SUMMARY: INDIAN RIVER LAGOON BASIN MANAGEMENT ACTION PLANS (BMAPS)

Overview

Seagrass are important to the ecological and economic health of the Indian River Lagoon (IRL). Economic studies have shown that a healthy lagoon increases property values, tourism, and fishing activities which, in turn, support the local economy. The Banana River Lagoon (BRL), North IRL, and Central IRL are impaired for nutrients based on seagrass losses, which prompted the development of total maximum daily loads (TMDLs) for nutrients, both total nitrogen (TN) and total phosphorus (TP). TMDLs are pollutant limits and define how much nutrient the seagrasses can receive each year while being a productive healthy community. The draft implementation plans for controlling nutrients in each of these subbasins are called basin management action plans (BMAPs). BMAPs have been prepared for North IRL, Central IRL, and the BRL Basins. The goal of each BMAP is to restore deeper-water seagrass habitat. Good water quality and water clarity are important for maintaining a healthy seagrass community.

Comments are welcome on the draft BMAPs until December 7th; the plans will be **legally adopted** in early 2013 and will cover a five year period. At the end of those five years, seagrass health will be reevaluated and the plans adjusted as needed.

Partners

Achieving the restoration of seagrass in the IRL requires a joint effort between federal, state, and local governments and agencies; agriculture; and private interests. The Florida Department of Environmental Protection worked collaboratively with local governments, St. Johns River Water Management District, South Florida Water Management District, Florida Department of Transportation, Florida Department of Agriculture and Consumer Services, Florida Farm Bureau, Kennedy Space Center, Cape Canaveral Air Force Station, Patrick Air Force Base, Indian River Lagoon National Estuary Program Program, Marine Resource Council, and water control and improvement districts to prepare these BMAPs.

BRL and North IRL BMAPs

The seagrass data from 2003-2009 indicate that the **BRL seagrass in the southern zone ("BRL B"), which is the area south of the State Road 528 Causeway, are not meeting their targets and additional stormwater reductions are needed in the first 5-year BMAP cycle. The seagrass in the northern zone ("BRL A"), which is the area north of the State Road 528 Causeway, are meeting their target and further reductions are not currently required.** These seagrass data also indicate that the **North IRL seagrass are not meeting their targets and additional stormwater reductions are needed in the first 5-year BMAP cycle**, in both the northern zone ("North A"), north of the NASA Causeway, and southern zone ("North B"), south of the NASA Causeway. The most recent data for BRL B and North IRL also indicate that additional reductions will be needed in the second 5-year cycle. The additional projects will take substantially more effort, since this BMAP accounts for the reductions from projects performed over 13 years (2000-2012).

When adopted, **the BMAP becomes the compliance schedule for local stormwater managers to achieve nutrient load reductions.** Each stormwater management entity has a specific load reduction assigned, a list of projects to achieve load reductions, and a project deadline of no more than 5 years from BMAP adoption. While **the project list is flexible and can be amended through the annual reporting process, the compliance schedule is not.** When a stormwater entity has a municipal separate storm sewer system (MS4) permit, **BMAP compliance is linked to the MS4 permit and the permit penalties for noncompliance**. If an urban stormwater entity is not a permit holder, the adopted BMAP provides enforcement authority. **For agricultural operations, best management practice (BMP)**

implementation is required or grower-funded water quality monitoring must be implemented to demonstrate that the operation is not a contributing source.

Water quality improvement projects that BMAP partners have already completed or plan to complete during the next five years will achieve a reduction of 43% in total nitrogen (95,996 pounds per year) and 57.2% in total phosphorus (29,792 pounds per year) for the North IRL. Reductions for the southern portion of the Banana River Lagoon are 21.2 % total nitrogen (20,638 pounds per year) and 23.8% total phosphorus (5,330 pounds per year). As an example of the magnitude of nutrient removed, the amount of total nitrogen removed each year from North IRL is equivalent to 9,600 bags of fertilizer and for the Banana River Lagoon the equivalent of 3,942 bags of fertilizer. This calculation is based on one bag of fertilizer weighing 34.48 pounds and containing 29% nitrogen.

To achieve these impressive results, our partners completed or plan to undertake the following types of projects:

- Stormwater reuse;
- Street sweeping to prevent materials from entering storm drains and stormwater;
- Wet detention ponds to treat stormwater;
- Wet detention ponds with managed aquatic plant systems to treat stormwater;
- Baffle boxes to remove debris and dirt;
- Removal of domestic and industrial wastewater discharges;
- Muck removal by dredging;
- Best management practices implemented for agriculture; and
- Education and outreach on fertilizer practices, pet waste, landscape irrigation, and planting choices.

Central IRL BMAP

The seagrass data from 2003-2009 indicate that the **Central IRL seagrass have responded to water quality projects in the past 10 years and were meeting their targets.** This impressive result is due to project and programs to prevent nutrient inputs and to treat stormwater before it reaches the IRL. Examples of the types of local and regional projects that have reduced nutrients include:

- **Diverting historic flows** back to the Upper St. Johns River, C-54 and C-1 public works projects;
- **Removing domestic and industrial wastewater discharges**;
- **Adding wet detention ponds** to treat stormwater;
- **Baffle boxes;**
- **Street sweeping** to prevent materials from entering stormwater;
- **Dredging** problematic muck deposits;
- **Maintaining stormwater ponds, baffle boxes, swales, and retention areas**;
- **Improving public education** on fertilizer practices, pet waste, landscape irrigation, and planting choices; and
- **Implementing agricultural best management practices.**

These projects have reduced the amount of total nitrogen and total phosphorus discharged into the Central IRL by 112,929 pounds per year of total nitrogen and 49,258 pounds per year of total phosphorus. As an example of the magnitude of this reduction, the reduction of total nitrogen is equivalent to 11,294 bags of fertilizer. This calculation is based on one bag of fertilizer weighing 34.48 pounds and containing 29% nitrogen.

Since seagrass were meeting targets, the Central IRL BMAP focuses on maintaining the existing water quality infrastructure, promoting maintenance activities, supporting public education, and listing projects planned in the next 5 years. **It is important for the Central IRL to maintain its water quality and to lessen the impacts of growth and human activities and algal blooms.**

Next Steps

There were **significant algal blooms in the IRL in 2011 and 2012**, and these blooms have caused seagrass die-off. The extent of the damage is not yet known. The BMAPs include research objectives and monitoring plans to further the understanding of the causes of water quality problems in the IRL Basin. The St. Johns River Water Management District is working with the Florida Fish and Wildlife Conservation Commission and scientists from academia to collect and analyze data. There is much about the current blooms that is not well understood. What is learned can be applied to better management of the IRL through the BMAPs.

Local governments can support a healthy IRL and potentially minimize future requirements by considering the following actions:

- **Adopt and/or promote local ordinances** that encourage proper fertilizer use, trash and yard waste disposal, irrigation, and pet waste disposal.
- **Maintain and improve stormwater treatment**, particularly in areas that were built before treatment was required. Recognize that **funding stormwater operations** is an important local responsibility.
- Review local permit requirements for growth and development to **promote adequate stormwater treatment.** It is much cheaper and easier to prevent pollution than it is to treat stormwater. Prevention and on-site treatment is the most efficient approach.

Individual citizens and businesses can support a healthy IRL by considering the following actions:

- Use **caution** when boating near seagrass beds;
- **Minimize** fertilizer and pesticide usage on your property, especially near water;
- **Reduce** stormwater runoff from your property;
- Follow the principles of **Florida Friendly Landscaping**;
- **Clean up** after your pets;
- **Do not put grass clippings or leaves** into the stormdrains; and
- **Live Blue** at http://www.livebluefl.org/.

The draft BMAPs are available for your review and comment at http://publicfiles.dep.state.fl.us/DEAR/BMAP/IndianRiverLagoon/BMAP_Documents/. Please send any comments to the FDEP staff listed below. We appreciate your interest and support of a healthy lagoon that meets water quality standards.

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