

A Programmatic Approach to Ensuring Seagrass and other Environmental Factors Do Not Hinder Maintenance Dredging of the Intracoastal Waterway in Florida

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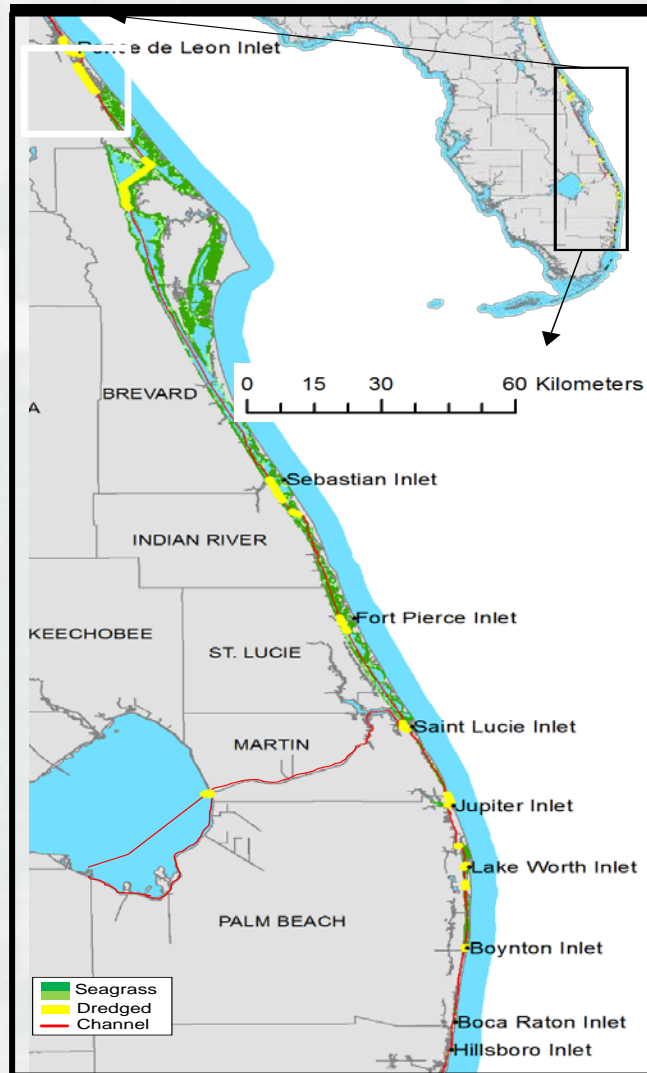


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Background



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- Inland Federal navigation channel from New Jersey to Miami (IWW)
- 752.67 km in Florida; Florida Inland Navigation District (non-federal sponsor)
- 34 maintenance events removing 5.35 million m³ of sediment over past 15 years (Florida)
- Hurricane and storm events necessitate rapid response for removing sediments
- Individual environmental review required for each dredging event takes time and money




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USACE Regulatory Authorities



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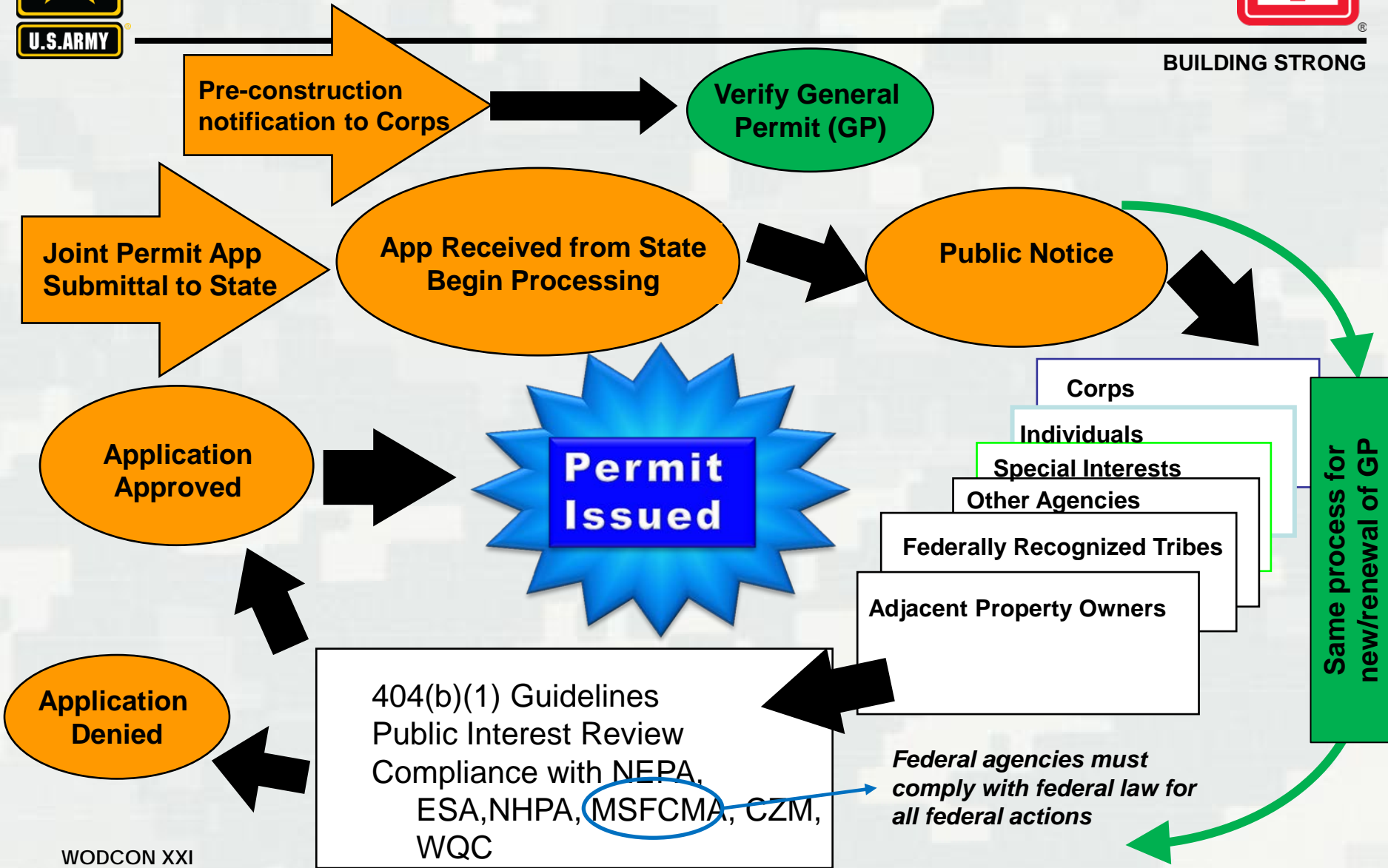
Authority	Geographic	Activity	
<p>Section 10 Rivers and Harbors Act of 1899</p>	<p>Navigable Waters of the United States</p>	<p>All work over, through and under navigable waters (e.g. dredging, docks, and beach renourishment)</p>	 <p><i>Broward Deepening, Florida</i></p>
<p>Section 404 Clean Water Act of 1977</p>	<p>Waters of the United States including wetlands</p>	<p>Discharge of dredged or fill material</p>	 <p><i>Rio Guayanilla, Puerto Rico</i></p>
<p>Section 103 Marine Protection, Research and Sanctuaries Act</p>	<p>Ocean</p>	<p>Transportation of dredged material for the purpose of disposal in the ocean</p>	 <p><i>Gulf of Mexico, near Pensacola, Florida</i></p>



USACE Permit Process



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Magnuson Stevens Fishery Conservation Management Act



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- National Marine Fisheries Service (NMFS) is federal agency responsible for implementing the Act
- Federal Action Agency consults with NMFS when their actions have an adverse effect on Essential Fish Habitat (EFH) for Federally managed species
- EFH defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.”
- Regional Fisheries Management Councils determine EFH & managed species
- NMFS provides Conservation Recommendations (CRs) to avoid, minimize, mitigate adverse effects



South Atlantic Fishery Management Council EFH



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EFH Categories

- Wetlands
- Mangroves
- Coral & live bottom
- **Seagrass**
- Algal flats
- Oyster reefs
- Intertidal & mud flats
- Sargassum
- Water column

Fishery Management Plans

Spiny lobster (juvenile/adult)
Snapper grouper complex (juvenile)
Penaid and rock shrimp (larvae/juvenile)



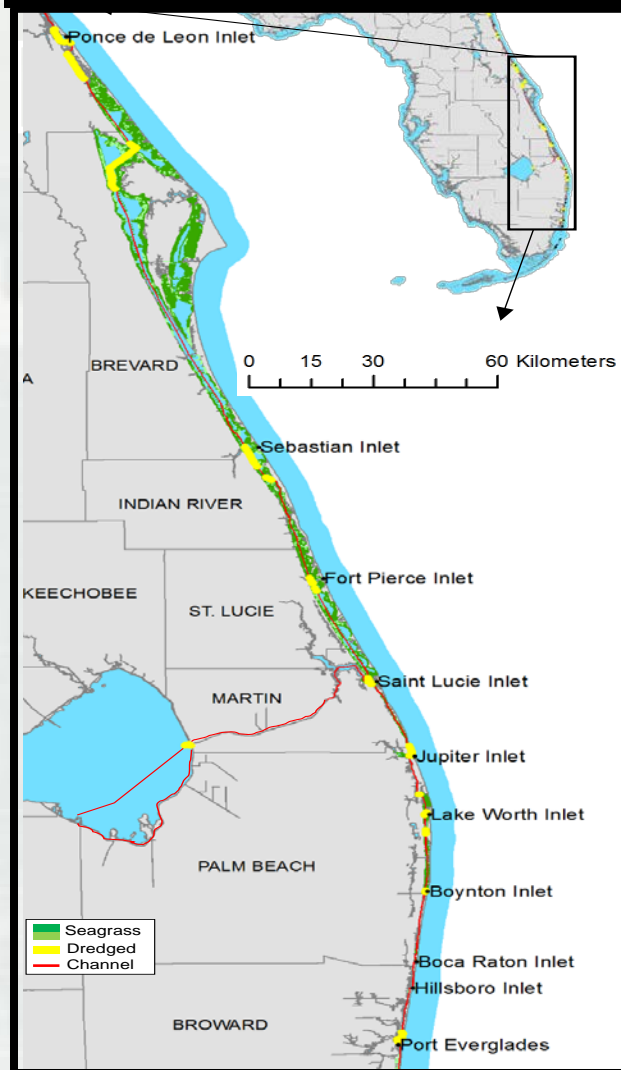
Photo taken by Jocelyn Karazsia



Programmatic Approach



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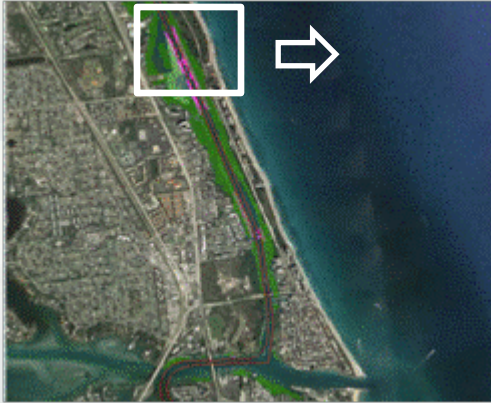
- 402.5 km (1,654.33 ha) within range of seagrass
- Programmatic EFH Assessment:
 - Analyzed past dredging events
 - Predicted events next 5 years
 - Compiled & analyzed existing seagrass data
 - Diver surveys from dredge events
 - Regional seagrass mapping
 - Collected new seagrass data
- Consulted with NMFS




Seagrass Data IWW - Jupiter



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


Pre-Construction Seagrass
Survey (Divers August to
September, 2014)

 Delineation (all species)

SJRWMD Indian River
Lagoon Seagrass Mapping
(Photos April to May, 2013)

 Interpreted Continuous

 Interpreted Patchy

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Seagrass Data IWW - Jupiter



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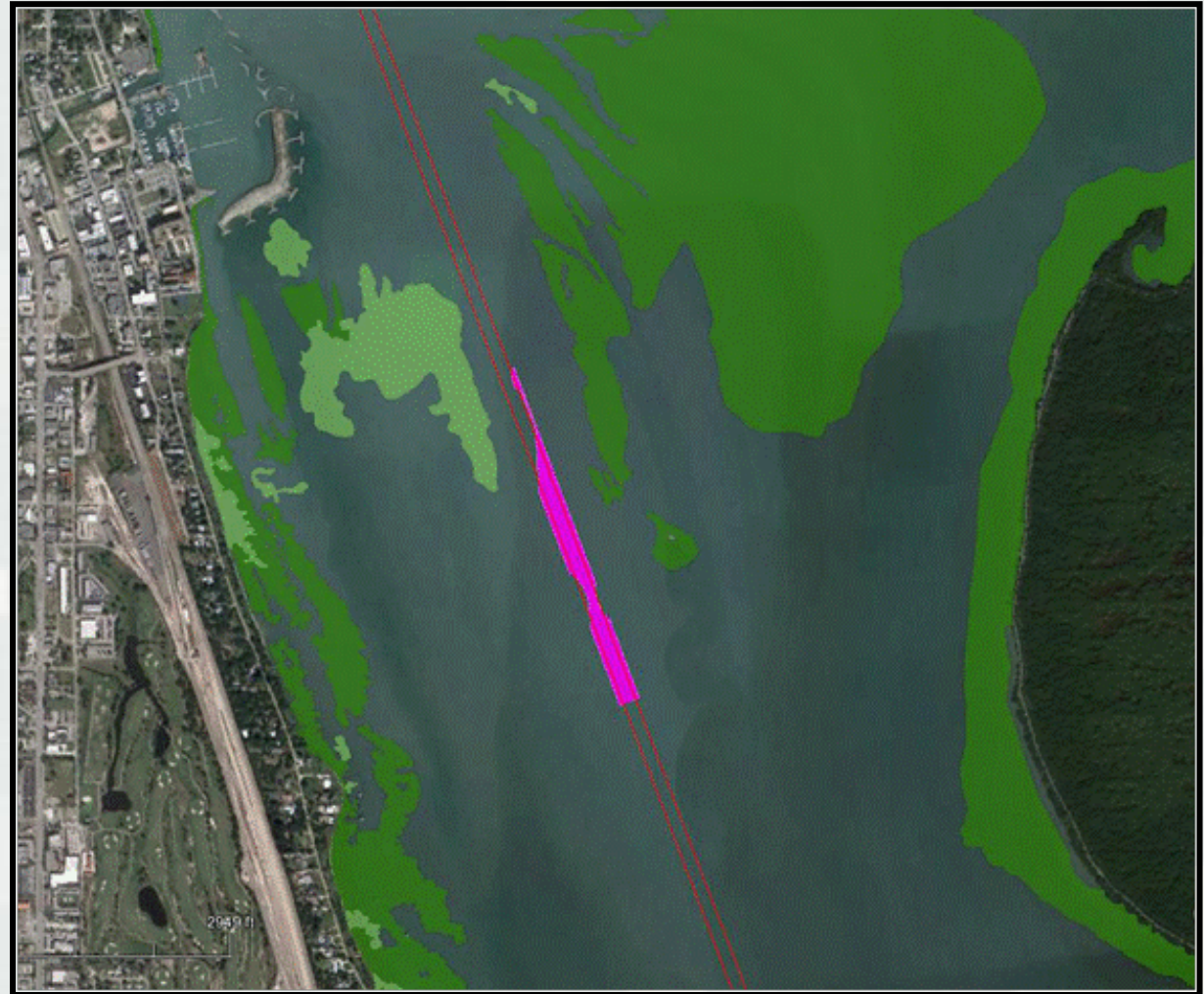
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Seagrass Data IWW – Ft. Pierce



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Pre-Construction Seagrass
Survey (August 2014)
(this is date of map dataset)
■ Delineation (all species)

SJRWMD Indian River
Lagoon Seagrass Mapping
(Photos April to May, 2013)
■ Interpreted Continuous
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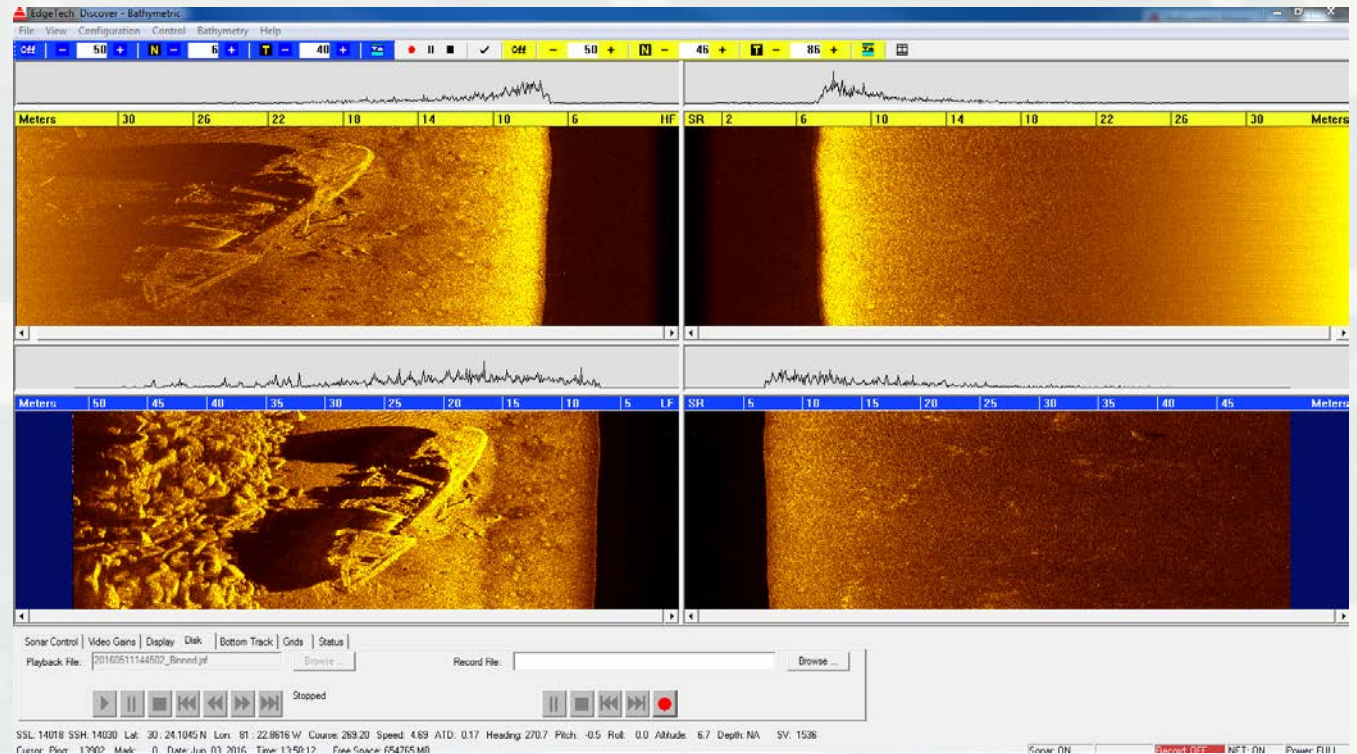
Seagrass Data Side Scan Sonar



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- Provides trade off between high cost/detailed diver survey and low cost/regional (aerial) mapping
- Covers entire IWW within range of seagrass (402.5 km as opposed to 56.7 km) over same timeframe during seagrass growing season

- Data collected using Edgetech 6205 sonar
- Data processed using Sonar Wiz6
- Polylines delineating seagrass exported to ESRI shape files



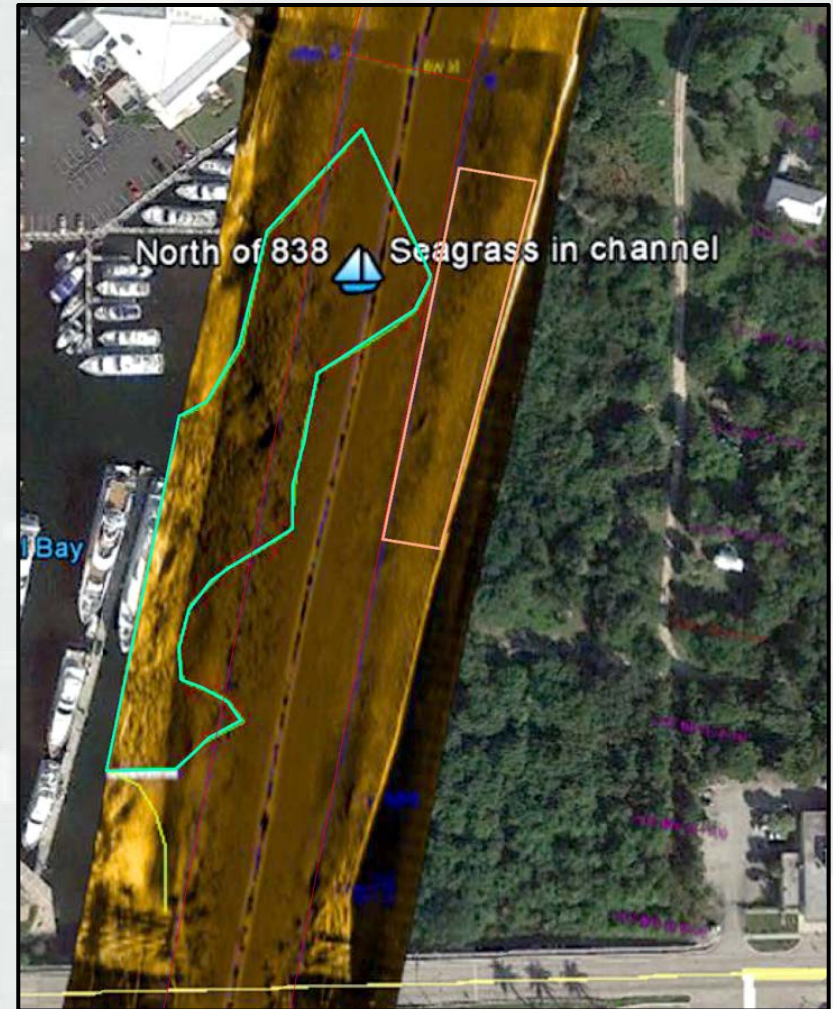
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Seagrass Data Side Scan Sonar



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Analysis of Diver Surveys



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2008-Jupiter-CutP1

2008-Jupiter-CutP1

2008-Jupiter-CutP1

Gain
0.10ac

Gain
LOSS

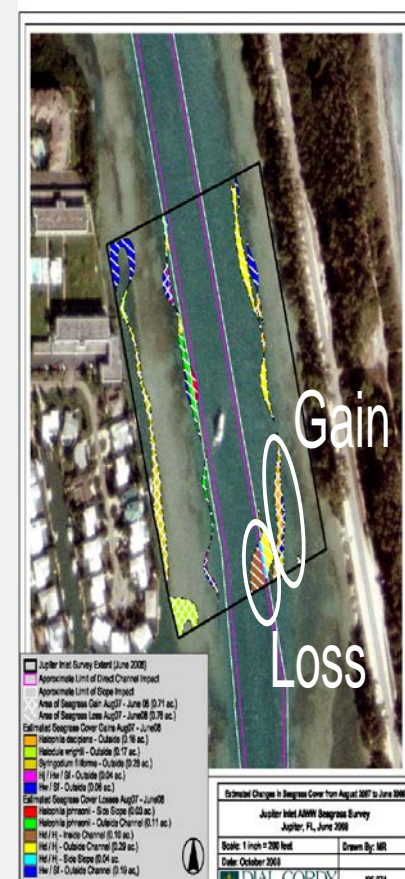
Jupiter Inlet

Jupiter-Pre-Aug-2006

Jupiter-Pre-Aug-2007

Jupiter-Post-2008

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Quantitative Results



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415,773.80 ha seagrass (regional maps)

1,654.43 ha of IWW within range of seagrass

11.74 ha seagrass in IWW (regional maps)

8.09 ha seagrass IWW (side scan sonar)

Seagrass within the IWW represents less than 1%
and ONLY 0.0028% % or 0.0019% total seagrass

5.17 ha seagrass GAINS in IWW

3.66 ha seagrass LOSSES in IWW



Qualitative Results



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- Paucity of seagrass within the IWW
- Sparse coverage by pioneer species where present
- Seagrass beds are highly variable due to seasonal, climatic or anthropogenic factors
- Seagrass is able to re-colonize following a dredge event
- Limited impact area relative to similar adjacent habitat
- Dredge events are far apart in space and time



Conclusions



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- Maintenance dredging of the IWW has minimal impacts on EFH (seagrass)
- Maintenance dredging of the IWW can be supported by a Regional General Permit (issued April 2016)
- Compensatory mitigation for removal of any seagrass in the IWW as a result of maintenance dredging is not warranted



Conclusions



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- Additional protections of the Regional General Permit
 - Buffer between dredging and natural seagrass habitat:
 - 10-day coordination with NMFS if buffer can't be met
 - No impacts to hard bottom, wetlands, or seagrass outside the IWW

- Continued analysis to confirm or adjust
 - Pre surveys where data shows seagrass within 30.48 m from IWW
 - Post surveys where pre survey identifies seagrass within 15.24 m of dredging activity
 - Additional groundtruthing of side scan sonar



Questions?



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<http://www.saj.usace.army.mil>

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