

# **Murky Waters**

**Fertilizer Ordinances and Best Management Practices as Policy Tools for Achieving  
Water Quality Protection in Florida's Lakes, Streams, and Bays**

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## **Introduction**

Contamination of aquatic ecosystems with urban and agricultural runoff containing high levels of fertilizer nutrients such as nitrogen and phosphorus is a common problem in aquatic ecosystems throughout the world. Scientists have determined that increased human loadings of nutrients into water bodies can often trigger undesirable consequences in the aquatic ecosystems, including rapidly decreasing water clarity, the proliferation of noxious algae and weeds, and declines in native biodiversity. This process of human-induced ecological change within aquatic ecosystems is commonly called cultural eutrophication.

The ecological degradation associated with cultural eutrophication tends to negatively impact the aesthetic and recreational values of aquatic natural resources, which in turn can negatively impact local economies due to associated decreases in tourism and other resource-based activities. In an attempt to minimize and mitigate cultural eutrophication within locally and regionally important water bodies, a growing number of communities and governmental bodies in Florida and throughout the nation have recently adopted measures intended to regulate and/or restrict the usage of fertilizers within their jurisdictional boundaries.

The approaches that jurisdictions have adopted to combat cultural eutrophication run a regulatory spectrum from establishment of education programs that promote voluntary adoption of best management practices (BMPs) for fertilizer application, to stringent prohibitions on fertilizer types thought to most threaten water bodies. The purpose of this paper is to characterize and describe some of these measures, and to offer general commentary on the potential benefits and risks that the various approaches to fertilizer regulation might have for waterfront communities in Florida.

## **Best Management Practices**

Best management practices (BMPs) can be defined as scientifically accepted methods of reducing non-point source pollution and water usage within a given land use in such a way that the economic and/or or aesthetic values of that land use are not significantly harmed.<sup>1</sup> In some cases, the adoption of BMPs may even improve the productivity and appearance of lands due to the precise and scientifically researched nature of the recommended cultural practices.<sup>2</sup>

### *Voluntary BMP Programs*

Development and promotion of BMPs for fertilizer usage is a measure that governmental bodies commonly utilize in an attempt to reduce nutrient contamination within water bodies. In many cases, BMPs are developed through public-private research partnerships,

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<sup>1</sup> Olexa, Michael T., Laura Minton, Dulcy Miller, and Sarah Corbett. 2002. Handbook of Florida Water Regulation: Environmentally Safe Practices. EDIS Document FE 044. IFAS Extension, University of Florida. [http://edis.ifas.ufl.edu/BODY\\_FE044](http://edis.ifas.ufl.edu/BODY_FE044). Site accessed November 30, 2004.

<sup>2</sup> Ibid.

and then promoted by governmental bodies and industry trade groups as a voluntary, non-regulatory approach for achieving water quality improvements.

### *1. Potential benefits of voluntary BMPs*

Proponents of voluntary BMP programs argue that the cooperative, non-regulatory nature of this approach can often attract the support of industry interest groups that might resist more stringent regulation and restrictions on their products and practices. Furthermore, proponents of voluntary BMP programs often argue that water quality improvements can be achieved more quickly than with other regulatory approaches, largely because energy and resources can be focused on achieving water quality goals rather than in resolving expensive litigation.

### *2. Potential problems with voluntary BMPs*

Critics of voluntary BMPs often charge that these programs are constrained in their ability to achieve measurable water quality improvements by the inherent lack of formal enforcement powers, and rely too heavily on education programs that are ineffective at providing meaningful changes in land use practices. Some critics of BMP programs also argue that the pollutant reduction goals achieved by BMP adoption may not be sufficient to significantly improve water quality and restore degraded ecosystems.

## *Mandatory BMP Programs*

In a few cases, governments have gone a bit further and mandated the adoption of fertilizer application and nutrient management BMPs within sensitive watershed areas. Two examples of local governments in Florida that are currently utilizing the mandatory BMP approach are described in this section.

### *1. Village of Wellington*

The Village of Wellington in southeast Florida has adopted BMP codes intended to reduce nutrient discharges into the Everglades Protection Area.<sup>3</sup> These codes specifically ban the application of fertilizers containing more than two percent phosphorus on “turfgrass, pastures, paddocks,” or nurseries unless the fertilizer usage can be “justified by a soil test,<sup>4</sup>” completely prohibit certain types of fertilizer application in areas adjacent to water bodies and drainage facilities,<sup>5</sup> and call for the minimization of fertilizer application on impervious surfaces.<sup>6</sup> Wellington also requires that any “person, firm, corporation, or other legal entity which provides fertilization services for a fee within the village” register with the village as a commercial fertilizer applicator, and provides for the revocation of this registration if an operator does not follow the stipulations of BMP

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<sup>3</sup> Village of Wellington Municipal Codes. Article V, Section 30-151

<sup>4</sup> Village of Wellington Municipal Codes. Article V, Section 30-154(b). [www.municode.com](http://www.municode.com)

<sup>5</sup> Village of Wellington Municipal Codes. Article V, Section 30-154(c)(e)(f).

<sup>6</sup> Village of Wellington Municipal Codes. Article V, Section 30-154(d).

code.<sup>7</sup> It is somewhat less clear as to what the enforcement provisions are for the public at large, but a public education program to promote BMPs in personal landscaping is stipulated.<sup>8</sup>

## 2. *St. John's County*

St. John's County in northeast Florida has adopted a BMP fertilizer ordinance intended to reduce nitrogen loadings within the Guana Marsh Basin from non-agricultural land uses.<sup>9</sup> This ordinance contains specific provisions restricting the rate, timing, amounts, and types of nitrogen fertilizer applications that can be made to different types of turf grass,<sup>10</sup> prohibits certain kinds of fertilizer applications in areas adjacent to the edge of water bodies,<sup>11</sup> and prohibits the application of fertilizers on impervious surfaces.<sup>12</sup> St. John's County also stipulates that those providing fertilizer application services must register as a commercial fertilizer applicator,<sup>13</sup> meet specific educational and licensing requirements in order to receive the registration,<sup>14</sup> and "keep adequate records to demonstrate compliance" with the fertilizer ordinance.<sup>15</sup> Violations of the ordinance are deemed to constitute a public nuisance,<sup>16</sup> and can be punished by "any method prescribed by law, including injunctive relief and the provisions of Chapter 162, Florida Statutes and any ordinances enacted thereunder."<sup>17</sup> A variety of public education workshops intended to inform the public about the requirements of the ordinance and to assist the public in complying with these requirements are also stipulated.<sup>18</sup>

## 3. *Potential benefits of mandatory BMPs*

Advocates of mandatory BMPs argue that reliance on purely voluntary measures may not be capable of providing sufficient and timely protection of aquatic ecosystems that are already substantially degraded and/or imminently threatened by nutrient contamination. Thus the added coercion and enforcement provided by legally mandating BMP adoption is argued as a necessary component of protecting important natural resources.

## 4. *Potential problems with mandatory BMPs*

Opposition to mandatory BMPs can come from both sides. On the one side, some critics may argue that the pollutant reduction goals of mandated BMPs are not sufficient to significantly improve water quality and restore degraded ecosystems. On the other side,

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<sup>7</sup> Village of Wellington Municipal Codes. Article V, Section 30-155

<sup>8</sup> Village of Wellington Municipal Codes. Article V, Section 30-154(g).

<sup>9</sup> St. John's County specifically exempts "Fertilizing for farm and commercial agricultural uses" from the purview of its fertilizer ordinance. St. John's County. Ordinance No. 2003-52. Section 9

<sup>10</sup> St. John's County. Ordinance No. 2003-52. Section 5,A; 5,B; 5C; 5D

<sup>11</sup> St. John's County. Ordinance No. 2003-52. Section 5,J

<sup>12</sup> St. John's County. Ordinance No. 2003-52. Section 5,J

<sup>13</sup> St. John's County. Ordinance No. 2003-52. Section 5,G

<sup>14</sup> St. John's County. Ordinance No. 2003-52. Section 5,F; 5,G

<sup>15</sup> St. John's County. Ordinance No. 2003-52. Section 5,H

<sup>16</sup> St. John's County. Ordinance No. 2003-52. Section 8

<sup>17</sup> St. John's County. Ordinance No. 2003-52. Section 7

<sup>18</sup> St. John's County. Ordinance No. 2003-52. Section 5,E

landscaping and other businesses that have their operations substantially affected by mandated changes in landscaping practices, educational qualifications, and licensing requirements may oppose mandatory BMPs due to the perception of an unfair burden being placed upon them.

## **Fertilizer Bans**

Over the past year, the City of Madison<sup>19</sup> and surrounding Dane County<sup>20</sup> in Wisconsin and the State of Minnesota<sup>21</sup> have all passed measures that ban the sale and use of phosphorus fertilizers on domestic lawns. Each of these bans was passed in an attempt to prevent and reverse the continued cultural eutrophication in lakes and streams from phosphorus contamination. All of the measures provide limited exceptions in the case of a new lawn being established or the performance of a soil test showing a phosphorus deficiency.

### *1. Potential benefits of fertilizer bans*

The straightforward rationale behind the phosphorus fertilizer bans is that prohibiting application of phosphorus to lawns will prevent additional phosphorus from running off into lakes and streams, thus helping to prevent and reverse cultural eutrophication. The strict restrictions and test criteria for selling and buying phosphorus fertilizers are also thought to likely produce a high level of compliance with the measures.

### *2. Potential problems with fertilizer bans*

The fertilizer bans have attracted fierce opposition from landscaping professionals, resulting in a lawsuits claiming that the bans are not based upon “science or the law.”<sup>22</sup> Some research shows that phosphorus bans may do very little to clean up lakes and streams due to the internal loading of phosphorus, while other research has been interpreted to suggest that judicious applications of phosphorus fertilizers may reduce phosphorus loadings into lakes and streams by encouraging strong turf growth.<sup>23</sup>

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<sup>19</sup> Mosiman, Dean. 2004. “Madison Restricts Fertilizers for Lawns.” Wisconsin State Journal, February 4. On-line at <http://www.madison.com/wisconsinstatejournal/local/67313.php>. Site accessed November 30, 2004.

<sup>20</sup> Novak, Bill. 2004. “County Phosphorus Ban Passes; Board Rejects 3% Alternative.” Wisconsin State Journal, April 16. <http://static.highbeam.com/w/wisconsinstatejournal/april162004/countyphosphorusbanpassesboardrejects3alternative/> Site accessed November 30, 2004.

<sup>21</sup> Scott County, Minnesota. “Minnesota Lawn Phosphorus Ban Now in Effect.” [http://www.co.scott.mn.us/xpedio/groups/public/documents/web\\_files/cs\\_csenvironmentalframe.hcsp](http://www.co.scott.mn.us/xpedio/groups/public/documents/web_files/cs_csenvironmentalframe.hcsp). Site visited November 30, 2004.

<sup>22</sup> Michael, Best, and Friedrich, Attorney at Law. 2004. “Group Challenges Madison, Dane County Phosphorus Ban Ordinances.” Press release, June 2. [http://www.mbf-law.com/new/press-release105.%20crass\\_PhosphorusBan.cfm](http://www.mbf-law.com/new/press-release105.%20crass_PhosphorusBan.cfm). Site accessed November 30, 2004.

<sup>23</sup> Dane County Lakes and Watershed Commission. 2003. “Expert Opinion Regarding Dane County Phosphorus in Lawn Fertilizer Ordinance: Synopsis of Themes.” [http://www.americasbestflowers.com/Phosphorus/20031124\\_phosphorus\\_expert\\_synopsis.pdf](http://www.americasbestflowers.com/Phosphorus/20031124_phosphorus_expert_synopsis.pdf). Site accessed November 30, 2004.

## **Conclusions and Recommendations for Florida's Waterfront Communities**

Cultural eutrophication of water bodies is a serious problem that adversely affects ecological, recreational, and aesthetic values in Florida's waterfront communities. Because inappropriate landscaping practices can contribute heavily to the eutrophication of water bodies, it is in the public and economic interest of waterfront communities to take proactive steps to develop, promote, and, if necessary, mandate landscaping practices that are consistent with the conservation of water resources.

A first step that many of Florida's waterfront communities have taken over the past several years is to partner with local agricultural extension agencies to develop and promote BMPs for homeowners and landscaping professionals. This is a step that all of Florida's waterfront communities wishing to protect local water bodies should take if they have not done so already, particularly because the extensive research and resources that have already been put into BMPs generally make the development of local landscaping BMPs quite inexpensive and straightforward.

As a next step, local governments can take a lead role by utilizing BMPs within the landscaping of all county and municipal facilities, and by providing educational materials that outline the benefits of such landscaping practices. Although there is undoubtedly some cost to local governments associated with converting landscapes, such costs can be recouped quite quickly due to the lower maintenance costs associated with landscaping BMPs. The development of educational materials will also have some costs, but these costs can be minimized through the use of the many existing materials that describe and promote landscaping BMPs in Florida.

Ordinances mandating BMP adoption are a more controversial step that governments should consider taking when a water body is imminently threatened by and/or in a persistent state of cultural eutrophication. Although the legal costs associated with opposition to mandatory BMPs are a potential drawback, the economic losses associated with persistently degraded water bodies are likely more damaging to a local community than the costs of litigation. Governments can also take proactive steps to reduce the potential of reactive litigation by holding workshops and meetings with landscaping professionals, neighborhood organizations, knowledgeable scientists, and environmental groups to disseminate scientific knowledge and develop political consensus about how mandatory BMPs can be a tool for better protecting the water bodies of concern. Such preliminary groundwork is likely to not only create political support for the ordinance and make reactive litigation less of a potential problem, but may also facilitate the establishment of networks in which affected businesses and homeowners can learn how to make their landscaping practices comply with the stipulations of the ordinance.

Outright bans on the application of certain fertilizer nutrients – such as the phosphorus bans recently enacted in Wisconsin and Minnesota – for domestic landscaping applications are a fairly recent regulatory development, and are thus entail substantially more legal and scientific controversies than mandatory BMPs. At the very least,

waterfront communities in Florida with persistently degraded water bodies should closely monitor the successes and/or difficulties with the Wisconsin, Minnesota, and other fertilizer bans over the next several years. Depending upon both the observed outcomes with these fertilizer bans and the best scientific evidence for determining the source of degradation of local water bodies, highly restrictive ordinances banning certain kinds of nutrient application and/or other environmentally damaging landscaping practices may be tools that local governments should seriously consider over the next several years. However, because of the legal and scientific uncertainties currently associated with fertilizer bans, it is recommended that local governments should consider fertilizer nutrient bans only after other prescribed remedies, such as voluntary and mandatory BMPs, have failed to produce improvements in the quality of local water bodies and clear scientific evidence can be gathered to support the contention that a ban will measurably reduce nutrient loadings to the targeted water body.