DEPARTMENT OF THE ARMY
SOUTH ATLANTIC DIVISION, CORPS OF ENGINEERS
ROOM 9M15, 60 FORSYTH ST., S.W.
ATLANTA, GEORGIA 30303-8801

REPLY TO ATTENTION OF
CESAD-PDS-P

12 December 2008

MEMORANDUM FOR COMMANDER, Jacksonville District, ATTN: CESAJ-PD

SUBJECT: Approval of Review Plan (RP) for the Indian River Lagoon North (IRL-N) Feasibility Study (FS)

1. References:

a. Memorandum, CESAJ-PD, 20 Nov 2008, Subject: Approval of Review Plan (RP) for the Indian River Lagoon North (IRL-N) Feasibility Study (FS)

b. EC 1105-2-410 Review of Decision Documents, 22 August 2008.

c. CECW-CP Memorandum, 30 March 2007, subject: Peer Review Process.

d. Supplemental information for the "Peer Review Process" Memo, dated March 2007.

2. In accordance with EC 1105-2-408, "Peer Review of Decision Documents," the subject PRP for the Indian River Lagoon North (IRL-N) Feasibility Study (FS), has been coordinated with the National Ecosystem Planning Center of Expertise (ECO-PCX). The plan has been reviewed by this office and is approved.

3. We concur with the conclusion that independent external peer review (IEPR) of this project is required due project cost in excess of $45,000,000. Other requirements that could lead to IEPR are: (1) novel subject matter will be produced by the report, (2) controversial subject matter exists to include but not limited to environmental impact of modifications associated with improvements in the project area, (3) subject matter is precedent-setting, (4) interagency interest is significant, and (5) there are significant environmental or social effects to the nation. While none of these specific triggers apply to this Project, as the cost of the project is in excess of $45,000,000 Independent External Peer Review is required. The PRP complies with all applicable policy and provides for adequate agency technical review (ATR) of the plan formulation, engineering, and environmental analyses, and other aspects of the plan development. Non-substantive changes to this PRP do not require further approval.

4. The district should take steps to post the PRP to its web site and provide a link to the ECO-PCX for their use. Before posting to the web site the names of Corps/Army employees should be removed in accordance with reference 1.d. above.

5. The SAD point of contact is Mr. Terry Stratton, CESAD-PDS-P.

FOR THE COMMANDER:

WILBERT V. PAYNES
Chief, Planning and Policy
Community of Practice

CF:
CEMVD-PD-N
CEMVD-RB-T

PEER REVIEW PLAN
FOR
Indian River Lagoon North (IRL-N) Feasibility Study (FS)
JULY 2008

For questions or comments regarding this Peer Review Plan, please forward your comments to:

Title	Telephone	Email
Project Manager	904-232- 3432	Click here to email the Project Manager

THE INFORMATION CONTAINED IN THIS PEER REVIEW PLAN IS DISTRIBUTED SOLELY FOR THE PURPOSE OF PREDISSEMINATION PEER REVIEW UNDER APPLICABLE INFORMATION QUALITY GUIDELINES. IT HAS NOT BEEN FORMALLY DISSEMINATED BY THE U.S. ARMY CORPS OF ENGINEERS, JACKSONVILLE DISTRICT. IT DOES NOT REPRESENT AND SHOULD NOT BE CONSTRUED TO REPRESENT ANY AGENCY DETERMINATION OR POLICY.

PEER REVIEW PLAN
FOR
Indian River Lagoon North (IRL-N) Feasibility Study (FS)
JULY 2008

Executive Summary

This document describes the general procedures for conducting Agency Technical Reviews (ATR), Independent External Peer Review (IEPR) and Planning Model Certification, in support of the Indian River Lagoon North (IRL-N) Feasibility Study (FS).

The IRL-FS is a continuation of the IRL-South Feasibility Study and was authorized under the 1992 and 1996 Water Resources Development Acts (WRDA) (see Study Authority Section, below), as part of the authorizations for a comprehensive review study of the entire Central and Southern Florida (C&SF) Project. The IRL-South Project Implementation Report (PIR) was completed in March 2004 and has been submitted to Congress for authorization.

The overarching goal of the Study is to produce a plan that, when implemented, will meet the restoration goals of the Indian River Lagoon North. The specific study goal and objectives are shown in Table 1. The feasibility study will refine these objectives to provide additional detail as required by Engineering Regulation 1105-2-100, paragraph 2 – 3.a.(4): effect desired, subject that will be changed by accomplishing the objective, location where the expected result will occur, and the timing and duration of the effect.

Table 1 – Study Goal and Objectives for the Indian River Lagoon North

Goal: Improve Ecological Values and Associated Objectives
1 Reduce excessive freshwater inflows and pollutant loadings to the Indian River Lagoon
2 Improve water quality in the Lagoon
3 Improve habitat for Lagoon biota, with emphasis on seagrass
4 Increase spatial extent and functional quality of submerged aquatic vegetation and watershed wetlands
5 Deleted
6 Maintain or improve diversity and abundance of native plant and animal species, including federal, state, and local listed species

The relevant National Planning Center of Expertise, in this case for Ecosystem Restoration (ECO-PCX), has ultimate responsibility for accomplishing Agency Technical Review (ATR), Independent External Peer Review (IEPR) and Planning Model Certification. All are required for this project.

CONSOLIDATED PRELIMINARY COST ESTIMATE

- Planning Model Certification - $100
- Remaining ATR - $155K
- IEPR - $200K

CONSOLIDATED SCHEDULE

- Planning Model Certification, February 2009
- ATR of AFB Materials, February 2009
- ATR of Revised Draft Report, June 2009
- IEPR of Draft Report, July 2009
- Public and Agency review of Integrated Draft Report and EIS, July 2009
- ATR of Final Report, September 2009

PEER REVIEW PLAN
FOR
Indian River Lagoon North (IRL-N) Feasibility Study (FS)
JULY 2008

1.0 PURPOSE

This Peer Review Plan (PRP) provides a technical peer review mechanism ensuring that quality products are developed during the course of the study by the Jacksonville District (SAJ). All processes, quality control, quality assurance, and policy review will be done to complement each other, producing a review process that identifies and resolves technical and policy issues during the course of the study.

This PRP, required by EC 1105-2-408, is intended to describe the processes that will be implemented to independently (of the Project Team) evaluate the technical sufficiency of the planning study. The PRP is a collaborative product of the Project Delivery Team (PDT) and the National Planning Center of Expertise for Ecosystem Restoration (ECO-PCX). The ECO-PCX shall manage the peer review processes, which for this study includes Agency Technical Reviews (ATR) and Independent External Peer Review (IEPR), as well as planning model certification.

ATR is a critical examination by a qualified person or team, predominantly within the Corps of Engineers (Corps), which was not involved in the day-to-day technical work that supports a decision document. ATR is intended to confirm that such work was done in accordance with clearly established professional principles, practices, codes and criteria informed by Engineering Regulation (ER) 1105-2-100.

Independent External Peer Review (IEPR), also required by EC 1105-2-408, is in addition to ATR and is added to the Corps existing review process in special cases where the risk and magnitude of the proposed project are such that a critical examination by a qualified person or team outside of the Corps and not involved in the day-to-day production of a technical product is necessary. IEPR will similarly be added in cases where information is based on novel methods, presents complex challenges for interpretation, contains precedent-setting methods or modes, presents conclusions that are likely to change prevailing practices, or is likely to affect policy decisions that have a significant impact. In the absence of a technical requirement high project cost, by itself, may necessitate IEPR.

Planning model certification is a requirement of EC 1105-2-407.

2.0 REFERENCES

ER 1105-2-100, “Planning Guidance Notebook
EC 1105-2-408, “Peer Review of Decision Documents”, dated May 31, 2005
CECW-CP Memorandum, “Peer Review Process”, dated March 30, 2007
Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, Chapter II - (National Economic Development NED) Benefit Evaluation Procedures (March 10, 1983).
EC-1105-2-407, “Planning Models Improvement Program – Model Certification” , dated May 31, 2005

3.0 STUDY BACKGROUND

Overview

The Indian River Lagoon North (IRL-N) Feasibility Study is a continuation of the IRL-South Feasibility Study and was authorized under the 1992 and 1996 Water Resources Development Acts (WRDA) (see Study Authority Section, below), as part of the authorizations for a comprehensive review study of the entire Central and Southern Florida (C&SF) Project. The IRL-South Project Implementation Report (PIR) was completed in March 2004 and has been authorized by WRDA 2007.

The south and north areas of the IRL were arbitrarily determined based on the political subdivisions of the South Florida and St. Johns River Water Management Districts. There is no physical border between south and north areas of the Lagoon from a hydrological perspective. Discharges from the C&SF Project canals, such as C-54, affect the entire Lagoon. Therefore, subsequent to the completion of the IRL-South feasibility study, the IRL-North feasibility study will address the water resource issues of the northern IRL. The IRL-N feasibility study will be conducted under the authority of WRDA of 1996, which allows for continuation of studies and analyses that are necessary to further the restoration of the central and southern Florida ecosystems. The decision document for IRL-North will be a feasibility report and will follow all applicable U.S. Army Corps of Engineers Civil Works Program planning process regulations and policies.

The IRL-N Feasibility Study area is shown in Figure 1. The Study area includes the Indian River Lagoon watershed (more than 2,000 square miles), beginning in Volusia County near the Ponce de Leon Inlet, extending southward about 128 miles through Brevard and Indian River counties, and ending near the Fort Pierce Inlet in St. Lucie County. Of particular interest is the estuarine environment in the Indian River, Banana River and Mosquito Lagoon. The Study area involves the Indian River Lagoon watershed (areas that drain into the Indian River Lagoon), generally west of State Road A1A in the barrier island chain. At its widest point the open water of the Lagoon system is no more than 5 miles between shorelines.

Highways, causeways, inlets and other alterations were constructed to support the rapidly growing population of the region. Major roadways in the Study area include US1, A1A,

and several causeway systems that cross the Lagoon. Drainage systems serving highways and developed areas were often constructed with little capability to treat or retain stormwater prior to discharge to the Indian River Lagoon. Figure 2 is an aerial depiction of the Lagoon and its causeways, inlets, and major canals.

In the Study area, the barrier island chain has four inlets. Port Canaveral Entrance, Sebastian Inlet, and Fort Piece Inlet are man-made and continue to have stabilization projects. Ponce de Leon Inlet is the only natural inlet, but it too now requires regular stabilization maintenance. The Intracoastal Waterway (IWW) runs the north-south length of the Study area. As part of the IWW, the Haulover Canal connects the Indian River to the Mosquito Lagoon.

Several significant federal, state and local parks or refuges are found within the Indian River Lagoon North region. The Merritt Island National Wildlife Refuge, located within the Kennedy Space Center, occupies about 220 square miles of the IRL-N watershed area. Canaveral National Seashore consists of 60,000 acres located within the Mosquito Lagoon watershed. Pelican Island National Wildlife Refuge, the nation's first national wildlife refuge established in 1903 by President Teddy Roosevelt, occupies over 5,000 acres within the Indian River Lagoon, and is adjacent to the Archie Carr National Wildlife Refuge established on the eastern portion of the barrier island for sea turtle protection. State facilities include Sebastian Inlet State Park, Fort Pierce Inlet State Park, Sebastian River Buffer Preserve as well as a number of properties acquired through a variety of state conservation land acquisition programs. Numerous county and city parks are located along the Lagoon as well.

Major natural tributaries to the Lagoon include the St. Sebastian River, Eau Gallie River, Turkey Creek, Crane Creek, Turnbull Creek, Sykes Creek, Big Flounder Creek, Addison Creek, Horse Creek, Goat Creek, Kid Creek, Trout Creek, and Taylor Creek.

Over the last century, an extensive network of canals and drainage systems were constructed in the western parts of the watershed that included features installed to promote agriculture and inland water drainage. Several of these drainage systems increased the watershed of the Indian River Lagoon to include extensive areas that historically drained to the St. Johns River. These watershed modifications include construction of the C-1 Canal; C-25 Canal; C-54 Canal; Addison Canal; Belcher Canal; Sottile Canal; Fellsmere Canal; Indian River Farms North, Main, and South Relief Canals.

Six local water control districts are currently operational in the Indian River Lagoon North Feasibility Study area. Most of these districts were established in the early 1900's under Chapter 298, Florida Statutes for the purpose of reclaiming land for agricultural purposes. These Districts include the Melbourne-Tillman Water Control District, Fellsmere Farms Water Control District, Sebastian River Water Control District, Indian River Farms Water Control District, Vero Lakes Water Control District, and the Fort Pierce Farms Water Control District. Although most of these water control districts were

originally constructed to serve agricultural development many now include large areas of residential development.

In addition to St. Lucie, Indian River, Brevard, and Volusia Counties, thirty-five incorporated local governments and unincorporated communities have been identified within the Study area. Due to the large number of counties, local governments and communities, water control districts, and governmental agencies along the Lagoon, cooperative efforts to abate pollution are an important step towards restoration. For example, implementation of local stormwater master plans involving non-point source reductions, local use of Best Management Practices, local mitigation measures to offset future development activities, local programs, and local implementation of monitoring and database management activities will require the cooperation of a variety of local governments, agencies, and organizations.

Industrial activity along the Lagoon includes port activities, defense and space activities, power plants, wastewater and potable water treatment plants, citrus processing plants, and an industrial gas plant. Commercial activities such as marinas are also present along the Lagoon. Figure 3 provides a depiction of the watershed between approximately 1920 and 1995.

Study Authority

Along with the Central and South Florida (C&SF) Restudy, the Indian River Lagoon North (IRL-N) Ecosystem Restoration Feasibi1ity Study is authorized by Section 309(1) of the Water Resources Development Act of 1992 (Public Law 102~580) which states:

"(1) CENTRAL AND SOUTHERN FLORIDA. -- The Chief of Engineers shall review the report of the Chief of Engineers on central and southern Florida, published as House Document 643; *80th Congress, 2nd Session, and other pertinent reports, with a view to determining whether modifications to the existing project are advisable at the present time due to significantly changed physical, biological, demographic, or economic conditions, with particular reference to modifying the project or its operation for improving the quality of the environment, improving protection of the aquifer, and improving the integrity, capability, and conservation of urban water supplies affected by the project or its operation."*

This study is also authorized by two resolutions of the Committee on Transportation and Infrastructure, United States House of Representatives, dated September 24, 1992. The first resolution states:

"Resolved by the Committee on Public Works and Transportation of the United States House of Representatives, That the Board of Engineers for Rivers and Harbors, is requested to review the report of the Chief of Engineers on Central and Southern Florida, published as House Document 643, Eightieth Congress, Second Session, and other pertinent reports, to determine whether modifications of the recommendations

contained therein are advisable at the present time, in the interest of environmental quality, water supply and other purposes."

The second resolution states:

"Resolved by the Committee on Public Works and Transportation of the United States House of Representatives, That the Board of Engineers for Rivers and Harbors, is requested to review the report of the Chief of Engineers on Central and Southern Florida, published as House Document 643, Eightieth Congress, Second Session, and other pertinent reports, to determine whether modifications of the recommendations contained therein are advisable at the present time, in the interest of environmental quality, water supply and other purposes for Florida Bay, including a comprehensive, coordinated ecosystem study with hydrodynamic modeling of Florida Bay and its connections to the Everglades, the Gulf of Mexico, and the Florida Keys Coral Reef ecosystem."

The *Water Resources Development Act of* 1996 was enacted on October 12, 1996. *Section 528 of the Act (Public Law 104-303)* authorizes a number of ecosystem restoration activities associated with the restoration of the C&SF Project. The specific provisions of *Section 528* concerning the lRL-North Restoration Feasibility Study are:

(b) *RESTORATION ACTIVITIES-*
(1) *COMPREHENSIVE PLAN-*
(A) DEVELOPMENT-
(i) PURPOSE~ The Secretary shall develop, as expeditiously as practicable, a proposed Comprehensive Plan for the purpose of restoring, preserving, and protecting the South Florida ecosystem. The Comprehensive Plan shall provide for the protection of water quality in, and the reduction of the loss of fresh water from, the Everglades. The Comprehensive Plan shall include such features as are necessary to provide for the water-related needs of the region, including flood control, the enhancement of water supplies, and other objectives served by the Central and Southern Florida Project.
(ii) CONSIDERATIONS- The Comprehensive Plan shall-
(I) Be developed by the Secretary in cooperation with the non-Federal project sponsor and in consultation with the Task Force; and
(II) Consider the conceptual framework specified in the report titled "Conceptual Plan for the Central and Southern Florida Project Restudy," published by the Commission and approved by the Governor.
(B) SUBMISSION- Not later than July 1, 1999, the Secretary shall-
(i) Complete the feasibility phase of the Central and Southern Florida Project comprehensive review study as authorized by section 309(l) of the Water Resources Development Act of 1992 (106 Statue. 4844), and by two resolutions of the Committee on Public Works and Transportation of the House of Representatives, dated September 24, 1992; *and*
(ii) Submit to Congress the plan developed under subparagraph (A)(i)consisting of a feasibility report and a programmatic environmental impact statement covering the proposed Federal action set forth in the plan.

(C) ADDITIONAL STUDIES AND ANALYSES- Notwithstanding the completion of the feasibility report under subparagraph (B), the Secretary shall continue to conduct such studies and analyses as are necessary, consistent with subparagraph (A)(i).

Problems and Opportunities

These Problems and Opportunities statements were developed utilizing input from the public and the interagency Project Delivery Team (PDT).

Problems:

1. Pollutant loadings from the watershed to the Indian River Lagoon North (IRL-N) are excessive. Pollutants of concern include suspended matter, nutrients, dissolved organic compounds (color) and freshwater.

2. Turbidity at various locations in the IRL-N is excessive as indicated by losses in seagrass acreage.

3. Muck deposits in the IRL-N are excessive. Disturbance of these deposits by wind or wave activity may result in extensive areas of turbid water and the release of nutrients and other pollutants.

4. Freshwater discharges (excessive or diminished) in certain areas of the IRL-N may result in undesirable fluctuations of salinity. Large and rapid salinity fluctuations can adversely impact a wide variety of important estuarine species.

5. Seagrass coverage has declined in some segments of the IRL-N. Excessive amounts of drift algae and attached macroalgae appear to be impacting seagrass.

6. Impounding, impoundment water level management and other wetland and marsh impacts, e.g. dragline ditching, disrupt many of the natural ecological functions (e.g. physical, chemical and biological) of wetlands in the IRL-N.

7. The extent and health of oyster and clam beds has declined in the IRL-N.

8. Exotic species are increasing in number, abundance and extent in the IRL-N, e.g. green mussel.

9. Natural habitat along the Lagoon linking upland, wetland and open water is steadily being reduced.

Opportunities:

1. Improve opportunities for tourism, recreation and environmental education.

2. Improve commercial and recreational fisheries and associated industries.

Goal, Objectives and Constraints

The Indian River Lagoon North estuarine ecosystem consists of the Banana River, the Mosquito Lagoon, the Indian River, and their tributaries and inlets. The overarching goal of the Study is to produce a plan that, when implemented, will meet the restoration goals of the Indian River Lagoon North. The specific study goal, objectives and constraints are shown in Table 1. The feasibility study will refine these objectives to provide additional detail as required by Engineering Regulation 1105-2-100, paragraph 2 – 3.a.(4): effect desired, subject that will be changed by accomplishing the objective, location where the expected result will occur, and the timing and duration of the effect. This goal and these objectives and constraints have been endorsed by the Project Delivery Team (PDT).

Table 1 – Study Goal, Objectives and Constraints for the IRL-North

Goal: Improve Ecological Values
O-1 Reduce excessive freshwater inflows and pollutant loadings to the Indian River Lagoon.
O-2 Improve water quality in the Lagoon.
O-3 Improve habitat for Lagoon biota, with emphasis on seagrass.
O-4 Increase spatial extent and functional quality of submerged aquatic vegetation and watershed wetlands.
O-5 Deleted
O-6 Maintain or improve diversity and abundance of native plant and animal species, including federal, state, and local listed species.
Constraints
C-1 Maintain or improve water supply.
C-2 Maintain or improve flood protection.
C-3 Maintain or improve habitat and other ecosystem requirements for endangered and threatened species.
C-4 Maintain or improve state water quality requirements (note: work attributable to this constraint is not cost sharable by the U.S. Army Corps of Engineers).

Management Measures, with Performance Measures

Eight Management Measures for the IRL-N FS are grouped into three project areas: Northern IRL (sub-basins 5-7), Central IRL (sub-basins 9-12, 14-20), and the entire study area. Refer to Figure 6 for the delineation of the IRL Sub-basins, as follows.

Northern Indian River Lagoon Management Measures (Indian River Lagoon sub-basins ML 1-4, IR5–7 and IR16-22, BR 1-2)

1. Rehabilitation or Restoration of Impounded Wetlands

Study Region: Mosquito Lagoon ML 3-4, Banana River Lagoon BR 1-2 and New Found Harbor, Indian River Lagoon

Performance Measure: Coastal wetlands, impounded wetlands, potential magnitude of restoration of impounded wetlands is 9,449 acres.

2. Dragline Ditch Restoration

Study Region: Mosquito Lagoon ML 3-4

Performance Measure: Coastal wetlands, dragline-impacted wetlands, potential magnitude of restoration of dragline ditch wetlands is 2,147 acres.

Central Indian River Lagoon Management Measures (Indian River Lagoon sub-basins 9-10)

3. Eau Gallie River / Crane Creek Evergreen Parcel Stormwater Treatment

Study Region: Central Indian River Lagoon IR 12

Performance Measures: Seagrasses—five performance measures, potential magnitude of restoration of seagrass in this study region IR 12 is 305 ha (Table 18).

4. North Prong St. Sebastian River/Sottile Canal Treatment
4.A. Sotille Canal Treatment Facility (Wheeler)
4.B. New Sotille Canal Treatment Facility (West of I-95) with Re-diversion

Study Region: St. Sebastian River Lagoon Segment IR14

Performance Measures:

- Seagrasses—five performance measures, potential magnitude of restoration of seagrass in this study region IR14 is 1,933 ha (Table 18).
- Watershed Salinity / Hydrology

5. South Prong St. Sebastian River Sub-basin
5.A. Improve Drainage within Sebastian River Improvement District (SRID)
5.B. Outside Detention along Lateral D (Outside Western Perimeter of SRID)
5.C. Detention within SRID

Study Region: St. Sebastian River / Central Indian River Lagoon IR 14

Performance Measure:

- Seagrasses—five performance measures, potential magnitude of restoration of seagrass in this study region IR14 is 1,933 ha (Table 18).
- Watershed Salinity / Hydrology

6. Fellsmere Farms Water Control District
6.A. Fellsmere Water Management Area

6.B. Fellsmere Water Control District (Includes Treatment of Drainage From Town of Fellsmere)

Study Region: St. Sebastian River / Central Indian River Lagoon IR 14

Performance Measure:

- Seagrasses—five performance measures, potential magnitude of restoration of seagrass in this study region IR14 is 1,933 ha (Table 18).
- Watershed Salinity / Hydrology

7. Canal Bank Erosion Control
7.A. Crane Creek and Melbourne Tillman Water Control District
7.B. Sebastian River Improvement District
7.C. Indian River Farms Water Control District

Study Region: Central Indian River Lagoon

Performance Measure: Seagrasses—five performance measures, potential magnitude of restoration of seagrass for this study region IR9-10 is 1,038 ha (Table 18).

Entire Study Area Indian River Lagoon Management Measures

8. Environmental Muck Dredging
8.A. Indian River Lagoon (plus Causeway Borrow Holes)
8.B. Eau Gallie River and Indian River Lagoon Between SR 518 Causeway and Cape Malabar (plus Causeway Borrow Holes)
8.C. South Banana River Lagoon (just Above SR 404 Causeway to SR 518, Including Causeway Borrow Holes)
8.D. Indian River Lagoon, SR 528 Causeway to Southern Tip of Merritt Island Causeway (plus Causeway Borrow Holes)
8.E. Indian River Lagoon Titusville (plus Causeway Borrow Holes)
8.F. Intracoastal Waterway (Titusville to Fort Pierce)

Study Region: Various Locales throughout IRL

Performance Measure: Muck removal, potential magnitude of restoration of seagrass in this study region IR14 is 1,933 ha (Table 18).

A wealth of additional project information may be found at the following weblink:
http://www.evergladesplan.org/pm/studies/irl_north.aspx

4. 0 PROJECT DELIVERY TEAM

The project delivery team (PDT) is an interagency team of individuals directly involved in the development of the decision document. Team member and agency information are listed below.

Discipline	Agency
Project Management	U. S. Army Corps of Engineers (USACE)
Plan Formulation	USACE
Real Estate	USACE
Project Assurances	USACE
Economics	USACE
Archaeology/Cultural Resources	USACE
Biology/NEPA	USACE
Hydrologic/Hydraulic Modeling	USACE
Water Control/Operations	USACE
Civil Engineering Design	USACE
Geology	USACE
Cost Engineering	USACE
Water Quality	USACE
Value Engineering	USACE
Office of Counsel	USACE
Construction Operations	USACE
Regulatory	USACE
Project Management	St. Johns River Water Management District (SJRWMD)
Ecology	SJRWMD
Water Quality	SJRMWD
State Compliance	SJRWMD
Biology	U. S. Fish and Wildlife Service
Biology/Water Quality	Florida Department of Environmental Protection (FDEP)

5.0 ENGINEERING AND PLANNING MODELS EMPLOYED

The IRL-N FS will utilize two engineering models: (1) the Hydrologic Simulation Program—FORTRAN (HSPF) and (2) a Pollution Load Reduction (PLR) model developed by the University of Florida. The HSPF model provides the watershed runoff inputs into the PLR model. The PLR model then predicts the resultant water quality constituents and light availability for seagrasses for each alternative plan, which can then be compared to the performance measure targets. Both models have undergone peer review and are currently being refined based upon the peer review comments, as appropriate.

Planning Model Certification

As regards to planning models, 8 performance measures are currently proposed, addressed in the Management Measures and Performance Measures Section, above. The performance measures that were significant in evaluating, comparing and selecting plans

will be submitted to the ECO-PCX for certification, pursuant to the requirements of EC 1105-2-407 and subsequent guidance. A detailed scope of work will be prepared and negotiated prior to the review/certification. The preliminary cost estimate is $100K.

6.0 AGENCY TECHNICAL REVIEW (ATR)

ATR is performed at key points in the study process to ensure the proper application of appropriate regulations and professional procedures. ATRs are typically performed at two Corps vertical team review points interim to the Draft Report: the Feasibility Scoping Meeting (FSM, completed) and Alternative Formulation Briefing (AFB). Subsequently the Draft report is subjected to ATR as is the Final Report in the case of projects requiring an Environmental Impact Statement (EIS). DrChecks document review and comment software will be used to document the ATRs.

Skilled and experienced personnel who have not been associated with the development of the study products perform the ATR. ATR team members may be employees of U.S. Army Corps of Engineer Districts, other Federal agencies, state or local government agencies, universities, private contractors or other institutions. The key factor is extensive, expert knowledge in their field of expertise.

The ATR team will be nominated and identified by the ECO-PCX and will be comprised of individuals from all the technical disciplines that were significant in the preparation of the report. There are eleven technical disciplines determined to be appropriate for this review: Plan Formulation, Economics, Environmental Restoration Analysis, Environmental Regulatory Compliance (e.g., NEPA documentation preparation), Engineering Design, Cost Estimating, H&H, H&H Modeling, Water Control, Geotechnical Engineering, and Real Estate.

The relevant National Planning Center of Expertise, in this case for Ecosystem Restoration (ECO-PCX), has ultimate responsibility for accomplishing ATR. The ECO-PCX is requested to form an ATR Team, and to conduct ATR of the Draft and Final Reports.

Also, a Cost Engineering Directory of Expertise (Cost Dx) has been established, at the Corps Walla Walla District (NWW). The completed draft report cost estimate will be reviewed by the Cost Dx. The ECO-PCX is requested, herein, to coordinate cost estimation review with the Cost Dx.

Preliminary cost estimates for remaining ATRs are itemized as follows:

- AFB Materials - $45K
- Draft Report - $60K
- Final Report - $50K

7.0 INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

In order to determine if external peer review is warranted for this particular project, an evaluation was conducted of the risk and magnitude of the proposed project, including consideration of whether or not study conclusions were based on novel methods, present complex challenges for interpretation, contain precedent-setting methods or modes, disseminate influential scientific information or a highly influential scientific assessment, present conclusions that are likely to change prevailing practices, or are likely to affect policy decisions that have a significant impact, as called for in EC 1105-2-408, Section 4.b.

Independent External Peer Review Requirement Determination

The Jacksonville District opinion is that this project would be considered large, likely exceeding $1,000 million in total cost. Magnitude of the project triggers the requirement for external peer review. IEPR will be conducted on the draft report. Detailed scope of the IEPR will be determined in advance of the review. Preliminarily, the cost of IEPR is anticipated to be approximately $200K.

Evaluations of individual decision criteria are provided below, in support of the above-stated opinion.

Unusually high risk or magnitude indicated?

The total cost and the large size and area of influence of the project would be considered high magnitude. The completed draft report cost estimate will be reviewed by the Cost Dx. The ECO-PCX is requested, herein, to coordinate cost estimation review with the Cost Dx.

Study conclusions based upon novel methods?

Capturing and valuing the full range of potential project benefits and understanding the differences and tradeoffs in space and time is a fairly complex proposition, requiring a certain novelty of method.

Study conclusions present complex challenges for interpretation?

Range and interrelationships of performance measure outputs will provide significant challenges for interpretation

Study conclusions contain precedent-setting methods or modes?

This study took advantage of most of the methods that have evolved in the IRL-S project. Therefore, it is not expected to contain precedent-setting methods or modes.

Study report will disseminate influential scientific information or highly influential scientific assessment?

It is not expected that the study report will disseminate influential scientific information or a highly influential scientific assessment.

Study conclusions likely to change prevailing practices?

The project is unlikely to affect policy decisions that have a significant impact.

Proposed general scope of independent external peer review (IEPR)

The total cost and the large size and area of influence of the project, as well as the complexity of combining a variety of management measures to construct alternatives, are the primary drivers of the requirement to perform IEPR for this project. This project will benefit from lessons learned in implementation of the IRL-S project. The detailed scope of IEPR will take into account IEPR conducted for IRL-S. The IEPR will be conducted by a panel of reviewers that will be selected by an eligible organization as defined in Section 2035(l) Definitions of WRDA 2007. At this time it is not anticipated that the public will be asked to nominate potential peer reviewers. It is anticipated that the IEPR team will include the same eleven disciplines as the ATR team: Plan Formulation, Economics, Environmental Restoration Analysis, Environmental Regulatory Compliance (e.g., NEPA documentation preparation), Engineering Design, Cost Estimating, H&H, H&H Modeling, Water Control, Geotechnical Engineering, and Real Estate. Current consolidated schedule (See Section 9.0 below) provides for concurrent IEPR and public and agency review of the integrated draft report and EIS. Significant or relevant public or agency comments received prior to or during IEPR will be provided to the panel of reviewers.

The scope of IEPR should include:

- General review of the revised draft report for completeness and adequate telling of the story.
- Completeness and appropriateness of ecosystem restoration analyses
- Completeness and appropriateness of economic analyses
- Completeness and appropriateness of engineering analyses

8.0 CONSOLIDATED PRELIMINARY COST ESTIMATE

- Planning Model Certification - $100
- Remaining ATR - $155K
- IEPR - $200K

9.0 CONSOLIDATED SCHEDULE

- Planning Model Certification, February 2009
- ATR of AFB Materials, February 2009
- ATR of Revised Draft Report, June 2009
- IEPR of Draft Report, July 2009
- Public and Agency review of Integrated Draft Report and EIS, July 2009
- ATR of Final Report, September 2009

10.0 SUMMARY

The ECO-PCX is herein requested to revise, as necessary, and approve this Peer Review Plan (PRP) and to establish model certification, ATR and IEPR teams for the reviews. Detailed scopes of work will be developed and negotiated prior to reviews.

11.0 PLANNING CENTER OF EXPERTISE POINT OF CONTACT

The email address for the USACE Planning Center of Expertise is: ECO-PCX@usace.army.mil**.**

Figure 1: Indian River Lagoon North Feasibility Study Area

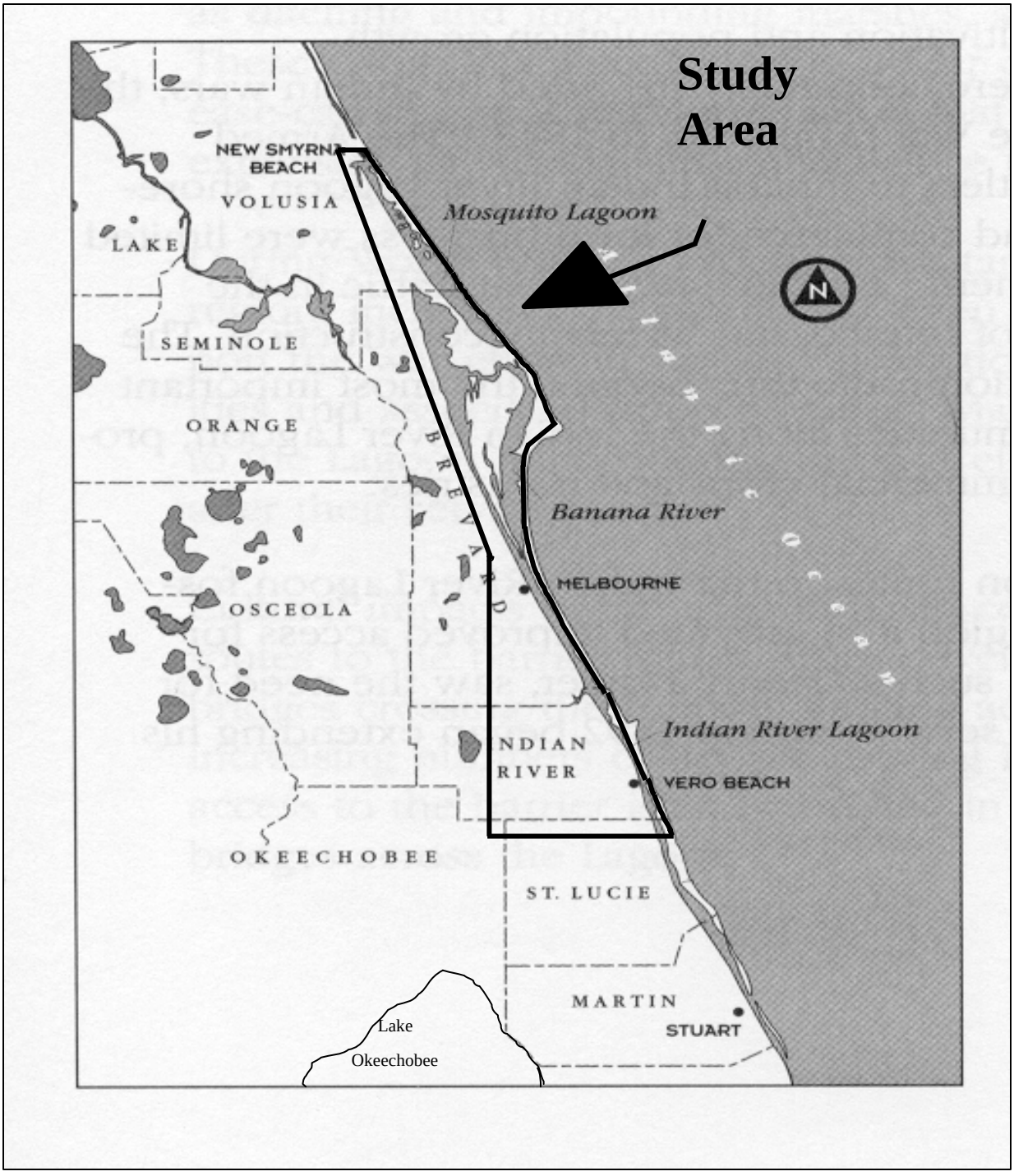

Figure 2: Location of Causeways, Inlets, and Major Canals