁵³ The 1994 Everglades Forever Act expanded the STA program and ratified the existing BMP permit program described above.⁵⁴ The STAs are covered under National Pollutant Discharge Elimination System Permits and consent orders.⁵⁵ A ten ppb phosphorus criterion was adopted for the Everglades Protection Area with target compliance measures through 2025.⁵⁶

The Everglades Forever Act has been amended several times to add additional construction programs for Everglades Protection.⁵⁷ However, the legislature recognized the success of the existing BMP permit program and did not change it:

The Legislature finds that STAs and BMPs are currently the best available technology for achieving the water quality goals of the Everglades Program and that implementation of BMPs, funded by the owners and users of land in the EAA, effectively reduces nutrients in waters flowing into the Everglades Protection Area. A combined program of agricultural BMPs, STAs, and requirements of this section is a reasonable method of achieving total phosphorus discharge reductions.⁵⁸

The law includes an agricultural privilege tax paid by farmers to help fund the various restoration works⁵⁹ and a farmer-funded research program to continue to improve BMPs.⁶⁰

⁵³ *Id.*

⁵⁴ 1994 Fla. Laws 94-115; FLA. STAT. § 373.4592.

⁵⁵ See FLA. MOVING FORWARD WITH PLAN TO IMPROVE WATER QUALITY IN AMERICA'S EVERGLADES 2, FLA. DEPT. ENV'T PROT. (2012).

⁵⁶ FLA. ADMIN. CODE ANN. r. 62-302.540(4)(a) (2022) ("The numeric phosphorus criterion for Class III waters in the EPA shall be a long-term geometric mean of 10 ppb, but shall not be lower than the natural conditions of the EPA, and shall take into account spatial and temporal variability. Achievement of the criterion shall be determined by the methods in this subsection. Exceedences of the provisions of this subsection shall not be considered deviations from the criterion if they are attributable to the full range of natural spatial and temporal variability, statistical variability inherent in sampling and testing procedures or higher natural background conditions.").

⁵⁷ See, e.g., 2003 Fla. Laws ch. 394 (2003).

⁵⁸ FLA. STAT. § 373.4592(1)(g) (2022).

⁵⁹ FLA. STAT. § 373.4592(6) (2022).

⁶⁰ FLA. STAT. § 373.4592(4)(f) (2022).

Three BMP permits were challenged in *Fla. Audubon Soc’y v. Sugar Cane Growers Coop. of Fla.*, 171 So. 3d 790 (Fla. Dist. Ct. App. 2015). In that case, Audubon took aim at permits encompassing thousands of acres of agricultural lands, asserting farmers were required to implement additional water quality measures beyond the twenty-five points required in previous permits.⁶¹ Audubon based its argument on this provision of the law:

As of December 31, 2006, all permits, including those issued prior to that date, shall require implementation of additional water quality measures, taking into account the water quality treatment actually provided by the STAs and the effectiveness of the BMPs. As of that date, no permittee's discharge shall cause or contribute to any violation of water quality standards in the Everglades Protection Area.⁶²

Audubon also argued that the discharges caused or contributed to ongoing water quality violations and objected to the administrative law judge's denial of its ability to submit evidence in this regard.⁶³

The Everglades Forever Act is admittedly an extremely complex piece of legislation; the Florida legislature has chosen to keep some of its older text even where superseded by new text enacted later in the Act.⁶⁴ After engaging in an extensive review of the history of the legislative enactments involving this topic and the federal consent decree, the Court concluded:

Focusing on enhancements to the STAs is reasonable because the BMP program has far exceeded its goal of reducing phosphorous levels by twenty-five percent. As the Long-Term Plan and Restoration Strategies are meant to meet the phosphorous criterion without the imposition of more aggressive BMPs, it would be contradictory to

⁶¹ *Fla. Audubon Soc’y v. Sugar Cane Growers Coop. of Fla.*, 171 So. 3d 790, 797 (Fla. Dist. Ct. App. 2015).

⁶² FLA. STAT. § 373.4592(4)(f)4 (2013).

⁶³ *Id.* at 790, 800.

⁶⁴ *See, e.g.*, 2013 Fla. Laws ch. 59.

interpret the first sentence of (4)(f)(4) [of the Everglades Forever Act] to mandate them. We also note that the Sugar Appellees are contributing to the restoration of the EvPA [Everglades Protection Area] not only with continuing BMPs but also by paying the increased agricultural privilege tax that helps fund the Long-Term Plan.⁶⁵

The court rejected the “cause or contribute” argument because the discharges into the EvPA were approved by the STA permits and consent orders.⁶⁶ It also determined that the District’s interpretation of the statute was permissible and chose not to disturb it.⁶⁷ The BMP permits were upheld.⁶⁸

II. INTEGRATION OF THE FLORIDA PROGRAM INTO THE FEDERAL FRAMEWORK

Under Section 303(d)(1)(A) of the Clean Water Act, states must identify waters where current pollution control technologies alone cannot meet water quality standards.⁶⁹ Impaired waters must be identified and submitted to the United States Environmental Protection Agency.⁷⁰ Part and parcel of this process is the development of total maximum daily loads (“TMDLs”) for the impaired waters.⁷¹ Loads are specific to each pollutant of concern; thus, a water body may have one or more TMDLs.⁷² The TMDL sets a limit for the surface water body, which is then the subject of a basin-wide restoration approach.⁷³ In Florida, TMDLs are implemented through Basin Management Action Plans

⁶⁵ Fla. Audubon Soc’y v. Sugar Cane Growers Coop. of Fla., 171 So. 3d 790, 798 (Fla. Dist. Ct. App. 2015).

⁶⁶ *Id.* at 790, 799.

⁶⁷ *Id.* at 800.

⁶⁸ *Id.*

⁶⁹ Clean Water Act, 33 U.S.C. § 1313(d)(1).

⁷⁰ Clean Water Act, 33 U.S.C. § 1313(d)(3).

⁷¹ Clean Water Act, 33 U.S.C. § 1313(d)(4)(A).

⁷² OVERVIEW OF TOTAL MAXIMUM DAILY LOADS (TMDLS), ENV’T PROT. AGENCY, <https://www.epa.gov/tmdl/overview-total-maximum-daily-loads-tmdls> (last viewed Mar. 13, 2022) [<https://perma.cc/6G9G-9BNS>].

⁷³ *Basin Management Action Plans (BMAPs)*, FLA. DEP’T OF ENV’T PROT. (Mar. 4, 2022, 9:14 AM), <https://floridadep.gov/dear/water-quality-restoration/content/basin-management-action-plans-bmaps> [<https://perma.cc/HTV9-YHPJ>].

(“BMAPs”).⁷⁴ Florida presently has thirty-eight BMAPs located throughout the state.

Section 403.067, Florida Statutes, was adopted to implement Section 303(d) of the Clean Water Act.⁷⁵ The statute sets forth the requirements for identification of impaired waters and establishment of TMDLs.⁷⁶ It also addresses the development and implementation of BMAPs, which allocate pollutant reductions to individual basins and establish projects and programs for achieving the TMDLs.⁷⁷ The law has been modified by no less than twelve legislatures since its original adoption in 1999.⁷⁸ In addition to the development and funding of regional projects, the statute requires development and adoption of Best Management Practices for both agricultural and non-agricultural nonpoint sources located within a BMAP.⁷⁹ BMAPs also integrate the existing regulatory permitting structure for point sources.⁸⁰

The Florida Department of Agriculture and Consumer Services (DACS) is tasked with adopting suitable interim measures, BMPs, or other measures necessary to achieve the level of pollution reduction established by FDEP for agricultural pollutant sources.⁸¹ FDEP, in cooperation with the water management districts, takes point with corresponding nonagricultural nonpoint pollutant sources.⁸² FDEP has been in the process of developing an updated nonagricultural nonpoint source rule.⁸³ DACS has generated ten commodity-specific manuals of Best Management Practices, which were adopted by rule in Chapter 5M of the FAC, and is systematically updating all of them.⁸⁴ The BMP manuals include Citrus, Cow/Calf, Dairy, Equine, Nurseries, Poultry, Sod, Specialty Fruit and Nut Crops,

⁷⁴ *Id.*

⁷⁵ FLA. STAT. § 403.067(1) (2022).

⁷⁶ § 403.067(6)(a)(2).

⁷⁷ *Id.*

⁷⁸ § 403.067.

⁷⁹ § 403.067(7)(a)(2)–(3).

⁸⁰ *Id.*

⁸¹ MICHAEL T. OLEXA ET AL., 2021 HANDBOOK OF FLORIDA WATER REGULATION: FLORIDA WATERSHED RESTORATION ACT 2, UNIV. FLA. INST. FOOD AND AGRIC. SCIENCES (2021).

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Agricultural Best Management Practices*, FLA. DEP'T OF AGRIC. & CONSUMER SERV., <https://www.fdacs.gov/Agriculture-Industry/Water/Agricultural-Best-Management-Practices> (last viewed Mar. 14, 2022) [<https://perma.cc/A7MU-URLV>].

Vegetable and Agronomic Crops, and Wildlife.⁸⁵ The FDACS manuals either presently do or will include specific requirements for fertilizer application⁸⁶ using the 4R principles—right source, right rate, right time and right place.⁸⁷

A nonpoint source discharger included in a BMAP must demonstrate compliance with the pollutant reductions established therein for the category of source by implementing the adopted BMPs or by conducting water quality monitoring prescribed by FDEP or a water management district.⁸⁸ A nonpoint source discharger may, in accordance with department rules, supplement the implementation of BMPs with water quality credit trades in order to demonstrate compliance.⁸⁹ While implementation of BMPs outside of a BMAP is voluntary, their implementation, inside or outside a BMAP, that is carried out in accordance with rules adopted by DACS and verified as effective by FDEP provides a presumption of compliance with state water quality standards and release from statutory liability for those pollutants addressed by the practices.⁹⁰ FDEP is not authorized to institute proceedings against the owner of the source of pollution to recover costs or damages associated with the contamination of surface water or groundwater caused by those pollutants.⁹¹

Compliance with these requirements is initiated by requesting a site visit from DACS.⁹² The DACS representative will work with the farmer to identify all applicable BMPs from an elaborate commodity-specific checklist.⁹³ The farmer must indicate which practices are in use, which are inapplicable, which will be implemented, and provide a schedule for implementation.⁹⁴ Upon verification by the DACS representative, a Notice of Intent is filed

⁸⁵ *Id.*

⁸⁶ NUTRIENT STEWARDSHIP, 4R NUTRIENT STEWARDSHIP CERTIFICATION STANDARDS MANUAL (2020), <https://4rcertified.org/wp-content/uploads/2020/04/Florida-4R-Nutrient-Stewardship-Certification-Program-Manual.pdf> [<https://perma.cc/5UNX-GNXM>].

⁸⁷ *Id.*

⁸⁸ FLA. STAT § 403.067(7)(b)(2)(g) (2022).

⁸⁹ *Id.*

⁹⁰ FLA. STAT § 403.067(7)(c)(3).

⁹¹ *Id.*

⁹² FLA. DEP'T AGRIC. & CONSUMER SERV., OFF. AGRIC. WATER POL'Y, STATUS OF IMPLEMENTATION OF AGRICULTURAL NONPOINT SOURCE BEST MANAGEMENT PRACTICES 4 (2021), <https://www.fdacs.gov/ezs3download/download/98382/2665697/Media/Files/Agricultural-Water-Policy-Files/BMP-Implementation/2021-status-of-bmp-implementation-report.pdf> [<https://perma.cc/5RZ8-6L94>].

⁹³ *Id.* at 5.

⁹⁴ *Id.*

with DACS that identifies the producer as enrolled in the program and includes the checklist developed during the site visit.⁹⁵ This Notice of Intent and checklist form the basis for site verification visits that take place every two years.⁹⁶ An example checklist for vegetable and agronomic crops would typically include: field and bed preparation, nutrient and irrigation management, irrigation system maintenance, sediment and erosion control measures, water resources protection, stormwater management, integrated pest management, and recycling and industrial materials management.⁹⁷ Other manuals include particular practices typical to the commodity in question.⁹⁸ Cost-share funds from the state may be available in certain instances.⁹⁹

The regional Everglades BMP permit program that has been the subject of this article - ratified by Section 373.4592, Florida Statutes, and adopted in the early 1990s—was a precursor to the later-adopted state-wide TMDL-impaired waters program of Section 403.067, Florida Statutes. Its counterpart is the Lake Okeechobee BMAP.¹⁰⁰ However, the Everglades BMP permit program has not been superseded—its merit continues to be recognized—and it is still in play.¹⁰¹ In fact, holders of Everglades BMP program permits may submit a Notice of Intent to implement BMPs pursuant to Section 5M-8.005, FAC, which will afford them the same presumption of compliance as producers who implement the BMP checklist of the Vegetable and Agronomic Crops Manual.¹⁰² Section 373.4595(3)(b)12, Florida Statutes (2021), also provides:

⁹⁵ *Id.*

⁹⁶ *Id.* at 6.

⁹⁷ FLA. DEP'T. OF AGRIC. & CONSUMER SERV., WATER QUALITY/QUANTITY BEST MANAGEMENT PRACTICES FOR FLORIDA VEGETABLE AND AGRONOMIC CROPS 88 (2015), <https://www.fdacs.gov/content/download/77230/file/vegAgCropBMP-loRes.pdf> [<https://perma.cc/3H4X-2HQP>] [hereinafter 2015 FLA. DEP'T. OF AGRIC. & CONSUMER SERV. REPORT].

⁹⁸ *Id.* at 1.

⁹⁹ *Id.* at 2.

¹⁰⁰ FLA. DEP'T OF ENV'T PROT., LAKE OKEECHOBEE BASIN MANAGEMENT ACTION PLAN (2020), https://publicfiles.dep.state.fl.us/DEAR/DEARweb/BMAP/NEEP_2020_Updates/Lake%20Okeechobee%20BMAP_01-31-20.pdf [<https://perma.cc/Q9D3-XBTG>].

¹⁰¹ FLA. STAT. §373.4595(3)(b)12.

¹⁰² FLA. ADMIN. CODE ANN. r. 5M-8.005 (2022); 2015 FLA. DEP'T. OF AGRIC. & CONSUMER SERV. REPORT, *supra* note 97.

The program of agricultural best management practices set forth in the Everglades Program of the district meets the requirements of this paragraph and s. 403.067(7) for the Lake Okeechobee watershed. An entity in compliance with the best management practices set forth in the Everglades Program of the district may elect to use that permit in lieu of the requirements of this paragraph.

While Notices of Intent have no expiration, Everglades Program permits do expire and must be renewed every five years.¹⁰³

CONCLUSION

Thousands of years ago, a good bit of Florida was under water.¹⁰⁴ Much of Central and South Florida has been developed thanks to the flood control projects of the United States Army Corps of Engineers and the District, which control water levels via an intricate network of canals.¹⁰⁵ These canals, which serve to drain stormwater from both agricultural and nonagricultural areas, can be a conduit of nutrients to impaired waters.¹⁰⁶ The challenge to improve water quality is not limited to South Florida, as BMAPs are in place throughout the state.¹⁰⁷ Florida's robust agricultural BMP program, which began in South Florida, remains a model for coexistence between agriculture and the environment. The programs described herein offer solutions for impaired waters throughout Florida. Perhaps they may be useful to other states as well.

¹⁰³ See *Permits*, S. Fla. Water Mgmt. Dist., <https://www.sfwmd.gov/doing-business-with-us/permits> (last viewed June 29, 2022) [<https://perma.cc/XK3X-KSHR>].

¹⁰⁴ FLA. CTR. FOR INSTRUCTIONAL TECH., *Florida's Land Then and Now*, <https://fcit.usf.edu/florida/lessons/land/land.htm#:~:text=Throughout%20most%20of%20its%20history,Florida%20peninsula%20emerged%20and%20submerged> (last viewed Mar. 15, 2022) [<https://perma.cc/W7Q9-G86S>].

¹⁰⁵ S. FLA. WATER MGMT. DIST., *History*, <https://www.sfwmd.gov/who-we-are/history> (last viewed Mar. 15, 2022) [<https://perma.cc/8DMM-83NH>].

¹⁰⁶ *Section 2: Overview of Florida waters: Canals*, UNIV. FLA. CTR. FOR AQUATIC & INVASIVE PLANTS, <https://plants.ifas.ufl.edu/manage/overview-of-florida-waters/waterbody-types/canals/> (Oct. 27, 2020, 4:53 PM) [<https://perma.cc/35F5-UWZK>].

¹⁰⁷ KEVIN O'DONNELL, FLA. DEPT' ENV'T PROT., DIV. OF ENV'T ASSESSMENT & RESTORATION, HORSESHOE COVE AND SUWANNEE SOUND: IMPAIRED WATERS ASSESSMENT OVERVIEW (2021) https://ocean.floridamarine.org/OIMMP/Resources_2021/14_ODonnell.pdf [<https://perma.cc/2SML-BTTX>].