

Bay Habitats



Mangrove forests like this one are among the bay's most familiar habitats. Decaying leaves falling from these red mangroves create detritus that is a key element of the bay's food web, while barnacles and oysters grow along the fingerlike roots of the trees, and a variety of wading birds nest in the branches. Crabs, shrimp and popular sportfish like the snook seek shelter or food among the mangrove roots, while the sturdy trees themselves serve as natural storm buffers.

Photo by Donna Bollenbach

BH-1

Implement the Tampa Bay Master Plan for Habitat Restoration and Protection

ACTION:

Implement the Tampa Bay Master Plan to restore and protect key bay habitats.

STATUS:

Ongoing. Strategy revised in 2004 to incorporate hard bottom habitats, specific goals and targets for tidal rivers, streams and creeks, and a detailed Seagrass Restoration and Protection Plan.

BACKGROUND:

Significant progress has been made in restoring the historic balance of coastal habitats in Tampa Bay, a key goal of the Estuary Program's bay management blueprint. This strategy reflects efforts to provide a mosaic of habitats to support wildlife that rely on different habitats at various stages in their life cycles.

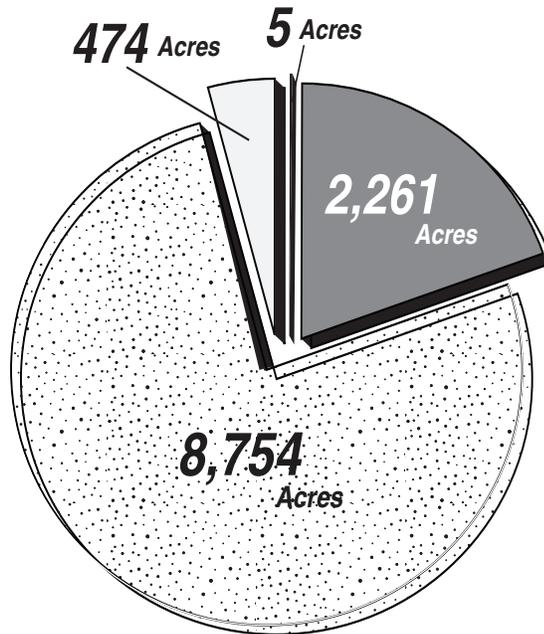
Restoration of low-salinity habitats was given highest priority in TBEP's Master Plan for Habitat Restoration and Protection because these habitats have declined faster than others, imperiling the species that depend upon them.

As reported by TBEP partners, nearly 380 acres of low-salinity habitat was restored from 1995 to 2001, far exceeding the initial goal of restoring 100 acres every five years. The 380 acres actually restored represents roughly one-fifth of the long-term restoration goal of 1,800 acres of low-salinity tidal marsh, areas that are vital to the survival of juvenile snook and mullet and numerous wading birds. TBEP partners also reported that another 2,018 acres of mangrove and salt marsh habitat were restored during this same period.

The upland element of the Master Plan is incorporated in the multi-agency Coastal Conservation Corridor Plan. It emphasizes the restoration of small freshwater ponds in the vicinity of white ibis and other wading bird rookeries, acquisition of lands with existing freshwater ponds in areas where the birds forage and along wildlife corridors, and exotic plant removal from low-salinity portions of creeks and streams that serve as juvenile fish nurseries and foraging stations for wading birds. While some progress has been made, the total impact of these upland-focused efforts has not yet been fully documented.

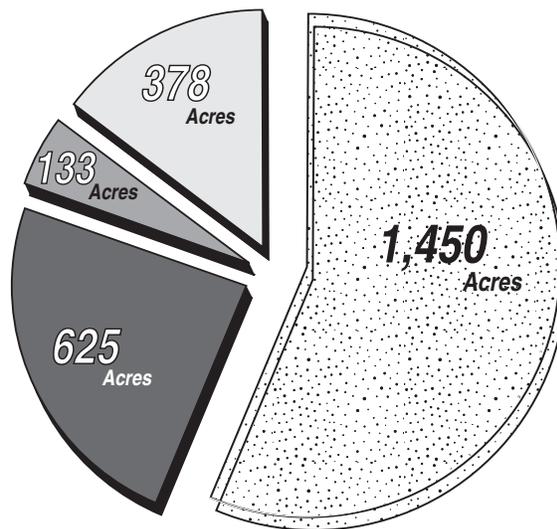
The Master Plan also identified 28 priority sites for protection to be managed or restored as necessary, either through direct purchase or other means such as conservation easements on private property. These sites were earmarked 'high priority' by the Southwest Florida Water Management District in the state's Save our Rivers and Florida Forever land acquisition programs. Nearly 1,900 of the 13,434 acres slated for protection in the Master Plan were acquired between 1995 and 2000.

Tampa Bay Habitat Protection/Aquisition 1996-2003



BH-1

Tampa Bay Habitat Restoration 1996-2003



SOURCE: SWFWMD

Critical habitats not included in the 1995 Bay Habitat Master Plan are hard bottom habitats, including both submerged areas and oyster bars. These important habitat types will be included in the Master Plan update. In addition, recent research results have indicated that water quality and restoration goals and targets for tidal rivers, streams and creeks may be different than those for open waters of the bay. A project to support development of these goals was included in the TBEP FFY 04 Annual Workplan.

Both Hillsborough and Pinellas counties have well-established and funded land acquisition and preservation programs. A sales tax referendum to create a similar program in Manatee County in 2003 was rejected by voters. However, commissioners there supported a .25 millage tax increase that raised about \$3.5 million to provide the local grant match needed to purchase the 443-acre Robinson Preserve along lower Tampa Bay and the Manatee River. The County Administrator plans to request keeping additional millage on the tax roll in the future to enable the purchase of other environmentally sensitive lands.

The concept of restoring an optimum balance of habitats continues to have important implications for Tampa Bay and other areas. Historically, habitat restoration and land acquisition have been largely opportunistic ventures, with agencies and communities purchasing and restoring what was most readily available or visibly connected to the bay. That approach helped build awareness of the environmental plight and needs of the bay at a critical time.

In recent years, the focus shifted to providing a mosaic of habitat types within a given project to maximize the benefits to fish and wildlife. The TBEP partners took this concept a step further by developing restoration and protection goals based on the needs of key wildlife guilds or groups that share common habitat and feeding preferences. These efforts have helped drive important gains in critical habitats that might otherwise have been overlooked.

Citizen advisors to the Estuary Program have developed a number of suggestions on ways this strategy might be expanded and enhanced. These recommendations will be considered as part of a comprehensive review and documentation of progress and priorities in habitat restoration and protection in 2005.

STRATEGY:

STEP 1 Update the Tampa Bay Habitat Restoration and Protection Master Plan, including the following elements:

- Assess and document progress on Tampa Bay’s Habitat Restoration and Protection Plan, “Restoring the Balance.” Include habitat restoration and land acquisition to date, and a list of remaining priority sites as identified in the 1995 “Restoring the Balance” document.
- Include hard bottom substrates (including submerged habitat and oyster bars) as critical habitat in the Update.

Responsible parties: TBEP

Schedule: 2004-2005

STEP 2 Develop restoration and protection goals and targets for tidal rivers, streams and creeks in the Tampa Bay system.

Responsible parties: TBEP

Schedule: 2004

STEP 3 Develop a Seagrass Restoration and Protection Plan for Tampa Bay, for incorporation into the “Restoring the Balance” update.

Responsible parties: Seagrass Working Group

Schedule: 2005

STEP 4 Continue to encourage restoration and protection of priority habitats, through acquisition and restoration programs.

Responsible parties: SWFWMD, local governments, EPA

Schedule: Ongoing

STEP 5 Reconvene TBEP’s habitat restoration subcommittee to evaluate progress and goals in restoring and protecting coastal and upland habitats, including recommendations from the Community Advisory Committee. Update and re-circulate maps highlighting priority restoration projects.

Responsible parties: TBEP and ABM

Schedule: Following update of the Habitat Master Plan

BH-1

BH-2

**Implement Mitigation Criteria for Tampa Bay
and Identify Priority Sites for Mitigation**

ACTION:

Implement mitigation criteria specific to Tampa Bay, and identify priority sites for off-site mitigation.

STATUS:

Ongoing.

BACKGROUND:

Mitigation is the process by which applicants compensate for impacts to natural wetlands by creating new or enhancing existing wetlands. Mitigation is required of private developers and governments in Florida. Typically, these manmade wetlands are established on the same site as the project in an area not slated for development.

Keeping track of these projects has proven difficult with limited government resources, although there have been improvements. A policy review of wetland mitigation conducted in 2000 by OPPAGA (Florida's Office of Program Policy Analysis and Government Accountability) indicates significant increases in compliance and monitoring. Based on data collected by SWFWMD staff, OPPAGA reported that District field audits in 1988 and 1989 found only a 33% success rate of constructed mitigation projects. District staff review of Environmental Resource Permits issued since 1995 found that 82% of completed mitigation projects were substantially in compliance.

In addition to the challenges of monitoring and enforcing mitigation requirements, some bay managers believe the mitigation criteria used by the state is insufficient to protect particularly vulnerable bay habitats.

Problems with mitigation and pressures from private interests who viewed it as cumbersome led to a new concept called "mitigation banking" in the early 1990s. It allows developers to compensate for wetland losses in one place by preserving, restoring or creating wetlands at another site so that there is no net acreage loss.

Proponents say mitigation banking can consolidate habitat restoration projects into larger units, increasing the odds for success and making permits easier to monitor and enforce. The ecological benefits of these larger systems are far greater, they say, than a tiny wetland in the middle of a shopping center or along a busy road. Critics contend mitigation banking makes it easier to destroy wetlands. If an applicant can simply pay to restore marshes somewhere else, there is little incentive to preserve wetlands on site. Many of the concerns stem from provisions (or lack thereof) in the state mitigation banking rule.

To address these complex issues, the Tampa Bay Estuary Program supported develop-

ment of mitigation criteria for the Tampa Bay region as part of the Comprehensive Conservation & Management Plan for Tampa Bay. An Agency on Bay Management workgroup convened in 1997 presented final recommendations in 1999.

Recommendations addressed how to determine when on-site or off-site mitigation was appropriate, as well as siting criteria for off-site mitigation. The group also identified a short list of areas suitable for banking.

Although the criteria were approved by the TBEP Policy Committee, it's unclear to what extent they have been incorporated into local government or agency programs. This updated action calls for redistributing the recommendations as a means to renew a dialogue on this important topic.

Mitigation banking has proceeded at a snail's pace in this region, as a result of land limitations and the complexity and costs involved in siting and operating banks. To date, the state has permitted only one mitigation bank in the Tampa Bay watershed, near Cockroach Bay. The 161-acre Tampa Bay Mitigation Bank is privately owned.

While this is the only state-permitted bank in the watershed, several local governments and agencies are mitigating for impacts at larger sites to maximize ecological benefits. A partnership between the FDOT and SWFWMD, in which the transportation department pays the District a per-acre fee to conduct its off-site mitigation, allows consolidation of smaller mitigation projects into larger, regionally significant projects. Additionally, FWC operates a species mitigation bank at Bullfrog Creek in Hillsborough County to mitigate impacts to gopher tortoises.

STRATEGY:

STEP 1 Redistribute mitigation criteria completed by TBEP workgroup in 1999 to agencies and local governments with request for comment, asking specifically: 1) are they aware of the criteria; 2) to what extent are they implementing recommendations; and 3) soliciting ideas on next steps. Report results at a joint ABM-TBEP meeting.

Responsible parties: TBEP

Schedule: 2004

STEP 2 Spotlight accomplishments with a forum that also helps outline next steps. Convene a meeting of habitat restoration experts, regulatory agencies and mitigation bankers to review agency feedback on mitigation criteria, discuss mitigation banking progress, and identify next steps, including review of "habitat trading" concept and a discussion of allowing land acquisition in lieu of mitigation. Provide technical information on how effective mitigation is in creating functional habitat and exchange information among experts.

Responsible parties: ABM

Schedule: 2005

STEP 3 Direct off-site mitigation to priority sites for habitat restoration when on-site mitigation is not feasible. However, mitigation that does not result in a net increase in habitat above the level of impact should not count toward restoration goals for Tampa Bay.

BH-2

BH-2

Responsible parties: FDEP, SWFWMD, EPCHC

Schedule: 2006-2007

STEP 4 Simplify and integrate lists identifying mitigation/restoration sites (TBEP Restoring the Balance list and SWIM), with the goal of identifying top mitigation sites for each bay sector.

Responsible parties: ABM and Tampa BayWatch

Schedule: 2006-2007

STEP 5 Continue to track progress in monitoring mitigation compliance and permit enforcement, including an estimate of how often agencies conduct follow-up visits, and determine whether level-of-service targets across agencies are consistent and sufficient. Incorporated from action BH-7.

Responsible parties: DEP, SWFWMD, EPCHC

Schedule: 2007

Reduce Propeller Scarring of Seagrass and Pursue Seagrass Restoration Opportunities at Select Sites

BH-3**ACTION:**

Reduce propeller scarring of seagrass, evaluate effectiveness of seagrass restoration techniques, and pursue seagrass restoration opportunities at appropriate sites.

STATUS:

Ongoing.

BACKGROUND:

Substantial progress has been made in addressing this action. No-motor zones that protect both seagrasses and manatees have been established in several areas of the bay, including Weedon Island, Cockroach Bay, Shell Key and adjacent to Port Manatee. In addition, slow speed zones have been established in other areas that also serve to protect seagrasses from propeller damage. The largest of these is a 7-mile-long shoreline zone in Hillsborough County (from Apollo Beach to E.G. Simmons Park) that requires boaters to go slow in waters less than 6 feet deep. A similar buffer zone designated in 2002 for Terra Ceia Bay requires boaters to go slow within 500 feet of shore. Pinellas County has enacted new ordinances that create or expand seagrass protection zones around Shell Key and Weedon Island. And in Cockroach Bay and Fort DeSoto Park, some areas that had been off-limits to internal combustion engines were re-opened because scarred seagrasses were recovering well.

A local rule review committee evaluated a state proposal for additional manatee protection areas in Tampa Bay, and issued its recommendations in mid-September 2003 (See FW-3). The FWC adopted new new manatee speed zones in 2004. Although aimed primarily at manatee protection, the new zones — which require boaters to travel at slow speed along several bay shorelines either year-round or seasonally — also serve to protect seagrasses in these shallow areas.

Educational efforts aimed at promoting safe boating also have contributed to boater awareness of this problem. Among these are the Tampa Bay Manatee Watch program, which was administered by Tampa BayWatch and the Fish and Wildlife Marine Research Institute under the guidance of the Tampa Bay Estuary Program's Manatee Awareness Coalition. Manatee Watch recruited and trained volunteers to provide information and safe boating tools such as polarized sunglasses and nautical charts to area boaters, both on the water and at area boat ramps. TBEP has been a major financial sponsor of Manatee Watch, which was initiated in 1999 and continued through March 2003.

Despite these accomplishments and successes, Tampa Bay continues to trail only the Florida Keys in percentage of seagrasses scarred by boat propellers. Additionally, results of a 3-year monitoring project conducted by FWRI as part of the Manatee

Watch program indicate that educational programs are generally not as effective as regulatory efforts in influencing or changing boater behavior. Further evaluation of techniques should include considering other seagrass protection programs such as the “four point program” developed for the Florida Keys in the 1990s. TBEP’s Manatee Awareness Coalition also revised its educational efforts in 2005 to refine target audiences, and bring in additional partners to help deliver its “Bay Friendly Boating” message.

A number of techniques have been proposed to assist in the restoration of seagrasses in Tampa Bay, including experimental offshore bar restoration in areas receiving high wave energy, understanding the effects of bioturbation (by rays and other animals) on seagrass transplant success or new colonization, and seagrass planting. Several methods of transplanting are now being tried in Tampa Bay; however, the verdict is still out on the long-term success of these techniques and a scientific monitoring program to compare the effectiveness of the different methods was just initiated in 2004 as part of an overall package of seagrass research.

Therefore, this action should remain a part of the CCMP for the next 5-year period. This will allow managers to refine boater education programs to more successfully reach target audiences and to assess the need for additional regulatory slow-speed zones or additional waterway markers to protect seagrasses. Also expected in this time frame are results of the research and monitoring programs assessing the success and future viability of various seagrass restoration techniques.

STRATEGY:

STEP 1 Assess the comparative success and viability of various seagrass restoration or mitigation techniques and scar reduction methods.

Responsible parties: FWRI, Southwest Florida Seagrass Working Group for recommendations

Schedule: FWRI transplant evaluation ongoing, finalized in 2004. Evaluation of other techniques in 2004-2005

STEP 2 Following adoption of new manatee speed zones in 2004 (see FW-2) specifically for those zones that are located in seagrass meadows, evaluate the need for expanded no-motor or slow speed zones for seagrass protection.

Responsible parties: TBEP Seagrass Working Group for recommendations; implementation by local governments

Schedule: 2005-2006

STEP 3 Develop a coordinated program that combines appropriate seagrass restoration techniques in priority areas, if proven successful, with no-motor or slow speed zones.

Responsible parties: TBEP Seagrass Working Group for recommendations; implementation by local governments

Schedule: Following FWRI evaluation of transplanting methods and evaluation of additional direct and indirect seagrass restoration techniques

ACTION PLAN

Bay Habitats

STEP 4 Revise existing boater education programs to more effectively reach target audiences.

Responsible parties: TBEP (through the Manatee Awareness Coalition), FWRI

Schedule: Ongoing. Strategy revised in 2005.

CHARTING
the **COURSE**
FOR TAMPA BAY

BH-3

Restrict Impacts to Hard-Bottom Communities and Evaluate the Ecological Effects of Artificial Hard-Bottom Habitat

ACTION:

Restrict impacts to natural hard-bottom communities and evaluate the ecological effects of artificial hard-bottom habitat.

STATUS:

Ongoing.

BACKGROUND:

While it is unclear how many acres of natural hard-bottom communities have been lost in Tampa Bay, impacts to these vital habitats are not easily mitigated, and greater recognition and protection is warranted. The rocky substrate provides an ideal surface for colonization by a wide variety of sponges, corals and other marine invertebrates, which in turn attract large numbers of fish.

In the original CCMP, this action called for a comprehensive benthic survey of Tampa Bay that would map natural hard-bottom communities, and an evaluation of the effectiveness of current permitting and mitigation rules in preserving hard bottom. Neither of these action steps was ever initiated.

However, USGS plans a benthic survey that will utilize both acoustic and laser technology to identify bottom habitat types, providing the first comprehensive look at natural hard-bottom communities in the bay. And ABM has agreed to host a workshop to evaluate the effectiveness of current permitting and mitigation rules related to hard-bottom impacts.

Using established sonar technology, USGS researchers will survey bay bottom grids by boat, running parallel track lines every 500-1000 meters. Additionally, the agency is contracting with a NASA researcher to conduct flyovers of the bay to take laser pictures of shallow coastal areas that boat-mounted instruments can't easily reach. Combined, these methods will provide maximum coverage and detail. The benthic survey is slated for completion in 2005-2006.

The flyovers are part of an experimental approach to see how easily habitats can be classified using laser light analyses of the coastline. Flying at about 1500 feet, the plane will fire about 2000 laser light beams per second across the flight path to produce a 500-foot-wide picture of each target area. USGS and NASA hope to extract habitat types from the LIDAR data by classifying each laser return signal.

Gulfstream's new natural gas pipeline stretching across the Gulf of Mexico and into lower Tampa Bay impacted nearly 20 acres of bay hard bottom. To mitigate impacts from the pipeline, the company installed about 100 20x24' shallow water reef modules

in Lower Tampa Bay and transplanted 150 soft corals. The limestone in the modules comes from an ancient reef site — now a limestone quarry — north of Tampa and was designed to mimic natural hard bottom. Another 150 6x8' deep-water reef modules, and 20,000 tons of limestone boulders, were placed in the Gulf to mitigate for impacts in Federal waters. EPC now requires mitigation of hard-bottom habitats in permitting.

Additional hard-bottom impacts are likely as a result of future harbor improvements. The Corps of Engineers is in the preliminary stages of a Tampa Harbor General Re-evaluation Study to evaluate recommendations for expanding and improving navigation, including the widening of the main ship channel to create a passing lane. The Cut B widening is likely to make the final list. The Corps has established a Steering Committee to assist with recommendations on the study, including hard bottom mitigation, and will coordinate with USGS in the final design of the bottom-mapping study to ensure it gets the information it needs to assess environmental impacts of any harbor improvements.

But along with impacts there have been gains stemming from the efforts of organizations such as Tampa BayWatch to restore oyster reefs along seawalls. The bay stewardship group plans to construct 300-500 oyster reef balls each year for placement in front of residential and park seawalls. Assuming an average of three to five units at each site, the program is expected to enhance about 1.25 miles of hardened shoreline in the bay each year. Tampa BayWatch has already installed about 1000 of the units along the waterfront in St. Petersburg and Tampa's Bayshore Boulevard. The Manatee County Artificial Reef program has installed another 500 reef balls at three locations near Emerson Point and to the west in lower Tampa Bay.

A related project is the construction of oyster reefs on natural shorelines in the bay using clean, fossilized oyster shells as a base on which live oysters will recruit to form natural oyster bars. BayWatch plans four community oyster bar construction events each year. Bars already have been installed at Whiskey Stump and Green Keys, as well as Fantasy Island. Projects are slated for Palomis Park in Tampa and the Davis Tract in south Hillsborough County. The ecological effects (including the spread of Asian green mussels) of these and other artificial hard-bottom habitats installed in the bay, as well as natural hard-bottom habitats, have not yet been documented.

STRATEGY:

STEP 1 Assist in the development of recommendations to minimize or mitigate hard-bottom impacts from the proposed Tampa Harbor Project.

Responsible parties: ACOE THP Steering Committee

Schedule: Ongoing

STEP 2 Undertake a comprehensive benthic survey of Tampa Bay in order to map the current and historic distribution of natural hard-bottom communities, including oyster reefs and rocky limestone outcroppings.

Responsible parties: USGS (for current) and TBEP (for historic)

Schedule: 2004-2005

- STEP 3 Evaluate the ecological impacts and/or benefits of hard-bottom habitat installed in the bay, including reef balls, oyster reefs, seawalls and artificial reefs. The potential effect of natural and artificial hard-bottom habitats on the spread of invasive species such as the Asian green mussel will be an important aspect of this effort.
Responsible parties: County artificial reef programs; Florida Sea Grant or other research entity
Schedule: 2004-2005
- STEP 4 Evaluate the effectiveness of existing mitigation for hard-bottom substrate impacts in Tampa Bay.
Responsible parties: FDEP Beaches and Coastal Systems; FWC Artificial Reef Group
Schedule: 2004-2005
- STEP 5 Evaluate the effectiveness of current permitting and mitigation rules, and recommend improvements. Establishment of no fishing “reserves” and buffer areas around hard-bottom substrates should be considered.
Responsible parties: ABM
Schedule: Following evaluation of existing mitigation
- STEP 6 Implement the recommendations to increase protection of hard-bottom habitats.
Responsible parties: FDEP
Schedule: To be determined from ABM evaluation
- STEP 7 Develop bay-wide goals for protection and restoration of hard-bottom communities. Incorporate into the Bay Habitat Master Plan.
Responsible parties: TBEP
Schedule: Following benthic survey

Encourage Waterfront Residents to Enhance Shorelines and Limit Runoff from Yards

BH-6**ACTION:**

Encourage waterfront residents to enhance shorelines and limit runoff from yards to protect and improve water quality.

STATUS:

Redirect focus to educational efforts.

BACKGROUND:

This action originally focused on the creation of property tax or other financial incentives to encourage habitat enhancement along seawalls, and the establishment of cost-sharing programs to promote group-permit shoreline enhancement projects.

There appears to be little interest among local governments in providing tax breaks for waterfront homeowners who enhance their shorelines, although most permitting agencies now encourage or even require such enhancements instead of hardened seawalls, where an alternative is viable. For example, the Tampa Port Authority – which is the landlord of submerged lands in Hillsborough County – has revised its permitting rules to encourage shoreline stabilization via native plants, rip-rap materials, etc. as opposed to vertical seawalls. Other permitting agencies do the same.

Educational efforts in recent years also have heightened awareness of the benefits of alternatives to traditional seawalls. Tampa BayWatch has launched a successful program to install reef balls or small oyster reefs off seawalls and docks. These small reefs provide important habitat for barnacles, crabs, mussels and other marine creatures. BayWatch has set a goal of installing 300 seawall oyster reefs a year in the bay, for a total of 1.25 miles of enhanced shoreline annually. The oyster reef program is also heavily promoted by the Marine Extension Agent for this area.

Additionally, a wide variety of educational materials are available to inform residents of the benefits of enhanced shorelines. TBEP's Tampa Bay Repair Kit, and waterfront property owners' manuals developed by Pinellas County and the Florida Department of Environmental Protection both promote the use of softened shorelines over vertical seawalls. The FDEP manual offers detailed information about various alternative stabilization techniques. Additionally, DEP offers no-charge permits for property owners who want to plant native vegetation along their shore to reduce erosion and provide habitat.

The Florida Yards & Neighborhoods Program provides technical assistance to waterfront homeowners who want to reduce stormwater runoff, improve water quality in residential canals and enhance wildlife habitat through environmentally friendly landscaping.

FDEP would be the lead agency in coordinating and implementing any rule revisions necessary to streamline permitting for shoreline restoration projects, or to mandate that habitat enhancement features be incorporated when seawalls are constructed or repaired. Because of limited resources and other rulemaking priorities within the agency, DEP prefers that priority be given to actions that do not require rulemaking.

A realtor certification program is one logical way to expand messages about environmentally friendly waterfront development to a targeted audience. Realtors could receive required continuing education credits for attending workshops organized by TBEP and other partners. The workshops would explain wetlands, conservation easements, mangrove trimming restrictions, and other issues specifically associated with living along the shore, as well as present information on the financial benefits to homeowners of retaining natural shorelines and limiting yard runoff. The realtors could use this knowledge as both a marketing tool and an information service for their clients. An existing program developed by the Cooperative Extension Service, "Sell Green and Profit," could be expanded to address these concepts.

Another, existing program directed at a targeted audience is the Manatee Awareness Coalition's "Manatee Friendly Neighborhood" Program. This voluntary educational program encourages waterfront homeowners to complete a minimum number of environmental activities from a broad menu of actions. Neighborhoods that complete five of the activities receive a handsome sign to display at their community entrance designating them as a "Manatee Friendly Neighborhood." Although this program is directed at manatee protection, it encompasses many water quality and habitat protection activities that are relevant to this CCMP action.

STRATEGY:

STEP 1 Redirect action, from creation of financial incentives to educational efforts and programs, including targeted distribution of existing materials such as FDEP's Waterfront Property Owners Guide.

Responsible parties: FDEP, Florida Sea Grant, TBEP

Schedule: Ongoing

STEP 2 Explore options for development of a Realtors Environmental Certification Program.

Responsible parties: TBEP, County Extension Offices

Schedule: Initiate in 2005

STEP 3 Expand participation in the Manatee Friendly Neighborhood Program.

Responsible parties: Manatee Awareness Coalition

Schedule: Ongoing

Expand Habitat Mapping and Monitoring Programs

ACTION:

Expand habitat mapping and monitoring programs to assess extent and quality of emergent coastal habitats.

STATUS:

Ongoing.

BACKGROUND:

While long-running assessments of water quality, seagrasses and a benthic sampling program created in 1993 have helped make Tampa Bay one of the best studied estuaries in the world, bay managers still lack an effective program for monitoring the extent and quality of emergent coastal habitats, including the conversion of habitat type (i.e. marsh to mangrove).

This update calls for renewed efforts to establish that monitoring component, while continuing seagrass and benthic monitoring initiatives.

SWFWMD continues to map seagrass acreage every two years using aerial photography, while local government partners help ground-truth seagrass quality at selected transects throughout the bay. While coverage has increased by about 350 acres per year since 1992, almost 2000 acres were lost baywide in a two-year period in the late 1990s when El Nino rains caused a dramatic upswing in bay nitrogen loadings. Seagrass acreage recorded in January 2002 and again in 2004 showed a baywide rebound, but seagrass continues to decline in parts of Old Tampa Bay, most notably in the Feather Sound area, despite improving water quality. An intensive monitoring program to examine this area more closely is now underway.

The Environmental Protection Commission of Hillsborough County coordinates benthic, or bay bottom, monitoring with participation from Manatee and Pinellas counties. About 120 samples are analyzed each year for the presence of contaminants and to determine the abundance and diversity of organisms living in the sediments. Bay sediment samples taken from 1995 to 2000 show no significant changes in contamination in the bay since 1993 when intensive sediment sampling began, although additional hot spots in rivers and some bay areas were identified. Most of these hot spots are in the lower Hillsborough and Palm rivers, where targeted sampling didn't commence until 1997.

Since no significant changes in bottom contamination have been apparent in most areas, the benthic sampling program was revised slightly beginning in 2002. The sampling program revisions resulted in a reduction of the number of sites sampled in each bay segment per year. Since 2002, the balance of program resources has been diverted to sample identified hot spots more intensely. After two or three years of sampling hot spots, the overall annual level of effort for baywide benthic quality sampling is expected to be reduced.

BH-8

Monitoring results are released every 3-5 years in a Baywide Environmental Monitoring Report (BEMR). The Baywide Environmental Monitoring Program is a collaboration of the Estuary Program, Manatee and Pinellas counties, the Environmental Protection Commission of Hillsborough County, the City of Tampa, the Florida Department of Environmental Protection, Fish and Wildlife Research Institute, the Southwest Florida Water Management District, National Audubon Society, Tampa Bay Water, and the University of South Florida. All partners participate in field collection and research, but each partner has a unique niche or area of specialization to provide baywide analyses for a specific monitoring element.

STRATEGY:

STEP 1 Develop and implement a monitoring program to track habitat quantity and quality in coastal marshes and mangrove forests, oligohaline habitats and isolated freshwater wetlands, hard bottom and oyster reef communities, and associated uplands, including natural, restored or created habitats. Also, implement a mapping program for invasive plants.

Responsible parties: TBEP Habitat Subcommittee for program development, particularly how to measure and track habitat quantity and quality; include Sarasota Bay NEP and Mote Marine Laboratory.
Implementation to be determined.

Schedule: 2004 for program development

STEP 2 Continue seagrass aerial mapping and transect monitoring to assess habitat quality.

Responsible parties: SWFWMD for seagrass aerial mapping; participants in Seagrass Working Group for transect monitoring; City of Tampa for data analyses of transect monitoring.

Schedule: Ongoing

STEP 3 Continue benthic monitoring program to analyze sediments for contaminants and assess the health of benthic communities.

Responsible parties: EPCHC, Pinellas County, Manatee County

Schedule: Ongoing

STEP 4 Map priority seagrass restoration areas, including seagrass protection areas.

Responsible parties: FWRI

Schedule: Following identification of successful seagrass planting techniques

Maintain Seasonal Freshwater Flows in Rivers

ACTION:

Establish and maintain minimum seasonal freshwater flows in rivers.

STATUS:

Ongoing.

BACKGROUND:

State legislation enacted in 1996 directs Water Management Districts to set “minimum flows” for rivers that define the limits at which further withdrawals would be “significantly harmful to the water resources or ecology of the area.”

Scientists considered the need for a separate minimum flow for the bay at a 1999 TBEP workshop, but concluded that minimum flows for the rivers should be adequate to protect the bay’s health. Janet Llewellyn, FDEP state lead on MFLs, stated that ideally it is best to start in the estuaries and work upstream when developing flow requirements, but estuaries are the most difficult water bodies for which to set MFLs. She suggests that, since SWFWMD is currently doing MFLs on a river-by-river basis, the agency should complete the MFL work and then do a composite analysis addressing effects on the bay. If the cumulative effect of MFLs from the rivers does not protect the bay, then the tributary MFLs should be revisited.

A minimum flow for the lower Hillsborough River set in 2001 stipulates that flows below the dam shall not drop below 10 cubic feet per second or about 6.5 million gallons a day. About half of the time over the past 10 years there has been no water flowing over the dam. USGS and SWFWMD scientists are collecting data that will be used to reevaluate the minimum flow beginning in 2005.

For now, the City of Tampa is meeting the flow requirements by re-routing water upstream from Sulphur Springs to the base of the dam. However, the city hopes to supplement river flows beginning in 2007 with 6 mgd of the average of 50 mgd of treated wastewater now discharged into Hillsborough Bay from the Howard Curren treatment plant – while piping most of the balance north to New Tampa, Northwest Hillsborough and Pasco counties for irrigation. Construction began in late 2004 on a pipeline that will carry water from the plant to the river and through New Tampa to the Hillsborough-Pasco line, with ultimate connections to reclaimed water systems in Pasco County, Northwest Hillsborough County and Temple Terrace.

SWFWMD expects to finalize recommendations on minimum flows for Sulfur Springs and the estuarine portion of the Alafia River in 2006. Minimum flows also are scheduled for the Tampa Bypass Canal and upper Hillsborough River in 2006, to be followed by the Manatee (including the Braden River estuary), Little Manatee and Anclote rivers in 2007.

FI-1

Regional water supply development and reuse plans illustrate the challenges of balancing water supply and ecological concerns. Meeting demand for drinking water in the fast-growing region and reducing groundwater pumping at overstressed well fields requires new water supplies that cannot be met through conservation alone. Tampa Bay Water, the region's largest water supplier, approved a strategic plan in 1995 to address those needs.

Many projects in the first phase of the Master Water Plan began operating in 2002 and early 2003, allowing groundwater pumping at 11 long-producing well fields to be reduced ahead of schedule. The first phase of the Master Water Plan includes pumping stations to harvest drinking water from the Alafia and Hillsborough Rivers and Tampa Bypass Canal for treatment and distribution through Tampa Bay Water's regional system. Excess water from these sources is stored in a regional reservoir in southeast Hillsborough County that was completed in 2005. The plan also includes a new 25 mgd seawater desalination plant near Apollo Beach that began operating in March 2003 and has operated intermittently since then.

Tampa Bay Water board members will evaluate possible projects for Configuration 2 of the Master Water Plan, including a second desal plant on the Gulf Coast near the Anclote River, after reviewing updated future water demand projections. Configuration 2 projects would potentially add another 15 mgd of water.

While modeling studies suggest that recently implemented surface water withdrawals will have a negligible impact on the bay, independent monitoring will be critical in detecting any cumulative or long-term impacts.

Surface water withdrawals are being closely evaluated by a comprehensive hydro-biological monitoring program (HBMP) funded by Tampa Bay Water and a separate Hillsborough Independent Monitoring Program (HIMP) funded by Hillsborough County. Both monitoring programs were implemented in 2000 to collect baseline data prior to new surface water withdrawals and the startup of the region's new desalination plant. Researchers are also incorporating historical data from long-running water quality and fisheries monitoring programs to identify long-term trends.

The HBMP tracks water quality, plankton, fisheries, benthic invertebrates, vegetation and bird use to detect shifts that might be associated with changes in freshwater flows. Field work is extensive with scientists evaluating an estimated 11,000 water grab samples, 800 benthic samples and 720 fisheries samples per year. Hillsborough's HIMP seeks to corroborate those results with water sampling at 30 sites on the Hillsborough River, 43 on the Alafia River and 60 near the desalination plant at Big Bend.

This action calls for an evaluation of the potential effects that MFLs may have on meeting protection and restoration goals for oligohaline areas in rivers, with an initial focus on those water bodies which are scheduled for MFL adoption in 2006. Other potential indicators for changes in freshwater inflow, such as oyster bars, will also be examined. The action also calls for close evaluation of the results of ongoing monitoring initiatives to assess cumulative impacts, including reclaimed water projects, while continuing to move forward with the establishment of minimum flows for major tributaries to Tampa Bay.

STRATEGY:

- STEP 1 To assist with the evaluation of progress towards TBEP habitat restoration and protection goals, convene a workshop to assess potential effects of proposed MFL determinations (Minimum Flows and Levels determinations) on existing and potential oligohaline habitat (water column and vegetation), initially for Sulfur Springs and the Alafia River. Include discussion of Southern Water Use Caution Area in Alafia River evaluation.
Responsible parties: TBEP and SWFWMD
Schedule: workshop held in November 2003
- STEP 2 Establish seasonal flow requirements for Tampa Bay tributaries in accordance with schedule adopted by SWFWMD Governing Board, considering recommendations from advisors in previous step.
Responsible parties: SWFWMD
Schedule: As adopted by SWFWMD Governing Board
- STEP 3 Evaluate results of Tampa Bay Water's hydro-biological monitoring program (HBMP) and Hillsborough County's independent monitoring program (HIMP) for impacts to area tributaries and the bay from surface water with drawals.
Responsible parties: Tampa Bay Water and EPCHC
Schedule: Annual Science Review Committee meeting convened by Tampa Bay Water
- STEP 4 Periodically estimate total freshwater flow from all sources to the bay.
Responsible parties: SWFWMD and TBEP
Schedule: Every 5 years, starting in 2005