

THE MATURATION AND FUTURE OF HABITAT RESTORATION PROGRAMS FOR THE TAMPA BAY (FLORIDA) ESTUARINE ECOSYSTEM

Brandt F. Henningsen, Ph.D.

SWIM Program

Southwest Florida Water Management District

Tampa Bay
Location: mid-
western coast of
Florida



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Tampa Bay

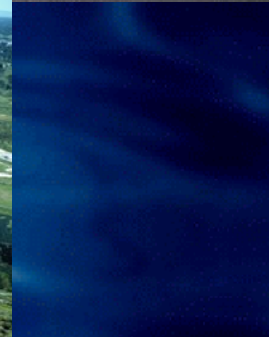


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**Tampa Bay
False Color
Infrared
Aerial**



ECOSYSTEM DEGRADATION AND DESTRUCTION





Tampa Bay Wetland Losses

**Emergent Wetlands.....4323 ha (10,929 ac =
44% loss of emergent wetlands)**

**Seagrasses.....25,220 ha (62,319 ac =
81% loss of seagrasses)**

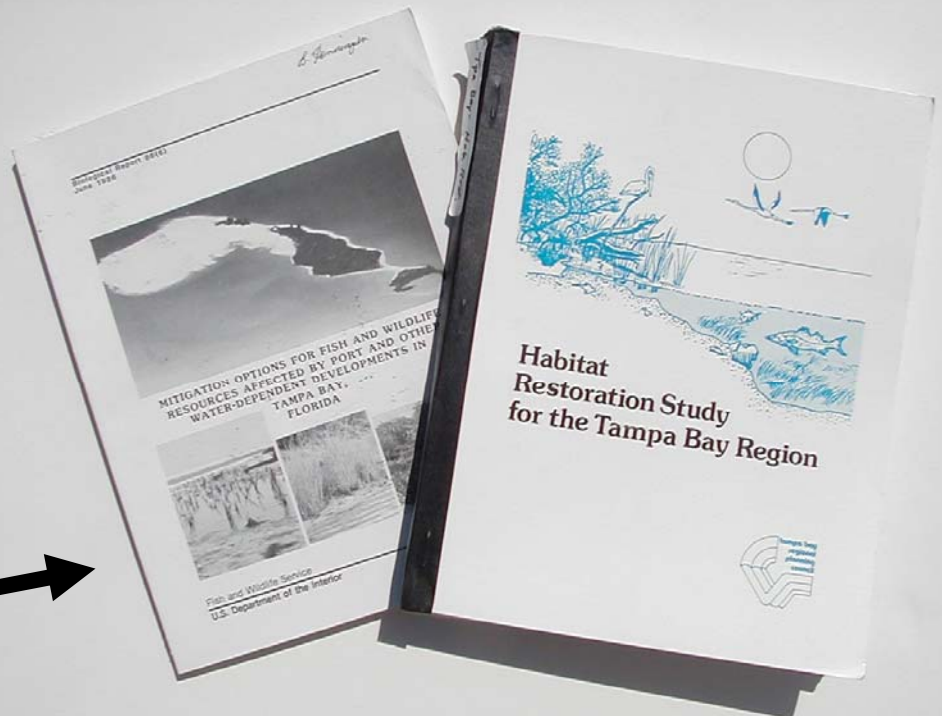
Tampa Bay Poor Water Quality

Point sources (wwtps)

Non-point sources (stormwater runoff)

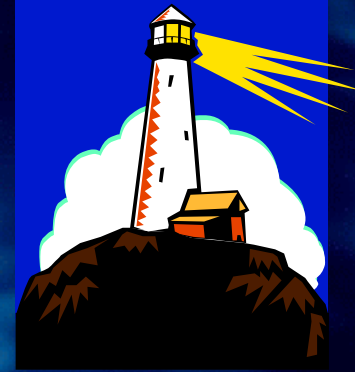


Early Tampa Bay Assessments



Early Tampa Bay Restoration "Plans"

Management and Restoration Programs for Tampa Bay



1960s-1987: Growing awareness of problems

1987: Surface Water Improvement and Management (SWIM) Program (SWFWMD)

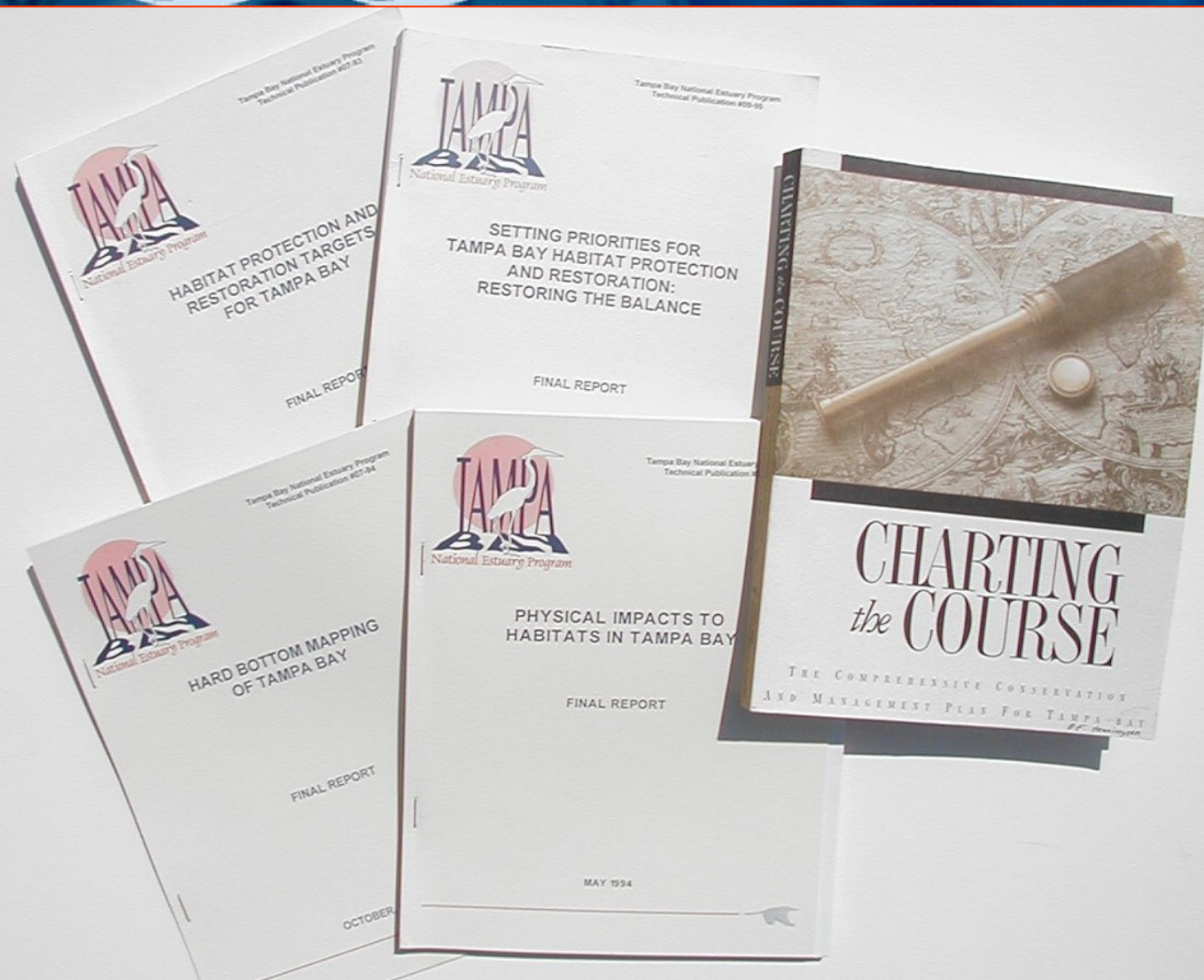
1991: Tampa Bay National Estuary Program

Programs are the product of concerned, informed citizens, scientific studies and the political process.



**First
Comprehensive
Tampa Bay
Management
Plan: SWIM
Program of
SWFWMD
(1988)**

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Tampa Bay National Estuary Program: Evaluations and Management Plan (CCMP)

Plans rely on use of

Normative Forecasting:

defining a future reality and what steps
must be taken to achieve that reality

(100 year timeframe 1997-2096)

Restoration and Management Plans for Tampa Bay

Water/Sediments

Bay Habitats

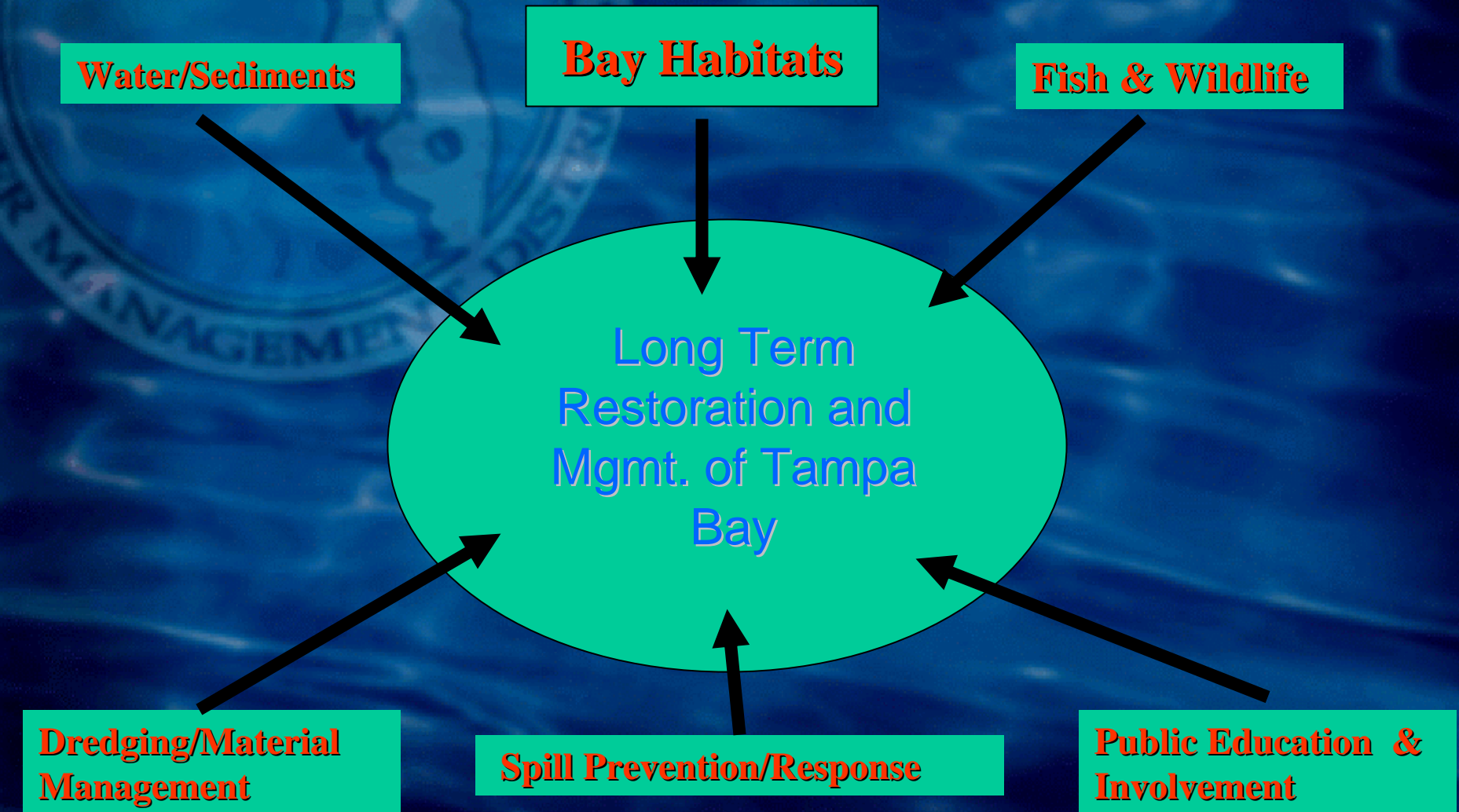
Fish & Wildlife

Long Term
Restoration and
Mgmt. of Tampa
Bay

**Dredging/Material
Management**

Spill Prevention/Response

**Public Education &
Involvement**



TWO OPPORTUNITIES EXIST



**Conserve remaining
habitats**



**Give mother nature
a helping hand**

TBEP GOAL FOR TAMPA BAY WETLANDS

Restore bay ecosystem to 1950 proportions by restoring ≥ 1800 ac within 100 years (1997-2096), with emphasis on oligohaline wetlands

Restoring the Balance

**Re-establish percentages of
differing coastal/estuarine habitats
in direction proportion to
(estimated) historical percentages
of those habitats**

HABITAT MOSAICS

Low and high marsh

Mangrove forest

Salterns

Mudflats

Shallow and deep open water

Hard bottom

Seagrass meadows

Tidal creeks

Transitional habitats

Island hammocks

Freshwater wetlands

Uplands



Tampa Bay Habitat Mosaics



HABITAT MOSAICS = ECOSYSTEM RESTORATION

Ecosystem: a collection of biological communities within a defined area having relationships among and between themselves and their environment

PRIORITIZATION OF RESTORATION SITES TAMPA BAY ECOSYSTEM

**Ranking of Proposed Habitat
Restoration Sites for Restoration
Programs for Tampa Bay: a
Working Guide for the Future**

**Effort to
prioritize
restoration sites**

**CRITERIA AND RANKING SYSTEM FOR EMERGENT
WETLAND RESTORATION
TAMPA BAY**

CRITERION	NUMERICAL VALUE TO BE ASSIGNED		
Existing salinity regime	1	3	5
	15-35 ppt	6-14 ppt	0.5-5 ppt
Percent loss of all emergent wetlands by bay segment	1	3	5
	* OTB, MTB	LTB, MR, TCB, HB	BCB
Acreage loss of all emergent wetlands by bay segment	1	2	3
	* TCB	MR, OTB, LTB, HB	BCB, MTB
Restoration/protection plan exists?	0		1
	No		Yes
Restoration/protection plan funded? + (Cooperators available)	0		1
	No		Yes
Contiguous with public lands or public conservation easement	0		1
	No		Yes
Existing habitat value for the 10 guilds	5	3	1
	Low	Medium	High
Habitat value potential for the 10 guilds after restoration	1	3	5
	Low	Medium	High
Water quality improvement value after restoration	1	2	3
	Low	Medium	High
Cost/benefit ratio	1	3	5
	Hi/Low	Med/Med	Low/Hi
Post project management	0/1	3	5
	None/Low	Medium	Hi
Historical hydrology restored	0/1	2	3
	No/Minimum	Mod.	Restored

GOALS OF ECOSYSTEM RESTORATION PROJECTS FOR TAMPA BAY

- Ecosystem restoration of site (habitat mosaics)
- Water quality improvements for bay
- Post project management
- Evaluation of project effectiveness

Ecosystem Restoration Projects Via Several Approaches

- Enhancement
- Restoration
- Creation
- Preservation of Relic Habitats
- “Lemons to Lemonade”

SUMMARY

RESTORATION STRATEGIES

- **Use of KISS Principle**
- **Ecosystem restoration (habitat mosaics=restoring the balance)**
- **Set project “free”, allow ecological processes to occur (e.g., natural recruitment, succession, etc.)**
- **Goal: little to no maintenance or management**
- **Dedication for the long term effort**

THE **SECRET** TO SUCCESSFUL RESTORATION:



MIMIC NATURE!!!!!!



PARTNERSHIPS KEY TO SUCCESS OF HABITAT RESTORATION PROJECTS FOR TAMPA BAY

- **Local governments**
- **Various state agencies**
- **Federal agencies**
- **Environmental Organizations**
- **Volunteers**

The logo for the Southwest Florida Water Management District is located in the top left corner. It features the text "Southwest Florida" in a serif font, with "Water Management District" in a smaller, italicized serif font below it. A stylized blue wave graphic is positioned beneath the text. The background of the entire slide is a dark blue, textured surface resembling water ripples. A large, faint, circular seal of the district is visible in the background on the left side.

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TAKE HOME MESSAGE:

PARTNERSHIPS WORK!!

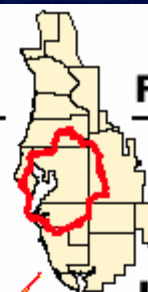
Tampa Bay Restoration Projects

(1971-2002)

- 102 projects during 32 years
- 403 ha (996 ac) restored
- Project size range:
0.0008 - 74 ha (0.002 - 183 ac)

Tampa Bay Habitat Restoration Projects

February 24, 2003



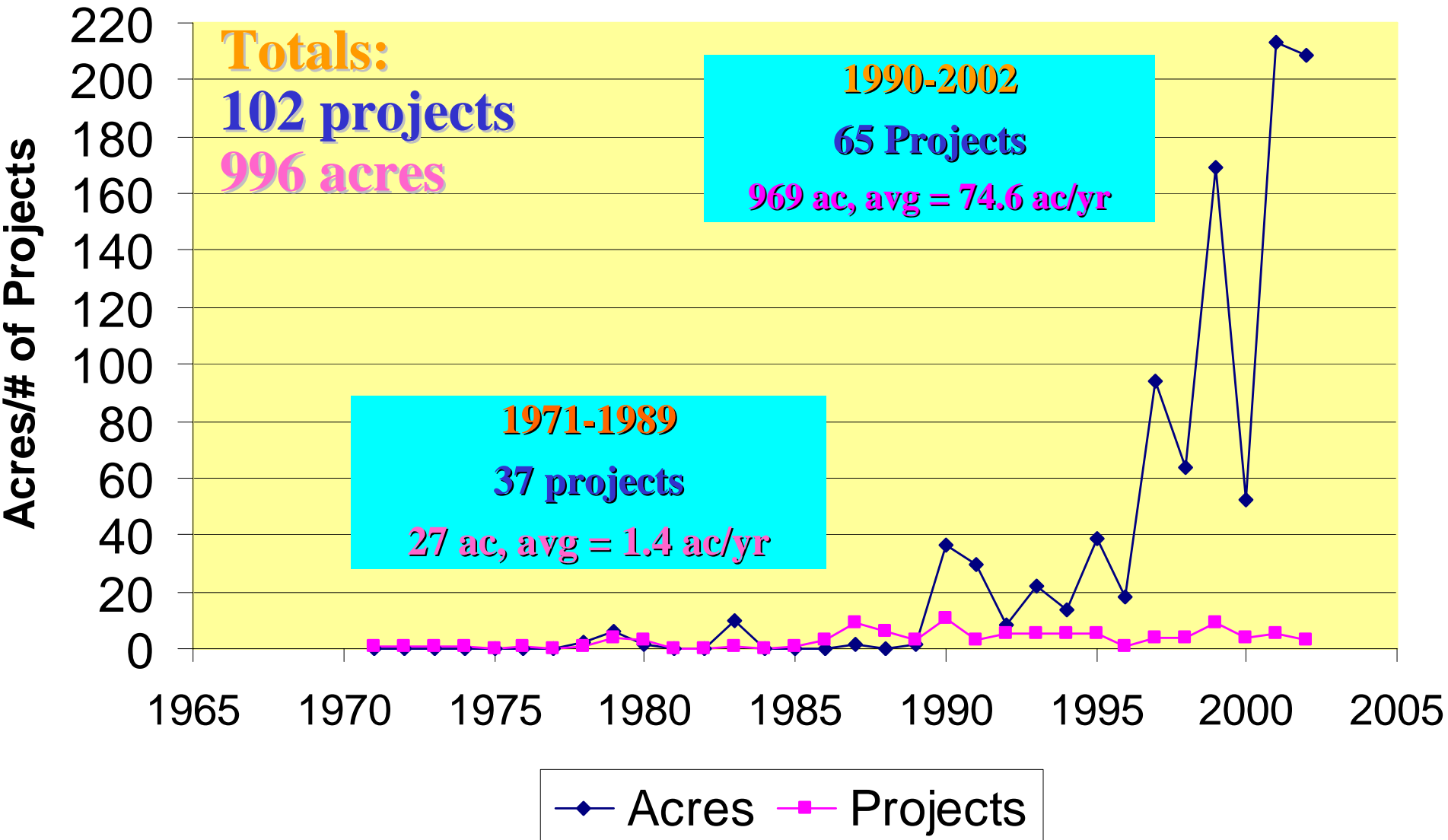
Pasco, Pinellas,
Hillsborough,
Polk & Manatee
Co.'s

LEGEND

1. Allen's Creek – Complete & Other Phases Under Dev.
2. Bartlett Park
3. Bayshore Blvd.
4. Boca Ciega I & 2
5. Braden River
6. NE McKay Bay
7. Cargil S. Parcel
8. Clam Bayou – 2 Complete & 3 Under Dev.
9. Cockroach Bay
10. Cooper's Point
11. Cypress Point
12. Del Oro Park
13. E.G. Simmons Park
14. Emerson Point
15. Gandy Park
16. Gateway Tract
17. Harbor Palms Park
18. Hendry Fill
19. Howard Frankland Spit
20. Joe's Creek I
21. Jungle Prada Park
22. Lake Tarpon Outfall Canal I & 2
23. Little Bayou
24. Mangrove Bay
25. MacDill Air Force Base I & 2
26. Mobbly Bay – Complete & Other Phases Under Dev.
27. Ribbon of Green
28. Osgood Point
29. Peanut Lake
30. Picnic Island
31. Terra Ceia (U.S. 19)
32. T.C. Aquatic & Buff Preserve
33. Wolf Branch Creek
34. Lowry Park
35. The Kitchen – I Complete
36. Apollo Beach
37. Balm Road
38. South Skyway
39. Polaris Park
40. Braden River II
41. Ballast Point
42. Fort Brooke
43. S. Tampa Greenway: Tappan Site
44. Palmetto Estuary I – Complete & Other Phases Under Dev.
45. Reed Property
46. Fort Desoto Park
47. Largo Central Park Habitat Restoration
48. River Garden Stabilization Study
49. Hillsborough River State Park



Tampa Bay Restoration 1971-2002



TAMPA BAY 2003 RESTORATION PROJECTS

(January-September 2003)

Joe's Creek School Site.....20 ac

Cockroach Bay FW marsh.....25 ac

Tappan Site.....17 ac

Cockroach Bay FW marsh (under const.)...30 ac

Anticipated Total for 2003 = 92 ac

SWIM HABITAT RESTORATION: ACREAGE 1989 - 2002

1989..... 3.0 ac

1990.....16.5 ac

1991.....17.5 ac

1992..... 8.5 ac

1993.....22.0 ac

1994.....13.6 ac

1995.....13.5 ac

1996.....19.5 ac

1997.....94.0 ac

1998..... 64.0 ac

1999.....163.4 ac

2000..... 50.0 ac

2001.....184.0 ac

2002.....209.3 ac

Total: 879.3 ac

**51 projects = 88.3% of
all TB restoration**

SWIM with Cooperators Restoration Projects

**41 of the 51 SWIM projects (80.4%)
constructed by volunteers or public
construction crews at 25-50% savings of
private construction costs**





POTENTIAL FUNDING SOURCES FOR TAMPA BAY RESTORATION






- Water Management Lands Trust Fund
- SWFWMD Basin & Governing Boards
- Florida Forever/Save Our Rivers Trust Funds
- Local Governments
- Mitigation Funds and Mitigation Banks
- Granting programs
- Private Sector

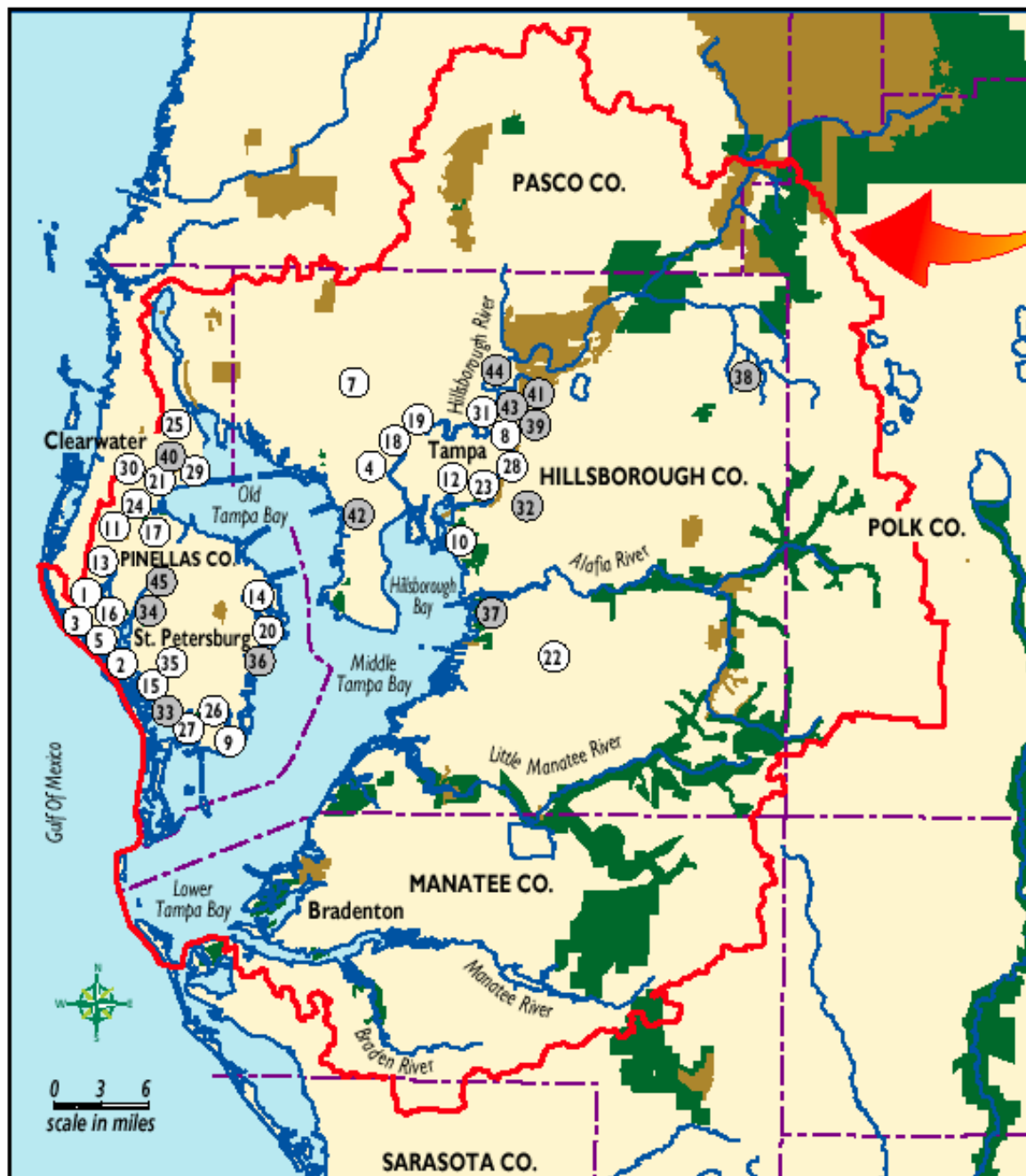
Tampa Bay Stormwater Projects

February 24, 2003

Pasco, Pinellas,
Hillsborough,
Polk & Manatee
Co.s

LEGEND

1. 102nd Ave.
 2. 141st Ave.
 3. 94th Ave.
 4. Al Lopez
 5. Bath Club Concourse
 6. ()
 7. Brushy Creek
 8. 30th St. Baffle Box
 9. Clam Bayou
 10. Delaney Creek
 11. Downtown Largo
 12. East Lake
 13. EMS Pond
 14. Haynesworth Tract
 15. Jungle Lake
 16. Lake Carroll
 17. Largo Regional ST Facility
 18. Lowry Park Zoo (West)
 19. Lowry Park Zoo (East)
 20. Mirror Lake
 21. Old Coachman Rd.
 22. Sumner Rd.
 23. Pond 56
 24. Red Maple Swamp
 25. Safety Harbor
 26. Sunset Drive Outfall
 27. Wood Ibis Park
 28. Melbourne Pond
 29. South Green Springs
 30. Logan Street/Alligator Creek
 31. Broadway Outfall
 32. Tampa Bay Water Retrofit
 33. Clam bayou Phase III
 34. Largo Stormwater Retrofit
 35. Lake Tomlinson Restoration
 36. St. Petersburg ST Retrofit
 37. Gibsonton on the Bay
 38. Plant City/McIntosh Park
 39. FDOT 56th St. Retrofit
 40. Kapok Wetland/Floodplain Project
 41. Riverhills Outfall ST Retrofit
 42. Stormwater Filtration Devices
 43. South Glen Arven Ave. Outfalls
 44. Riverhills Dr. Outfall No. 2
 45. Largo ST Quality Retrofit - 101 st St.
-  Complete
 Active
 SWFWMD Acquired Parcels
 SWFWMD Proposed Parcels
 TPA Bay Watershed Boundary





LAND ACQUISITION PROGRAMS



The logo for the Southwest Florida Water Management District is located in the top left corner. It features a circular seal with a map of Florida and the text "SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT" around the perimeter. Overlaid on the seal is the text "Southwest Florida Water Management District" in a serif font, with a stylized wave graphic below it.

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Water Management District

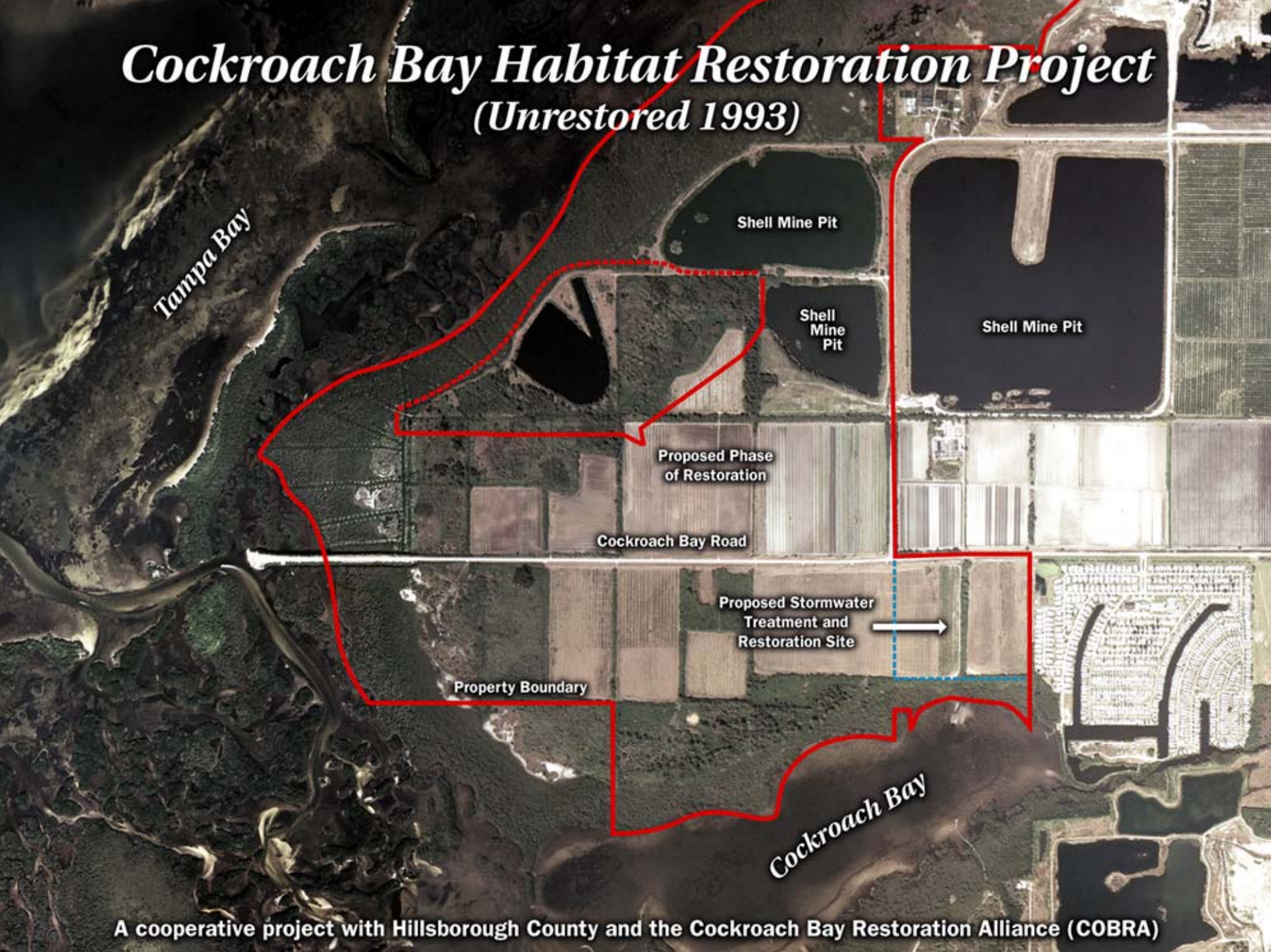
PROJECT EXAMPLES



First SWIM Restoration Project - 1988

Cockroach Bay Habitat Restoration Project

(Unrestored 1993)



Tampa Bay

Shell Mine Pit

Shell Mine Pit

Shell Mine Pit

Proposed Phase of Restoration

Cockroach Bay Road

Proposed Stormwater Treatment and Restoration Site

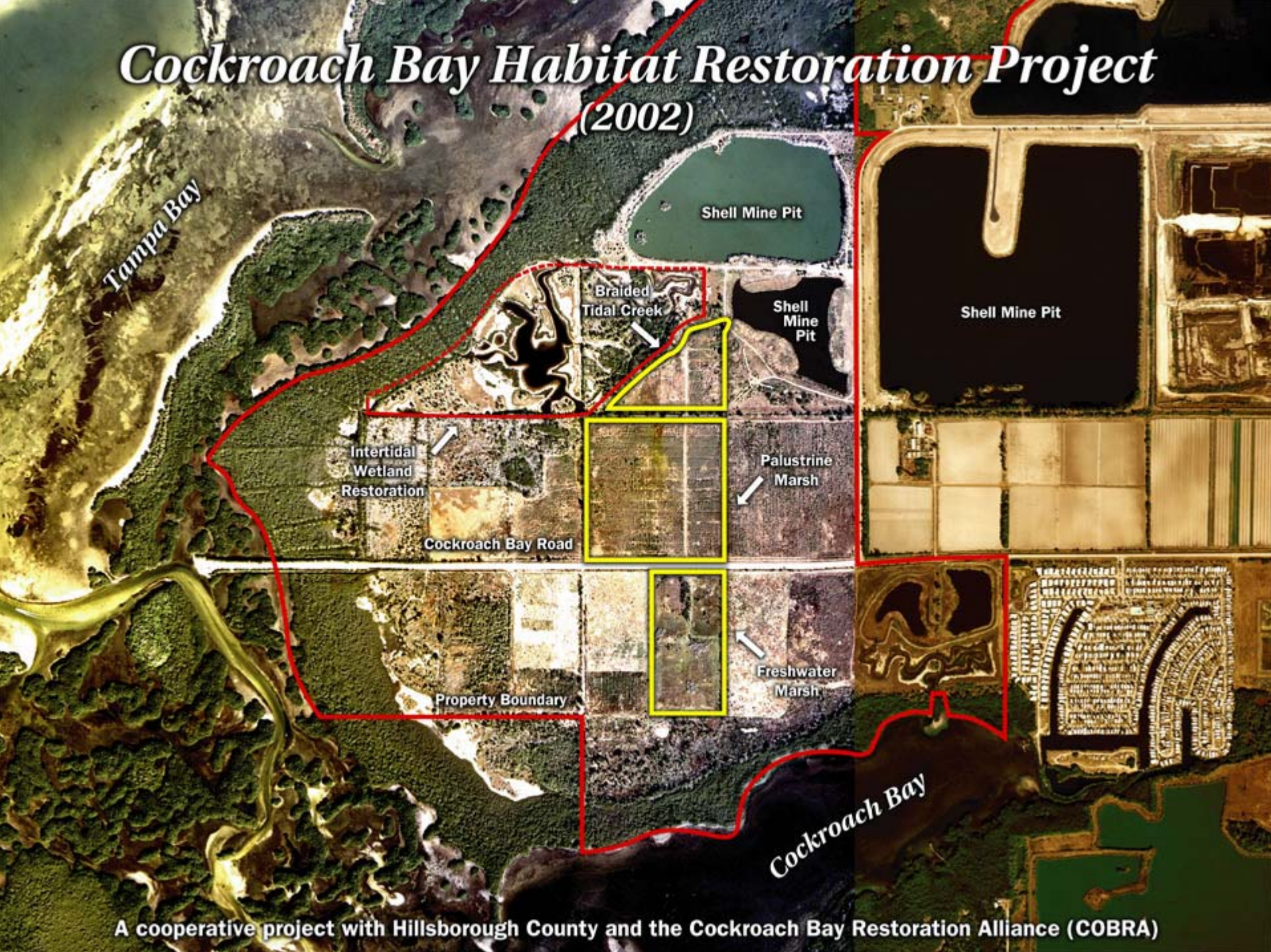
Property Boundary

Cockroach Bay

A cooperative project with Hillsborough County and the Cockroach Bay Restoration Alliance (COBRA)

Cockroach Bay Habitat Restoration Project

(2002)



A cooperative project with Hillsborough County and the Cockroach Bay Restoration Alliance (COBRA)



Cockroach Bay Phases Under Construction



Palmetto Estuary: before restoration

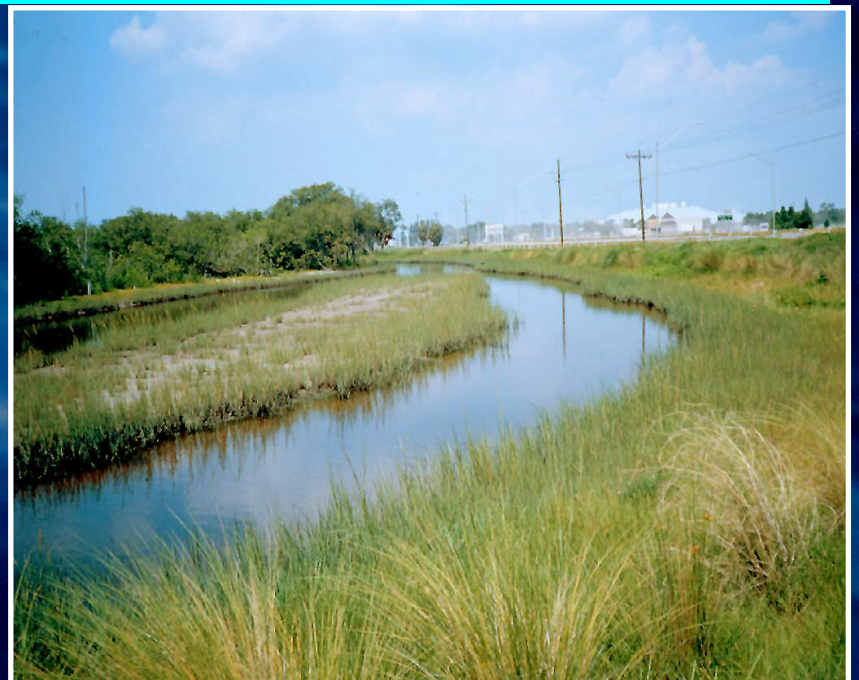


Palmetto Estuary Construction



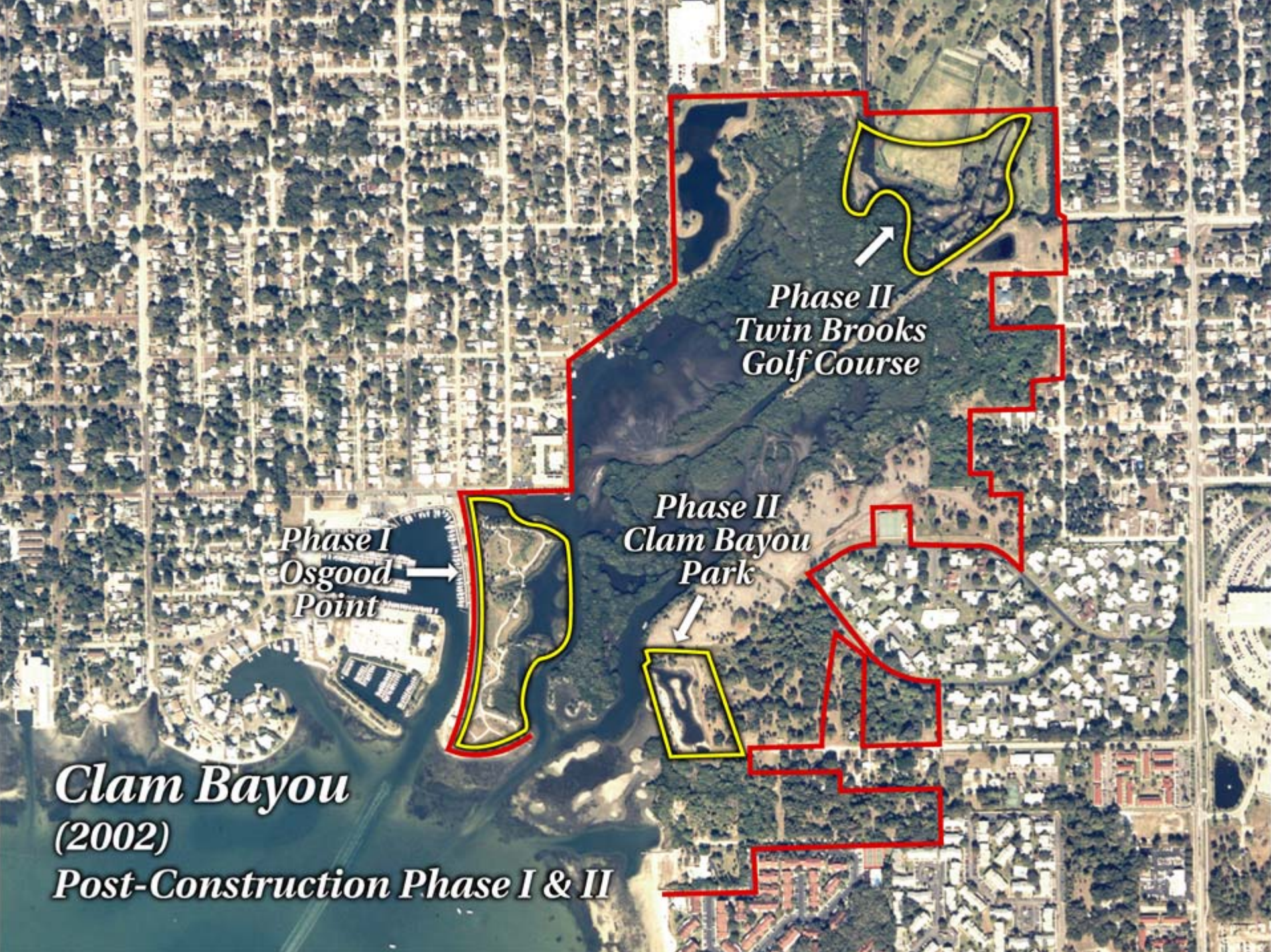


Palmetto Estuary Channel Maturation





Clam Bayou
(1990)
Pre-Construction



*Phase II
Twin Brooks
Golf Course*

*Phase I
Osgood
Point*

*Phase II
Clam Bayou
Park*

Clam Bayou

(2002)

Post-Construction Phase I & II

Davis Tract Restoration

1995 Pre-Restoration



2002 Post-Restoration



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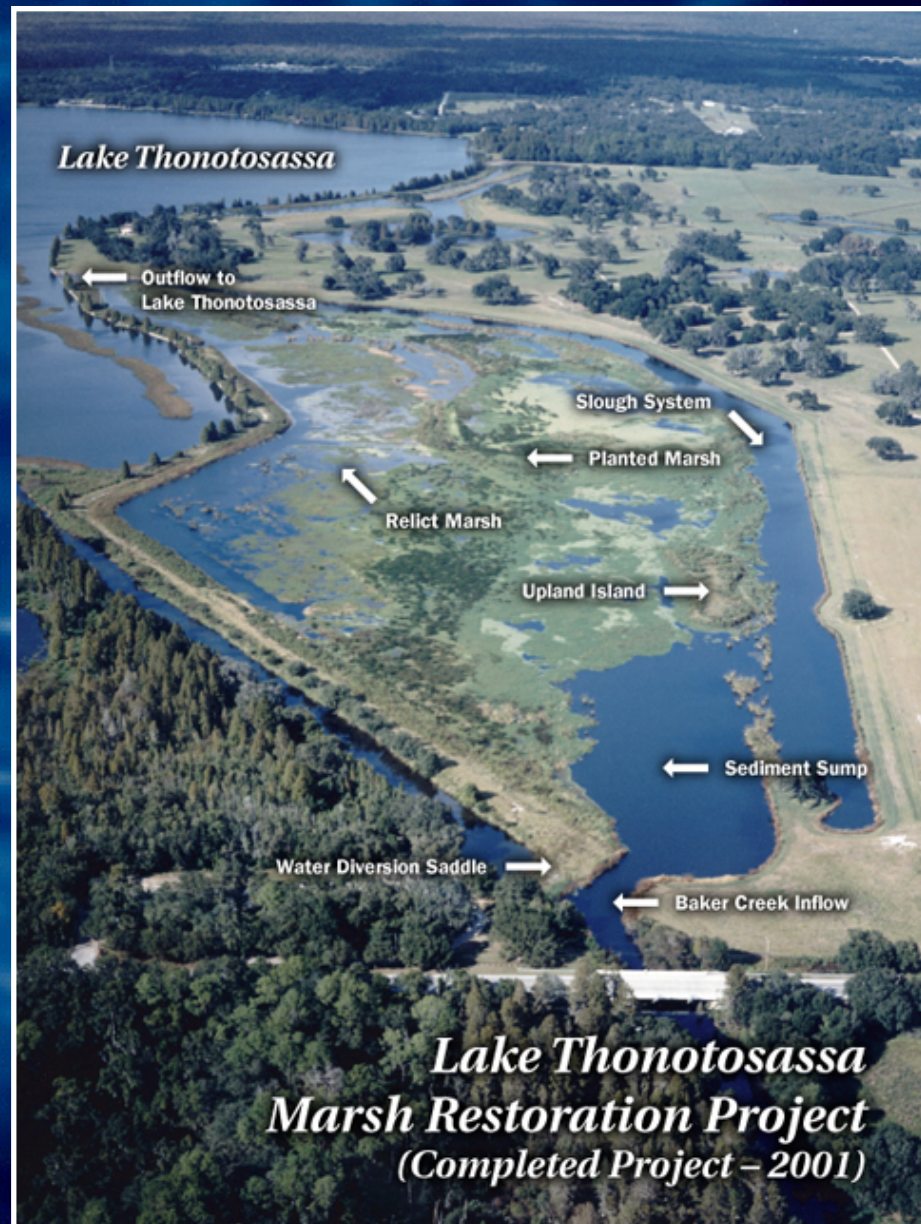
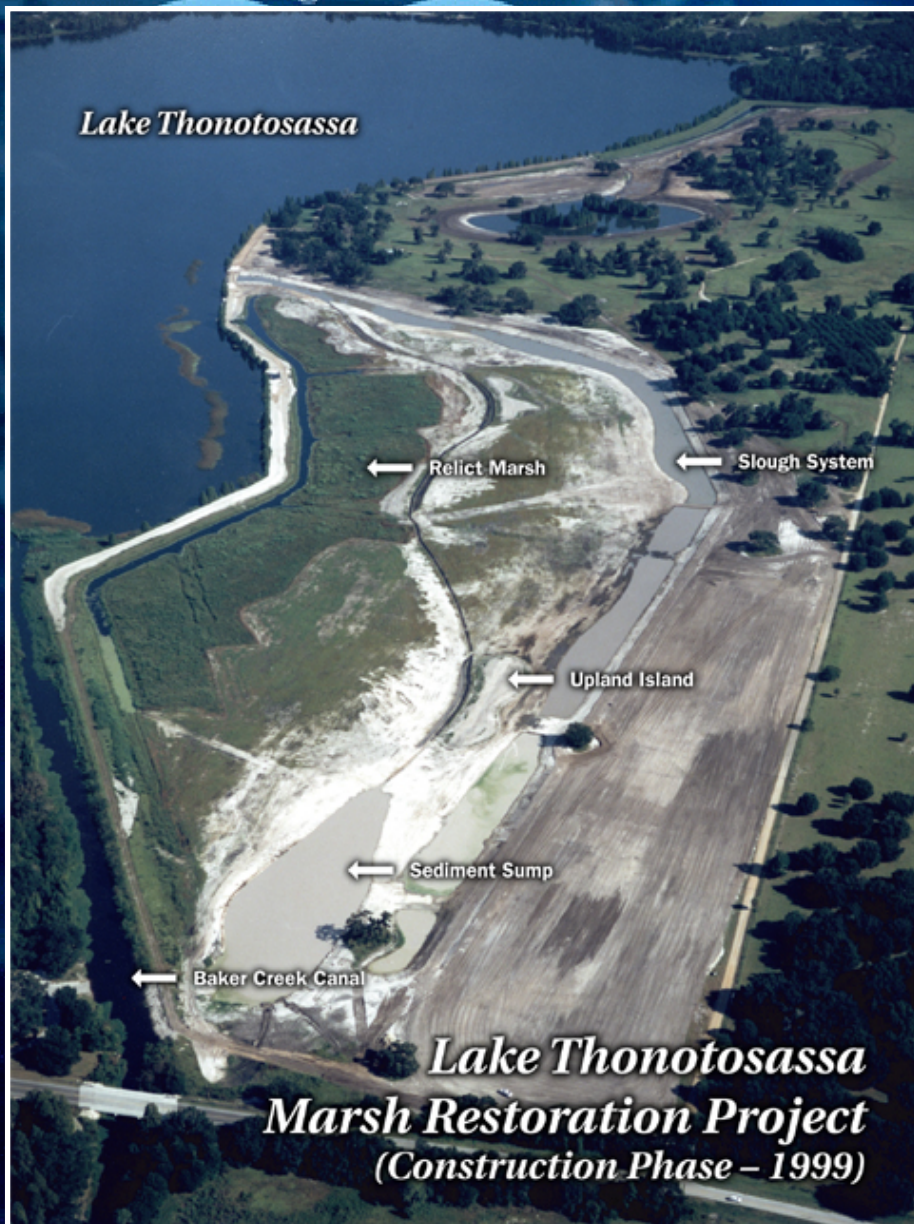
**Davis Tract:
Road conversion
to tidal channel**



Mangrove Bay Construction + Maturation



Lake Thonotosassa Freshwater Restoration





Cockroach Bay

**Upland Restoration Time
Series 0 – 10 yrs**



FUTURE HABITAT RESTORATION FOR TAMPA BAY

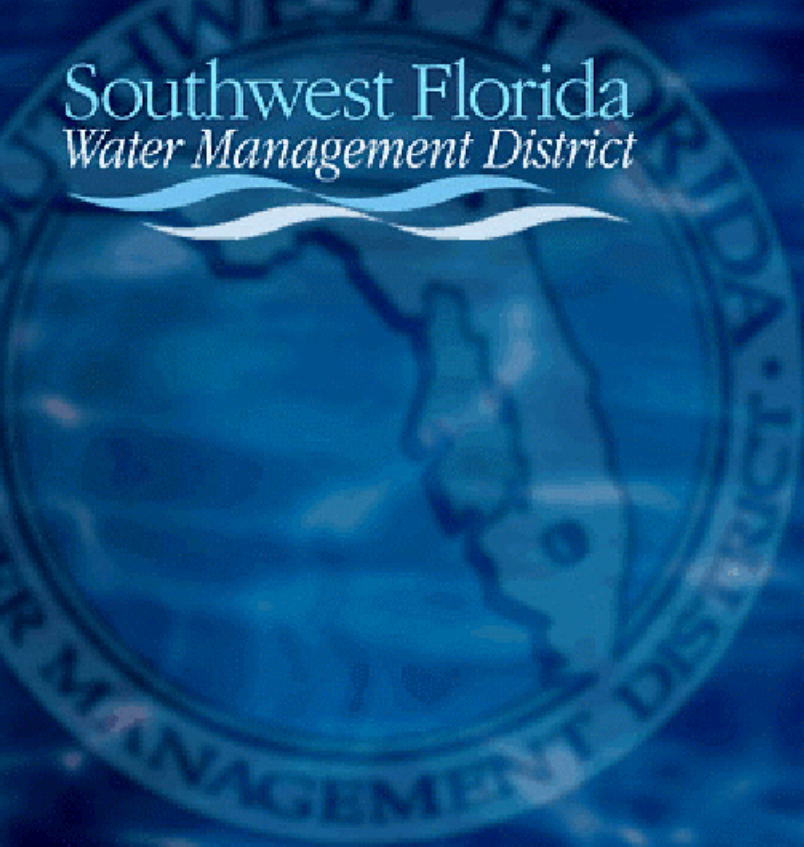
- **Combination of small and large projects, keeping in perspective that bigger is better: >3000 ac under development**
- **Land acquisition critically important to long term success of efforts and future of bay**
- **Learn from successes and failures**
- **Secure additional grants and creative funding**
- **Dedication for the long term**
- **Updates and implementations of management plans**

DEDICATION
AND
COOPERATION
WITH A
PASSION



The End

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