Performance Measure 1

Lainhart Dam on
Loxahatchee River

Objective 1 – Restore Wet and Dry Flows to the NW Fork
Objective 2 – Restore Floodplain, River and Estuary

US Army Corps of Engineers ®

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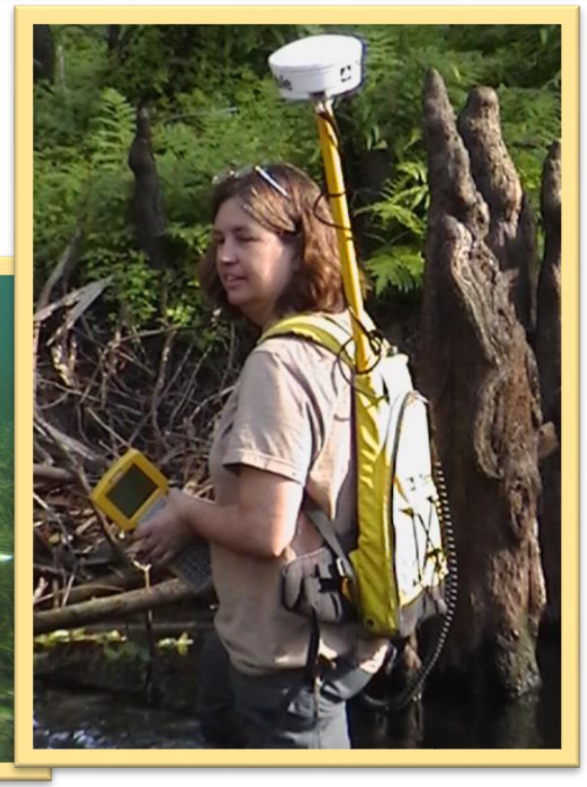
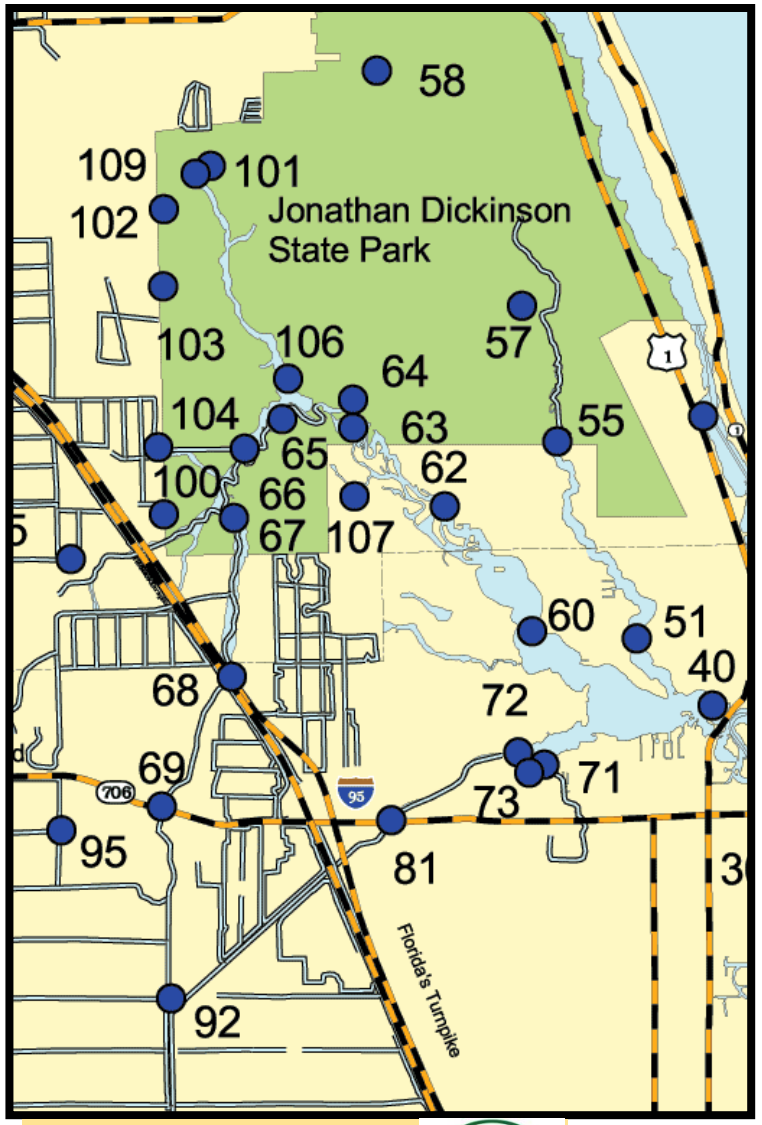
Patricia Gorman, Science Supervisor
South Florida Water Management District

Numerous studies & modeling to support restoration target setting





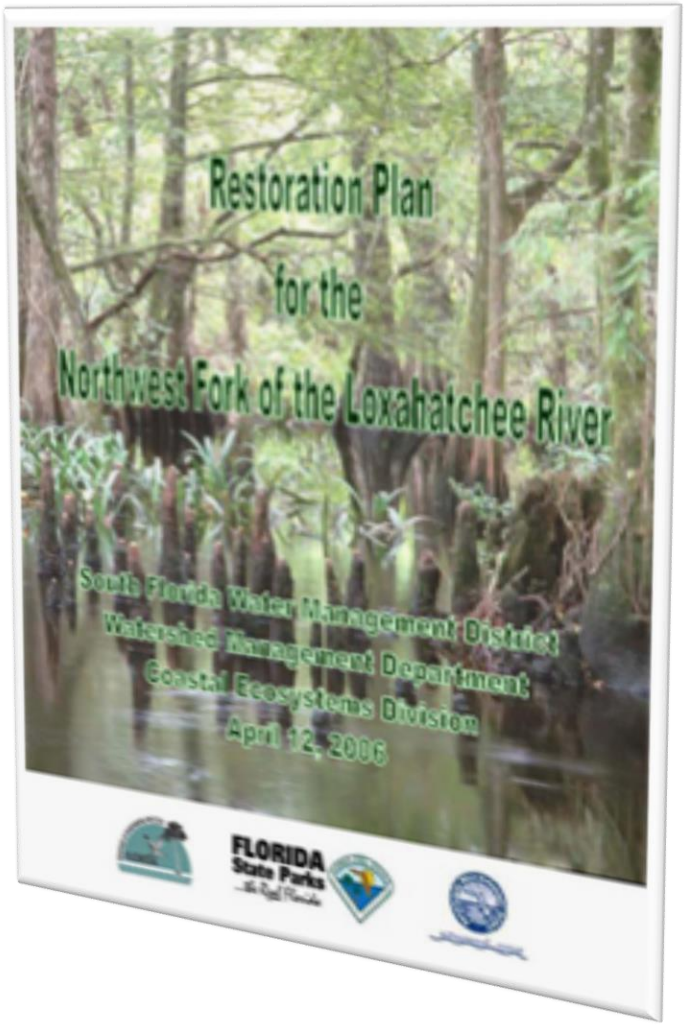
RiverKeeper WQ Stations

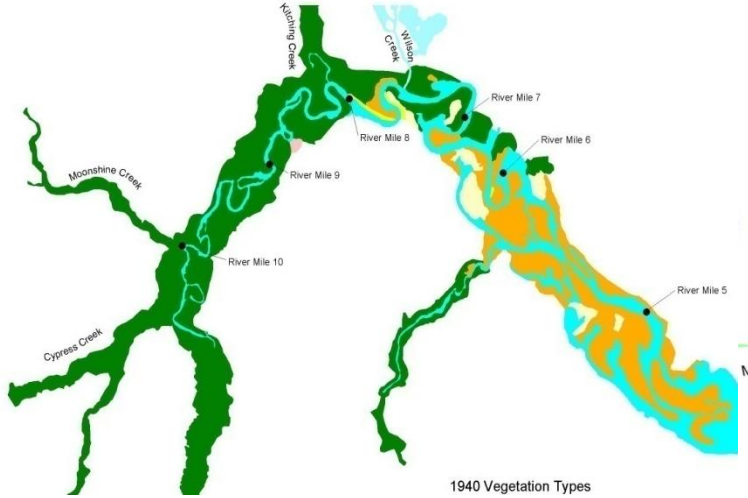
Floodplain, River and Estuary Targets

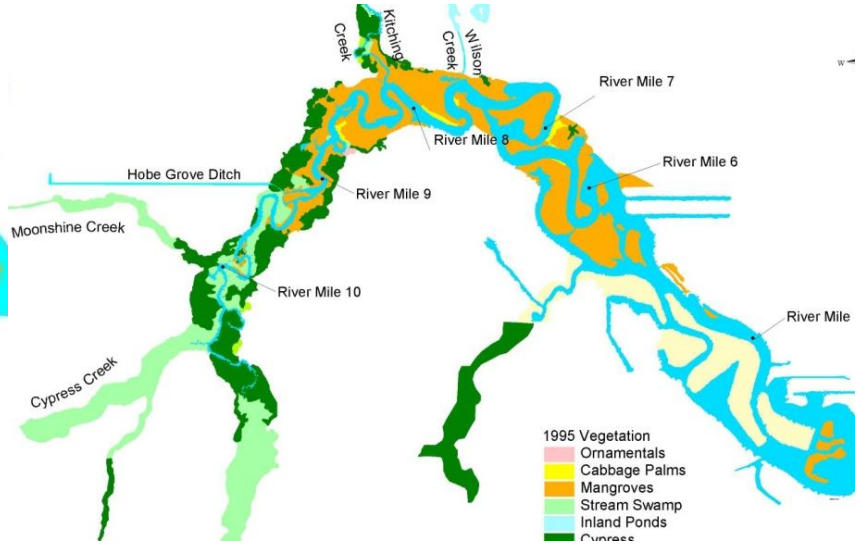
2006: Restoration Plan for the NW Fork of the Loxahatchee River

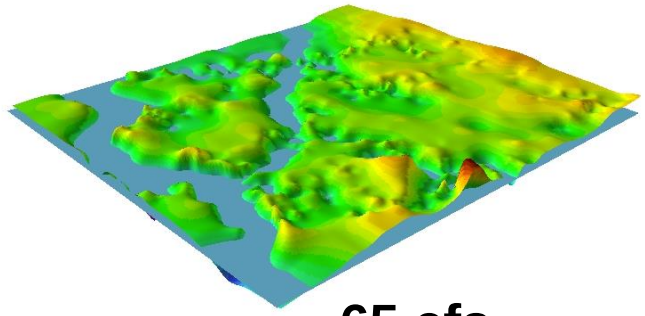
Preferred Restoration Flow Scenario:

Variable dry season flow between 50 and 110 cfs, with a mean monthly flow of 69 cfs over Lainhart Dam and an additional 30 cfs from the downstream tributaries when needed

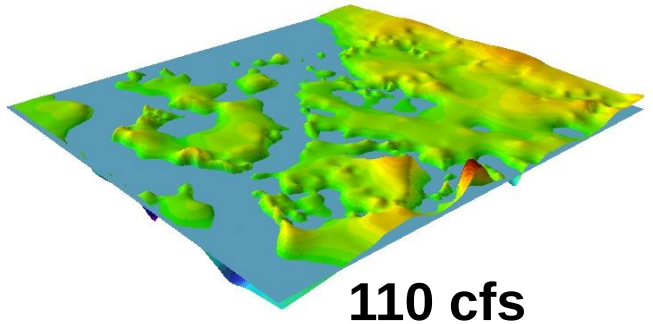




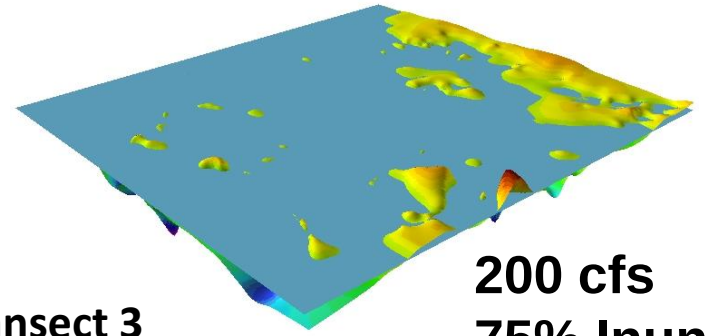




65 cfs
3% Inundation



110 cfs
25% Inundation

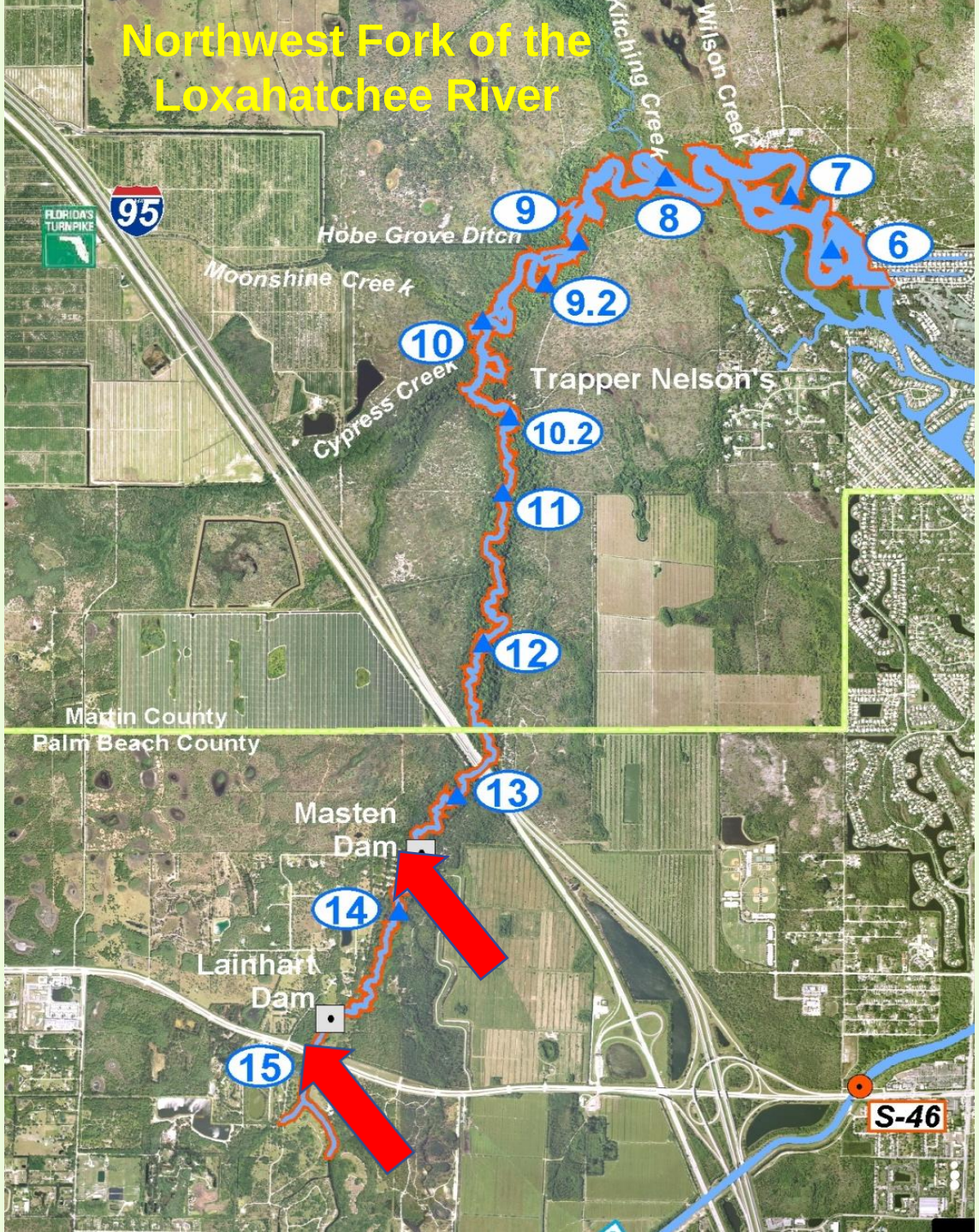


200 cfs
75% Inundation

Transect 3
~RM 12

“Valued Ecosystem Components”

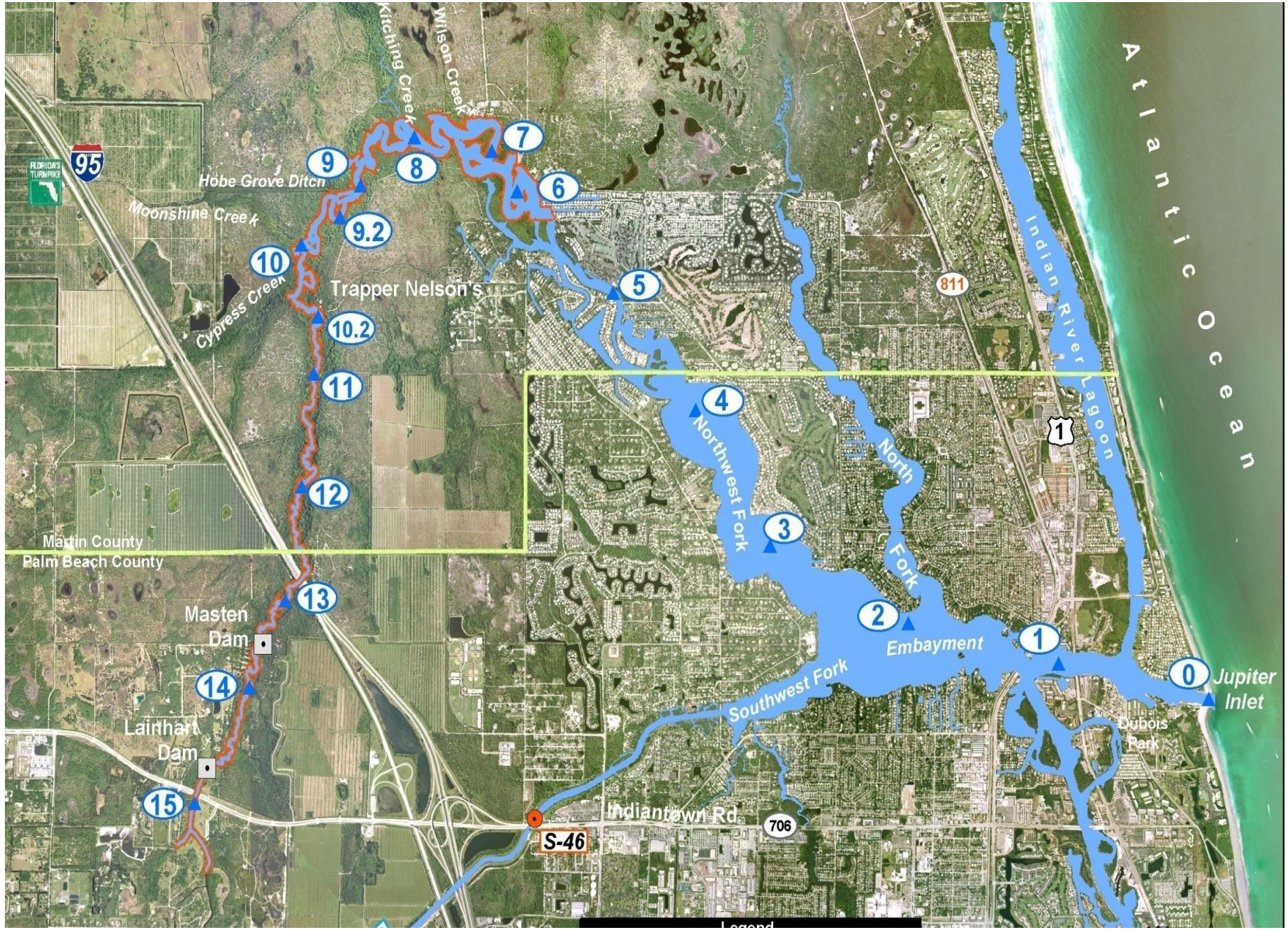
- Cypress swamp and hydric hammock in the riverine reach
- Cypress swamp in the tidal floodplain
- Fish larvae and Vallisneria in the low salinity zone
- Oysters in the mesohaline zone
- Seagrasses in the polyhaline zone



Masten Higher Flows

Lainhart Dam at 15 cfs

NW Fork
River Miles
0 -15



PM #1: Based on restoration targets for the River and Estuary set forth in the 2006 Restoration Plan

- Floodplain swamp and hydric hammock in the freshwater riverine floodplain: 0 (RM 16 to RM 9.5)
- Floodplain swamp in the tidal floodplain: salinity < 2 (RM 9.5 to RM 8.1)
- *Vallisneria americana*: salinity < 5 (RM 10.5 to RM 6.5)
- Fish larvae in the oligohaline zone: salinity of 2 to 8 (RM 10 to RM 5.5)
- Oysters in the mesohaline zone: salinity of 10 to 20 (RM 6.0 to RM 3.5)
- Seagrasses in the polyhaline zone: salinity of > 20 (RM 4.0 to RM 0.0)

ALTERNATIVE RESULTS

Objective 1 - Restore Wet and Dry Season Flows to NW Fork

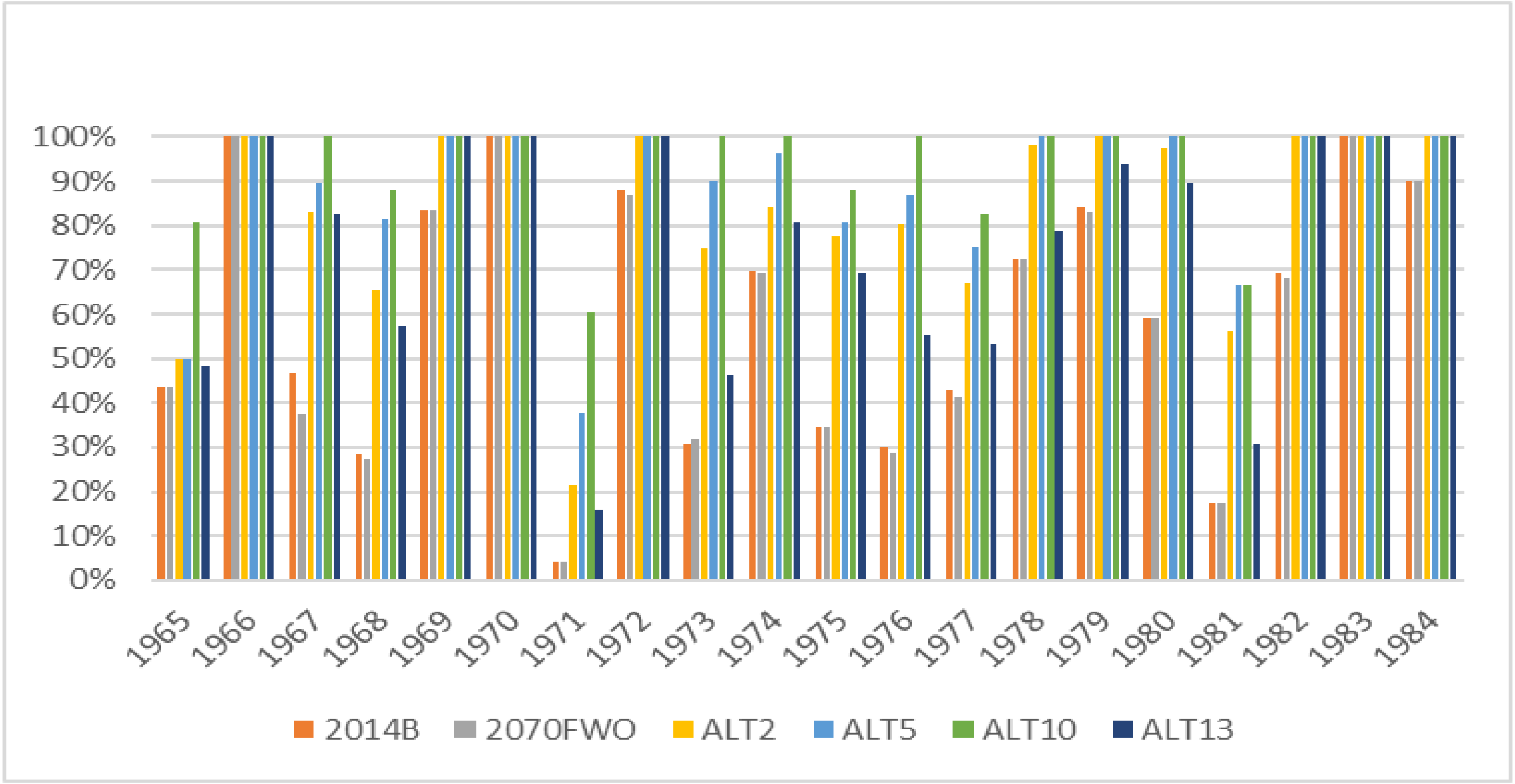
Flows	ECB	FWO	ALt2	Alt5	ALt10	ALt13
Wet Season	76%	78%	98%	98%	100%	98%
Dry Season	63%	65%	87%	91%	95%	80%

Variable Dry Season Flow between 50 and 110 cfs, with a mean monthly flow of 69 cfs over Lainhart Dam and an additional 30 cfs from the downstream tributaries when needed

Wet Season (August – November) Flows of greater than 110 cfs for a minimum of 120 days

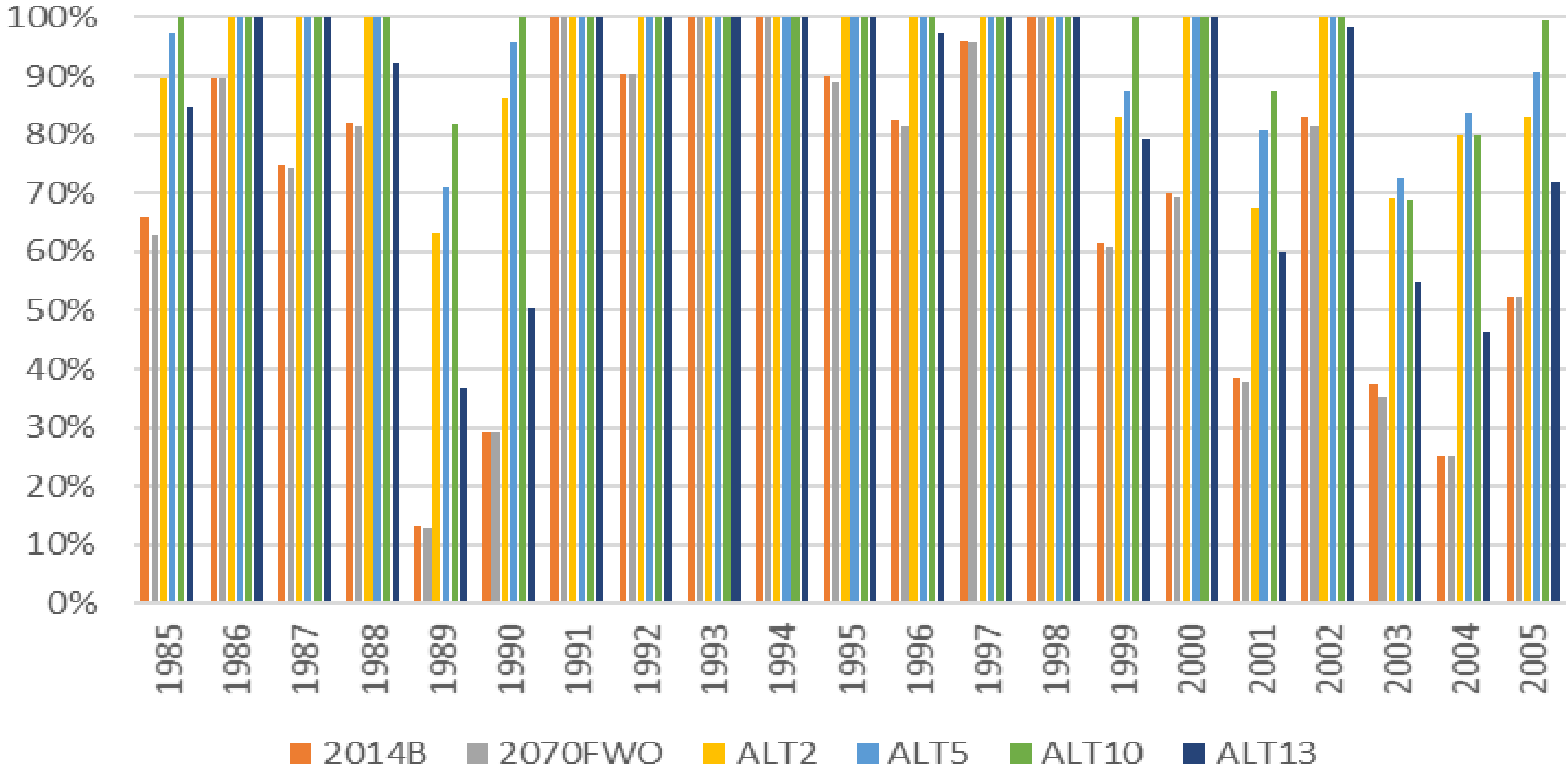
DRY SEASON PERFORMANCE BY YEAR

BASED ON FLOWS OVER LAINHART DAM



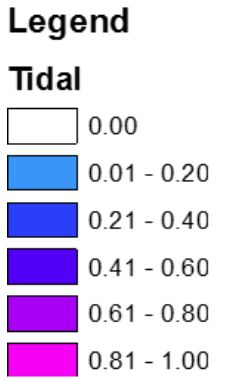
DRY SEASON PERFORMANCE BY YEAR

BASED ON FLOWS OVER LAINHART DAM

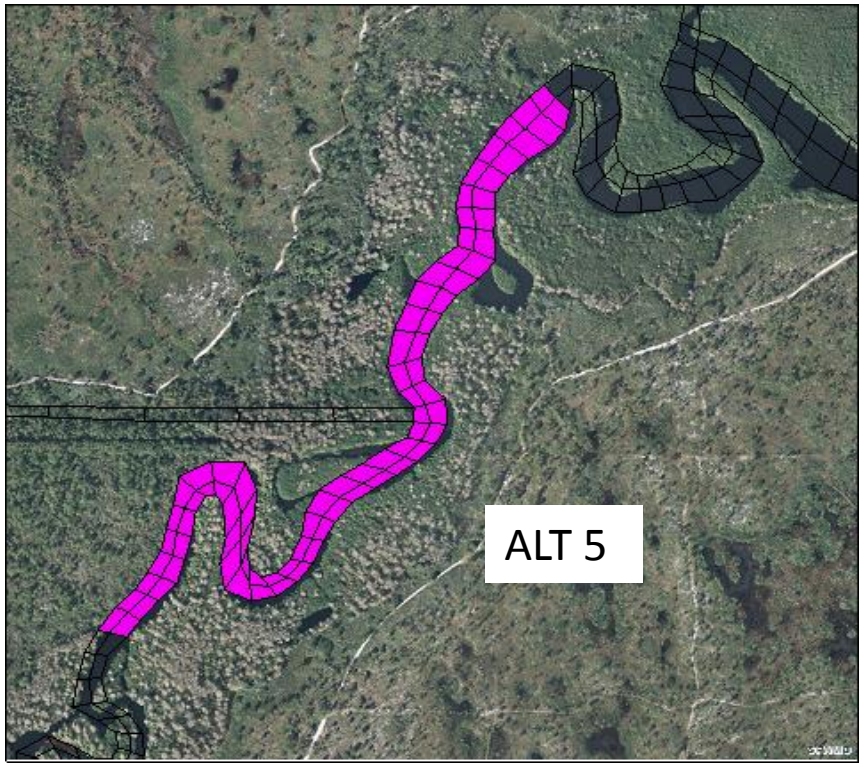


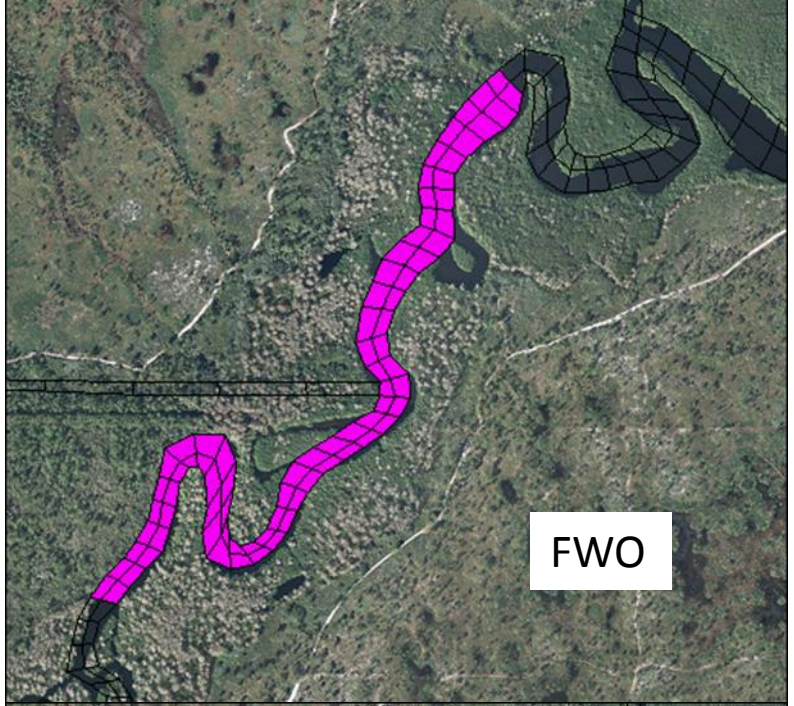
Obj.2 restore river, flood plain, estuary		Salinity Tool Performance Habitat Units							Salinity Tool Performance %				
HUs	Total Area*	ECB	FWO	ALt2	Alt5	ALt10	ALt13	ECB	FWO	ALt2	Alt5	ALt10	ALt13
Flood Plain**	483	314	314	420	440	459	386	65%	65%	87%	91%	95%	80%
Tidal River	18	18	18	18	18	18	18	100%	100%	100%	100%	100%	100%
Valisneria	93	72	72	74	75	75	73	78%	78%	80%	80%	81%	79%
Oligohaline	161	35	34	38	37	39	37	22%	21%	23%	23%	24%	23%
Mesohaline	303	121	119	137	137	139	131	40%	39%	45%	45%	46%	43%
Polyhaline	731	675	673	671	668	667	672	92%	92%	92%	91%	91%	92%

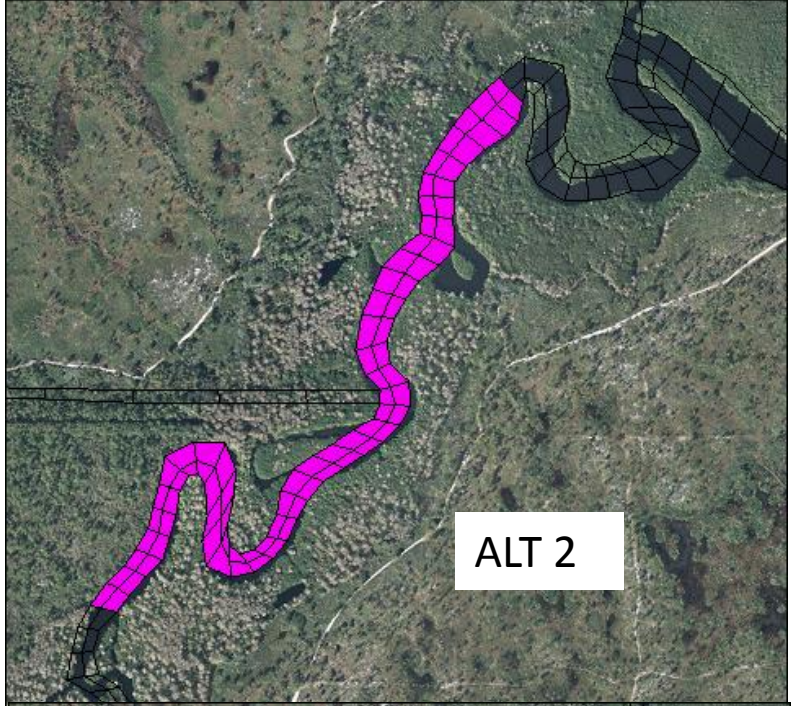
DRY SEASON TIDAL FLOODPLAIN

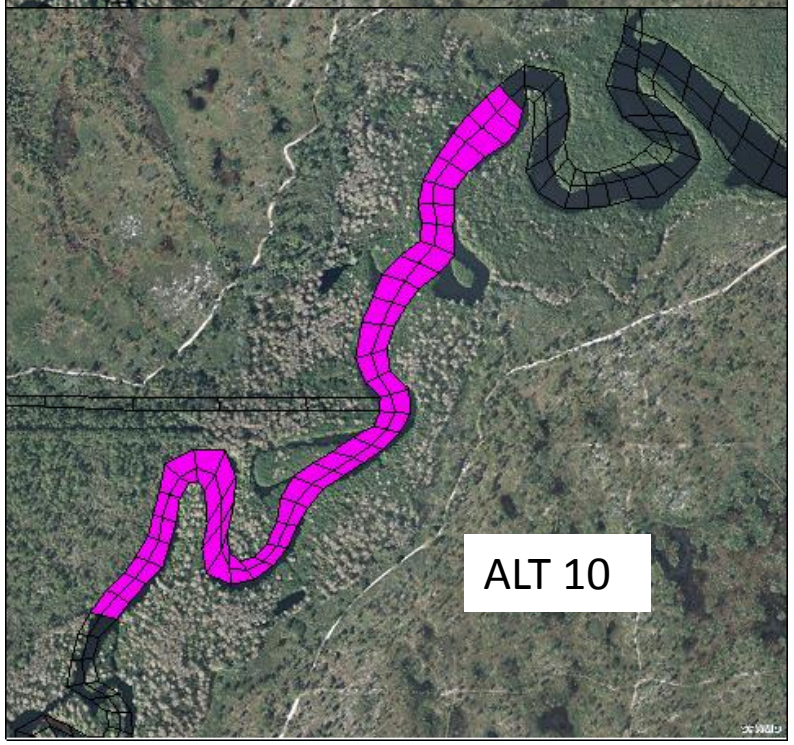


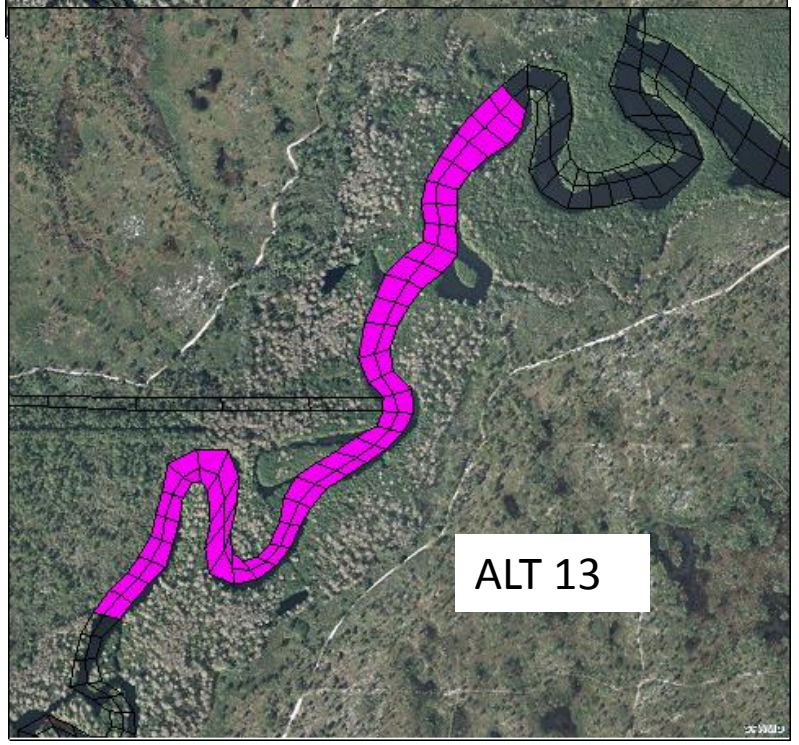
Preferred salinity range of < 2 (RM 9.5 to RM 8.1)







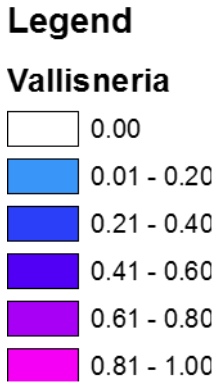




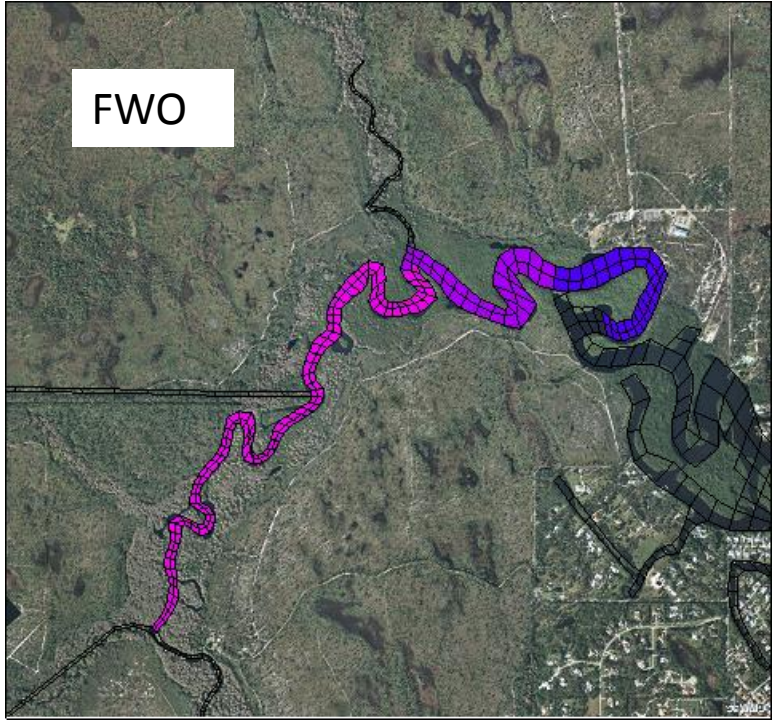
FLOODPLAIN

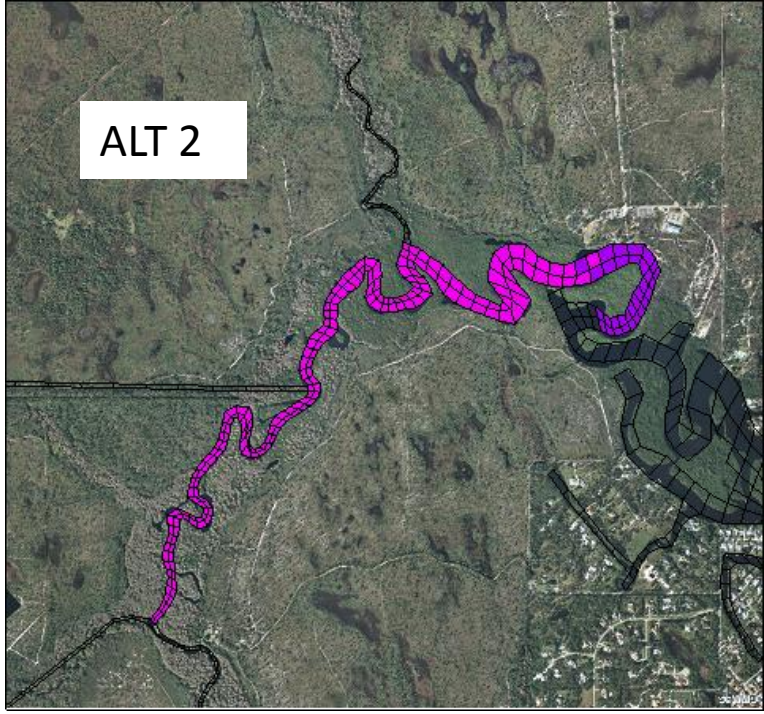
Increased volumes and improved timing of flows into the North West Fork of the Loxahatchee River will have a positive impact on the vegetation and associated faunal communities within the riverine and tidal floodplain.

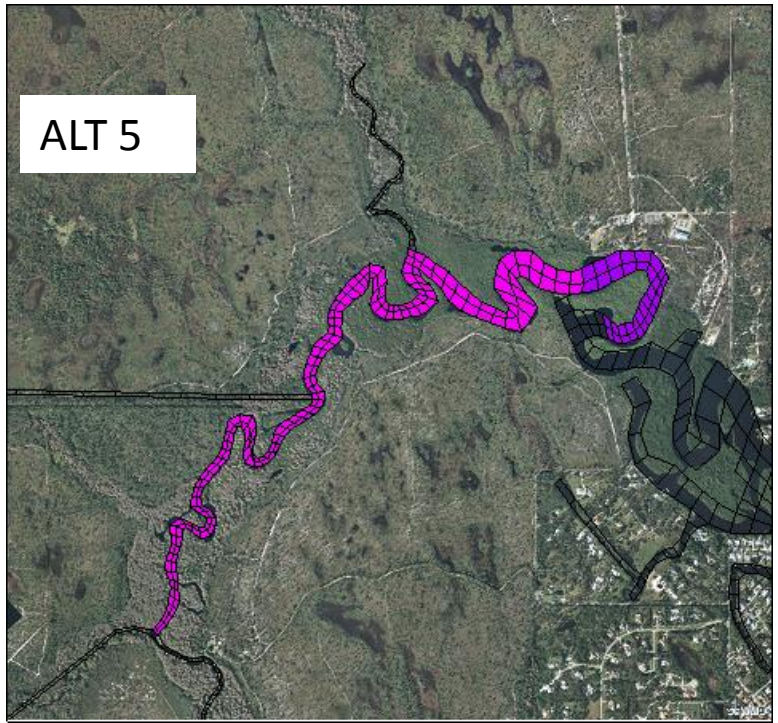
DRY SEASON VALLISNERIA

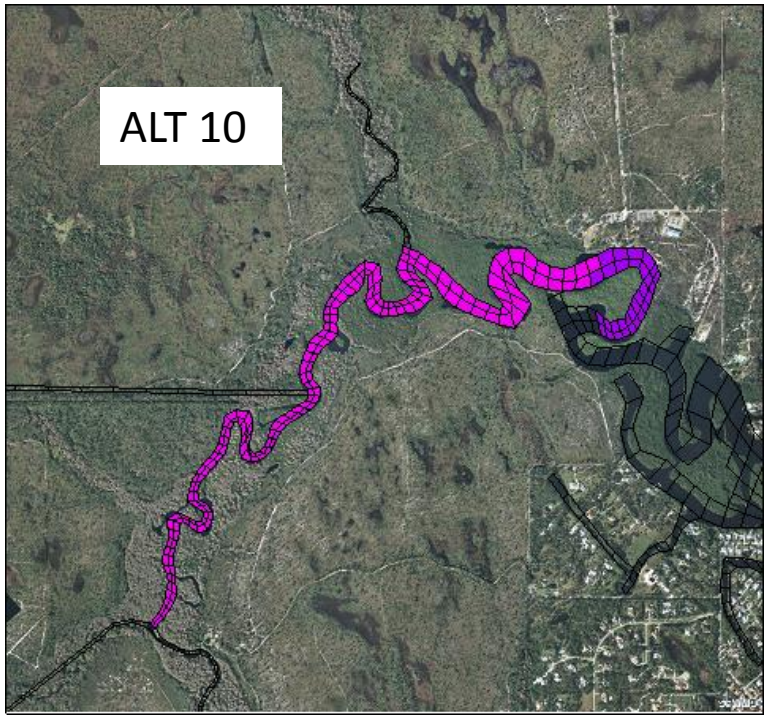


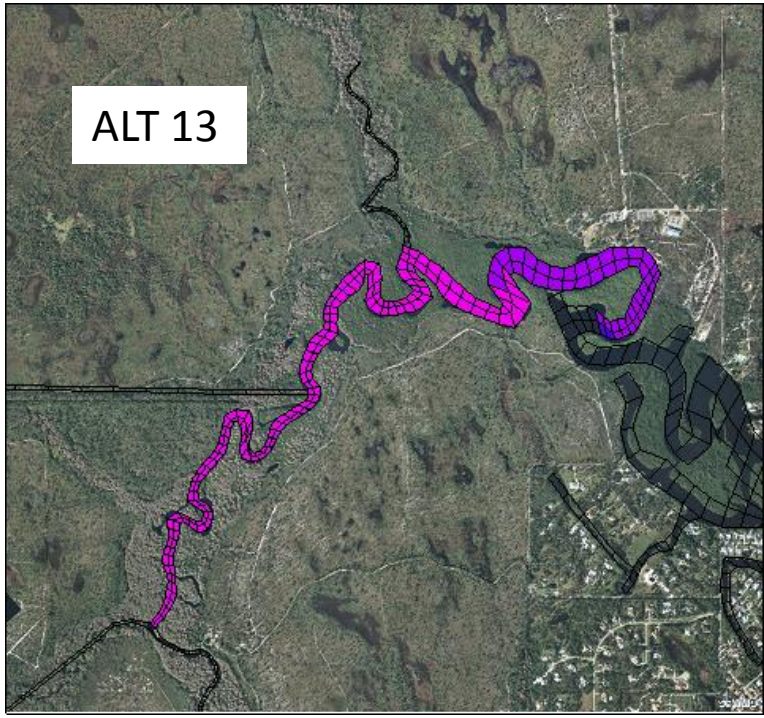
Salinity of < 5
(RM 10.5 to RM 6.5)





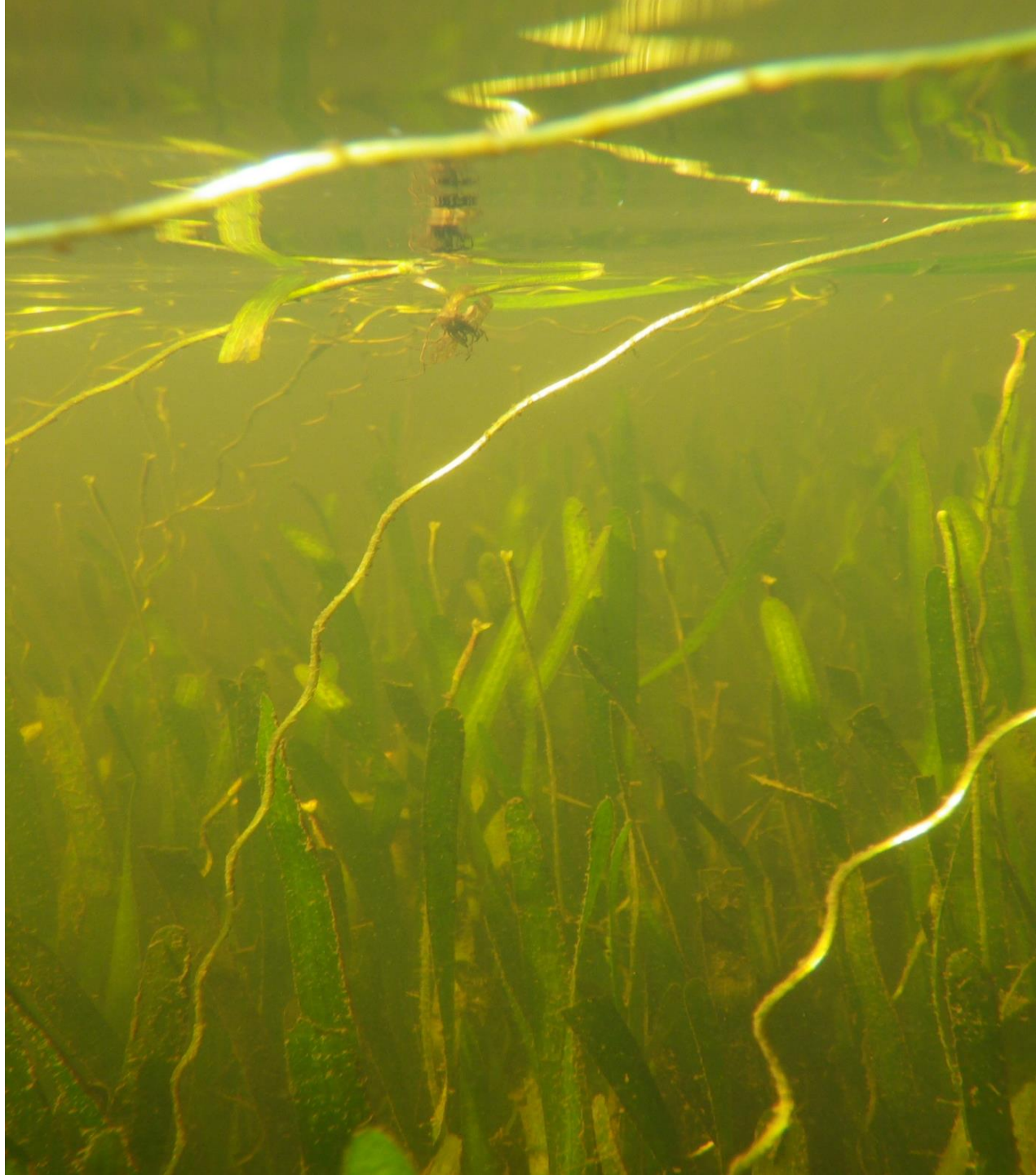






OLIGOHALINE

Increased volumes and improved timing of flows will have a positive impact on the river, especially with respect to improving conditions to support the growth of Vallisneria americana, a freshwater submerged aquatic vegetation community that provides habitat for many small larval and juvenile fish and invertebrate



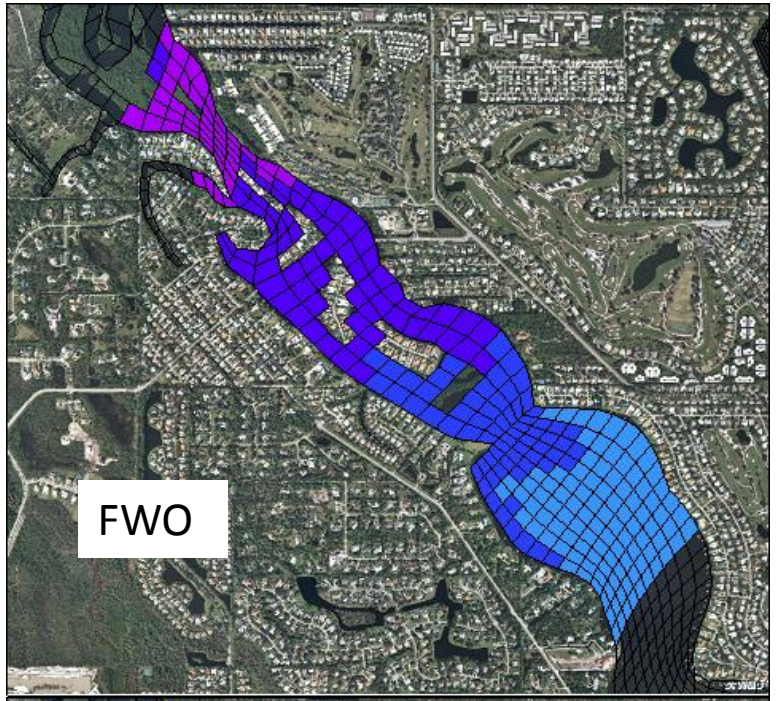
DRY SEASON MESOHALINE

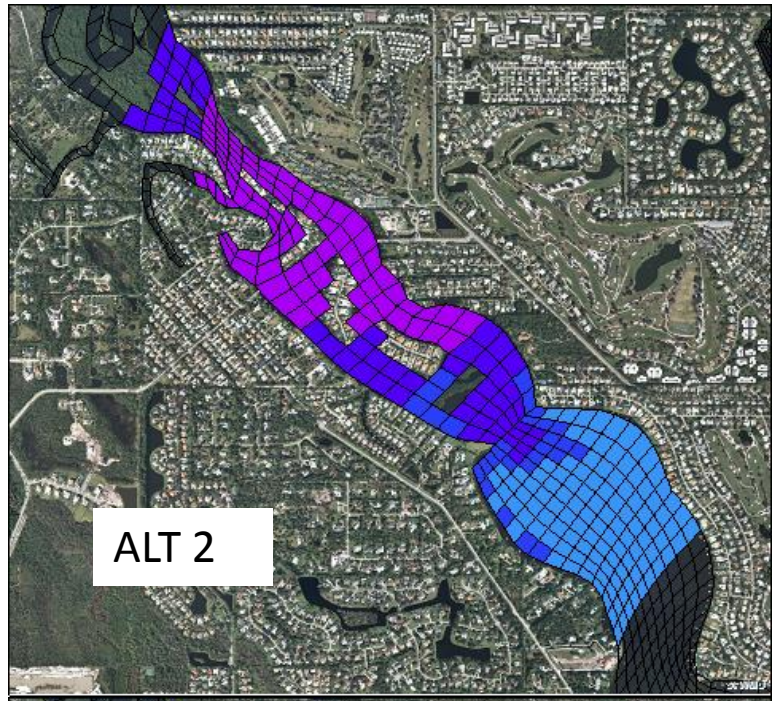
Legend

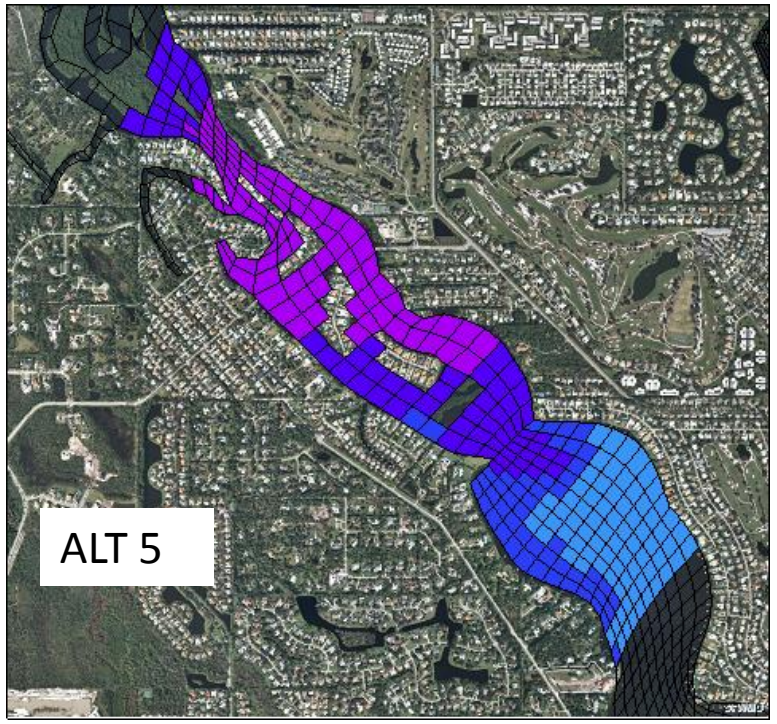
Mesohaline

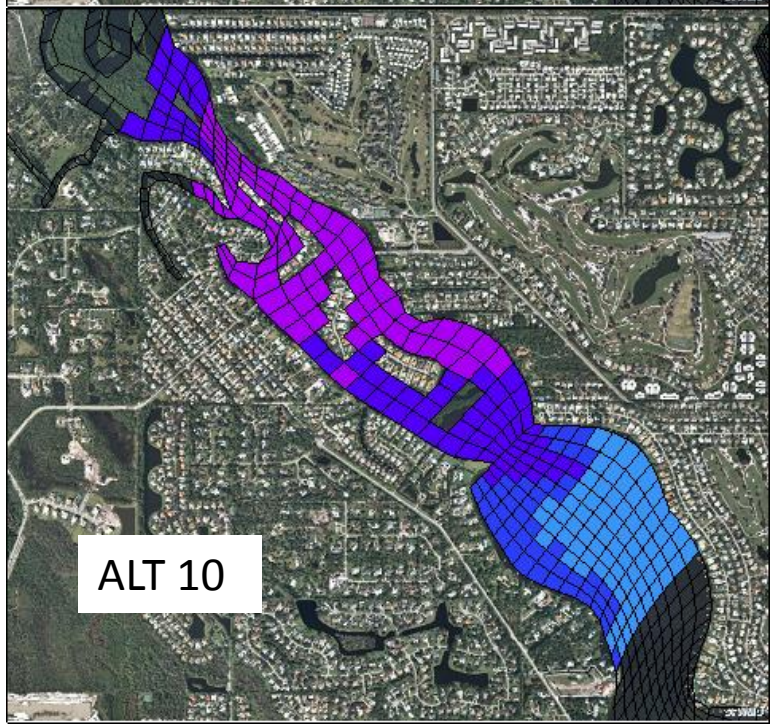
- 0.00
- 0.01 - 0.20
- 0.21 - 0.40
- 0.41 - 0.60
- 0.61 - 0.80
- 0.81 - 1.00

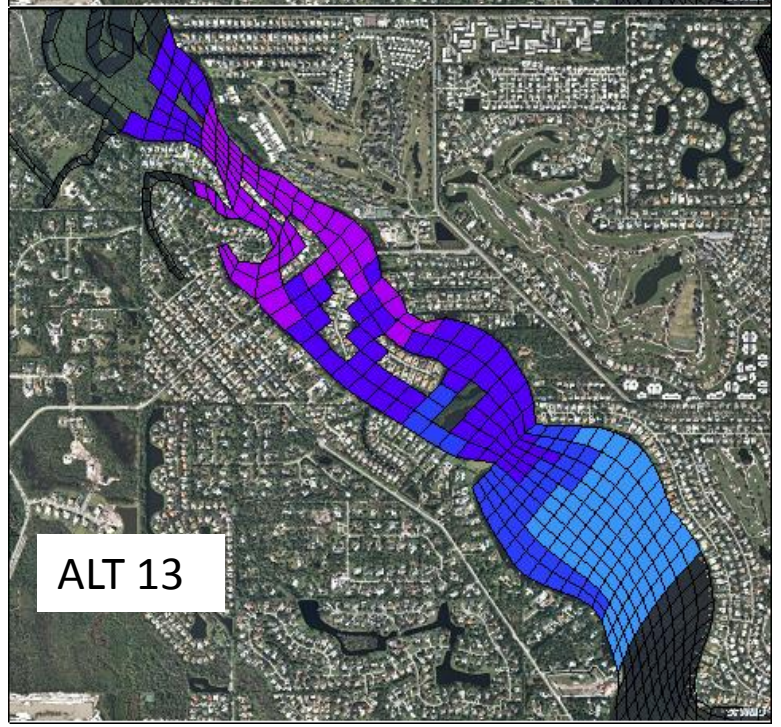
Salinity range of 10 to 20 (RM 6.0 to RM 3.5)

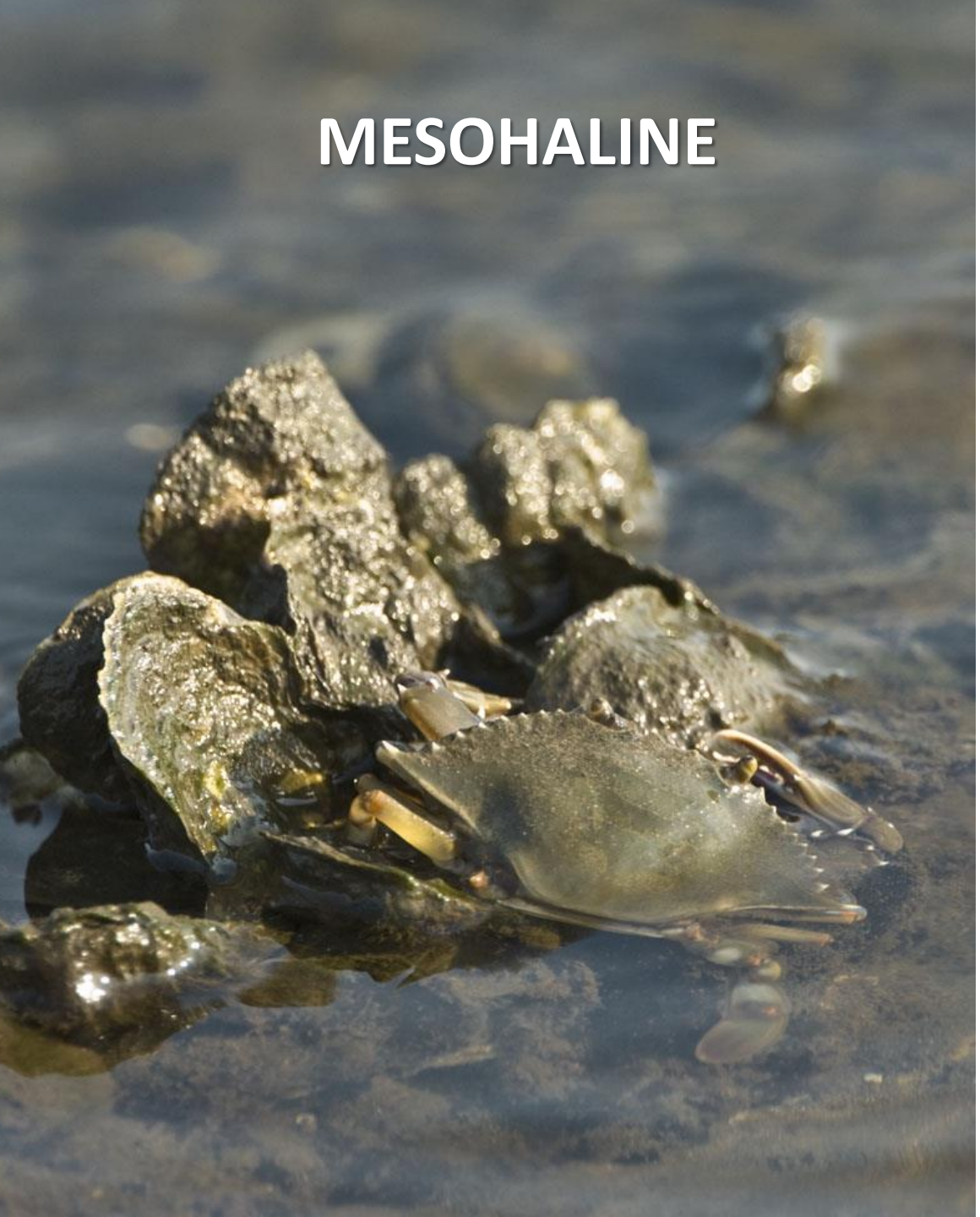










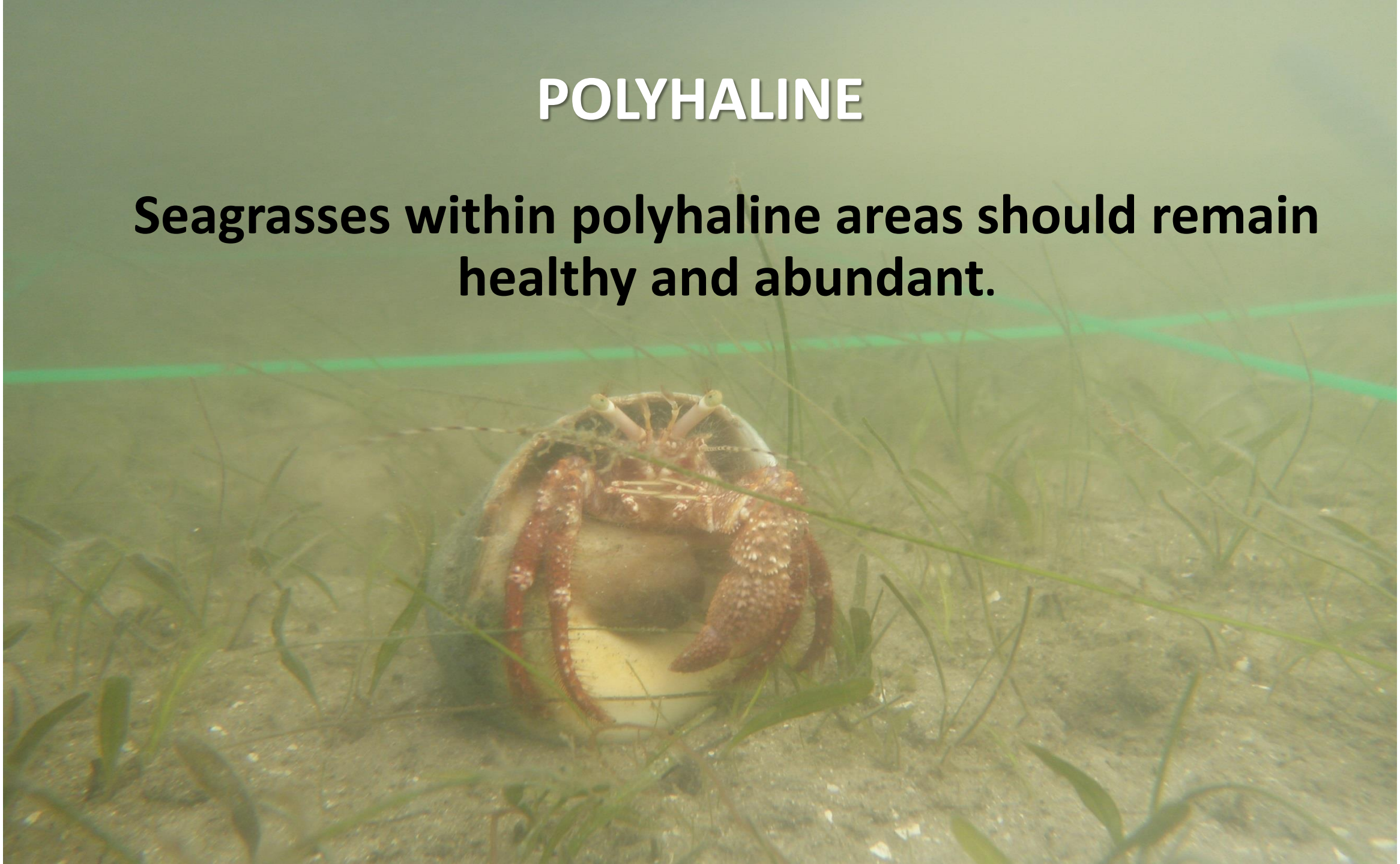


MESOHALINE

In the mesohaline zone oyster habitat may slightly shift to a more downstream location where historically oysters were more abundant. This could allow for some expansion of oyster beds in areas with the proper substrate for spat settlement.

POLYHALINE

Seagrasses within polyhaline areas should remain healthy and abundant.



Thank you!

Loxahatchee River at
Sunrise