



Central Indian River Lagoon Basin Management Action Plan January 15, 2010

Detailed Allocation Procedure

Introduction

The Florida Department of Environmental Protection (FDEP) has adopted a Total Maximum Daily Load (TMDL) for total nitrogen (TN) and total phosphorus (TP) in the main stem of the Indian River Lagoon (IRL) and Banana River Lagoon. There are also several tributaries that flow to the main stem of the IRL, which are impaired. The TMDLs for these tributaries are scheduled to be adopted in early 2010. Due to the large extent of the basin, FDEP has determined the best approach to develop the TMDL implementation plan, the basin management action plan (BMAP), is to split the basin into three subbasins: (1) Central IRL; (2) North IRL; and (3) Banana River Lagoon. A separate BMAP will be developed for each subbasin.

According to Section 403.067, Florida Statutes (F.S.), BMAPs may provide for detailed allocations, phased implementation, and give load reduction credits to responsible parties that have implemented load reductions. In order to implement the TN and TP load reductions identified in the TMDL, the Central IRL BMAP will include detailed allocations to responsible parties in the Central IRL basin. Detailed allocations are appropriate in the IRL due to the geographic and political scale of the basin. The IRL main stem TMDL identified TN and TP allocations to point source facilities through existing permits by setting a maximum allowable discharge to each individual facility. The TMDL did not specify detailed allocations to the nonpoint sources; rather the TMDL assigned a percent reduction of TN and TP to achieve the seagrass depth targets. Through the BMAP process, detailed allocations will be made to the appropriate nonpoint sources.

Entities in the Central IRL basin include three counties, six cities, seven towns, two Florida Department of Transportation (FDOT) districts, the Turnpike Authority, seven water control districts (WCDs), and agriculture. The allocation procedure equitably assigns pollutant load reductions among the entities by considering individual jurisdictional loads.

Project Zones

Although the overall IRL Basin was divided into three subbasins, there are still major hydrological differences within areas of the Central IRL due to differing residence times. To provide a good representation of loads throughout the watershed and to address the varied hydrological responses to management actions, the Central IRL will be further subdivided into three "project zones." The project zones will assist in achieving restoration targets because they will ensure that the spatial distribution of restoration activities match the hydrology of the basin. Additionally, the project zones will provide flexibility for some stakeholders to partner on projects within project zones to achieve the most cost effective load reductions.

In the Central IRL, the estimated average residence time is approximately 80 days; however, the residence time for the whole region is affected by substantially longer residence times in the north-central area (Melbourne vicinity) as compared to the much shorter residence times in Sebastian and Vero Beach due to their proximity to inlets (Joel Stewart, SJRWMD, personal communication June 10,

2009). To address these differences in residence time, the following three project zones will be used in the Central IRL:

1. Central IRL A - from the Melbourne Causeway to Grant Farm Island;
2. Central IRL SEB - from Grant Farm Island to Wabasso Causeway (CR 510); and
3. Central IRL B - from the Wabasso Causeway to the C-25 canal in St. Lucie County.

Methodology for Allocations

The steps to calculate each entity's allocation for the BMAP are a Geographic Information System (GIS) based process, which uses the input data to the TMDL model to account for the loads from each jurisdiction. The Pollutant Load Screening Model (PLSM) shapefile for the Central IRL will be used as the base map shapefile. This shapefile contains the land use/land cover code associated with the 2000 land use, runoff coefficients (ROs), event mean concentration (EMCs), and the 30-year average rainfall for each identified area.

The base map shapefile will then be clipped (removed from the base file) into the three project zones as separate shapefiles. Note that all shapefiles created by clipping or exporting will be saved out as shapefiles and contain all of the data in the attribute table that was included in the base map shapefile. At the same time, the clipped area and its associated data are removed ("erased") from the base map shapefile.

Once the three project zone shapefiles have been created the following areas will be clipped sequentially from each project zone shapefile, saved as its own new shapefile, and then erased from the project zone shapefile:

- FDOT roads and right-of-ways (based on information provided by FDOT);
- All areas with land use/land cover codes that have 0 EMCs (i.e., land uses assigned no load generation);
- Areas occupied by WCDs (using boundaries confirmed by the WCDs);
- Areas with agricultural land uses outside water control district boundaries; and
- All areas occupied by cities and towns, each to its own jurisdictional boundary.

Once these areas have been clipped and erased, the remaining project zone shapefile will be the county responsibility.

Finally, each entity's (including counties) municipal separate storm sewer system (MS4) boundary will be clipped and erased from their jurisdictional boundary resulting in two files: (1) a load allocation (non-MS4 allocation); and (2) a wasteload allocation (MS4 allocation), where appropriate.

Calculations

The shapefiles and associated model data will be used to calculate each project zone's 2000 loading and each entity's 2000 loading. Then, using the overall load-generating acres in each project zone, a target load per acre will be calculated using the target load for the project zone from the TMDL. The allowable load for each entity will be calculated by multiplying its total load-generating acres by the target load per acre. The required reduction for each entity is then the entity's 2000 loading minus its allowable load.

As part of the allocation calculation process, a *de minimus* loading value for TN and TP will be determined. Any entity that has 2000 starting point loads below the *de minimus* values will not receive an allocation in this iteration of the Central IRL BMAP. However, both the TN and TP starting point loads must be below the *de minimus* values in order to not receive an allocation. FDEP is currently determining the appropriate *de minimus* loading values for the Central IRL.

Next Steps

After, jurisdictional boundaries are received and/or confirmed by the entities, FDEP will begin the GIS processing steps to create the shapefiles needed for the allocation calculations. Once the GIS files are available, the allocations to each responsible entity will be determined, and any entities that meet the *de minimus* requirements will be noted and removed from the allocations in this iteration of the Central IRL BMAP. The 2000 starting point loads and allocations for each entity should be complete for discussion at the next Central IRL subbasin meeting.