LAKE OKEECHOBEE WATERSHED PROJECT

INTEGRATED PROJECT IMPLEMENTATION REPORT & ENVIRONMENTAL IMPACT STATEMENT

PROJECT DELIVERY TEAM MEETING

August 24, 2016

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MEETING AGENDA

LAKE OKEECHOBEE WATERSHED PROJECT

INTEGRATED FEASIBILITY STUDY & ENVIRONMENTAL IMPACT STATEMENT

1. Introduction (Tim Gysan, USACE)
2. Sub-Team Updates, Current tasks and Data Needs
   a) Environmental (Gretchen Ehlinger, USACE and Bruce Sharfstein, SFWMD)
   b) Engineering/Modeling (Clay Brown, SFWMD and Peter Russell, USACE)
   c) Plan Formulation (Lisa Aley, USACE and Lesley Bertolotti, SFWMD)
   d) Cultural Resources (Robin Moore, USACE)
   e) Real Estate (Ray Palmer, SFWMD)
3. Overview: SFER Task Force Working Group Public Workshop August 31, 2016 (Tim Gysan, USACE)
4. Public Comment Period





ENVIRONMENTAL SUB-TEAM

LAKE OKEECHOBEE WATERSHED PROJECT | INTEGRATED FEASIBILITY STUDY & ENVIRONMENTAL IMPACT STATEMENT

ECOLOGICAL SUBTEAM
TASKS

- Restoration performance measures
- Identify measures to address concerns
- Coordinate environmental concerns
- Evaluate environmental effects and benefits (NEPA analysis)
- Monitoring and adaptive management plans

PERFORMANCE MEASURES

- Identify performance measures for each project objective
- Used to evaluate project alternatives
- Used to make the correlation between hydrologic output and ecosystem functions
- Each performance measure will have a predictive metric and a desired target representative of historical conditions or pre-drainage hydropatterns within the study area
- Desired targets will be based on hydrologic requirements necessary to meet empirical or model-derived ecological conditions

PROPOSED LOWP PERFORMANCE MEASURES

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Project Objective

Provide for better management for releases to the northern estuaries

Proposed Performance Measure

1. RECOVER Northern Estuaries Salinity Envelope

Caloosahatchee Estuary

- ***Low Flow Target*** **- no months during October to July when the mean monthly inflow from the Caloosahatchee watershed, as measured at S-79, falls below a low-flow limit of 450 cfs (C-43 basin runoff and Lake Okeechobee regulatory releases)**
- ***High Flow Target*** **- no months with mean monthly flows greater than 2,800 cfs, as measured at the S-79, from Lake Okeechobee regulatory releases in combination with flows from the Caloosahatchee River (C-43) basin**

St. Lucie Estuary

- ***Low Flow Target*** **– 31 months where mean flow is less than 350 cubic feet per second (cfs).**
- ***High Flow Target*** **- 0 Lake Okeechobee regulatory discharge events (14 day moving averages > 2000 cfs)**

PROPOSED LOWP PERFORMANCE MEASURES

Project Objective

Provide for better management for releases to the northern estuaries

Proposed Performance Measure

2. Measure of oyster and seagrass habitat based on frequency of flows from S-79 and S-80

- **Use Caloosahatchee and St. Lucie hydrodynamic models coupled with Oyster and Sea Grass models for ECB, FWOP and TSP to confirm and quantify beneficial effects to key estuarine ecological components**

PROPOSED LOWP PERFORMANCE MEASURES

Project Objective

Improve Lake Okeechobee water levels

Proposed Performance Measures

3. **RECOVER Lake Okeechobee Stage Envelope**
   - **Reduce frequent or prolonged lake stages outside of 12.5 -15.5 ft NGVD29**
   - **Target= 0 weeks for extreme water levels (above 17 ft and below 10 ft NGVD29)**
4. **Lake Okeechobee Overall Annual Ecological Score (under RECOVER review)**
   - **Annual point score for six nearshore ecological metrics – (1) Chara abundance (2) Cyanobacteria abundance (3) Epipelon abundance (4) Epiphyte abundance (5) Panfish abundance (6) SAV communities based on statistical relationship between hydrology and long term ecological data**

PROPOSED LOWP PERFORMANCE MEASURES

Project Objective

Increase the spatial extent and functionality of wetland habitat in the watershed

Proposed Performance Measures (work in progress by a sub-group of the eco sub-team)

5. **Wetland Restoration (target for each is the maximum of any one potential site)**
   - A. **Percent Connectivity - Site is connected to other lands that are in public ownership or have other environmental protections such as conservation easements**
   - B. **Wading Bird Support - Site is within 15 km of a known wading bird rookery and would possess the proper hydrologic characteristics after restoration to support that rookery site**
   - C. **Surface Water Connection - Site has a direct surface water connection to another major water body (lake, creek, river, or wetlands) and would improve hydrologic connectivity and protect or improve surface water quality through nutrient removal and physical buffering from adverse land management**
   - D. **Restoration Potential - Site has high percentage of lands needing restoration as opposed to lands in native habitat that would be preserved**

PROPOSED LOWP PERFORMANCE MEASURES

Project Objective

Increase the spatial extent and functionality of wetland habitat in the watershed

Proposed Wetland Restoration Performance Measures (continued)

E. **Public Use - Site has high potential for public access and would support wildlife-related recreation thereby supporting a goal of the original C&SF Project as well as the CERP's Master Recreation Plan**

F. **Storage Capacity/Period of Inundation – based on WAM output**

G. **Potential Phosphorus Retention – based on WAM output**

NEXT STEPS

- Identify final performance measures
- Normalization of performance measure output
- Habitat unit analysis

QUESTIONS?

ENGINEERING/MODELING SUBTEAM

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PLANNING SUBTEAM

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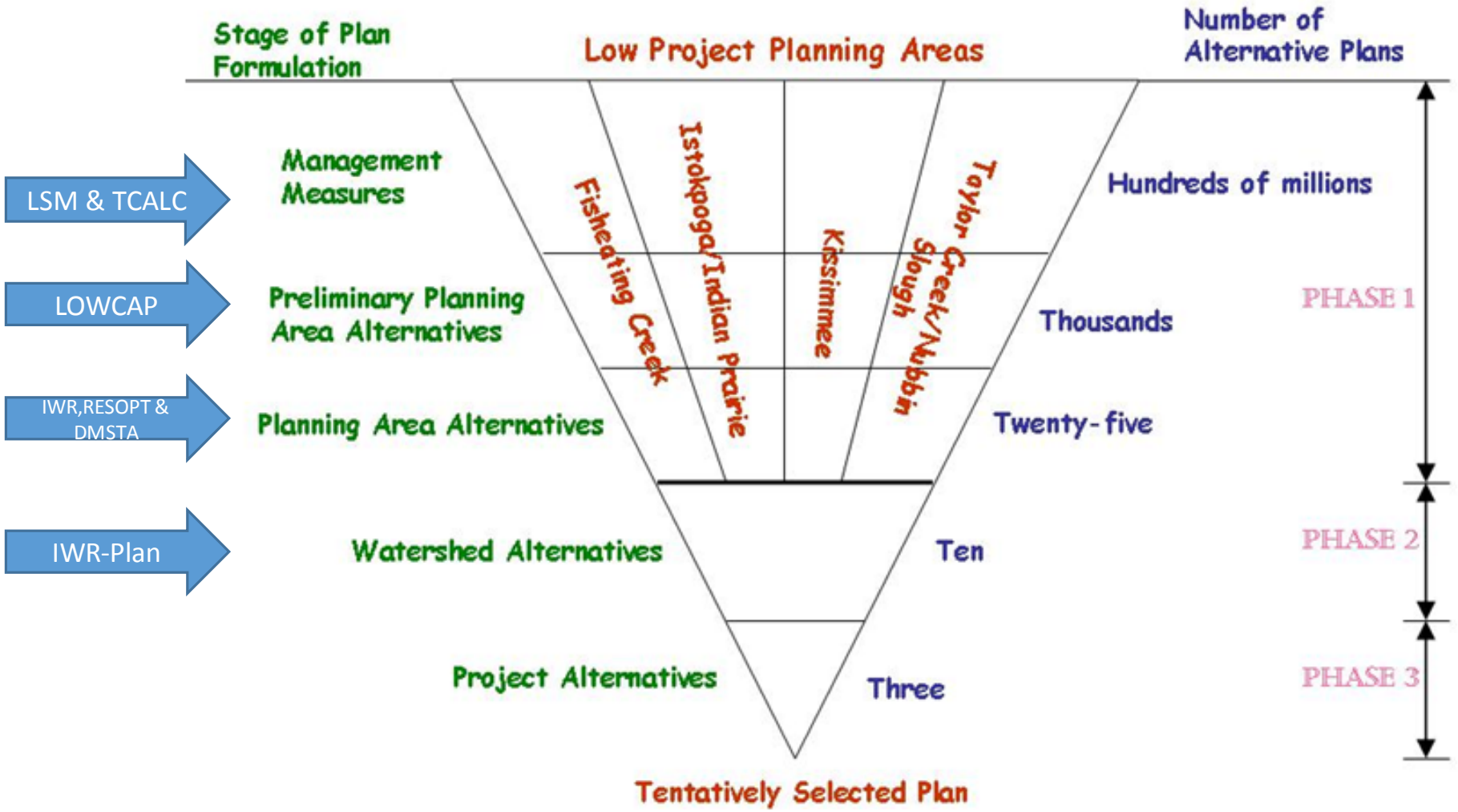
FIGURE 3-4: LOW PROJECT PLANNING PROCESS SUMMARY



PLANNING SUB-TEAM UPDATE
RESERVOIRS

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- Initial reservoir screening
  - Water availability to features
  - Rough costs (storage capacity vs. real estate costs)
  - State land ownership considerations
  - ASR co-location suitability
  - Operational flexibility

PLANNING SUB-TEAM UPDATE

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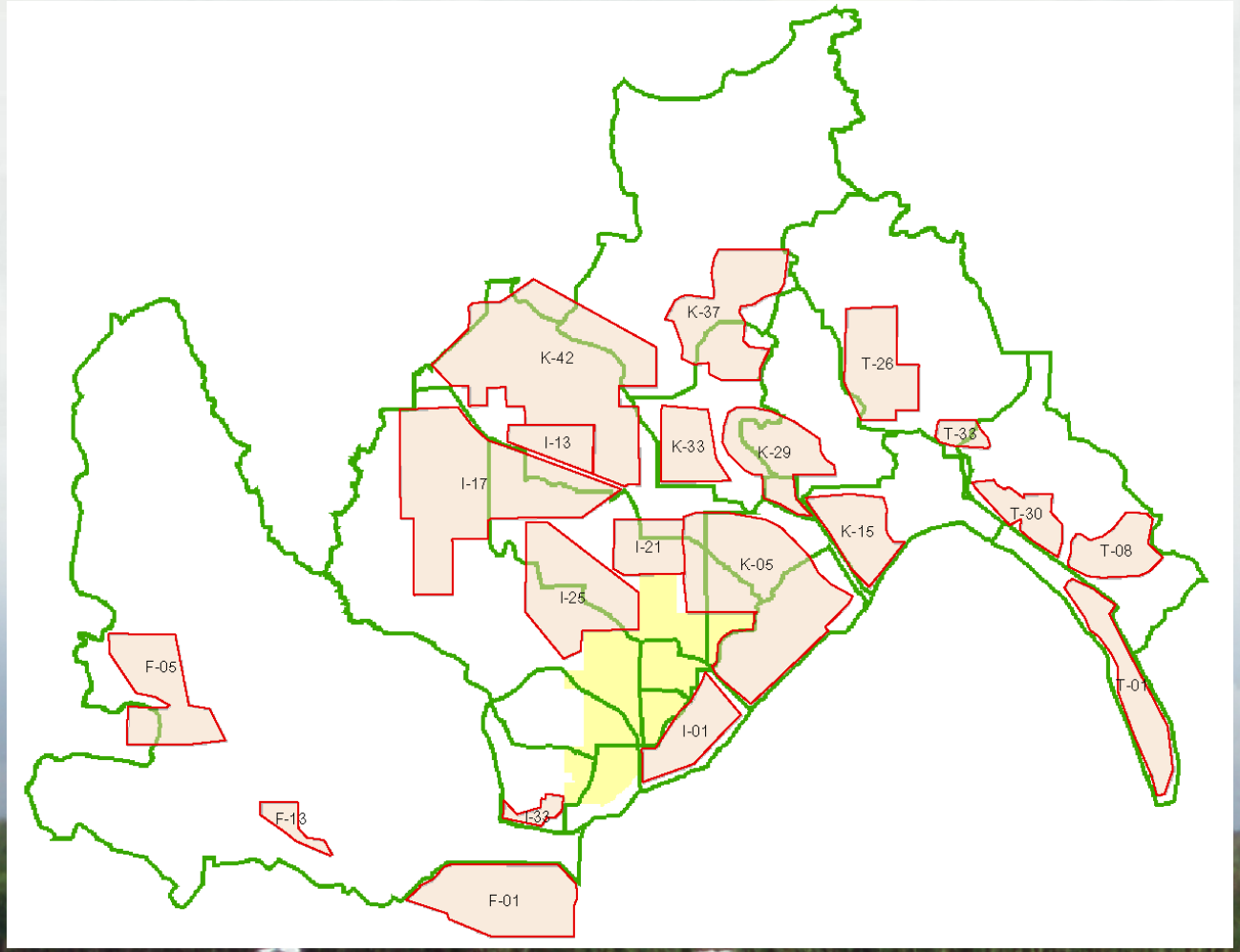

PLANNING SUB-TEAM UPDATE
WETLANDS

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- Benefits are in the form of hydrologic restoration and landscape connectivity.
- Minimum target 3,500 acres in Yellow Book
- Wetland Land Suitability Model
  - Metrics
    - Soils, connectivity to public land, contaminants, economic value, ecologic value, cultural resources, environmental and economic equity
  - Identified 107 sites totaling 381,450 acres
- Applied additional screening criteria
  - Examples- wading bird support (existing rookeries);Surface water connection; Restoration potential (% of land needing to be restored); Public access

PLANNING SUB-TEAM UPDATE
WETLANDS

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Wetland Screening Criteria							
Potential Restoration Site	Acres	Connectivity (% of perimeter)	Wading Bird Rookeries	Surface Water Connection (linear meters)	Percent Restorable	Public Access	Final Normalized Score
Kissimmee River (K09, K11, K14)	3,017	45	1	14164	76	34	13
Fish Slough (K23)	3,341	15	1	one small drainage ditch	61	29	9
Paradise Run (K24, K25)	3,730	44	2	35000	58	37	15
Lake O West (K03)	2,750	45	3	9930	93	33	16
Lake O East (T27)	2,693	37	0	two small drainage ditches	99	32	12
Lake Istokpoga (LI09, LI15, LI17, LI22)	2,678	9	1	14475	76	37	12
Indian Prairie (IP09)	3,627	6	2	none	73	25	8
Fisheating Creek (F03)	3,723	20	0	6900	92	32	12
Bootheel Creek (F01, F08)	3,393	22	1	two small drainage ditches	72	28	10
Bonny Bloom Pond - Arbuckle Br Ck (LI06)	1,167	5	0	29000	65	32	10
Arbuckle Creek (LI01, LI03, LI05, LI18)	4,284	20	2	63624	40	34	13
Six Mile Marsh	2,972	87	3	two small drainage ditches	23	25	11

PLANNING SUB-TEAM UPDATE
WETLANDS

4 sites evaluated for costs

real estate, construction, O&M, exotics removal, and controlled burns

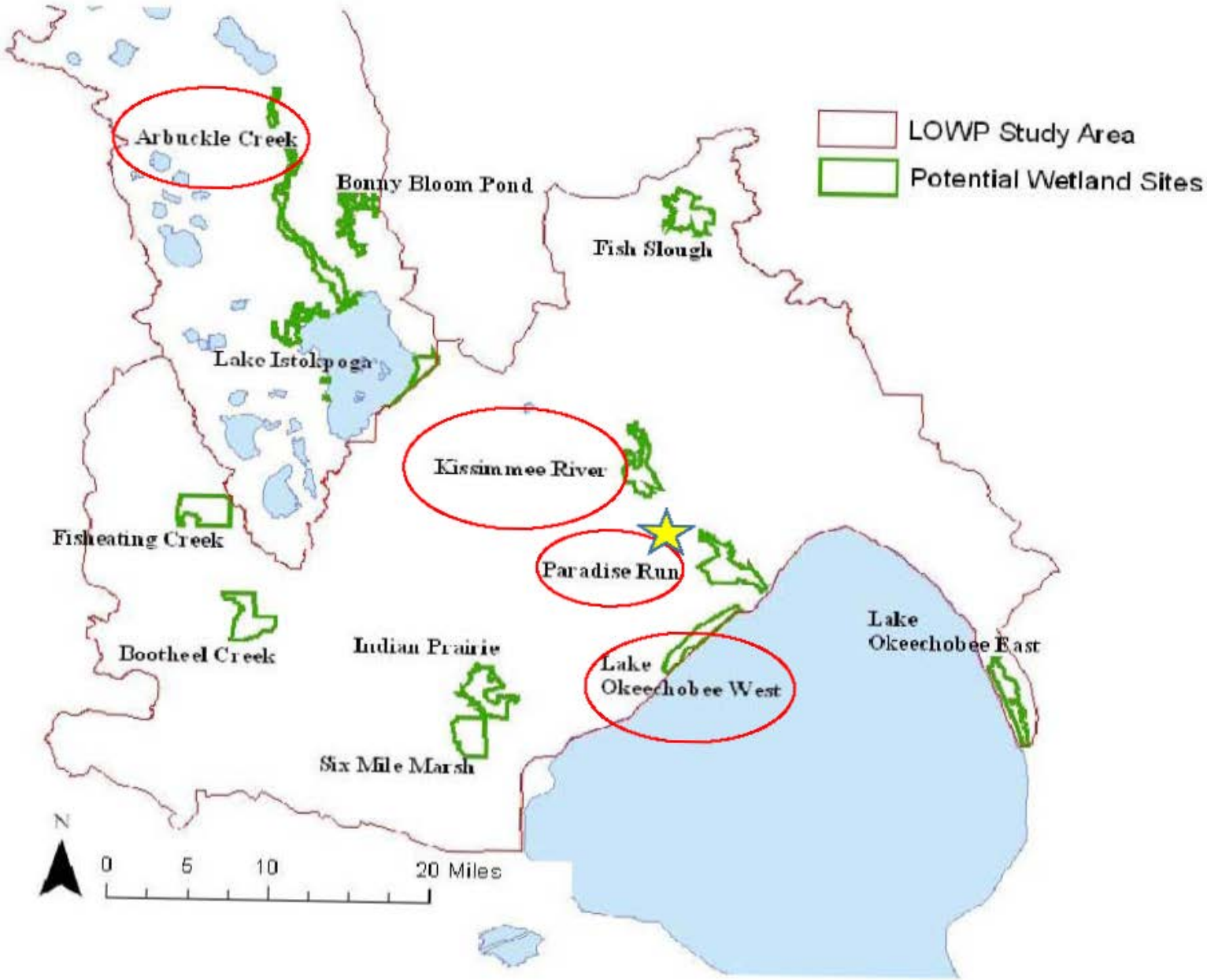
Ecological evaluation

Assigned habitat units

Quality times quantity for existing and future conditions

Previous Effort Preferred Site

Paradise Run – 3,730 acres


LOWP Study Area
Potential Wetland Sites
Arbuckle Creek
Bonny Bloom Pond
Fish Slough
Lake Istokpoga
Kissimmee River
Fisheating Creek
Paradise Run
Lake Okeechobee East
Bootheel Creek
Indian Prairie
Lake Okeechobee West
Six Mile Marsh
N
0
5
10
20 Miles

PLANNING SUB-TEAM UPDATE
WETLANDS

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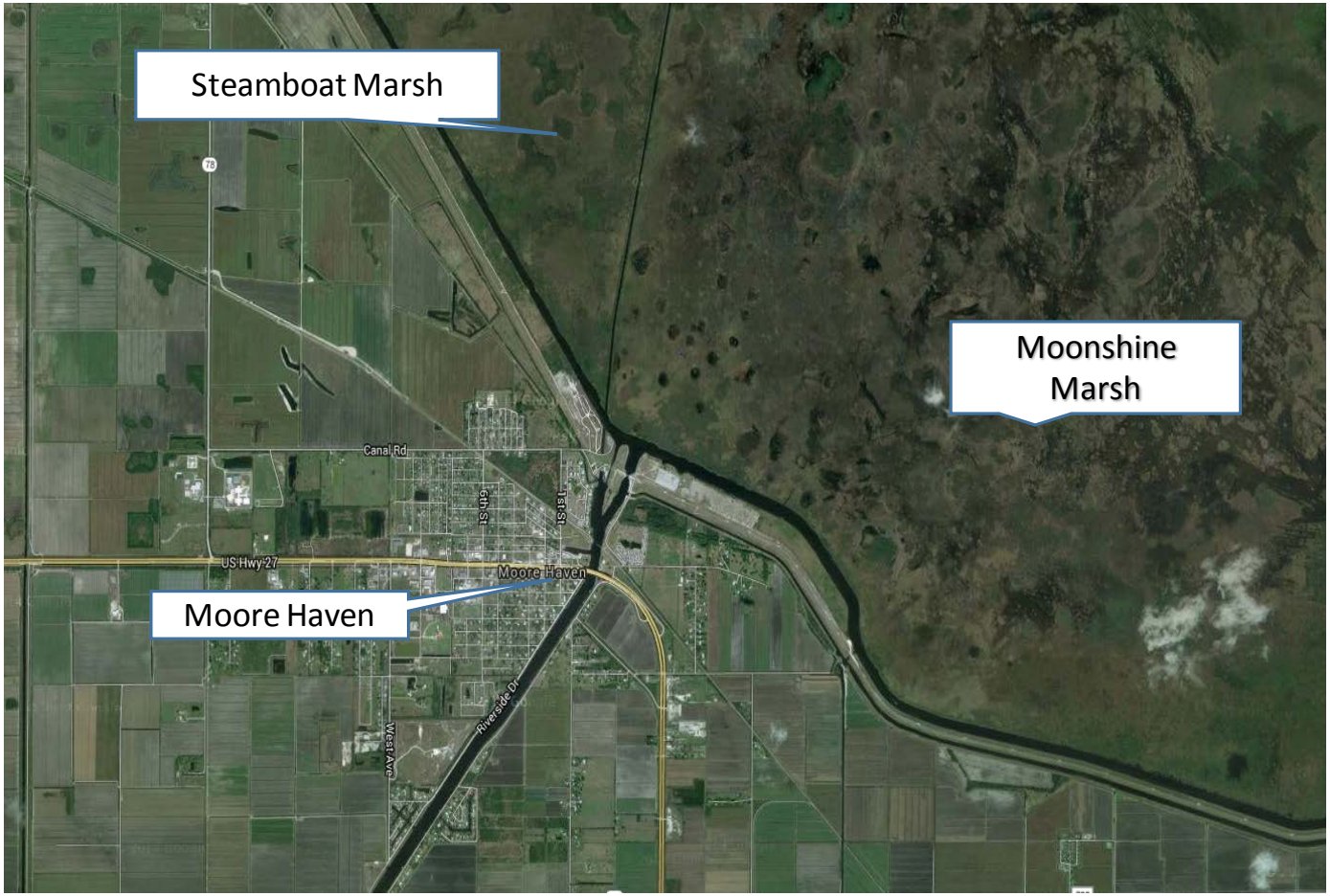
Littoral zone restoration opportunities

- Glades County (Moore Haven Canal Improvement Project)
- Eastern side of Lake Okeechobee
  - Beneficial use of dredged material from OWW
  - RSM Team to use lake bathometry, wind and wave action, and available material in OWW to determine if littoral zone creation is feasible


Steamboat Marsh
Moonshine Marsh
Moore Haven
Canal Rd
6th St
1st St
US Hwy 27
Moore Haven
West Ave
Riverside Dr

PLANNING SUB-TEAM UPDATE
NEXT STEPS

- Continue to optimize reservoir management measures
- Begin to combine measures into conceptual alternatives
- Identify alternative 'themes'
  - Example:
    - Maximized storage
    - Minimum costs
    - Maximized wetland restoration
    - Maximized public-owned land use

CULTURAL RESOURCES

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REAL ESTATE

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LAKE OKEECHOBEE WATERSHED RESTORATION
FEASIBILITY STUDY SCHEDULE (UP TO 36 MONTHS)

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SCOPING (1) | **ALTERNATIVE FORMULATION & ANALYSIS** (2) | **FEASIBILITY-LEVEL ANALYSIS** (3) | **CHIEF'S REPORT** (4, 5)

ALTERNATIVES MILESTONE
Vertical Team concurrence on Array of Alternatives
October 18, 2016

TENTATIVELY SELECTED PLAN (TSP) MILESTONE
Vertical Team concurrence on TSP

AGENCY DECISION MILESTONE
Agency Endorses Recommended Plan

CIVIL WORKS REVIEW BOARD
Release for State & agency Review

CHIEF'S REPORT

WITHIN 90 DAYS

PROBLEMS & OPPORTUNITIES	EXISTING CONDITIONS	FUTURE WITHOUT-PROJECT CONDITIONS	OBJECTIVES & CONSTRAINTS	INITIAL ARRAY OF ALTERNATIVES

NEXT STEPS

- PDT meeting
- Task Force Working Group sponsored workshop

PUBLIC COMMENT PERIOD

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