

**To:** Attendees

**From:** HDR Engineering, Inc.

**Subject:** USACE and SJRWMD Indian River Lagoon (IRL) North  
Restoration Feasibility Study  
Project Delivery Team/Independent Technical Review Team Meeting  
Summary – May 28, 2003

**Attendees:** See attached sign-in sheet

**Handouts:** Meeting Agenda  
Draft IRL SWIM Plan Contribution to the Development of IRL North Targets and  
Performance Measures  
Draft Methods for Determining the Indian River Lagoon Seagrass Light  
Requirement and the Light-Depth Targets  
ITR Responsibilities

The Indian River Lagoon (IRL) North – Joint Independent Technical Review Team (ITR) and Project Delivery Team (PDT) meeting was held in Palm Bay, Florida at the St Johns River Water Management District (SJRWMD) Field Office in Palm Bay, FL on May 28, 2003. The meeting followed the attached agenda and is summarized below.

### **WELCOME, INTRODUCTION, AGENDA, AND FACA REMINDER**

Debbie Peterson, Planning Technical Leader for the United States Army Corps of Engineers (Corps) welcomed the ITR and PDT members. She requested that all attendees introduce themselves and the agency they are representing. As an icebreaker Debbie requested that each individual describe his or her all time best vacation.

Debbie provided an overview of the attached agenda. She explained that the purpose of the Joint ITR and PDT Conference is contained in the Comprehensive Everglades Restoration Plan (CERP) Guidance Memorandum 14 which recommends that the ITR team is briefed in order to familiarize the team with specific project information including: project background, goals, objectives, and status. The Joint ITR and PDT Conference is also conducted in order to discuss and plan coordination efforts that will be necessary between the PDT and the ITR teams throughout the life of the project.

Debbie provided an overview of the meeting agenda and used a PowerPoint presentation to familiarize the ITR team with background information regarding the IRL North project purpose, goals, and authorization. The presentation summarized project activities to date. The meeting goals were identified as: 1) discuss Partnering efforts between the PDT and ITR teams, 2) satisfy CERP Guidance Memorandum 14 Requirement (Joint ITR and PDT Conference), 3) help the ITR team understand the study, 4) explain the Corps (ITR) Procedures and Coordination.

Debbie explained that only PDT members are permitted to actively participate in the discussion and decision-making associated with IRL-North Feasibility Study. Debbie reminded the meeting attendees that the project team is subject to the Federal Advisory Committee Act (FACA). She presented a slide indicating that the PDT consisted of federal, state, local, and tribal government representatives. A bullet stated that time has been allotted at each meeting to allow for public input and commentary. Speaker registration cards were provided at the entrance to the conference room, and should be completed for the public comments. She emphasized the importance to adhere to the FACA regulations in order to eliminate any impediments to the restoration of the lagoon.

## **STUDY OVERVIEW**

Debbie provided a project background and status update on the IRL North Feasibility Study, including the recent activities that have occurred to move the project forward. Debbie informed the audience that the National Environmental Policy Act (NEPA) scoping letter had been sent in October 2002 to Federal, state, and local government agencies, and other stakeholders. She advised that responses to the NEPA scoping letter have been received, and a notice of intent (NOI) has been sent for inclusion in the Federal Register. Debbie confirmed that the team has continued to determine the problems and opportunities related to the project, and preliminary performance measures have been established and will continue to be refined until the evaluation of alternative plans has begun. Debbie advised that the IRL North team has continued to move forward with public outreach activities, through the development of NEPA scoping meeting materials and various project information resources. She stated that public outreach activities would increase as the project moves forward, and the team will be kept informed as information becomes available. Debbie informed the meeting attendees that extensive modeling efforts for the IRL North project are underway and preliminary model runs have been conducted. She stated that time has been allocated during the meeting for Fred Morris of the SJRWMD to provide a description of the model, and model run testing information obtained to date. A final update was provided regarding the sediment management strategy scope of work. Debbie stated that Mitch Granat from the Corps has developed and is currently in the process of bringing an Architect - Engineer (A-E) on board to complete a sediment management study that will aid in the progression of the IRL North Feasibility Study. Time has been allocated on the agenda for Mitch to provide an update regarding the status of this contract.

Debbie provided a background review of the IRL North Feasibility Study. She presented a slide addressing the study authorization informing the team that the study is authorized by Section 309 (1) of the Water Resources Development Act (WRDA) 1992. However, the Restudy did not permit thorough investigation of all regional water resource problems of the Central and Southern Florida (C&SF) Project. Therefore, Section 528 (b) (1) (C) of WRDA 1996 authorizes continuing the studies necessary to further the objectives of the CERP and provide for water needs of the region served by the C&SF Project.

The study purpose of the IRL North Feasibility Study is to achieve ecosystem restoration, while meeting other water resources needs of the area. The IRL North Feasibility Study is located in the Volusia, Brevard, and Indian River counties of Florida. The project will not compromise, but will build upon the efforts of previous and on-going projects. Debbie advised that the IRL North

project would follow the IRL South project (located in St. Lucie and Martin Counties, Florida) closely in order to eliminate potential roadblocks. She provided a brief update on the IRL South project status. The IRL South team has received guidance from headquarters to move forward with the development of a Project Implementation Report (PIR). The PIR will contain information regarding the water reservation clauses, ecological monitoring, and other WRDA 2000 requirements. Debbie advised that the PIR is scheduled to be complete by Fall 2003, in order to meet the next WRDA deadline. Brian Files, Corps, recommended that the team inquire with Corps Division and headquarters regarding the possibility to prepare a combined Feasibility Study/PIR in order to expedite the process. The team members agreed that this should be looked into further in order to prevent having to backtrack later in the process.

Debbie presented a slide regarding the Standard Corps Project Development Process, and explained that the team had completed the initial Project Management Plan. The team is currently in the Feasibility Study phase. This is the second step in the process, and the team has a significant amount of ground to cover over the upcoming years to meet WRDA 2008. The components of the Feasibility Study were reviewed including: Plan Formulation, Economic and Environmental Analysis, Engineering and Design, Water Quality Analysis, Real Estate Analysis, and Supplemental NEPA documentation. She stated that included in the Plan Formulation phase of the project, the team must perform the Corps "Six Step Planning Process". Debbie presented a slide and explained the necessary steps including: 1) Specify Problems and Opportunities, 2) Inventory and Forecast Conditions, 3) Formulate Alternative Plans, 4) Evaluate Effects of Alternative Plans, 5) Compare Alternative Plans, and 6) Select Recommended Plan.

Debbie discussed the background of the IRL North Feasibility Study and presented a slide that listed the previous and on-going projects that the IRL North Feasibility Study will build upon. They included: Surface Water Improvement and Management (SWIM) program 1994, Comprehensive Conservation and Management Plan (CCMP) 1996, Implemented Stormwater Projects, Muck Removal from Crane & Turkey Creeks, Reconnection of Impounded Wetlands, Environmentally Endangered Lands (EEL) Land Acquisition, Pollutant Load Reduction Goal (PLRG) Model Development, Removal of Exotics and Planting Mangroves, canal-1 (C-1) Re-Diversion, and others. She then reviewed the goals and objectives of the project.

There are two main goals of the IRL North Feasibility Study: Enhance Ecological Values, and Enhance Economic Values and Social Well-Being. The objectives within these goals are listed below.

Goal: Enhance Ecological Values

Objectives:

- Reduce excessive freshwater inflows and pollutant loadings to the IRL.
- Improve water quality in the IRL.
- Improve habitat for IRL biota, with emphasis on seagrass.
- Increase spatial extent and functional quality of Submerged Aquatic Vegetation (SAV) and watershed wetlands.
- Increase functional quality of native upland habitat.
- Maintain/improve diversity and abundance of native plant and animal species, including Federal, state, and local listed species.

Goal: Enhance Economic Values and Social Well-Being

Objectives:

- Maintain or improve water supply.
- Maintain or improve flood protection.
- Improve opportunities for tourism, recreation, and environmental education.
- Enhance commercial and recreational fisheries and associated industries.

Debbie discussed subteam involvement to date, including the development of initial performance measures. As the study moves forward, the need for subteams to convene will fluctuate as necessary. A slide was presented listing the IRL North Feasibility Study subteams, they include: Modeling, Water Quality, Ecology, Water Control Districts, Water Supply/Flood Control/Recreation, Local Government, and Performance Measures. Additional subteams may be established as deemed appropriate and based on study requirements.

Debbie provided a tentative schedule for the upcoming IRL North Feasibility milestones. A slide listed the following milestones and dates:

<b>IRL North Feasibility Study Milestones and Dates</b>	
NEPA Scoping Public Meeting	Summer 2003
Complete Models	December 2003
Complete Alternative Plans (Formulation and Detailed Design)	2004
PDT/ITR Pre-Feasibility Scoping Meeting	2005
Evaluate and Compare Alternative Plans	2005
Select & Optimize Recommended Plan	2006
PDT/ITR Pre-Alt Formulation Briefing Mtg.	2006
Draft Report/Public Review	2006
Division Engineer's Public Notice	2007
WRDA	2008

Debbie further stated that there will be a NEPA Scoping Public Meeting July 22-24, 2003.

**CENTRAL & SOUTH FLORIDA/UPPER ST. JOHN'S RIVER BASIN**

Debbie Peterson introduced Hector Herrera, SJRWMD Project Manager for the Upper St. Johns River Basin. Hector provided a brief overview of the Upper St. Johns River Basin project and the C-1 Western Re-Diversion Project. Debbie stated that it is important that the IRL North Feasibility Study follow the lessons learned from on-going projects directly related to the Feasibility study.

**Upper St. John's River Basin Project**

Clarification note: All Upper St. Johns River Basin projects were originally authorized as part of the Central and South Florida (C&SF) flood control project. The original sponsor was the

Central and South Florida Flood Control District. When South Florida Water Management District (SFWMD) and SJRWMD were established, most of the C&SF projects were located in the jurisdiction of SFWMD and the Upper St. Johns River Basin project components were located in the jurisdiction of the SJRWMD.

He presented a slide containing historical dates beginning from Congressional Authorizations of the project in 1954 through the start of construction in 1988. The Upper St. Johns River Basin project began as a response to catastrophic flooding of the basin during high-level rain events. The Corps and SFWMD were the original partners of the flood control project in 1966. During the initial development phase of this project, a highly structural approach was followed in order to meet the flood control needs. Due to environmental concerns in the 70's, the project was put on hold and sponsorship was transferred to the SJRWMD. The Corps and SJRWMD moved toward a less structural approach, and began construction of the project components in 1988.

Hector advised that the \$200M project consists of over 100 miles of flood protection levees and six major water control structures. The SJRWMD assumed responsibility for the land and Operation and Maintenance (O&M) of the structures, and the Corps provided funding for capital construction. Approximately 150,000 acres of restored or enhanced wetlands have been or are planned to be achieved by the project. He added that this project includes several major multi-purpose public recreation sites.

The Upper St. Johns River Basin (USJRB) Project is made up of four (4) different areas: Water Management Areas (WMA), Retention Areas/Detention Areas, Marsh Conservation Areas (MCA), and Restoration Areas. Hector provided a description of each of the aforementioned areas, and presented a slide addressing the project goals, listed below.

- Provide flood protection by increasing floodplain storage within the USJRB.
- Reduce Freshwater Discharges to IRL to 1 in 10 year event - 1985 General Design Memorandum (GDM).
- Increase water quality by creation of Water Management Areas (WMA) for increase retention and treatment of agricultural runoff.
- Protect and restore wildlife habitat.
- Increase recreational opportunities.

Hector presented a graphical representation of project performance based on historical discharge activity out of structure - 96 (S-96). The graphical representation included annual information beginning January 1992 and ending January 2002. Approximately 3 significant (>1200 cfs) discharge and 11 discharges (<1200 cfs) activities, high-level rainfall events including Tropical Storm Gordon in 1994, impacted project performance during the construction phase. A significant reduction in discharge events (<1200 cfs) has occurred since the completion of all project components south of Fellsmere Grade in 1996. Hector stated that discharges at S-96 occur based on the level of water stored in C-54 (when retention area is full), and when the stage in the St. Johns River Water Management Areas (SJWMA) reaches 25.3 feet. This level was established in the Water Control manual for the USJRB. Hector added that discharges cannot be made out of the S-96 structures B and C at the same time. Discharging from both S-96 B and C

creates a detrimental tail water effect. The project is in an interim condition but providing some benefits.

Hector advised that the project is scheduled to be complete in 2005, and provided a slide with a description of the remaining components below.

- Three Forks Marsh Conservation Area
  - Split S-96B and S-96C discharges.
  - Scheduled to be complete in October 2005.
- L-74N
  - Scheduled for completion in October 2005.
- Fellsmere Water Management Area
  - Increase stormwater storage for SunAg.
  - Further reduce frequency of discharge to IRL to 1 in 25 year event.
  - Scheduled for completion in January 2005.

Hector allocated time for questions regarding the USJRB project. The following discussion points were captured.

- A meeting attendee requested information on the modeling efforts to determine if weather data was compared to discharge activity. Basin wide models have been created; however, Hector advised that the SJRWMD does not conduct pre-emptive actions. Rather, a review is made of rain data and correlates the information to discharges. Discharges are based on significant rainfall events and include: large tropical storms (greater than a 1 in 10 year storm event), wet seasons, and drought followed by significant rain. Last year's history was not related to a tropical event but the events of a wet summer. The discharge regulation schedule is based on flood stages not on rainfall events.
- Mario Busacca, National Aeronautics and Space Administration (NASA), asked Hector if there was a mechanism where agricultural water can be pumped back for agricultural needs. Hector advised that the canal always has a positive head flow ahead of the agricultural area. If necessary, back pumping through reverse canals is possible.
- A team member suggested that the USJRB obtain data prior to 1992 for the graphical representation of project performance. This will provide a greater success story for the project. Hector said that information is available, and can be used, however was not incorporated into this presentation.

### **C-1 Western Re-Diversion Project**

Hector Herrera then provided a brief overview of the C-1 Western Re-Diversion project. In 1990 the SJRWMD Board approved the realignment of the levee-74 North (L-74N). He added that in 1996 the SJRWMD Board approved design changes to the Upper St. Johns River Basin project to accommodate the C-1 Western Re-Diversion Project and was identified in 1997 as a Corps

Section 206 Continuing Authority Program project. The goal of the C-1 Western Re-Diversion Project is to divert 90% of the drainage westward. Hector described the watershed drainage patterns as related to the with-project and without project (C-1) alternatives. Without the C-1 Western Re-Diversion project, approximately 69,563 acres will contribute drainage into the Indian River Lagoon (IRL), whereas, with the C-1 project fully implemented approximately 6,765 acres will contribute drainage into the lagoon, and 62,798 will be re-diverted westward into a retention, and detention area.

Hector presented a slide including the basic design concept of the project. Basic design concepts include the following.

- Acquire area below 18.0 feet elevation east of TFMCA (C-1 Detention Area) – approximately 95% of this land requirement has been met.
- Connect western end of C-1 into C-1 Retention Area (C-1 RA). Drain lands north of C-1 into C-1 RA by constructing C-2 replacement and then pump into Sawgrass Lake Water Management Area (SLWMA).
- Construct Intermediate Water Control Structure (IWCS) (MS-2) in C-1 to divert flows west to C-1 RA and SLWMA.

Hector described the project components by referencing an aerial photo, and then presented a graphical representation of project performance. Hector explained the pre-project, and with project results that determine the project performance as related to the peak discharge events from MS-1 into Turkey Creek. Maximum discharges were capped at 3000 cfs. The results of construction of the C-1 Western Re-Diversion project will reduce drainage into the IRL by over 90%. Post project peak flows to Turkey Creek for a given storm event will be reduced approximately 50%. Hector added that historic hydrology will be reestablished to the IRL and St. John's River while reducing harmful impacts to sea greases and shellfish in the IRL. Hector stated that hardshell clammers/local commercial enterprises are given notice when discharges will occur so that they may move their product (clams), in order to minimize the impact of drops in salinity from freshwater inflows.

Hector reviewed the schedule for completion of the project, and stated that the anticipated completion date for the Ecosystem Restoration Report is December 2003. The estimated date for project completion is August 2006. Hector stated that the team is having a hard time determining the pre-project conditions. He encouraged the IRL North Feasibility Study team to establish the pre-project conditions early in the project, as it is increasingly significant in order to quantify the benefits. (Clarification note: The future without project condition is compared to conditions resulting from a given alternative plan to quantify benefits for that alternative plan.) The schedule listed in the PowerPoint presentation is not correct.

Hector allocated time for questions regarding the C-1 Western Re-Diversion project. The following discussion points were captured.

- A team member asked if the proposed dredging of Lake Sawgrass has impacted the C-1 Western Re-Diversion project. Hector advised that the project would accept the Lake Sawgrass dredge material if it is available prior to the construction of C-1.

However, once C-1 has begun construction, the sediment cannot be accepted in the project area.

- Mario Busacca asked if the costs would increase throughout the lifecycle of the project. Hector advised that analysis is conducted on an annual cost for maintenance. The costs are expected to rise, but specific costs have not been derived.
- A team member asked if the functionality of the system would change as land uses change over time with urban development. Hector stated that as impervious surfaces increase, water levels will increase, and the discharges will be kept on a regulation schedule adequate for moving water through the system appropriately. When the stage reaches a set measure, discharges will be made. Future land development will be required to meet standards, and codes for runoff (pre and post conditions). Hector stated that the volumetric criterion is an important aspect for the team to review throughout the project.

Debbie Peterson emphasized the importance of the two Upper Basin projects that will impact the IRL North Feasibility Study. She advised that it is important to recognize that the team will need to undergo several of the same types of with and without project condition exercises, and can utilize the valuable lessons learned from both of the projects discussed. She concluded that the IRL South Feasibility Study relies heavily on the benefits of surrounding projects being realized prior to those of the actual project. The IRL North Feasibility Study is fortunate to have two significant projects that are directly related to benefit the IRL and will be complete before the IRL North Feasibility Study recommendations are implemented.

## **MODEL DEVELOPMENT AND APPLICATION**

Fred Morris, SJRWMD, provided an overview of the Pollution Load Reduction (PLR) model for the IRL North Feasibility Study. The PLR model was designed to test the PLRGs and serve as a decision support tool. The model will provide reasonable quantification of the impacts of changes in loading on circulation, salinity, chemistry, and light and seagrass. Fine-tuning of the model will continue with recalibration and verification of the results along with sensitivity analyses made on an as-needed basis.

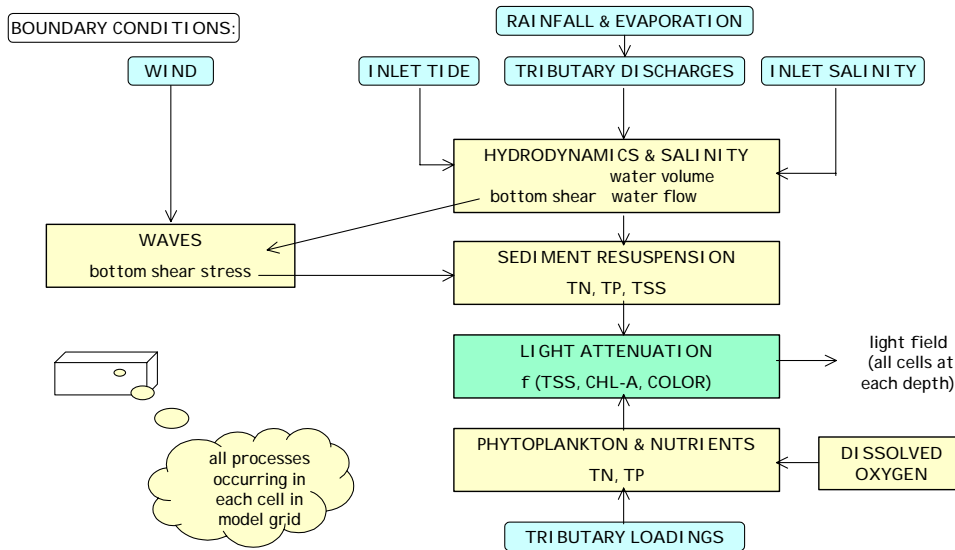
The IRL North model is intended to predict the percent of subsurface light in seagrass areas as related to changes in pollutant loadings and various water quality targets. The following data is used to run the PLR Model:

- Topography, shorelines, and bathymetry.
- Precipitation, evaporation, discharges and loadings from significant sources (tributary basins, significant non-point sources, sediment layers, aquifer and atmosphere).
- Ocean boundary conditions outside of the Ponce de Leon, Sebastian, Ft. Pierce and St. Lucie inlets (water level, salinity, TN, TP, TSS)

The Chemical Hydrologic 3-D Integrated Modeling System (CH3D-IMS) model grid map was presented and the Basic Block Diagram of the IRL PLR model was discussed to explain the data flow process necessary to receive model outputs. The four major components of the model are

Hydrodynamics & Salinity, Sediment Re-suspension, Phytoplankton & Nutrients, and Light Attenuation. Please see the diagram below for an understanding of how the four major components produce model outputs.

### BASIC BLOCK DIAGRAM of the IRL PLR MODEL



Fred provided a brief description of model features and presented a slide stating that the IRL PLR Model was an application of the University of Florida’s curvilinear, finite difference, boundary-fitted-3-Dimensional Integrated Modeling System (CH3D-IMS). He explained that the model simulates hydrodynamics, salinity, wave height, sediment re-suspension, eutrophication, and light in the water column. The model layers include: 4 water, 1 aerobic sediment, and 1 anaerobic sediment layer that can run the three (3) modes below:

- Hydrodynamics and salinity only;
- Hydrodynamics, salinity, wave, and sediments;
- Hydrodynamics, salinity, wave, sediments, and water quality & light.

Fred continued to explain the light processes in the PLR model as it relates to the depth below the water surface and the University of Florida Light Model (2002). The University of Florida conducted extensive analysis of five different field sources and developed a quantification of general light model to apply across the lagoon. The Light Prediction Model inputs and outputs were discussed, and Fred addressed two tables contained in the PowerPoint presentation that compare light attenuation in percent of  $K_d(\text{Par})$  due to color, CHL\_A, and TRIPTON for each section and season of the IRL. TRIPTON has the most effect/influence on  $K_d(\text{Par})$  in both section and seasonal basis. Fred reviewed the boundary conditions (e.g., wind, color, dissolved oxygen, etc.), and explained that the model interpolates between data times and locations to produce a complete set of boundary conditions.

A detailed description of the Nutrient Dynamics in the PLR Model was delivered to the team. He explained the fractionation and forms of both phosphorus and nitrogen used in the PLR model including: organic and inorganic, soluble, and particulate forms. He described the basic processes in the water column, phosphorus processes in the water column and processes in the aerobic and anaerobic sediment layer. Detailed graphic representations of these nutrient dynamic processes (physical, nitrogen, phosphorus, aerobic and anaerobic) can be found in the attached "Overview of the Indian River Lagoon PLR model" presentation.

Fred addressed the dissolved oxygen (DO) dynamics and Total Suspended Solids (TSS) in the PLR model. The DO relates to the Carbonaceous-Biochemical Oxygen Demand (CBOD) that consists of: oxidation of organic matter, respiration by phyto- and zooplankton and nitrification of the water. PLR model sediment module simulates TSS and turbidity is a function of TSS, grain size and type. It can be measured with an optical sensor, but is not modeled. Fred reviewed the calculation to determine both TSS and turbidity. He advised that the relationship between TSS and turbidity is not the same across the board. The turbidity measurement results were not consistent. A summary of the Hydrodynamic, Salinity, and Wave Module inputs and outputs, and the Sediment Re-suspension Module Inputs and Outputs was provided along with a list of the monitoring and measurements for calibration and verification of the model.

Fred summarized the presentation, and stated that the SJRWMD has been tasked to provide the Corps with an evaluation of the removal of causeways from the IRL. This analysis will compare the with or without causeway conditions as related to TSS, salinity, velocity, and turbidity. The report will explain all findings to the Corps. Fred advised that this report is expected to be available by June 1, 2003.

Fred allocated time for questions regarding the modeling efforts. The following discussion points were captured.

- A team member inquired about the format of the model outputs. Fred reported that outputs would be delivered in a graphical representation (plots).
- Does the model include inland modeling? Fred advised that the PLR model is a hydrodynamic model and does not extend inland beyond the tributary mouths.
- Mitch Granat asked if partial removal of causeways were being modeled or considered? He advised that increased wind and wave impacts are found when the entire causeway is removed. Fred reported that the partial removal is being considered, but has not been conducted in the modeling efforts. Debbie Peterson suggested that this topic be discussed off-line during a Modeling sub team meeting.

## **SEDIMENT MANAGEMENT STRATEGY**

Mitch Granat, Corps, has developed a Scope of Work (SOW) that will be awarded to Taylor Engineering for development of a sediment management strategy. Taylor Engineering has extensive involvement with the project to date, and will perform a system analysis of the upland and lagoon areas. Muck is a significant problem in the project area, with 40-60 % of muck material located in the Intracoastal Waterway (ICW) and all tributaries. The purpose of the study is to determine if the material flowing into the IRL can be controlled to reduce turbidity, and

therefore increase the light-depth ratio. The idea is to analyze the upland areas and cut off the muck supply to the lagoon. Mitch added that the sediment management strategy would recommend the removal of muck in the lagoon based on modeling results, and also provide a recommendation of best management practices (BMPs) of the water control areas. Taylor Engineering is expected to begin this effort in the upcoming months.

## **PUBLIC COMMENT**

There were no public comments presented during the morning public comment period at the meeting.

## **PROBLEMS AND OPPORTUNITIES**

Debbie Peterson reviewed the status of the IRL North Feasibility Study Problems and Opportunities and provided a brief explanation of how the identification of problems and opportunities begin the plan formulation process. She stated that the team develops problem statements and then performance measures are established in order to rectify the problems. The Performance measures are monitored by the creation of management measures that lead to the development of alternative plans. Alternative plans are evaluated and compared in order to determine the Recommended Plan.

Debbie explained that the IRL North Feasibility Study team has established the following Problems and Opportunities: Water/Sediment Quality, Living Resources (habitat, flora and fauna), Water Supply, Flood Control, and Recreation. Water and sediment quality include pollutant loadings, turbidity, muck, salinity, and circulation. Living Resources related to habitat include: submerged aquatic vegetation, drift algae, impoundments. Living resources related to flora and fauna include: species populations and habitat, listed species, oysters and clams, exotics, and habitat (deep water, man-made and natural).

A team member stated that problems listed also carry a positive aspect, and that the team should discuss the pros and cons to each of the identified problems. Debbie stated that the problems and opportunities are not final. She encouraged all interested PDT members to attend the meetings in order to provide input regarding the problem statements.

Another PDT member suggested that the pristine areas identified currently, should be used as the baseline to quantify performance measures in the future. Mario Busacca recommended that the team capture the problems and opportunities in a matrix format to view the positive aspects of the identified problem areas. The team agreed that this was a sound recommendation, and Debbie advised that Joel Steward would be providing a discussion on the performance measures following the lunch break.

Debbie discussed the development of the shoreline areas surrounding the IRL. She suggested that the team focus on spoil islands, as a transitional shoreline area, in order to offset the loss to development.

## **PRELIMINARY PERFORMANCE MEASURES**

Joel Steward, SJRWMD, introduced the preliminary performance measures to the ITR and PDT members. He explained how performance measures are developed. A performance measure is initiated by first identifying a target, which is a qualitative resource objective. A performance measure is then developed in order to quantify the target. The performance measure is a specific numeric criterion that will serve the target, and will be used to measure the success of meeting the target. If the target is not quantifiable, but has value, and is of concern to the overall success of the project, it is a performance indicator. Opossum pipefish were cited as an example of a performance indicator in the St. Sebastian River muck-dredging project, which may have an impact on the species, but was not readily measurable.

Joel directed the attention of the PDT members to the handout titled, “IRL SWIM Plan Contribution to the Development of IRL North Feasibility Study Targets and Performance Measures”, Assumptions – page 1. He explained that the IRL North Feasibility Study will build upon existing restoration and management plans including the IRL SWIM plan. The IRL SWIM plan objectives, targets, or performance measures are potential candidates for adoption by the IRL North Feasibility Study, however not all will be applicable as performance measures, but may be used as performance indicators, as described above.

Joel reviewed the “Performance Measure Rules” outlined in the SWIM Plan document. The Performance Measures can be preliminary, subject to revision but must be final by the end of the IRL North Feasibility Study. The Performance Measure should have a responsible agency identified by the end of the IRL North Feasibility Study that will conduct the monitoring necessary to determine if the performance measure target has been met. If an agency cannot be identified to conduct monitoring, the Performance Measure will be eliminated or considered as a performance indicator. Debbie added that the application of performance measures should be monitored before and after the project. If the performance measure cannot be quantified, it should not be a performance measure. A final rule is that the performance measure must have a quantitative target and be documented. Joel advised that lagoon-wide targets/measures were conducted in segments based on water quality differences and seagrass distribution (optical pollutants). The following were presented as lagoon-wide targets/measures:

- Light-Depth Targets per segment. There are approximately 20 segments contained within the sub-lagoons (Mosquito Lagoon, Banana River Lagoon, and Indian River Lagoon).
- Allowable loadings and PLRGs per segment.
- WQ “standards”.
- Wetland Targets per sub-lagoon.

Joel referred to a PowerPoint presentation slide titled, “Indian River lagoon Basin – Seagrass Performance Measures – SJRWMD/USACE IRL North FS”. Joel reported that seagrass minimum and maximum coverage targets have been developed and include the deep edge target depths associated with each segment of the lagoon. The seagrass light requirement performance measure is a percent of light required at the deep edge of the seagrass bed. A recommended light requirement of 33% was used in order to determine the light-depth performance measure for the

IRL. Joel reported that six segments had the best and most stable seagrass development, including IR1–IR3, IR5, BR1-2, IR14-15.

The draft water quality performance measures were reviewed as provisional and are subject to change. Joel referred to a slide listing draft water quality targets, and performance measures. Targets include: Sub-surface light, Secchi, Turbidity, TSS, Chlor a, Color, Total Phosphorus, Total Nitrogen, and Salinity. Each target has a respective performance measure to be attained. Specific water quality performance measures were identified for Turkey Creek, St. Sebastian River, and Crane Creek.

Joel reported that both dragline and impounded wetlands are predominant issues throughout the IRL. The wetland target for Impounded Marshes is to restore tidal communication and natural wetland functions to the greatest extent possible via reconnection to the IRL system, and the dragline-impacted marshes are targeted to be rehabilitated via filling and grading of dragline ditches to appropriate wetland elevations in order to restore natural wetland functions. Mosquito Lagoon was found to have the most dragline impacted wetlands. Joel advised that wetlands would need to be acquired prior to moving forward with the restoration efforts. He referenced a table reflecting the acreage of identified wetlands in each sub-lagoon. The following information was obtained from Table 4, 5, and 6 of the “IRL SWIM Plan Contribution to the Development of IRL North Feasibility Study Targets and Performance Measures” document.

- Approximately 9,712.1 acres of impounded marshes have been identified for reconnection,
- 2,461.3 wetland parcel acres have been identified for acquisition, and
- 2,237 dragline impacted wetlands acres have been identified for rehabilitation.

A team member inquired why Turnbull Creek was not listed for water quality or wetland rehabilitation, and Joel explained that during the preliminary study of the area, Turnbull Creek was not found to be a candidate for restoration, however, the team will continue to monitor the area.

Joel recommended that the team review the “IRL SWIM Plan Contribution to the Development of IRL North Feasibility Study Targets and Performance Measures” for more information regarding the specific performance measures discussed. He directed the team members’ attention to the tables contained in the document for more information regarding the performance measure targets.

Joel allocated time for questions regarding the performance measure development. The following discussion points were captured.

- A team member asked if the performance measures should be individual numbers, or ranges, to quantify goals. Joel explained that a range should be set and then view trends/changes over time. Modeling will be used as a predictive tool, and then analyzed to address trends.
- Will wetland restoration move forward without federal funding? Joel explained that the intent is to achieve these items any way possible, but the federal tie-in is a good

way to get large-scale projects complete. If federal participation continues to remain available, approximately 20,000 acres can be restored.

- Joel advised that low altitude aerial photography and seagrass transects will be used to measure the lagoon restoration.

## **INDEPENDENT TECHNICAL REVIEW**

Debbie introduced Erwin Wunderlich, the IRL North Feasibility Study Independent Technical Review (ITR) team leader. Erwin explained the USACE Independent Technical Review (ITR) Process. The ITR process is a review by a qualified team, not affiliated with the development of a project or product, for the purpose of confirming the proper application of clearly established criteria, regulations, laws, codes, principles, and professional procedures. Further, a peer review can be conducted in addition to the traditional ITR Process.

Erwin presented a slide stating the “Big Picture” of the ITR process. The process ensures the delivery of quality products or services for the PIR/Supplemental Environmental Impact Statement (SEIS). The ITR process also ensures Quality Assurance/Quality Control (QA/QC) of technical products or services, and the ITR members consist of interdisciplinary professionals from the Corps, Water Management Districts, federal agencies, and possible contractors that are not affiliated with the project. Erwin explained that peer review of science such as the National Academy of Science might also serve as an additional ITR step. The IRL North Feasibility Study has completed the initial Project Management Plan (PMP), and the ITR strategy for this study can be found in Appendix Q of the PMP. Erwin added that a Quality Control Plan (QCP) is available and provides direction to the team members in order to assure that a quality project is being developed.

Erwin explained that the ITR is a continuous process throughout the study. He explained that the following milestones should contain ITR participation.

- Kickoff Meeting – explain the project to the ITR team members, and status of the effort.
- Feasibility Scoping Meeting (FSM) – The ITR team members should participate in the development of material to be presented at the Feasibility Scoping Meeting currently scheduled for Aug 2005. ITR and PDT participation will ensure that all team members are in agreement with what will be presented. Erwin provided an example that the ITR team might review what the PDT has developed for the following:
  - Problems, opportunities, constraints.
  - Without project conditions - Erwin stated that the ITR team will compare and contrast the ‘with’ and ‘without’ project conditions to build a case for Congress to allocate funding to the project.
  - Other relevant items - Debbie suggested that the ITR involvement might include review of agency work that will be implemented (ie. Modeling products).

- Alternatives Formulation Briefing (AFB) – The ITR team members should provide assistance in the development and provide concurrence of the information that will be briefed.
- In-Progress Review or Technical Review Conference – ITR participation is critical to ensure that technical documents (e.g. Plans and Specifications) conform to laws and regulations applicable to the project.
- Statement of Independent Technical and Legal Review – ITR team members must provide concurrence of all information contained in the project documents, and sign off accordingly prior to sending the documents to Congress.

Erwin provided the team examples of ITR Comments, and a sample of the Statement of Technical and Legal Review signature page. ITR team members generate comments, and the PDT members must provide responses to these comments in order to complete the review process. The ITR comments will be incorporated into the project documents, or contain a detailed explanation in the PDT responses stating why the comment/suggestion was not incorporated into the project. Erwin added that the ITR members for this project consist mostly of Corps Jacksonville District representatives.

Erwin allocated time for questions and comments regarding the ITR process. The following statements/discussion points were captured.

- A team member suggested that water, wastewater, energy will be affected by this project, and a sub team should be included to address these issues.
- A team member suggested that a subgroup be developed to address turbidity measurements.
- Will the “without project conditions” include future land development? A team member suggested that the team review the SWIM plan, CCMP, and other technical reports to determine land use for the present and 50-year project life. Debbie Peterson stated that the existing condition is set the year Construction begins, and the PDT will need to determine these dates based on information in previous projects, and the current conditions at the time of construction.
- When asked about constraints by CERP, Brian Files suggested that the team maintain close coordination with Corps Headquarters when determining the baseline. Debbie Peterson agreed and stated that the team will also follow CERP (CGM) requirements.
- A team member added that the General Re-evaluation Report (GRR) study includes some of the without project conditions/existing conditions. Can information be used from the GRR? Debbie explained that the IRL North Feasibility Study has not received authorization to move forward as a project, and therefore has not reached the GRR phase. It is going to be submitted for inclusion into WRDA 2008. Information contained in the GRR regarding existing conditions and baseline information will most likely be derived from this Feasibility Study.

Erwin thanked the PDT for their participation, and wished the team luck moving forward with the Feasibility Study and ITR process.

## **PUBLIC COMMENT**

A member of the public stated that it is impressive to see the SJRWMD, and the Corps join together in order to restore the health of the lagoon.

## **MEETING CLOSURE**

Debbie thanked all attendees for their participation during the meeting. She stated that meeting notes would be provided to the team for comment and review. Once the meeting notes are final they will be posted on the website. She added that the QCP can be downloaded from the website if any team members are interested in reviewing the document. The next meeting will be held on July 30, 2003 (10am to 4pm) to discuss the Problems and Opportunities, and Management Measures. Debbie thanked all meeting attendees for their participation during the discussion.

The meeting adjourned at approximately 3:30pm.