

Task Force Workshop
*Linking Science and
Decision Making*

February 17, 2011

Context

- The National Research Council (NRC) reports that accelerated restoration progress is even more important given continued declines in the ecosystem
- To adapt and maximize restoration progress going forward, science and decision making must be thoughtfully linked and stakeholders fully engaged
- In January Secretary Salazar and ASA(CW) Darcy committed to an improved planning process that would be informed by what we've learned
- The NRC reports that as restoration begins to change the ecosystem, open and transparent mechanisms for integrating science into decision making will be beneficial for everyone

Goals

- Follow up on NRC recommendations and Task Force guidance from the October meeting to:
 - Provide a forum for scientists and decision makers to discuss and improve the use of science in decision making
 - Test the usefulness of the System-wide Ecological Indicators as a communication tool
 - Present and discuss analysis and other communication tools and approaches for stakeholder involvement
- Discuss ASA (CW) Darcy's announcement to accelerate and improve restoration planning
- Identify follow-on actions to help accelerate restoration benefits by improving the use of science in decision making and stakeholder engagement

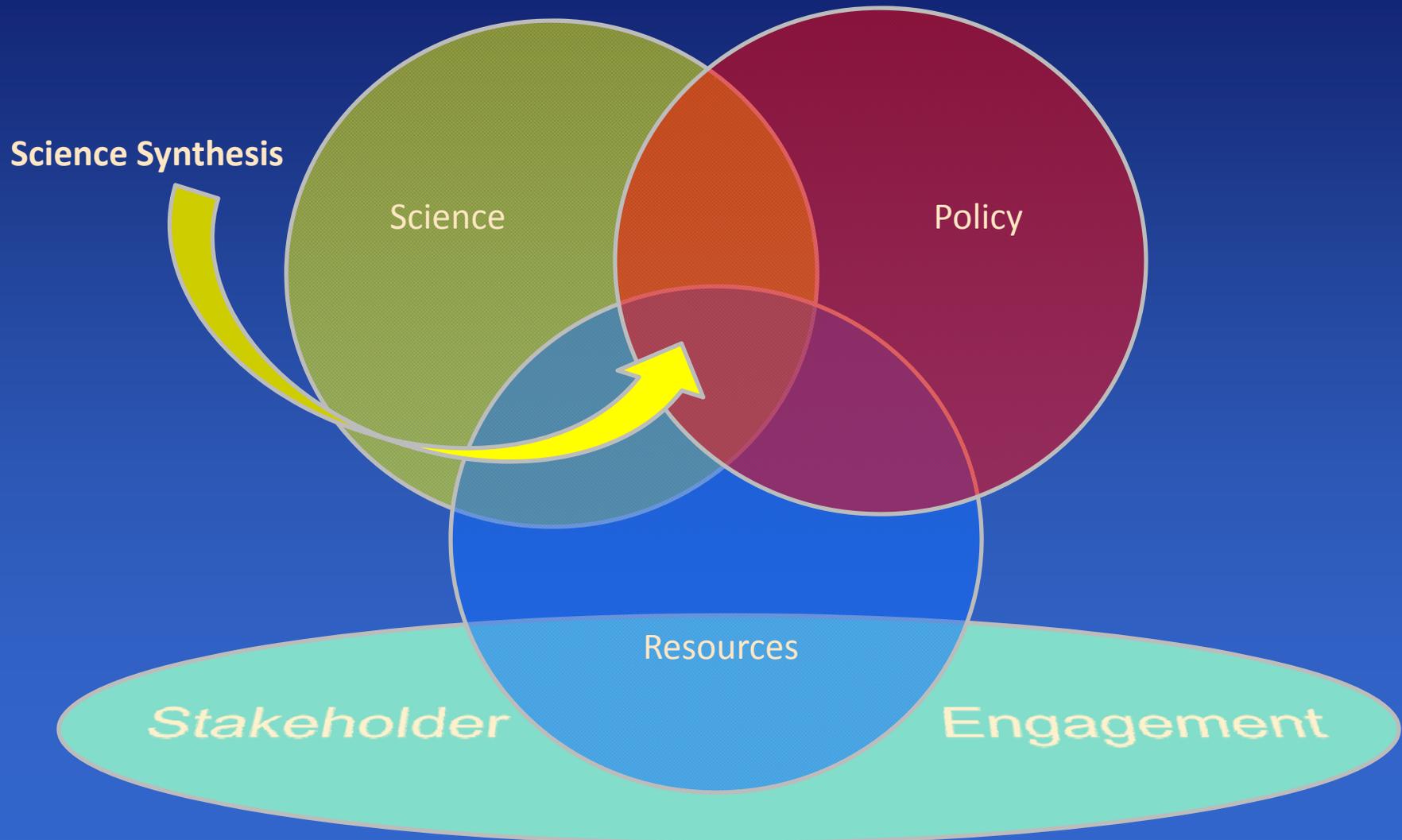
Framing the Discussion

- Linking science and management – examples at the project and system-wide level
- System-wide Ecological Indicators – how the Task Force assesses the current state of the ecosystem and will track its response to the suite of restoration projects and operational changes over time
- Tools for analyzing and communicating restoration alternatives
- Approaches for robust stakeholder engagement
- Multi Criteria Decision Making – maximizing benefits using multiple criteria

Linking Science and Decision Making

- In order to accelerate restoration benefits by adapting plans, science must inform management decisions
- Because these two processes are very different, linking them presents special challenges
- While research is providing a sound foundation, a focused effort to produce relevant science synthesis that is useful to decision makers is a key aspect of linking science with program management
- Science synthesis is useful to decision makers when it is:
 - related to actions that decision makers can control like policy, planning, construction, and operations
 - communicated in a way that is understandable

Decision Making Must Consider Science, Policy, and Resources



Tools for Informing Decisions with Science are Evolving

And are required at different scales

– Project Planning

- Oyster performance measure – predict suitable oyster habitat based on different flow/salinity scenarios from various management actions

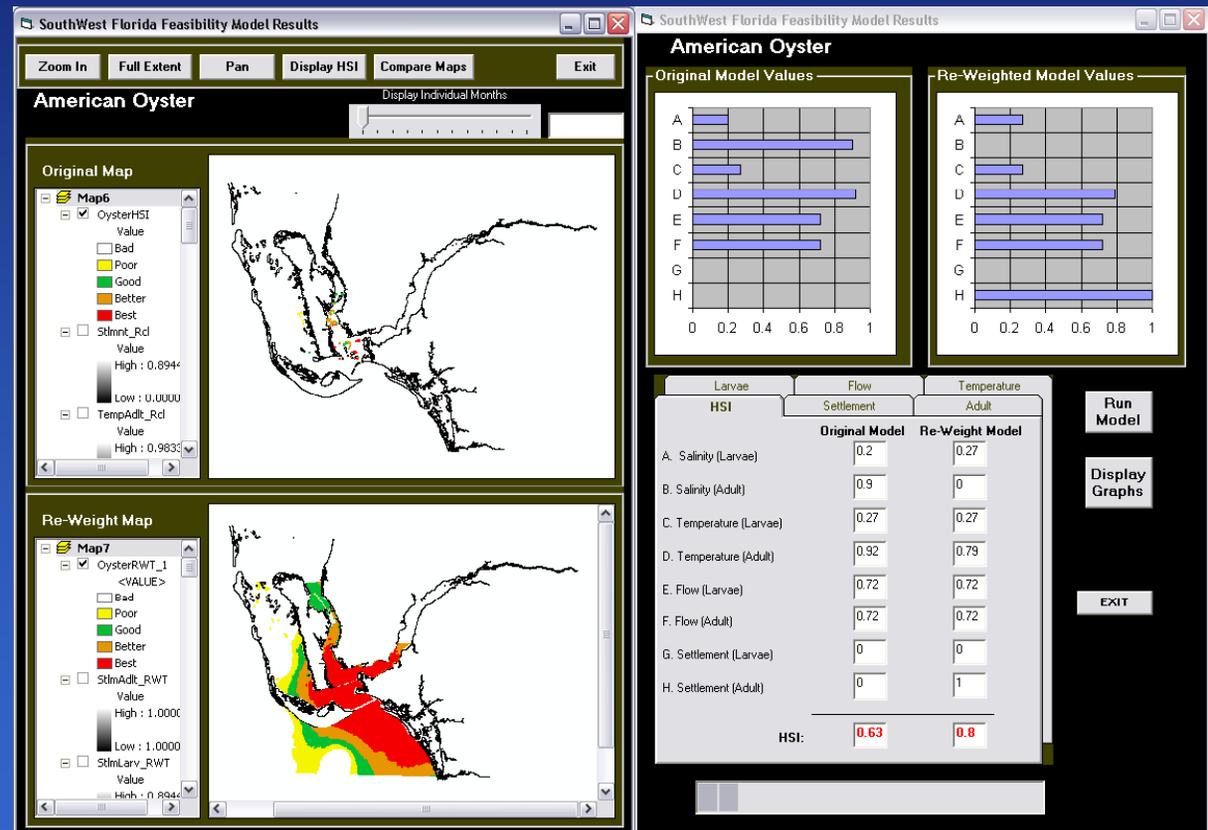
– System-wide Planning

- System-wide Ecological Indicators – provide current status, directionality, responses to the suite of restoration projects and system operational changes

Project Level Example

Oyster Performance Measure

Predicts suitable Oyster Habitat based on differing flow/salinity scenarios that will occur as an outcome of implementation

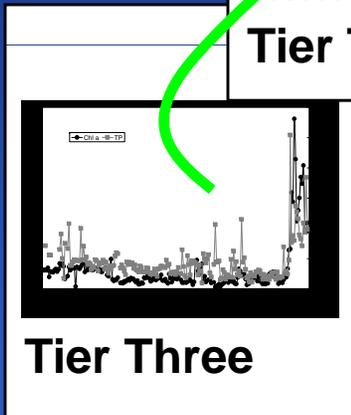
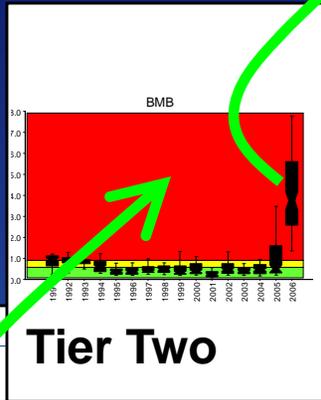


Linkage of Oyster Metrics to Project Management Actions

Stressor metric	Target	Management Action OPTION 1	Management Action OPTION 2	Management Action OPTION 3
Salinity	Salinity range of 10-25 ppt	Change operations to meet flows		
Recruitment	Presence Absence adults and larvae	Stock larvae	Stock adults	Operations to avoid too much or too little flow in key months
Substrate	Acres of Suitable habitat	Add oyster shell cultch	Try different substrate e.g., concrete	Dredge muck

System-wide Ecological Indicators

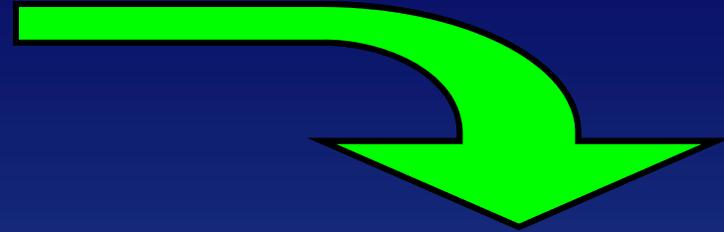
*Application at the system-wide
planning level*



Linking data to the Stoplights

- Tier 1. Stoplight Reports
- Tier 2. Summary graphics and data charts
- Tier 3. Detailed data, theory, and analyses

System-wide Ecological Indicators Science Report



Task Force Strategy and Biennial Report

STOPLIGHTS - ALGAL BLOOMS SOUTHERN ESTUARIES

Performance Measure Chlorophyll a	CURRENT STATUS ²	CURRENT STATUS
BARNES, MANATEE & BLACKWATER SOUNDS (BMB)	Red Circle	This region of the bay experienced an unusual cyanobacterial bloom in 2006. The bloom was related by a large spike in phosphorus from a combination of highway construction and canal releases in response to the active hurricane season. The bloom has abated somewhat but chlorophyll concentrations have not returned to previous levels.
NORTHEAST FLORIDA BAY (NEFB)	Yellow Circle	The current status is due to the periodic expansion of the cyanobacterial bloom from Barnes, Manatee and Blackwater Sounds into this region.
NORTH-CENTRAL FLORIDA BAY (NCFB)	Yellow Circle	The current status is due to the presence of a seasonal cyanobacterial bloom in both early and late 2006. These blooms do not appear every year, but have occurred intermittently over the past 15 years. It is unlikely that this signifies a long-term negative trend.
SOUTH FLORIDA BAY (SFB)	Yellow Circle	The current status is due to the extension of the cyanobacterial bloom from the north-central region of the bay during both years. This has occurred intermittently over the past 15 years and it is unlikely that this signifies a long-term negative trend.
WEST FLORIDA BAY (WFB)	Green Circle	The seasonal diatom blooms in this region for both 2006 and current were not as dense or widespread as in the past.
MANGROVE TRANSITION ZONE (MTZ)	Yellow Circle	The chlorophyll concentrations were slightly higher in this region for both 2006 & 2007. This may have been due to the active 2005 hurricane season and is unlikely to indicate a negative long-term trend.
SOUTHWEST FLORIDA SHELF (SWFS)	Yellow Circle	The chlorophyll concentrations were slightly higher in this region for both 2006 & 2007. This may have been due to the active 2005 hurricane season and is unlikely to indicate a negative long-term trend.
NORTH BISCAYNE BAY (NBB)	Yellow Circle	The chlorophyll concentrations were slightly higher in this region for both 2006 & 2007. Neither year had concentrations that were significantly higher than baseline.
CENTRAL BISCAYNE BAY (CBB)	Yellow Circle	The chlorophyll concentrations were slightly higher in this region for both 2006 & 2007. Neither year had concentrations that were significantly higher than baseline.
SOUTH BISCAYNE BAY (SBB)	Yellow Circle	The chlorophyll concentrations were slightly higher in this region for both 2006 & 2007. The area was also influenced by periodic expansion of the cyanobacterial bloom from Barnes, Manatee and Blackwater Sounds into the region.

Summary

- For decisions to be informed by science, there must be an ongoing conversation between decision makers and scientists at project and system-wide scales
- A focused effort to produce science synthesis that is useful to decision makers is a key element of being able to link science with decision making at various scales
- System-wide Ecological Indicators are a means of accomplishing this at the ecosystem scale
- Presently System-wide Ecological Indicators and the stop light assessments provide a means of:
 - linking science and decision making
 - communicating complex scientific concepts and information in a way that is useful for decision makers
 - communicating the current status of the ecosystem
- Over time System-wide Ecological Indicators and the stop light assessments will provide the response of the ecosystem to the suite of restoration projects and system-wide operational changes