

Charlotte Harbor SWIM Plan Update – Proposed Quantifiable Objectives and Management Actions, January 2019

Management Actions

One of the goals of this SWIM plan is to identify strategic initiatives that will address the major issues and drivers and provide management actions that will improve and maintain the ecological health of Charlotte Harbor and Lemon Bay. The quantifiable objectives and management actions listed in this section are grouped into three distinct focus areas of (1) water quality, (2) hydrologic restoration, and (3) natural systems, though it is recognized that a focus area is not necessarily independent of the others. For example, water quality management actions can have direct impacts on achieving the natural systems seagrass targets for Charlotte Harbor and Lemon Bay. Monitoring and research actions are included for each of the three focus areas and are essential to the adaptive management of Charlotte Harbor and its watershed.

Quantifiable Objectives

The Charlotte Harbor SWIM plan includes numeric targets called quantifiable objectives (Table 1). The achievement of these objectives is expected to result in the protection and/or improvement of the Charlotte Harbor ecosystem. These objectives include both short-term and long-term goals that are meant to help develop and prioritize management actions and projects that are needed for effective management of the natural resources of Charlotte Harbor

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Table 1 – Quantifiable Objectives

Water Quality	Target
“Hold the line” on multi-year average Total Nitrogen (TN) loads from gaged portions of the Peace River	Five-year average TN load of 1,800 tons / yr
At gaged sub-basin level, maintain area-normalized TN loads at 2009 to 2015 average (or lower) for gaged Peace and Myakka Rivers	Peace River – 2.7 pounds TN / acre / yr Myakka River – 2.8 pounds TN / acre / yr
“Hold the line” on multi-year average Total Suspended Solids (TSS) loads from gaged portions of the Peace River	Five-year average TSS load of 7,500 tons / yr
At gaged sub-basin level, maintain area-normalized TSS loads at 2009 to 2016 average (or lower) for gaged Peace and Myakka Rivers	Peace River – 11 pounds TSS / acre / yr Myakka River – 15 pounds TSS / acre / yr
Hydrologic Restoration	Target*
Support compliance with minimum flows and levels (MFLs) established for the Upper Peace River	Achieve and maintain annual 95% exceedance flows (in cubic feet per second; cfs) of: 17 cfs at the USGS Bartow gage 27 cfs at the USGS Ft. Meade gage 45 cfs at the USGS Zolfo Springs gage
Support compliance with MFLs for the Middle and Lower Peace River	Maintain seasonal and flow dependent MFLs
Support compliance with MFLs established for the Upper Myakka River	Maintain seasonal and flow dependent MFLs
Support compliance with MFLs established for the Lower Myakka River	Support removal of excess flows; maintain flow dependent MFLs
Continue implementation of hydrologic restoration in the Myakka River watershed	Reduce inflows to Flatford Swamp by between 2 and 10 million gallons per day (mgd)
Participate in ongoing hydrologic restoration of Dona Bay watershed	Reduce inflows to Dona Bay by at least 3 mgd
Participate in Charlotte Harbor Flatwoods Initiative	To be determined
Participate in ongoing hydrologic restoration on conservation lands	Increase percent of area with natural hydrologic functioning over the next 10 years
Natural Systems	Target
Maintain seagrass coverage in Charlotte Harbor and Lemon Bay at 2016 levels	Charlotte Harbor – 20,280 acres Lemon Bay – 3,223 acres
Continue to implement habitat restoration projects throughout the watershed	Habitat Restoration targets are being developed by the Charlotte Harbor National Estuary Program for the Charlotte Harbor watershed through the Habitat Restoration Needs update which is expected to be completed by late January 2019. Upon completion of that document, habitat restoration goals and targets will be incorporated into the SWIM Plan by reference.

*For specific targets related to MFLs, please refer to Rule 40D-8.041, Florida Administrative Code

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Water Quality

Seagrass coverage in Charlotte Harbor and Lemon Bay are now at the highest levels recorded over the past 30 years. To allow Charlotte Harbor to continue to support existing seagrass meadows, the water quality management actions for Charlotte Harbor focus on “holding the line” on nitrogen loads from the gaged Peace River at about 1,800 tons TN per year, based on a five-year average. This amount is equivalent to the multi-year average TN loads derived for the gaged portions of the Peace River watershed for the periods of 1985 to 1991 and 2009 to 2015. In addition to watershed-wide TN load targets, individual gaged sub-basins would have area-normalized loads commensurate with the “hold the line” average across the watershed, equal to 2.7 pounds of TN per acre per year for the Peace River watershed, and 2.8 pounds of TN per acre per year for the Myakka River watershed.

In addition, loads of TSS should be held to the 2009 to 2015 average of 7,500 tons per year for the gaged Peace River watershed. To meet that goal, area-normalized TSS loads should average 11 pounds of TSS per acre per year in the Peace River watershed, and 15 pounds of TSS per acre per year in the Myakka River watershed.

Table 2 lists the management actions focused on maintaining water quality in the Lemon Bay and Charlotte Harbor watersheds.

Table 2 –Water Quality Management Actions

Monitoring and Research
Maintain District flow and water quality monitoring network in the watershed
Implement regular review of loads and priority sub-basin yields for TN and TSS
Continue to support ambient water quality monitoring network in the Harbor
Regular review of water quality status and trends
Agricultural Operations (Ranching, Citrus, Row Crops, etc.)
Outreach and coordination
Work with agencies to implement Best Management Practices (BMPs)
Support stormwater master plans
Targeted stormwater retrofits
Urban Stormwater
Develop regional and local stormwater master plans, as needed
Implement cost-effective stormwater treatment systems in priority sub-basins

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Hydrologic Restoration

The hydrologic restoration management actions for Charlotte Harbor include implementing minimum flow recovery strategies and maintaining compliance with established minimum flows in the Upper, Middle and Lower Peace River, as well as in the Lower Myakka River. For the Upper Myakka River, actions are needed to reduce the excess water flowing into Flatford Swamp, by supporting planned and ongoing efforts to reduce inflows by 2 to 10 mgd, depending on the season.

Ongoing hydrologic restoration management actions include working with local, regional and state agencies to implement Phase II of Sarasota County's Dona Bay restoration plan. Phase II is intended to divert up to 3 mgd of flows out of the Shakett Creek watershed and back toward the historical destination of the Myakka River. This would, when completed, be the first project focusing on reducing excessive inflows to Dona Bay, a problem first diagnosed more than 40 years ago by researchers with Mote Marine Lab.

In addition, the actions plan for hydrologic restoration should include innovative hydrologic restoration efforts focusing on portions of the watershed not typically addressed in SWIM Plans. For example, hydrologic restoration plans that examine the costs and benefits of increasing dispersed wet weather storage capacity of the watershed, and enhancing infiltration of precipitation into the surficial aquifer. Management actions also include controlled burns and active forest management to enhance infiltration of rainfall into the surficial aquifer, to reduce excessive wet season discharges, and, potentially to increase rates of dry season baseflow.

Table 3 lists the management actions focused on maintaining hydrologic restoration in the Lemon Bay and Charlotte Harbor watersheds.

Table 3 – Hydrologic Restoration Management Actions

Monitoring and Research
Maintain flow measurement network
Quantify forest management BMP effectiveness (i.e., enhanced infiltration and baseflow supplementation)
Develop modeling to support large-scale projects (e.g., Charlotte harbor Flatwoods and Cecil Webb Wildlife Management Area)
Hydrologic Restoration
Support SWUCA recovery strategy for the Peace and Myakka Rivers
Support BMPs for public and agricultural water use
Explore opportunities for drainage ditch conversions to multi-stage channels and urban stream renewal

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Natural Systems

The natural systems management actions for Charlotte Harbor and Lemon Bay are focused on coastal, upland and both freshwater and saltwater wetland habitats. These habitats include mangroves, salt marshes, oyster beds, mesic flatwoods and upland pine communities. Coastal upland and wetland restoration will continue to be important in Charlotte Harbor and Lemon Bay. However, given the large size of the watersheds the significance of healthy riverine corridors to protecting water quality, and the importance of hydrologic restoration, effort will also focus on the watershed as well as the shoreline and immediately adjacent lands. These efforts will include evaluating differences between various upland forest management techniques, including their ability to enhance rainfall infiltration into the surficial aquifer, increase wet-weather storage, and increase baseflow, which could lead to improved water quality and more natural timing and volumes of inflows to coastal areas.

For natural systems restoration, the SWIM Plan will incorporate by reference the Natural System restoration and protection goals and targets from the Charlotte Harbor National Estuary Program's Habitat Restoration Needs Update Project that is expected to be completed in late 2019. Project types, locations and acreages documented in the Habitat Restoration Needs Update will be used, within the boundaries of the Southwest Florida Water Management District, to guide ecosystem restoration programs and projects.

Table 4 lists the management actions focused on natural systems in the Lemon Bay and Charlotte Harbor watersheds.

Table 4 –Natural Systems Management Actions

Monitoring and Research
Continue to monitor seagrass coverage in Charlotte Harbor and Lemon Bay
Develop and continue monitoring of impacts of Sea Level Rise on coastal systems
Habitat Conservation
Strategic Land Acquisition Program to expand land conservation
Habitat Restoration
Implement CHNEP's Habitat Restoration Needs Plan
Encourage private property applications of living shorelines
Coordinate forestry management and hydrologic restoration programs