Applying Wetland Functional Assessments in the Development Process: Offsite and Onsite Mitigation Issues

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Wetland Considerations with Development

- Preservation
- Enhancement
- Restoration
- Creation

Wetland Preservation vs. Mitigation
Florida, USA

- Rules say:
  - Avoid and minimize wetland impacts to the degree practicable
  - If mitigation is allowed, there can be no net loss of wetland function
  - Agencies can deny permit issuance if either of these do not occur

Types of Wetland Mitigation

- **Preservation** - To Protect/Preserve existing on-site wetlands/uplands during the development process
- **Restoration** – To restore wetland functions, to a previous condition as a result of impacts (i.e. hydrologic)
- **Enhancement** – To improve the overall condition of a wetland system (i.e. exotic plant removal)
- **Creation** – To create or construct new wetlands as a result of on-site wetland impacts

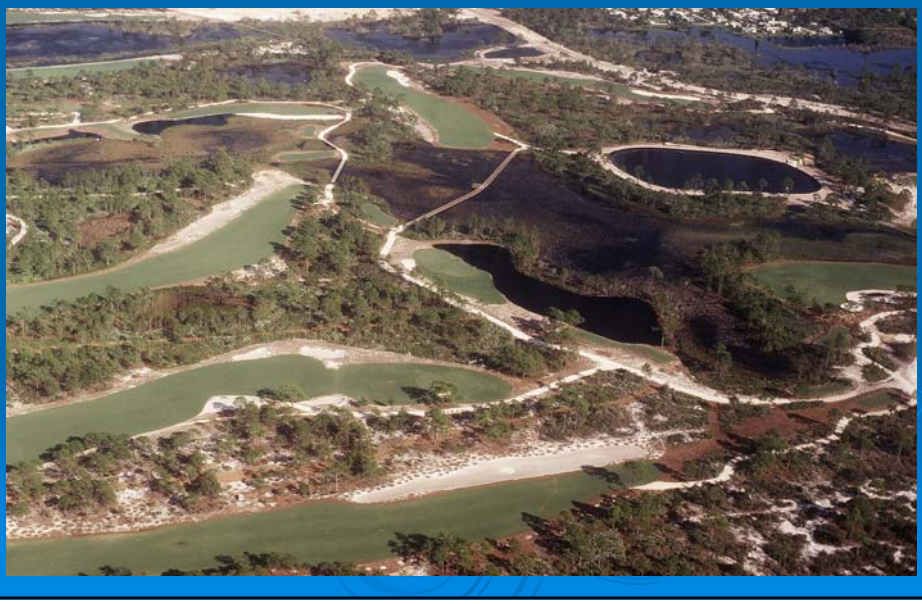
Wetland Preservation

Pre-Development Site

Wetland with 25’ Upland Buffer

Development with Wetland Preservation

Wetland/Upland Preservation



Wetland Preservation??

Mitigation Risk - or - Likelihood of mitigation success

? **Hydrology**

? **Soils**

? **Native vegetation**

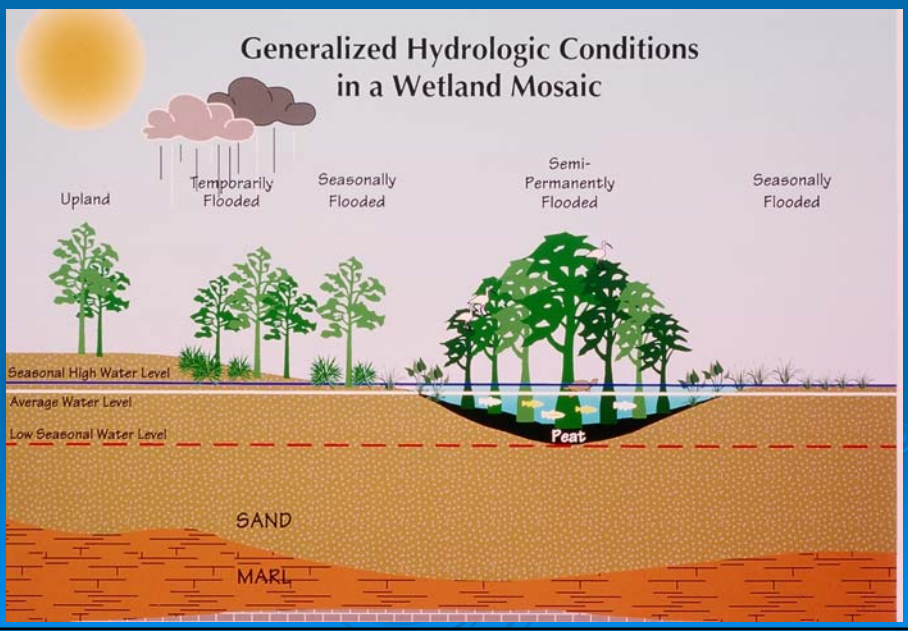
? **Invasive Exotic Species**

? **Water Quality**

Wetland Mitigation Options

- **On-site** – Wetland impacts as a result of the project are mitigated "on-site" within project boundaries
- **Off-site** – Wetland impacts are mitigated outside of the project boundaries (public/private lands, mitigation bank etc.)
- **In-kind** – Impacted wetland **are** mitigated with "like" systems (i.e. impacted freshwater marsh is mitigated with another freshwater marsh)
- **Out-of-kind** - Impacted wetland **are not** mitigated with "like" systems (i.e. Impacted freshwater marsh is mitigated with a hardwood swamp)

Created Wetlands Require Proper Hydrology & Soils



On-site Mitigation

Created Wetlands (Littoral Zone) in Surface Water Management System

On-site Wetland Creation

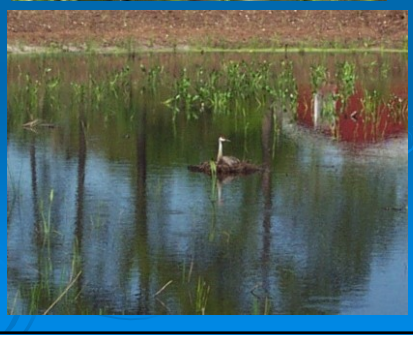
Unsuccessful Wetland Creation

Wetland Creation & Water QualityTreatment

Wetland Creation & Water Quality Treatment

Wildlife Utilization



Point of No Return?

- If hydrology restoration is too risky or is not possible
- If surrounding development can no longer support the intended function
- then….
  - It may make better ecological sense to look at **off-site mitigation**


Off-Site Mitigation

- less risk
- economy of scale
- circle the wagons and protect the best of what is left?
- marriage of regulation and planning

Off-site Wetland Enhancement

Exotic Plant Eradication

Off-site Wetland Creation

Off-site Hydrologic Restoration

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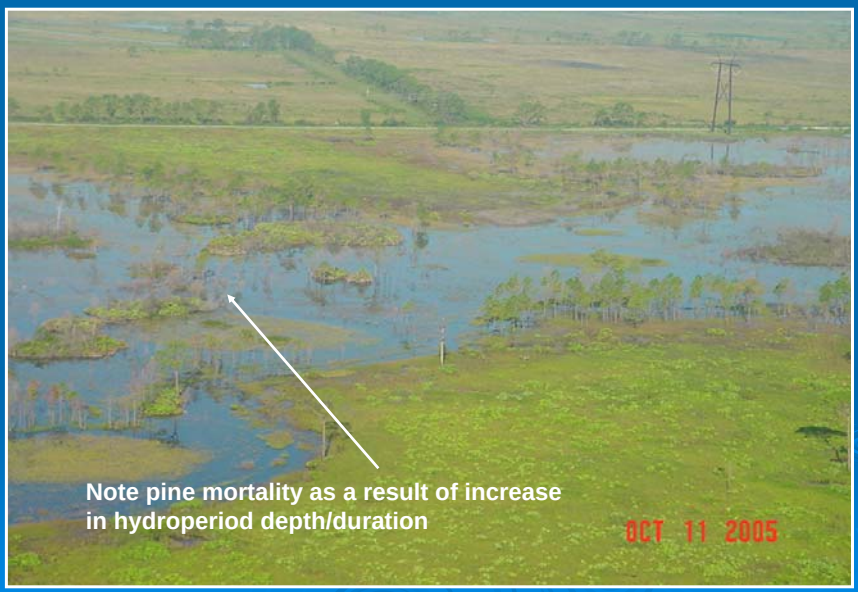
Off-site Hydrologic Restoration



Additional Considerations

- Wetland/Upland Conservation Easements for protection in perpetuity
- Monitoring and Maintenance to ensure overall health and long-term viability of the wetland areas
- Performance Bonds tied to the overall success of the mitigation areas

Conclusion

- Determine functionality of existing on-site wetlands
- Each project site will be unique and wetland mitigation types should be considered on a site by site basis
- Assurances should be provided that no net lose of function shall occur as a result of the project development
- Post-development functional assessment to verify no net lost of function
- Incorporate wetland monitoring and regular maintenance to promote overall success