

# Lessons Learned in Large Scale Environmental Restoration Project Management and Scale Dependent Alternatives Assessment

**A. Charles Rowney, Chip Eitel,  
Roger Copp, Dave Weston, Ghina  
Yamout and Ron Armstrong**

Today: Huge development in Florida caused huge impacts, and restoration is under way.

## **WHAT HAVE WE LEARNED?**

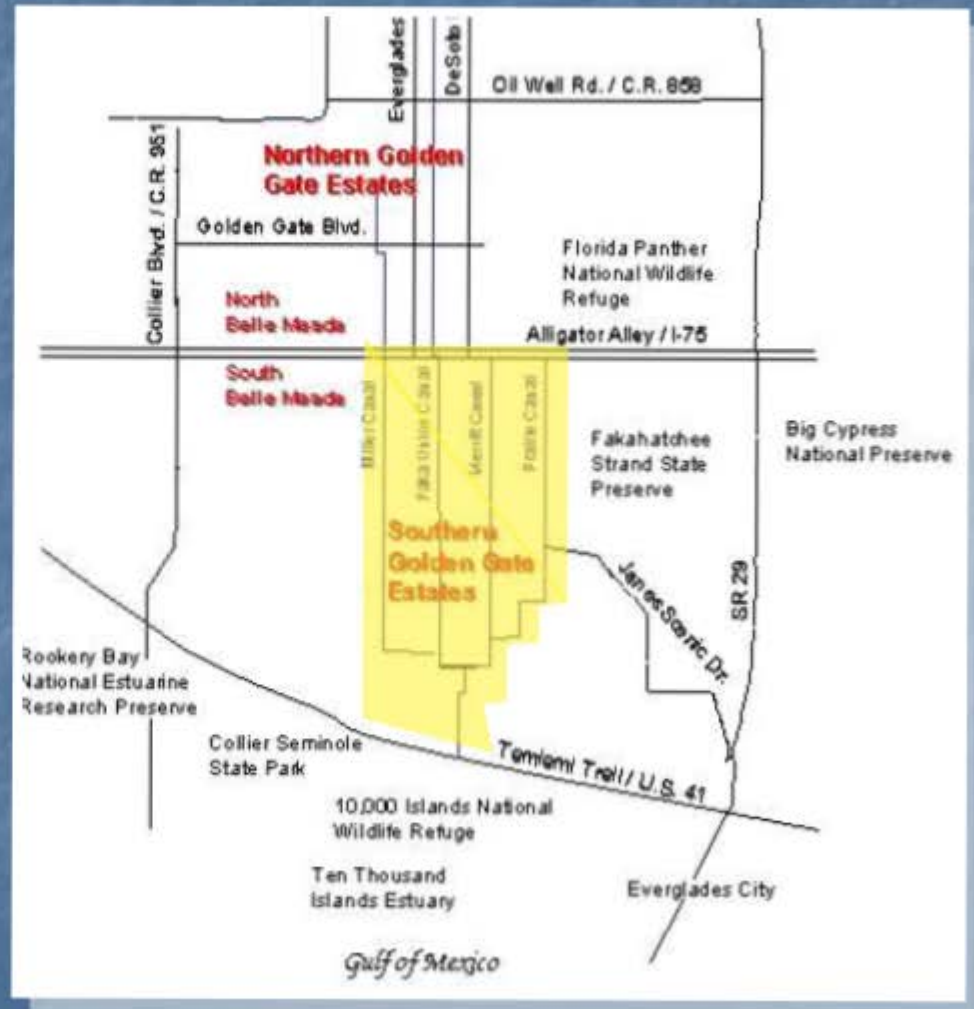


# The Site – SouthWest Florida



## The Picayune Strand Restoration Project

# The Study Area





# Abundant Lessons Learned

- Hydraulic structures
- Habitat responses
- Modeling limitations
- Public Interactions
- Inter Agency behaviors
- etc.
- etc.

# Our Focus Today

- Some things that are universal
  - Reinforce and support what works
- Some things that are unique
  - Contrast can provide insights
- Some things that surprised us
  - Sharing pitfalls that can be avoided

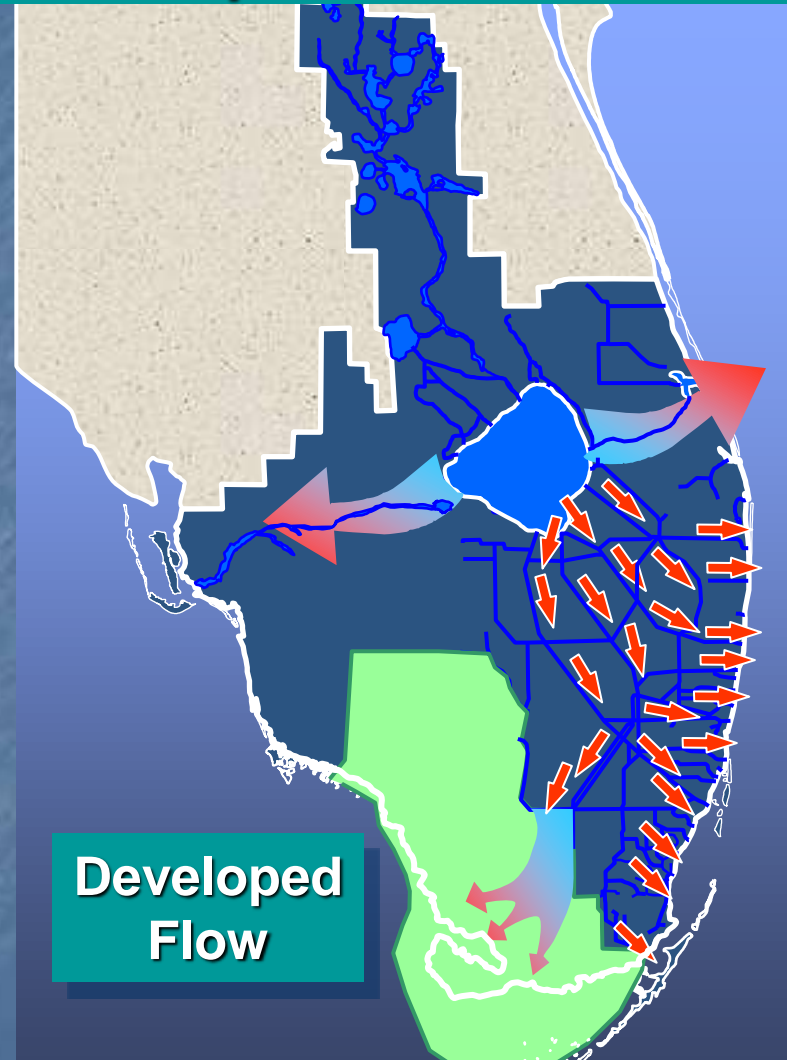
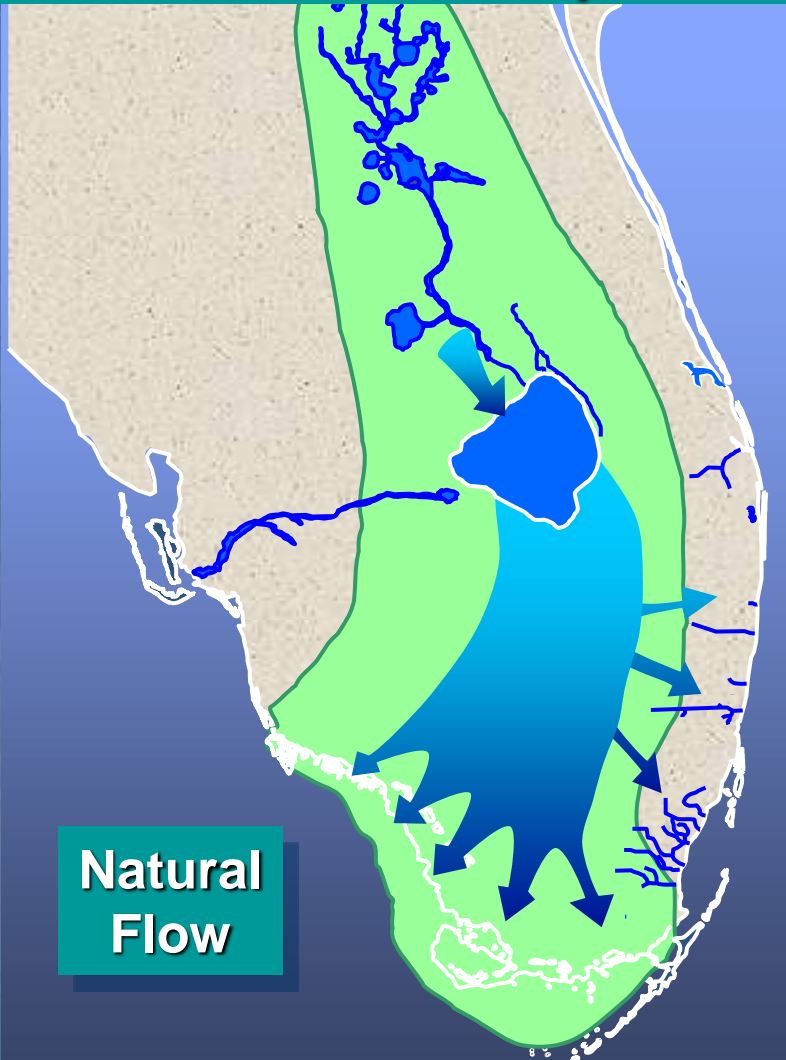
# Topic Areas Covered

- Agency Actions
- Engagement
- Implementation
- Program Management
- Technical Realities

# THE SITE



# Huge Hydrologic Changes Accompanied Development



Half of the Everglades are Gone.

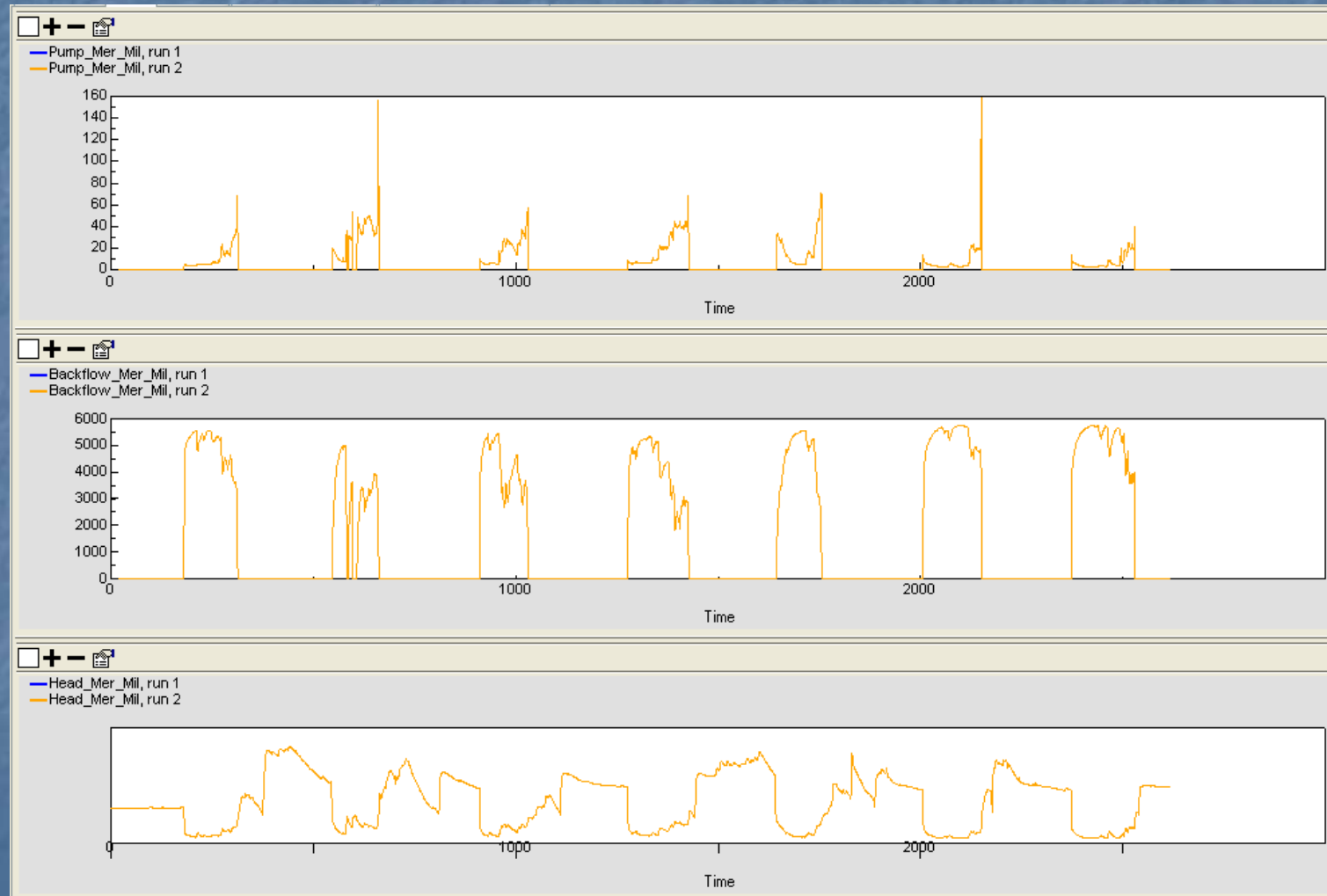
# An Intensely Managed System

*One of the world's largest and most complex water resource management systems*

- Over 1,800 miles of canals and levees
- 160 major drainage basins
- Over 2,000 water control structures
- ~ 200 major structures
- ~ 30 pump stations



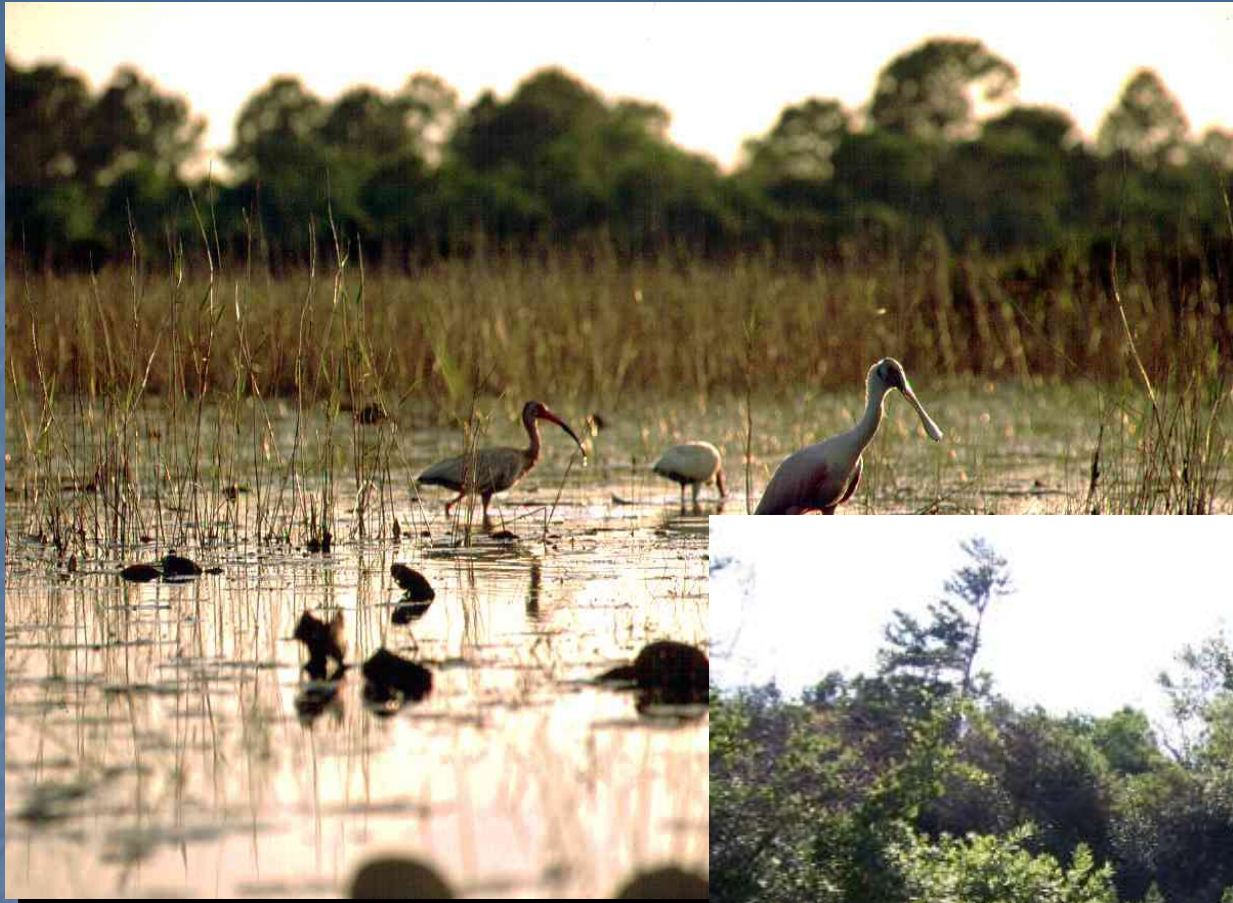
# Hydrologic/Hydraulic Behavior Altered



1995 – 2000 Behavior



# Natural Wetlands



## Dry Flatlands and Pine Scrub



# Goal

**Restore historical sheet flow distributions and hydrologic connectivity in the ridge and slough landscape, thereby creating an environment suitable for the recovery of native flora and fauna**



# Restoration is Possible





# Recovery is Possible



# **AGENCY ACTIONS**

# Agency Actions

- The lead agency sets a tone
- Balancing agency interests can be challenging
  - Differing missions can be tricky to reconcile
  - Mechanisms enabling cooperation are imperfect
  - Cooperation, and sometimes risk taking, on the part of participating agencies is pre-requisite to success



**ENGAGEMENT**

# Engagement

- Keep the Public involved
  - A strong outreach plan promotes positive interactions and constructive dialog
  - *AVOID SURPRISING ANYONE*
  - Don't rely on posted notices
  - Reach out in proactive and concrete ways

# Engagement

- Keep the team involved
  - Reinforcing a common vision is key to achieving coherent results.
  - Players range from a GC and possibly a few major entities to small short term support firms, so communication has to be effective but sensitive to the situation – and affordable.



# **IMPLEMENTATION**

# Implementation

- Plan staging from a systems response perspective as well as from an equipment/construction perspective
- Be persistent, and consider 'no' to be a starting point
- Recognize you are operating beyond the state of the art
- Recognize that there will be conflicts in natural system requirements
- Construction is a time where money saving opportunities will emerge

# **PROGRAM MANAGEMENT**



# Program Management

- Reach out and extend the team
- Value second-guessers
- Allow time for new ideas to sink in
- For such a large, varied area, getting universal agreement is not possible – ‘good enough’ is necessary.

# Program Management

- Periods of intense engagement, separated by long periods of review, lead to management challenges.
- Building trust is a long, slow process.
- Government funding is on a fixed schedule which is difficult in an uncertain project.
- Quantifying ROI is difficult in this kind of system.

# **TECHNICAL REALITIES**

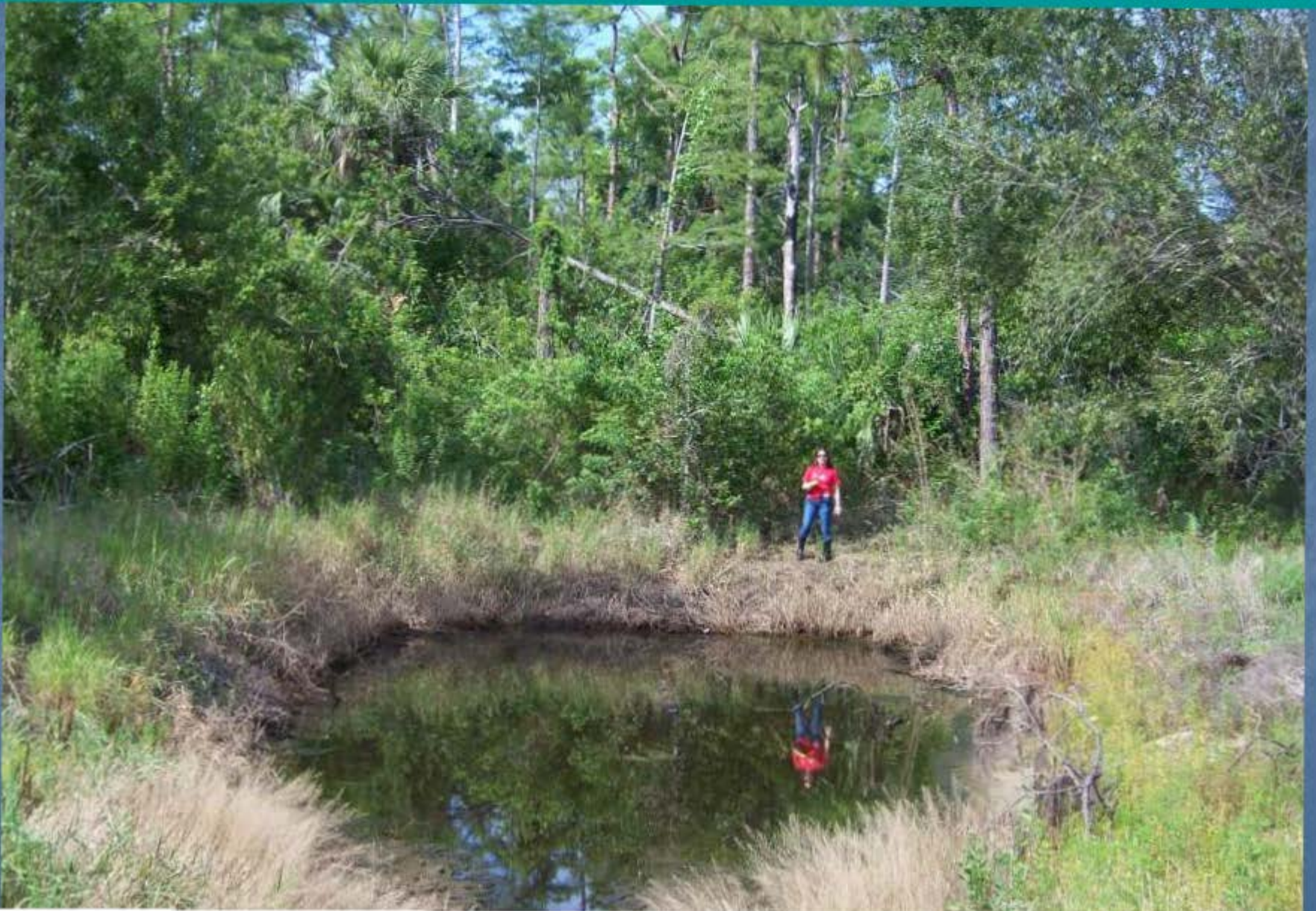


# A Data Adequacy Question





# A Data Adequacy Question





# A Data Adequacy Question





# Technical Realities

- Prediction is only conditionally possible
- Be realistic about data
- Large programs imply long time spans, and technology changes while you're working
- A formal and professional approach to data management is needed
- Differences in scale are challenging when it comes to modeling
- Adaptive management is a 'must'

**CONCLUSION**

# Conclusion

- The human factor is key even if (especially when) a major technical program is under way.
- The state of the art is pretty good, but imperfect, so plan to adapt.
- Regulatory agencies are each effective in their own sphere, but collaboration can bring challenges.
- Service providers are good at what they do, but some problems are bigger than any one provider.



# Conclusion (cont'd)

- Sharing can help us all avoid the pitfalls others discovered the hard way.
- Perfection is impossible.
- Respect all opinions.
- Value historical knowledge, and apply it.

Thank You

