

Indian River Lagoon North Feasibility Study



Problems & Opportunities Performance Measures Potential Management Measures

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.

a. Performance measure(s): Seagrass light requirement, seagrass coverage, pollutant loadings

b. Potential management measures (estimated improvement to performance measure(s) with system response in parentheses):

i. Construct upstream traps and treatment area(s) or use natural treatment area(s) (some acres of seagrass/light coverage improvement)

ii. Control runoff to Lagoon (some acres of seagrass/light cover improvement)

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

a. Performance measure(s): Seagrass light requirement, seagrass coverage, pollutant loadings

b. Potential management measures (estimated improvement to performance measure(s) with system response in parentheses):

i. Construct upstream traps and treatment area(s) or use natural treatment area(s) (significant improvement to sediment loads; some acres of seagrass/light coverage improvement)

ii. Remove bottom sediment (some improvement to sediment loads; some acres of seagrass/light cover improvement)

iii. Work with landowners to stabilize shorelines (some improvement to sediment loads; some acres of seagrass/light cover improvement)

iv. Control runoff to Lagoon (some improvement to sediment loads; some acres of seagrass/light cover improvement)

v. Construction erosion control (some improvement to sediment loads; some acres of seagrass/light cover improvement)

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

- a. Performance measure: Muck
- b. Potential management measures:
 - i. Muck removal
 - ii. Identify source and implement solution
 - iii. Spoil island stabilization

4. Salinity in many areas of the IRL-N often fluctuates widely and rapidly as the result of freshwater discharges. Large and rapid salinity fluctuations can adversely impact a wide variety of important estuarine species.

- a. Performance measure(s): Salinity (envelope) and seagrass coverage
- b. Potential management measures (estimated improvement to performance measure(s) with system response in parentheses):
 - i. Upstream reservoir or stormwater treatment area (STA). Note: interference of STA with groundwater should be addressed. (improvement of quality, quantity, timing and distribution of stormwater into the IRL)

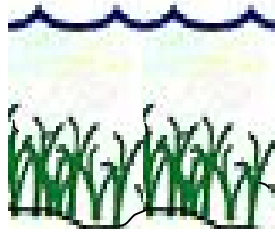
5. Circulation in the IRL-N has been changed by the construction of causeways.

- a. Performance measure(s): Exchange rates, water quality--residence time and flushing, velocity, seagrass
- b. Potential management measure(s):
 - i. Replace causeways with bridges
 - ii. Punch relief channels through causeways

6. The extent to which other sources of pollutants affect the IRL-N is unclear. These sources may include septic tanks, wastewater and waste management, industrial discharges, etc. Information on whether any of these could be measurable problems needs to be gathered so that applicable countermeasures may be formulated.

- a. Performance measure(s):
- b. Potential management measure(s): Quantify loading sources

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Habitat:

7. Submerged Aquatic Vegetation (SAV) coverage appears to be declining in much of the IRL-N.

- a. Performance measures: SAV coverage, seagrass light requirement
- b. Potential management measures (Estimated improvement to performance measures with system response).
 - i. See water quality potential alternatives. Other changes such as to boating practices may provide improvement.

8. Excessive amounts of drift algae appear to be replacing beneficial SAV.

- a. Performance measures:
- b. Potential management measures (Estimated improvement to performance measures with system response):

9. Impoundments in the IRL-N are preventing thousands of acres of historic Lagoon wetlands from performing their vital physical, chemical and biological functions.

- a. Performance measure(s): Restore impacted marshes
- b. Potential management measure(s): Restore impacted marshes

10. Other impacts to the diversity and extent of habitats in the IRL-N have not been quantified. These impacts may include sea level rise, loss of transitional habitats between wetlands and uplands, recreational uses, etc.

- a. Performance measures:
- b. Potential management measures (Estimated improvement to performance measures with system response):

Flora and Fauna:

11. The extent and health of oyster and clam beds is declining in the IRL-N.

- a. Performance measure(s): shellfish density
- b. Potential management measures: See water quality potential alternatives. Management measures should be coordinated with the Florida Department of Agriculture, Division of Aquaculture.

12. Certain species' populations and habitats are declining within the IRL-N, resulting in diminishing abundance and distribution of listed species.

- a. Performance measure(s):
- b. Potential management measure(s): Managed habitats

13. Exotic species are increasing in number, abundance and extent in the IRL-N.

- a. Performance measures(s):
- b. Potential management measure(s): remove exotics

14. Deep water habitat is declining within the Indian River Lagoon.

- a. Performance measure(s):
- b. Potential management measure(s):

15. Man made habitat within the Lagoon (for example docks or former draglined areas) has caused and will cause damage to estuarine habitat and is not always optimized for species. Mitigation for future manmade alterations may not fulfill its intent.

- a. Performance measures(s): Restore impacted marshes
- b. Potential management measure(s): Restore impacted marshes

16. Natural habitat along the Lagoon linking upland, wetlands, and blueways is steadily being reduced.

- a. Performance measure(s): shoreline habitat
- b. Potential management measure(s):

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17. Certain areas are prone to flooding.

- a. Potential performance measures: Flow-frequency curves from HSPF; interviews with local government engineers, USDA Hurricane Irene flood relief claims.
- b. Potential management measures (incidental solutions to maintain original project design level of flood control; for example to determine if flood control benefit could be provided by slight change to a reservoir at minimal or no cost).
 - i. See other potential alternatives.

18. Improved water supplies will be needed in the future in the IRL-N region.

- a. Potential performance measures:
- b. Potential management measures (incidental solutions to increase water supply or reduce shortages, depending on model results).

19. Improved access to the IRL-N and recreational facilities will be needed in the future.

- a. Potential performance measures:
- b. Potential management measures (incidental solutions to increase outdoor recreational facilities as part of project conceptual design; for example to enhance reservoirs or STAs using FWC recreational guidelines for inclusion in the recommended plan): Reuse of spoil material

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