

Indian River Lagoon - South

Briefing for Working Group Meeting

January 7, 2004



Indian River Lagoon – South Briefing

Project Background

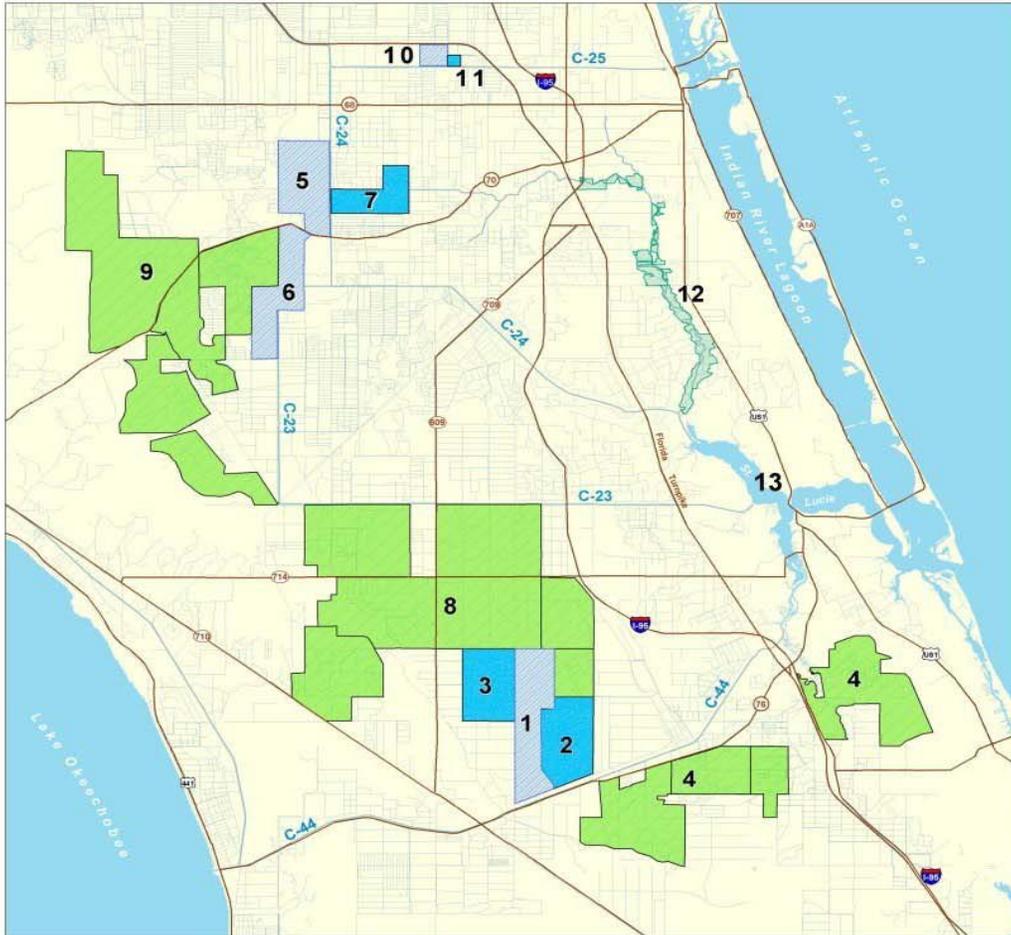
- **IRL-S – a component of the Comprehensive Everglades Restoration Plan (CERP)**
- **Provides watershed and estuary benefits while extending the spatial extent of wetlands**
- **Located in Martin, St. Lucie and Okeechobee counties in central Florida**



Indian River Lagoon – South Briefing

- **Project Status:**
 - Draft Project Implementation Report released public review: December 19, 2003 –February 10, 2004**
 - Public meeting scheduled for January 13, 2004 in Jensen Beach, FL**
 - Final PIR scheduled to be completed: March 24, 2004**

Indian River Lagoon – South Area Map



C-44 Basin Components

- 1 C-44 - Reservoir
- 2 C-44 - Stormwater Treatment Area(East)
- 3 C-44 - Stormwater Treatment Area(West)
- 4 Palmar Complex - Natural Storage and Water Quality Area

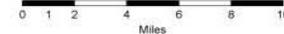
C-23/24 Basin Components

- 5 C-23/C-24 - North Reservoir
- 6 C-23/C-24 - South Reservoir
- 7 C-23/C-24 - Stormwater Treatment Area
- 8 Allapattah - Complex Natural Storage and Water Quality Area
- 9 Cypress Creek/Trail Ridge Complex - Natural Storage and Water Quality Area

C-25, Northfork and Southfork Basin Components

- 10 C-25 - Reservoir
- 11 C-25 - Stormwater Treatment Area
- 12 Northfork Natural Floodplain Restoration
- 13 Muck Remediation and Artificial Habitat

- Natural Floodplain Restoration
- Natural Storage and Water Quality Area
- Reservoir
- Stormwater Treatment Area





Indian River Lagoon – South Problems and Needs

- **Extensive damage to lagoon bottom vegetation, water transparency and living organisms.**
- **Large discharges of freshwater and muck to IRL-S**
- **Excessively high loads of nitrogen and phosphorous**



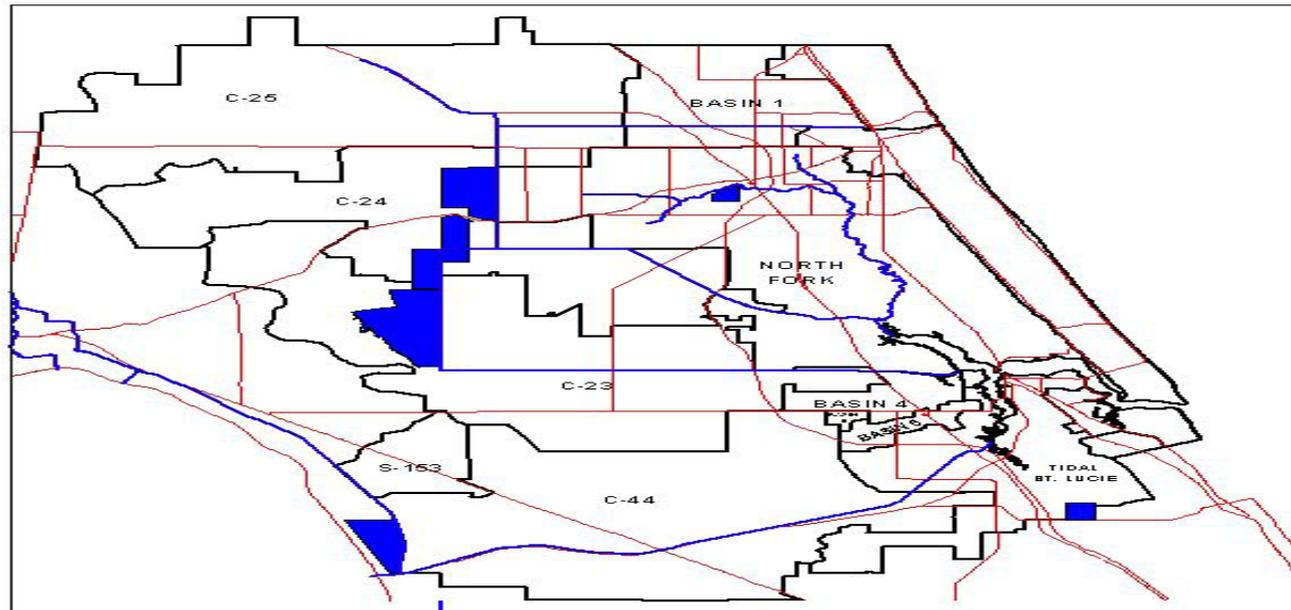
Indian River Lagoon – South Alternatives Considered (Final Array)

- **Alt 1 - Future without plan alternative**

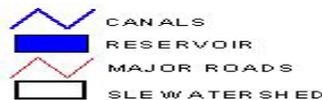
Indian River Lagoon – South Alternatives Considered (Final Array)

- Alt 2 - Above ground storage (C-44, C-23/24 and C-24 Reservoirs)

ALTERNATIVE 2



WATERSHED RESEARCH & PLANNING DIV.
Coastal Ecosystems Dep I.
October 17, 2000
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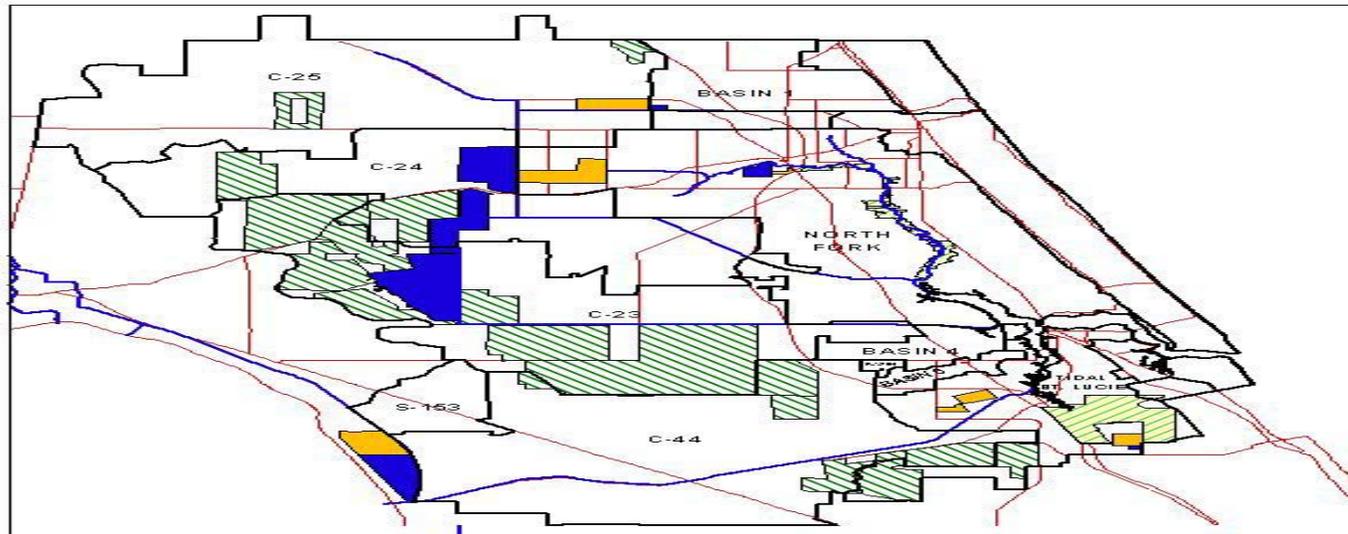


5 0 5 10 15 Miles

Indian River Lagoon – South Alternatives Considered (Final Array)

- Alt 3 - Combination of single purpose plan (reservoirs, STAs, and pumping to divert flows from C-23-C-24 to the North Fork of St. Lucie Estuary

ALTERNATIVE 3



WATERSHED RESEARCH & PLANNING DIV.
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October 17, 2000
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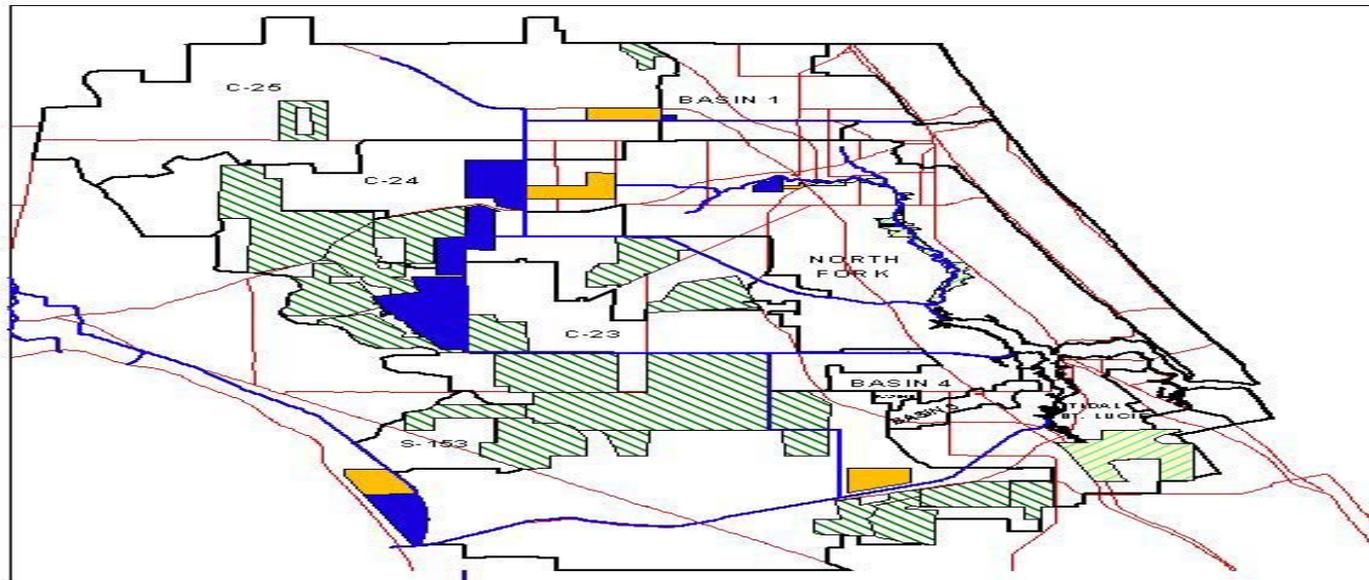


5 0 5 10 15 Miles

Indian River Lagoon – South Alternatives Considered (Final Array)

- Alt 4 – Improved water quality & diversion (additional STAs & natural storage areas)

ALTERNATIVE 4



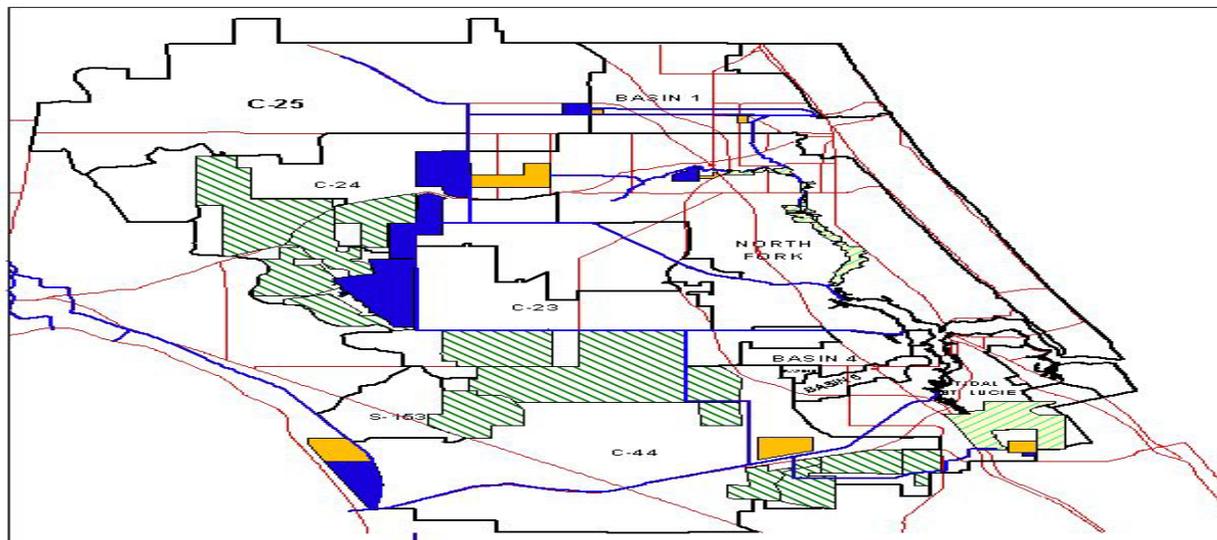
WATERSHED RESEARCH & PLANNING DIV.
COASTAL ECOSYSTEMS DEPT.
OCTOBER 17, 2010
Alt4.pdf



Indian River Lagoon – South Alternatives Considered (Final Array)

- Alt 5 – Additional improvements to water quality & diversion (increasing opportunities to mimic natural flow patterns and additional water quality treatment of run-off)

ALTERNATIVE 5



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CORNER Ecosystems Dept.
October 17, 2000
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5 0 5 10 15 Miles



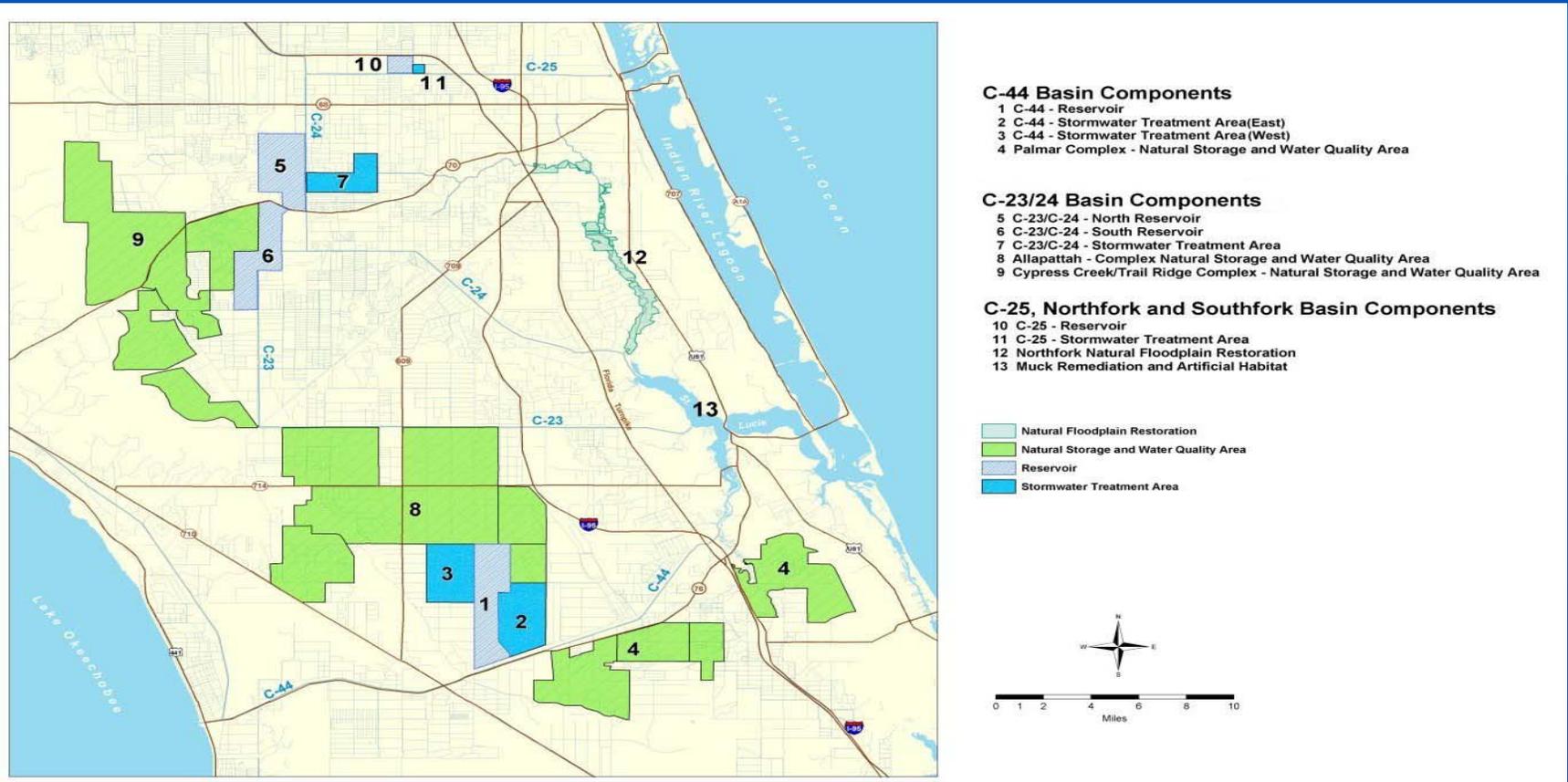
Indian River Lagoon – South Alternatives Considered (Final Array)

- **Alt 6 - *Recommended Plan***

Refinements to Alt 5 (C-23/24 flows diverted through Ten Mile Creek to the North Fork of the SLE, muck remediation, modification of alignment of canal between C-23 and C-44, increased ecological connectivity benefits of habitat created)

Indian River Lagoon – South Alternatives Considered (Final Array)

- **Alt 6 - Recommended Plan**



Indian River Lagoon – South Comparison of Alternatives 1-6

Impact	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Wetland Restoration (acres)	Expect losses	Expect losses	15,414	25,354	29,473	29,473
Average Annual Phosphorus and Nitrogen load to SLE and IRL	1,402 ton/yr	1,300 ton/yr	1,150 ton/yr	1,055 ton/yr	1,047 ton/yr	1,047 ton/yr
Focal Species Habitat creation (acres)	0	0	94,061	109,653	89,960	92,919
Total first cost (x1000)	\$0	\$396,474	\$942,085	\$1,080,512	\$979,000	\$995,935
Average annual cost (x1000)	\$0	\$22,089	\$47,965	\$53,629	\$51,702	\$50,689



Indian River Lagoon – South Sensitivity Analysis of Single Purpose Estuary and Watershed Alternative (Alt 7, 7a, 7b)

- Alt 7a (Estuary Only alternative)
 - Goal was to achieve and cost estuarine only benefits at the same level as in the recommended plan Alternative “6”.
 - Cost: \$796.7 million (Oct 01 price level)



Indian River Lagoon – South Sensitivity Analysis of Single Purpose Estuary and Watershed Alternative (Alt 7, 7a, 7b)

- Alt 7b (Watershed Only alternative)
 - Goal was to achieve and cost watershed only benefits at the same level as in the recommended plan Alternative “6”.
 - Cost: \$403.1 million (Oct 01 price level)

A small landscape image in the top-left corner showing a body of water, likely the Indian River Lagoon, with a blue sky and some vegetation in the foreground.

Indian River Lagoon – South Sensitivity Analysis of Single Purpose Estuary and Watershed Alternative (Alt 7, 7a, 7b)

- Alt 7, Combined cost of Alt 7a and 7b watershed and estuary only alternatives
\$796.7 million + \$ 403.1 million =
\$1,199.8 million (Oct 2001 price levels)
- Alt 6 recommended plan \$995,9 million



Indian River Lagoon – South Recommended Plan

(normally the TSP)

- **Project Features and Plan:**
 - **Reservoirs (C-44, C-23/24 North and South, C-25)**
 - **STAs (C-44, C-23/24 and C-25)**
 - **Natural storage areas (Allapattah, PalMar, Cypress Creek)**
 - **Muck removal and artificial habitat creation in St. Lucie Estuary**



Indian River Lagoon – South Project Benefits to the SLE

- **Restore natural estuarine salinity based on valued ecosystem components (oysters + sea-grasses)**
- **Restore normal estuarine water quality based on reduction in phosphorous and nitrogen loads as well as excess muck**



Indian River Lagoon – South Project Benefits to the Watershed

- **Restore upland/wetland habitat in watershed for water quality treatment & fecal species**
- **Restore pre-drainage watershed flow pattern**
- **Replace Floridan Aquifer demand with reservoir water supply as available**



Indian River Lagoon – South

Project Costs

(Draft PIR Oct 03)

<u>Project Feature</u>	<u>Construction Cost</u>	<u>Real Estate Cost</u>	<u>Total</u>
Reservoirs + STA's	\$329,756,000	\$291,292,000	\$621,048,000
Natural Storage Areas	\$82,322,000	\$385,952,000	\$468,274,000
Muck remediation, artificial habitat, floodplain restoration	\$117,654,000	\$13,017,000	\$130,671,000
Monitoring (construction)	\$12,920,000		\$12,920,000
<u>Totals</u>	\$542,652,000	\$690,261,000	\$1,232,913,000



Indian River Lagoon – South Notable Items

- **IRL-S project - first CERP project to be authorized**
- **\$1 billion of a \$7.8 billion program**
- **Final Feasibility Report repackaged as a Project Implementation Report with Supplemental EIS**
- **PIR will address requirements of WRDA 2000**
- **Recommended plan has not changed**



Indian River Lagoon - South WRDA 2000 Requirements in PIR

- **Project assurances**
 - determination of water to be reserved for the natural system, level of service for flood protection, savings clause for water supply
- **Operating Manual**
- **Ecological and Water Quality Monitoring Plan**



Indian River Lagoon- South Milestones to complete PIR

- **Draft PIR out for public/agency review:
Dec. 12, '03 – Feb. 10, '04**
- **Transmit Final PIR and SFEIS to Corps
South Atlantic Division for Division
Engineer's Notice: March 24, 2004**
- **Chief's Report**
- **Assistant Secretary Transmittal to
Congress**
- **Congressional Authorization (Potential for
WRDA 2004)**