

Port Everglades Feasibility Study

Fort Lauderdale, Florida

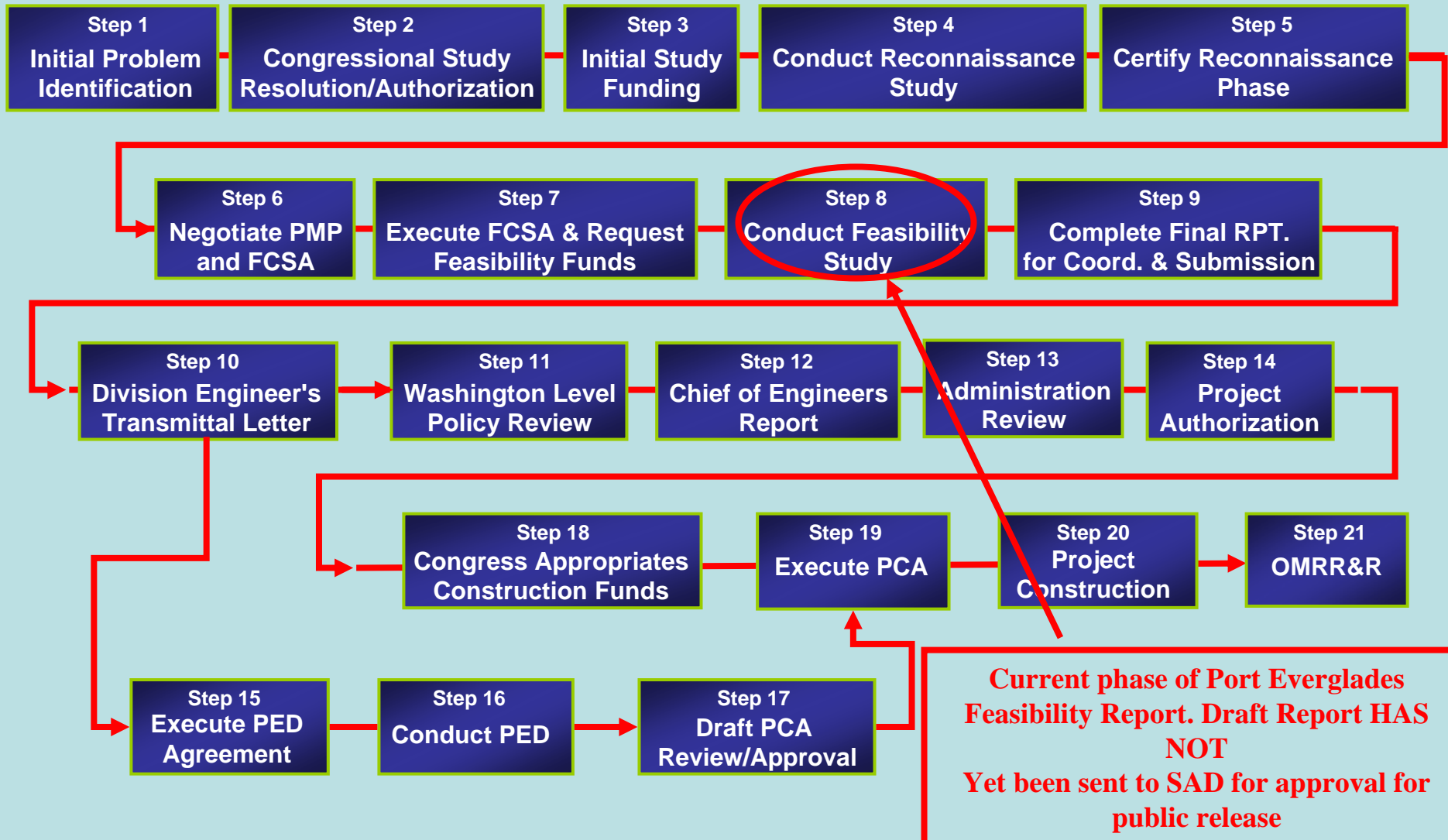


Photo: T. Jordan – USACE-SAJ

History of Project

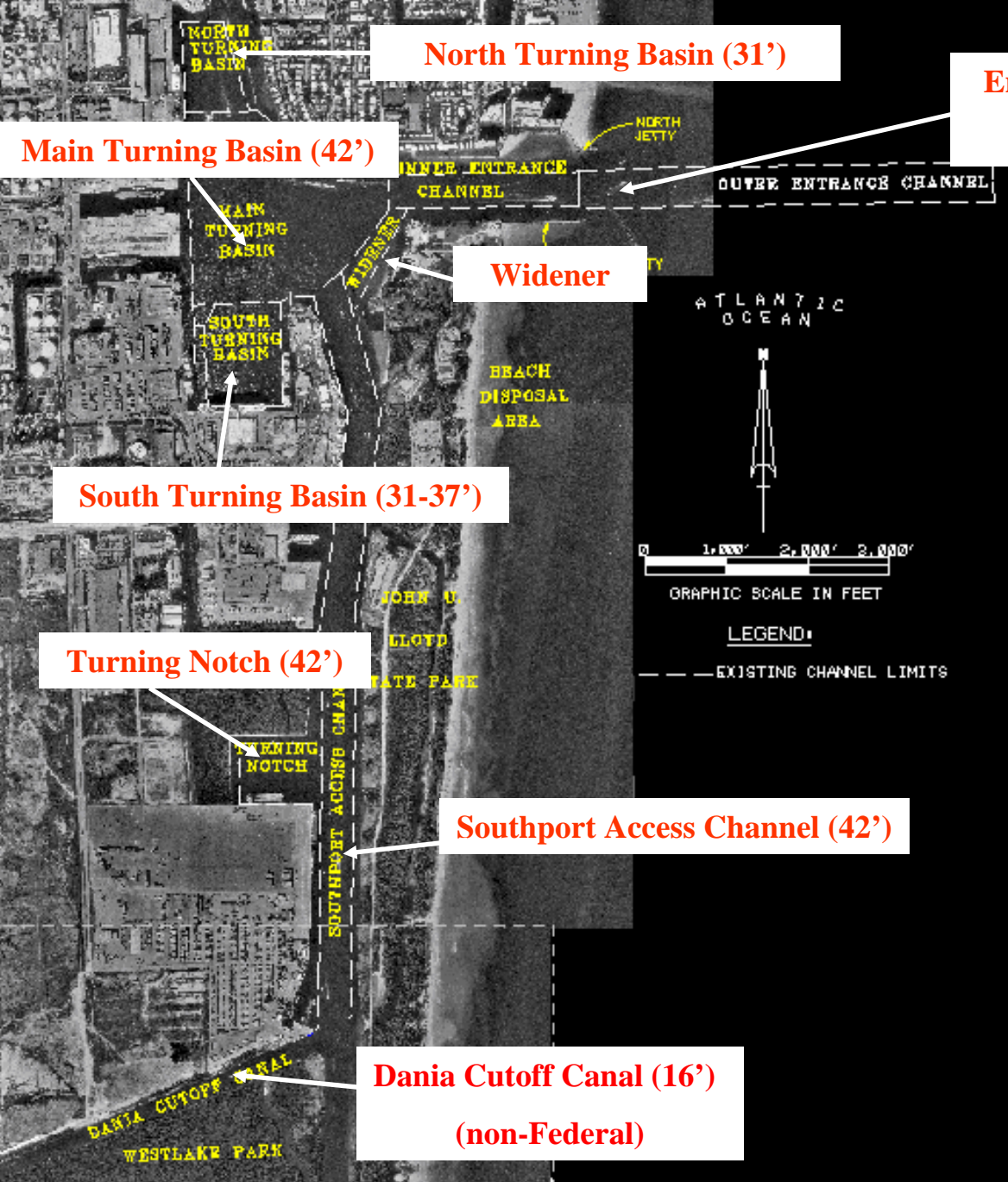
- February 1928 – Rock barrier between the harbor and ocean blasted open by local interests
 - July 1930 – Project designated a federal navigation channel;
 - Aug 1935 - Enlarge entrance channel to 35 feet in depth and complete turning basin to 1,200 feet square.
 - June 1938 - Widen turning basin 350 feet on north side.
 - July 1946 - Widen turning basin 200 feet on north side, 500 feet on south side.
 - July 1958 - Deepen and widen entrance channel to 40 feet and increase turning basin in size and depth.
 - May 1974 - Deepen and widen entrance channel to 45 feet, deepen turning basin and add a new channel to the southeast of the turning basin. (Construction began in 1980).
 - 1983/ 84– Berth deepening and channel dredging by local interests
 - 1987 – Construction of Turning Notch by local interests
 - 1989 – Construction of berth 33 by local interests.
 - Aug 2005 – Maintenance Dredging of Main Turning Basin
 - Nov 2005 – Feb 2006 – Maintenance Dredging of the Entrance Channel
 - Project Coordination (Appendix A)
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Civil Works Project Delivery Process



Existing Project Conditions

- Project authorized by Congress – 1974
 - General Design Memorandum – 1977
 - Entrance channel widened from 300 feet to 500 feet, deepened from 40 feet to 45 feet. Construction 1980 - 1981.
 - Mitigation for impacts to fishery resources by channel widening – artificial reef constructed with resource agency coordination. See GDM 1977.
 - Justified by petroleum benefits
 - 45 ft deep outer entrance channel = deepest port in Florida
 - 500 ft wide OEC
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North Turning Basin (31')

**Entrance Channel (42'/45')
(Inner/Outer)**

Main Turning Basin (42')

Widener

South Turning Basin (31-37')

Turning Notch (42')

Southport Access Channel (42')

**Dania Cutoff Canal (16')
(non-Federal)**

Existing Federal Project (with depths)

Overall Project Elements

- **Purpose and need, co-equal alternative analysis, & resource inventory can be found at:**
<http://planning.saj.usace.army.mil/envdocs/envdocsb.htm#Broward-County>

Note: no coral impacts are predicted for inner harbor modifications and therefore inner harbor designs are not further discussed herein.

Project Need for Outer Entrance Channel

- Currently, most petroleum ships arrive light loaded due to insufficient draft in the OEC
- More petroleum could be brought in with deeper drafts
- Provides vehicle fuel to 12 counties in SE/SW Florida (87% of S. Florida/ 37% whole state)
- Provides jet fuel to 3 International Airports
- Fuel for power plants in S. Florida (electric generation), ship's bunkers, asphalt, propane
- More petroleum needed in S. Florida (per FLDEP Energy program briefing in 2005) – 23 million gallons/day/FL; 10 year (2015) demand expected to be 32 million gallons/day/FL

Outer Entrance Channel Alternatives

- Analysis includes structural and non-structural options:
 - 4 differing outer entrance channel alignments
 - Offshore oil port to negate need for deeper entrance channel
 - Lightering petroleum products
 - Alternative transportation methods to Port Everglades economic distribution area
 - Status Quo/No Action

Outer Entrance Channel Issues

- Three of the 4 proposed outer entrance channel alignments would cause direct removal impacts to the 2nd and 3rd relic reefs. The offshore oil port/lightering alternatives might also have direct impacts (pipeline) and indirect (potential petroleum product spills).
- Fourth has no impact to either relic reef structure, would require deepening of existing channel – however, extensive safety objections on alignment from Port pilots may negate this alignment as a viable option.
 - May also have conflict with recent proposed revision to port anchorage by US Coast Guard

Potential Reef Impacts

- Reef Survey Inventory & Analysis (Appendix B)
 - Preferred alignment (from local sponsor/pilots) and the two remaining structural alternatives will directly impact the 2nd and 3rd relic reef with a direct impact of at least 21.1 acres (based on preferred alignment – 2 other alignments may be higher).
 - Potential direct anchor/cable impacts with cutterhead dredge – 13.51 acres. RFP will be prepared to avoid/minimize this additional impact to maximum extent practicable.
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Process Requirements

Avoidance, Minimization & Mitigation

- Iterative process has eliminated or reduced impacts throughout the project, while still meeting project goals to address port's needs.
 - Coral/hardground mitigation options continue to be refined and reviewed in consultation with resource agency staff.
 - Mitigation numbers derived using published studies and functional analyses.
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Appendix A: Resource Agency Coordination

- March 5, 2001 - FR Notice (66 FR 16191) mailed by COE to all interested parties and resource agencies - announcing Notice of Intent to prepare EIS.
- Announcement of Meeting in local papers (Miami Herald - March 16, 2001 - Sun Sentinel - March 17, 2001)
- March 28, 2001 - Public Scoping Meeting
- Sept 12/13, 2001 - Resource agency site visit (attendees - COE contractor, FWS, NMFS - DEP/FWC invited and did not attend).
- Oct 2001 - Additional Outer Entrance Channel Site visit (COE Contractor, FWS, NMFS - state DEP invited - did not attend).
- Feb 2002 - Project Coordination meeting - FWS Vero Beach - Attendees - USACE, NMFS, FWS, FLDEP).
- June 2002 - Constitution of Port Everglades Reef Group (PERG) - meetings June, August, November 2002 and April 2003 (membership – staff of FWS, NMFS, FLDEP, FWC, NSU, NOAA-FLKNMS)
- Nov 2002 - Draft Report and EIS prepared - not released due to ship simulation issues.
- Aug 2003 - Additional Ship Simulations completed.
- Nov 2004 - Second Draft Report Prepared
- Feb 2005 – Stakeholders meeting at Port Everglades – update on project status
- May 2005 - 1st draft PERG recommendations document released to PERG members for review, comment
- May 2005 - Alternative Formulation Briefing - Fort Lauderdale International Airport
- June 2005 - Reef Assessment Coordination meeting - NOVA SEU (FWC, NSU, FLDEP, BCDPEP, USACE)
- June 05 – Meeting to prepare UMAM assessment of the sea grass and mangrove impacts – EPA West Palm Beach (EPA, NOAA-HCD, NOAA-PRD, DEP BCS, FWC, COE-RD, BCDPEP)

Appendix A: Coordination

- July – Nov 2005 – Electronic coordination on reef study scope
- December 2005 – Scope of reef assessment contract finalized in coordination with FLDEP and Contract awarded
- Feb 2006 - Reef assessment begins
- July 2006 – Draft Reef assessment report provided to the resource agencies for review and comment. Meeting held at Port to review the results (NOAA, FWC, DEP (Beaches and CAMA),
- October 2006 – Final Reef assessment report provided to the resource agencies.
- October 2006 – Discussions with resource agencies and academics concerning the use of UMAM to evaluate impacts to reef resources – held at Port Everglades.
- October 2006 – Final PERG report provided to the resource agencies.
- November 2006 – Meeting to develop an HEA for the reef resource impacts for Port Everglades – NSU

Resource Agencies & Stakeholders

- NMFS – PRD (Miami and St. Pete offices); NMFS-OPR – Silver Spring; NMFS-HCD; EPA – Region 4 Atlanta; EPA – West Palm Beach; FLDEP – Tallahassee; FLDEP Coral Reef program; FLDEP – Parks; Broward County DPEP; Nova Southeast University; Florida Fish & Wildlife Conservation Commission – Habitat, Coral Research, Fisheries, Protected Species; USFWS – Vero Beach; Broward County Commissioners; Port Everglades staff; USGC

Appendix A: Post-Panamax Vessels

- Common misperception by agencies – “Project is being designed to accommodate post-Panamax cargo vessels...” and “is there a need for 2 ports within 30-miles to accommodate Post-Panamax Vessels”
- Benefits from deepening alternatives are being derived from cargo (Post-Panamax), dry bulk (e.g. – cement) and liquid bulk (petroleum) products. The full alternative analysis, which also includes an assessment on the need for 2 ports within 30-miles, is discussed in the feasibility study. Additional information can found at: http://planning.saj.usace.army.mil/envdocs/envdocs_b.htm#Broward-County

Appendix B: Resource Assessment

- Extensive mapping of all resources
- Outer entrance channel inventory targets:
 - Hardground resources on relic reefs (2 specific survey efforts by SAJ (2001 & 2006), as well as incorporation of data from County and academia in project area).
 - 50 Hours of video
 - 144 Man-hours of dive time
 - Specific new impact area mapped, as well as surrounding areas and baseline areas away from project for comparison

Appendix B: Reef Survey

- The purpose of the study was to look at NEW impacts to the reef that would be created by deepening and extending channel seaward.
 - The scope was developed by recognized south Florida coral reef experts (Dr. Bill Precht; Martha Robbart; Dr. Ken Deslarzes).
 - FLDEP staff (Dr. Vladimir Kosminyn, agency coral reef expert) was directly involved in development of study scope and reviewed recon results before in water survey work was initiated.
 - Draft report was reviewed by outside experts – Dr. Bill Aronson and Dr. Steven Miller – two of the leading coral reef ecologists in the world.
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Appendix B: Issues Raised on Survey

Lack of appropriate QA/QC: Standard procedures were used for survey, which are the same procedures used by the Florida Fish and Wildlife Conservation Commission's coral assessment program and have been peer reviewed in Aronson et al, 1994; Aronson and Precht, 1995; Aronson and Swanson 1997; Murdoch and Aronson, 1999 and Aronson 2005.

Low sample size and undersampling: Scope of work was reviewed by experts and found to be statistically sufficient.

Lack of appropriate control sites: Final report was modified to include additional control sites and reference data.

Appendix B: Issues

- Lack of inclusion of protocols to specifically identify Federally listed *Acropora cervicornis*.
 - At time of survey, NMFS protocols were not established for species under ESA. *Acropora* was not listed when the reef study was designed (Dec 2005).
 - Discussions with NOAA-Fisheries PRD staff in Nov 2005 resulted in agreement that new surveys for *Acropora* presence/absence not required for ESA consultation due to existing data showing presence of *Acropora* slim at best in impact area.
 - Corps' survey teams spent a total of 144 man hours in the water on the impact and control areas, as well as collected and reviewed more than 50 hours of video of the impact and control areas. Other survey efforts for the project area include towed video and diver transect surveys in 2001 as part of the baseline report development (USACE, 2001); an October 2002 resource assessment conducted by a group of resource agency staff and ongoing research efforts by scientists from Broward County DPEP and NOVA University (Broward County, 2001 and Gilliam *et al.*, 2004). Given the amount of time spent in the water by all parties, the amount of video footage collected and analyzed, after discussions with Dr. Precht, the research team, and other Acroporid coral experts, the Corps believes that if a stand of either Acroporid coral, greater in age than 1-2 years (the age at which they become visible to the naked human eye (NMFS, 2005)) were located in the impact zone or the control areas, they would have been noted and recorded. To date, neither species have been recorded in or near the project area. Using the "best available data" standard of the ESA, a specific survey for these species is not warranted.
 - As part of the minimization and avoidance of impacts for the project, the Corps commitments to survey for and relocate any corals larger than 12 inches in size (30.48cm) prior to dredging the entrance channel extension. Should Acroporid species be found during this relocation effort, the Corps commits to relocating any *A.palmata* and *A.cervicornis* identified during the relocation surveys, even if they are less than 12 inches (30.48 cm) in size and reinitiating consultation with NMFS under Section 7 of the ESA.

Appendix B: Issues

Lack of survey information for channel walls and side slopes:

- There are no side slopes – the channel was cut in rock and has vertical walls
- The survey was to look only at NEW impacts to 2nd and 3rd reef structures, not previously dredged areas, also consistent with the recently completed Miami Harbor GRR authorizing documents. Because the channel walls were previously dredged, mitigated for and have been maintained (most recently in Nov 05-Feb 06), no additional mitigation is required.

Lack of survey information for areas adjacent to direct impact areas:
The survey included an area 150-meters (450 feet) beyond the channel and proposed channel to account for indirect effects. Based on monitoring results from 1980-1981 dredging, no adverse effects of turbidity or sedimentation were recorded 450 feet from either side of the channel, which is expected to be sufficient to detect indirect effects.