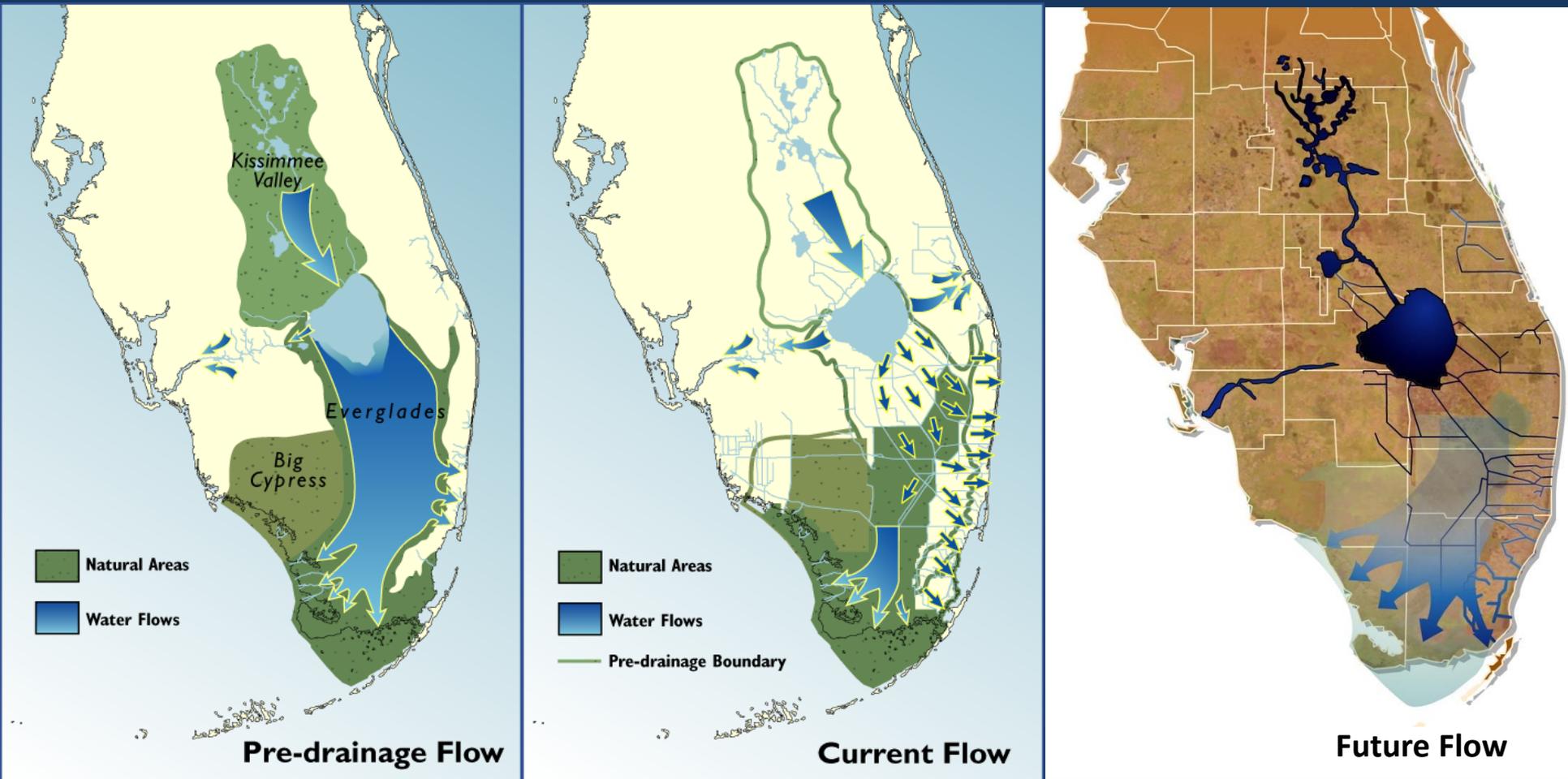


Ecosystem-Based Science for South Florida Resource Management

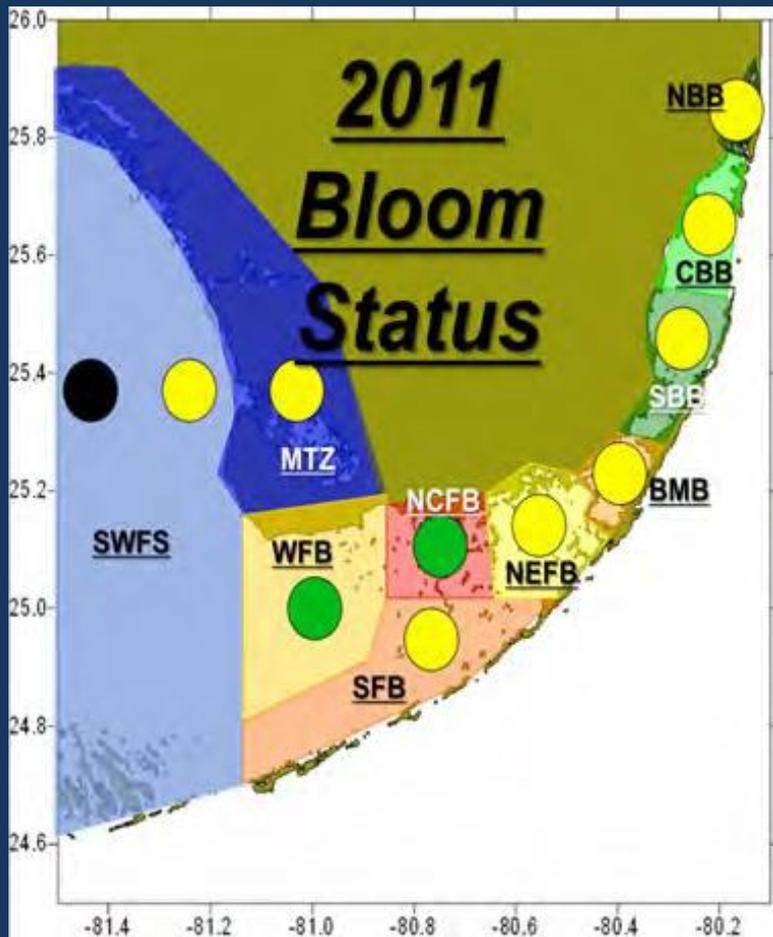
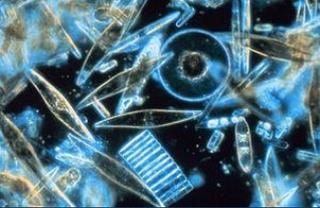


EVERGLADES RESTORATION (CERP)

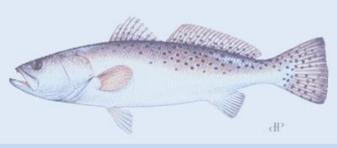


Get The Water Right (QQTd)

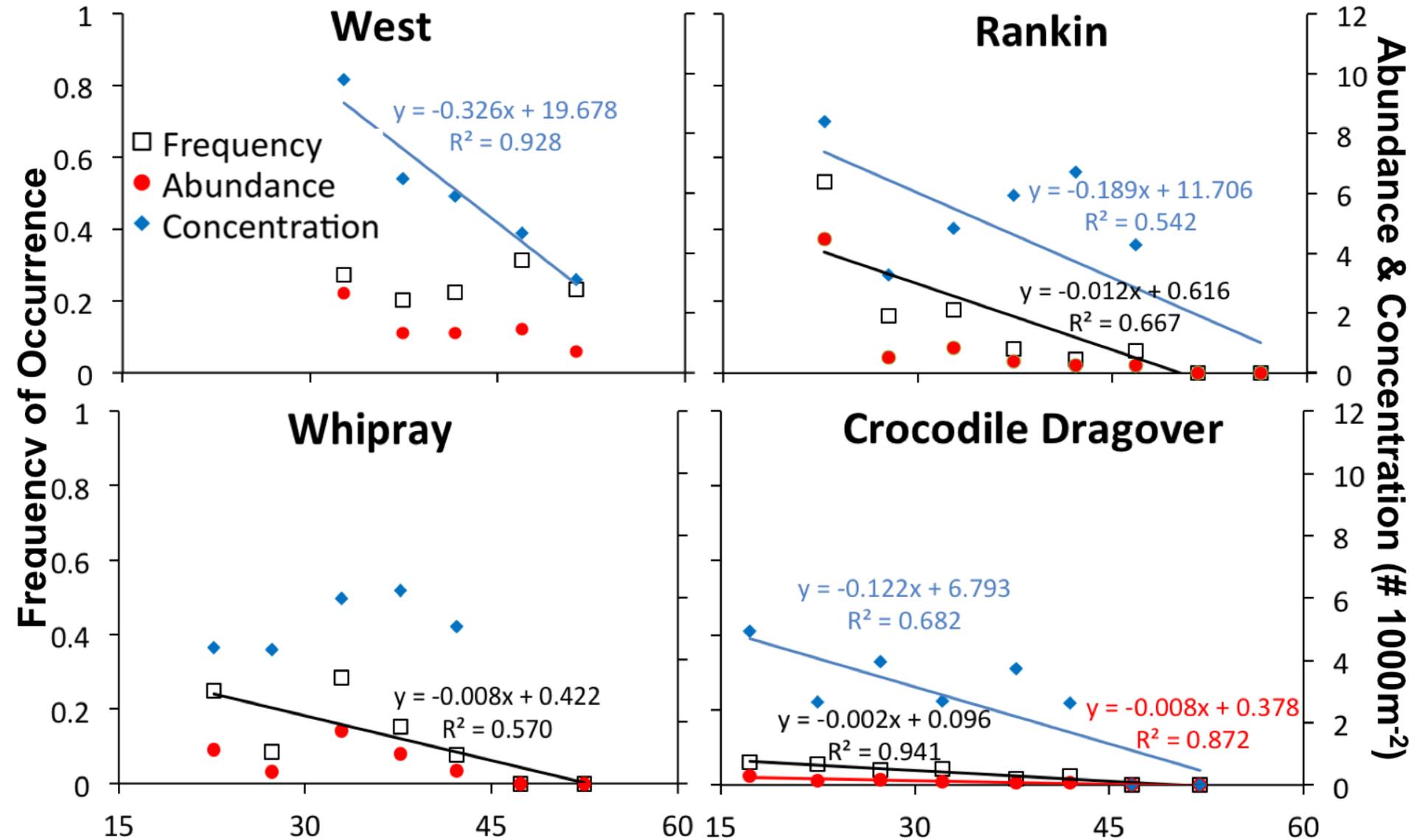
DEVELOP ECOSYSTEM INDICATORS

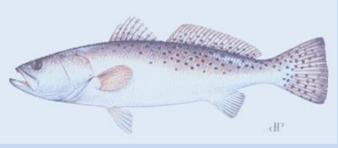


Location/ Performance Measure	2010	2011	Trend	CURRENT STATUS
Biscayne Bay Region				
Regional Overview	●	●	↓	In regional overview, pink shrimp density in Biscayne Bay was particularly poor in 2012, as well as 2011, compared to other regions.
North Bay	●	●	↓	For this site, the bar was set in 2006, which strongly influenced the status thresholds, and no year has performed as well since. 2012 density was not exceptionally low.
Port of Miami	●	●	↓	Although density was slightly higher in 2012 than in 2011, it was still in the red zone based on thresholds set by previous years.
North Black Point	●	●	↓	This site had a moderate density of shrimp (~3.5/m ² in 2005 and ~2.3/m ² in 2009). In 2012, it was less than 1.5.
South Black Point	●	●	↓	Density was slightly higher in 2012 (1.0/m ²) than in 2010 (~0.5), but the 5 previous years were better (almost 3 in 2008)
Card Sound	●	●	↓	Pink shrimp density was consistently around 1/m ² ; however it was above 1.0 most years and below 1.0 in 2011, as in 2011.
Manatee Bay	●	●	↓	This is an area of extreme low shrimp density (~0.2/m ² , at best, in 3 of 5 years. Almost zero in 2011 and 2012.
Florida Bay Region				
Regional Overview	●	●	↓	The regional overview for Florida Bay 2012 was neutral, however within-region status ranged from good (3 locations) to poor (one location).
Duck Key Basin	●	●	↓	Pink shrimp density was close to zero at this location in all years, including the base years, and density in 2012 was almost zero, although within the neutral band.
Eagle Key Basin	●	●	↓	Pink shrimp density was close to zero at this location in all years, including the base years. Average density in 2012 was only slightly lower than in most previous years.
Calusa Key Basin	●	●	↓	The higher density at this location approached 1.0/m ² . Status was good in 2012 by criteria based on the base years, providing a major change from the poor status in 2011.
Crane Key Basin	●	●	↓	This location had favorable pink shrimp densities in 2012 by criteria based on the base years, providing a major change from the poor status in 2011.
Rankin Lake	●	●	↓	This location has higher density than the previous four (maximum year, 2006, greater than 6.0/m ²), but no improvement over neutral in 2012.
Whipray Basin	●	●	↓	The highest annual density in any year was greater than 2.5 in 2006, and 2012, like 2011, had a higher density than other previous years (2007-2010) and achieved good status.
Johnson Key Basin	●	●	↓	Density in 2012 was slightly less than 5/m ² in Johnson Key Basin, and status was classified as poor compared to the 2005-2009 period, when density in 2007 exceeded 20/m ² .
Rabbit Key Basin	●	●	↓	2012 status was neutral at this location, where the highest annual density, achieved in 2006, was about 10/m ² .

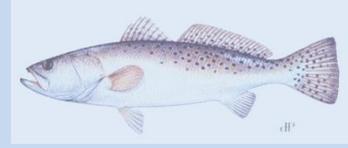


JUVENILE SPORTFISH

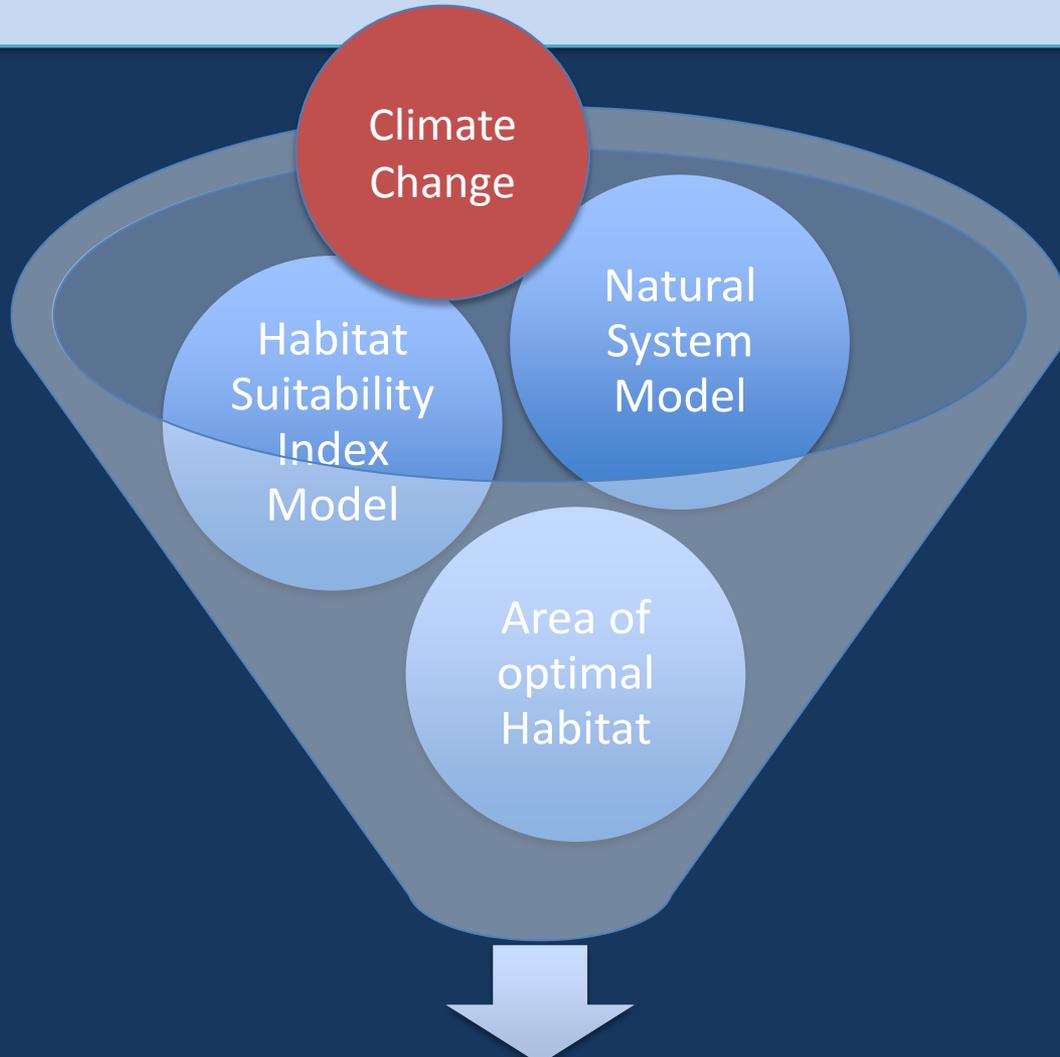




RECREATING WHAT WAS LOST



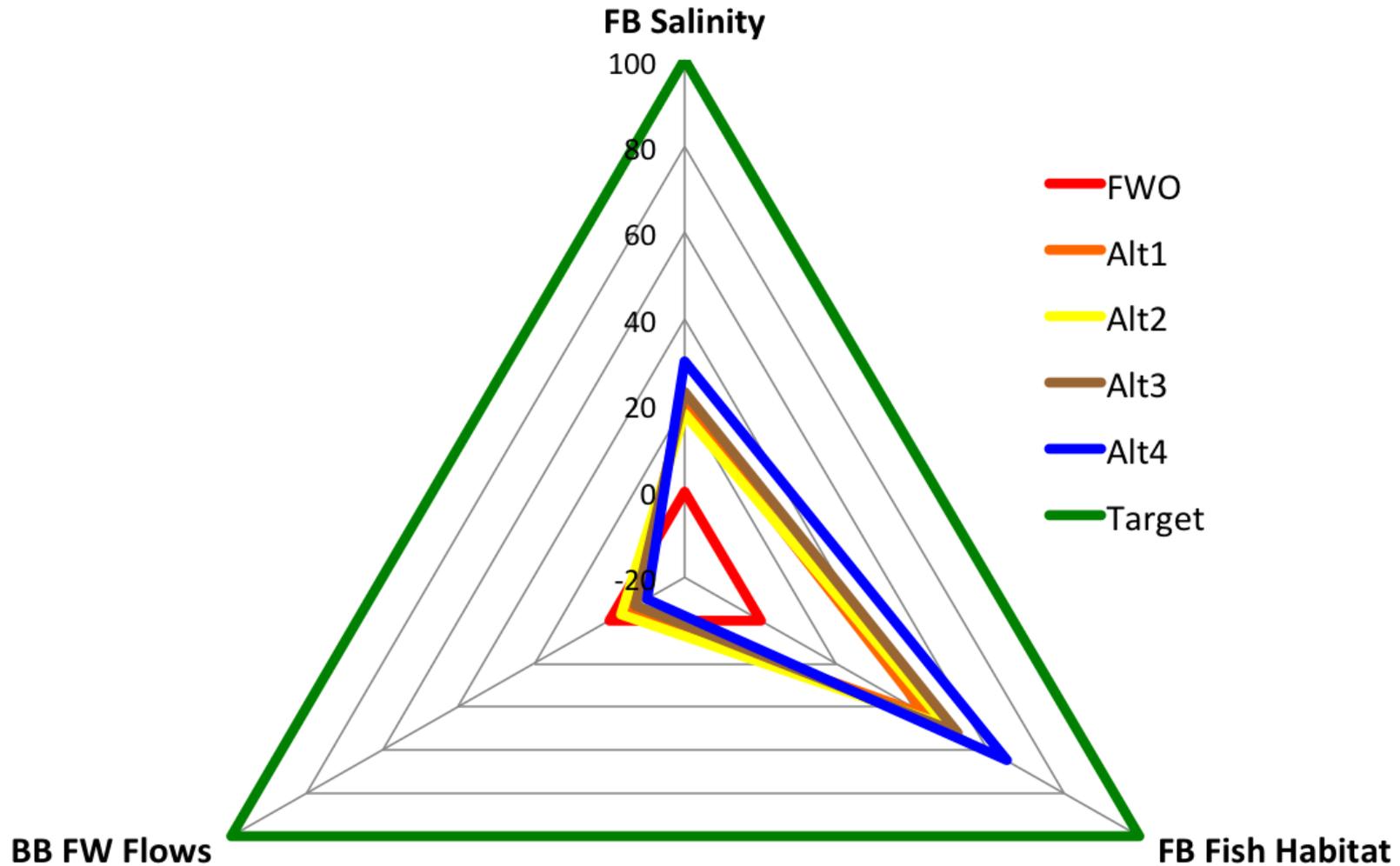
Kearney Talk



Increase in optimal habitat
under full restoration

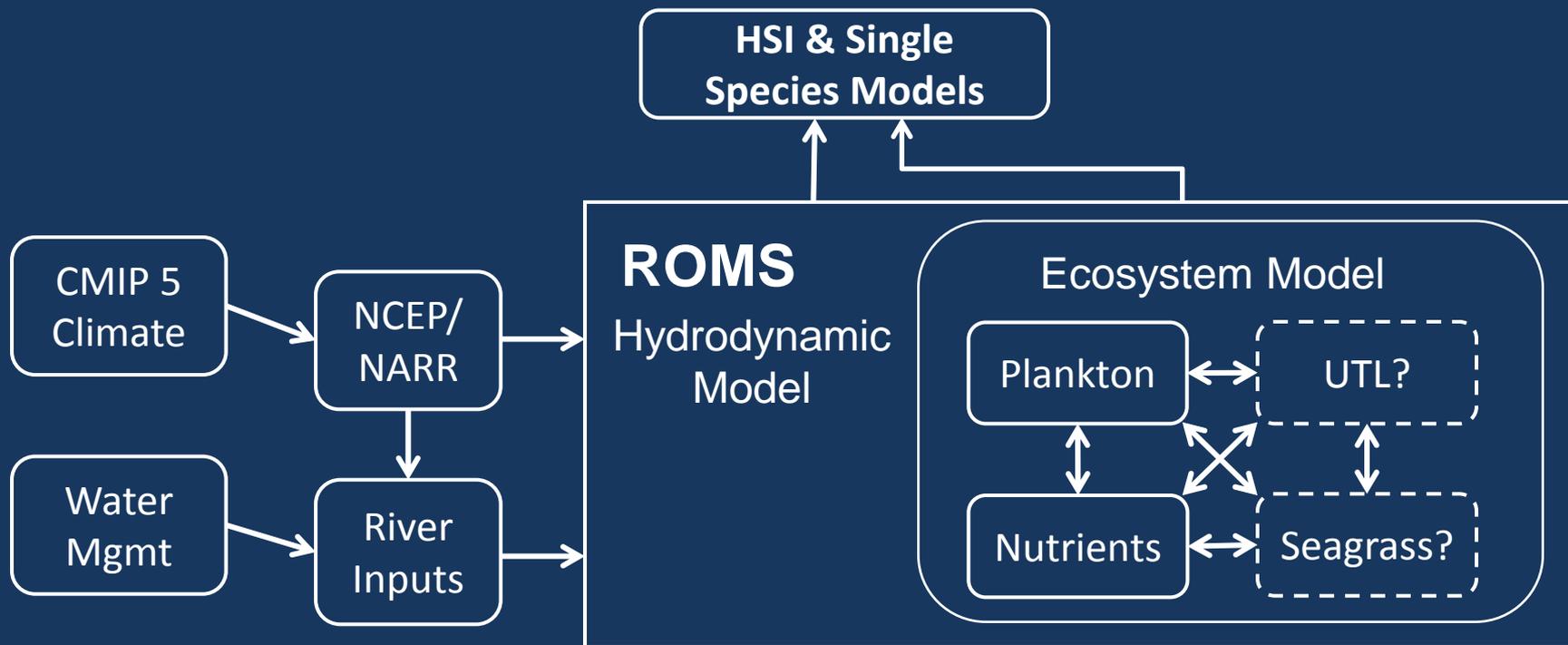
EVALUATE EVERGLADES RESTORATION PROJECTS

% Increase Towards Target over Future Without Project/Management



EVALUATING CLIMATE CHANGE IMPLICATIONS

Cherubin & Kearney Talks



Simulations

Control

CERP: None/50%/Full

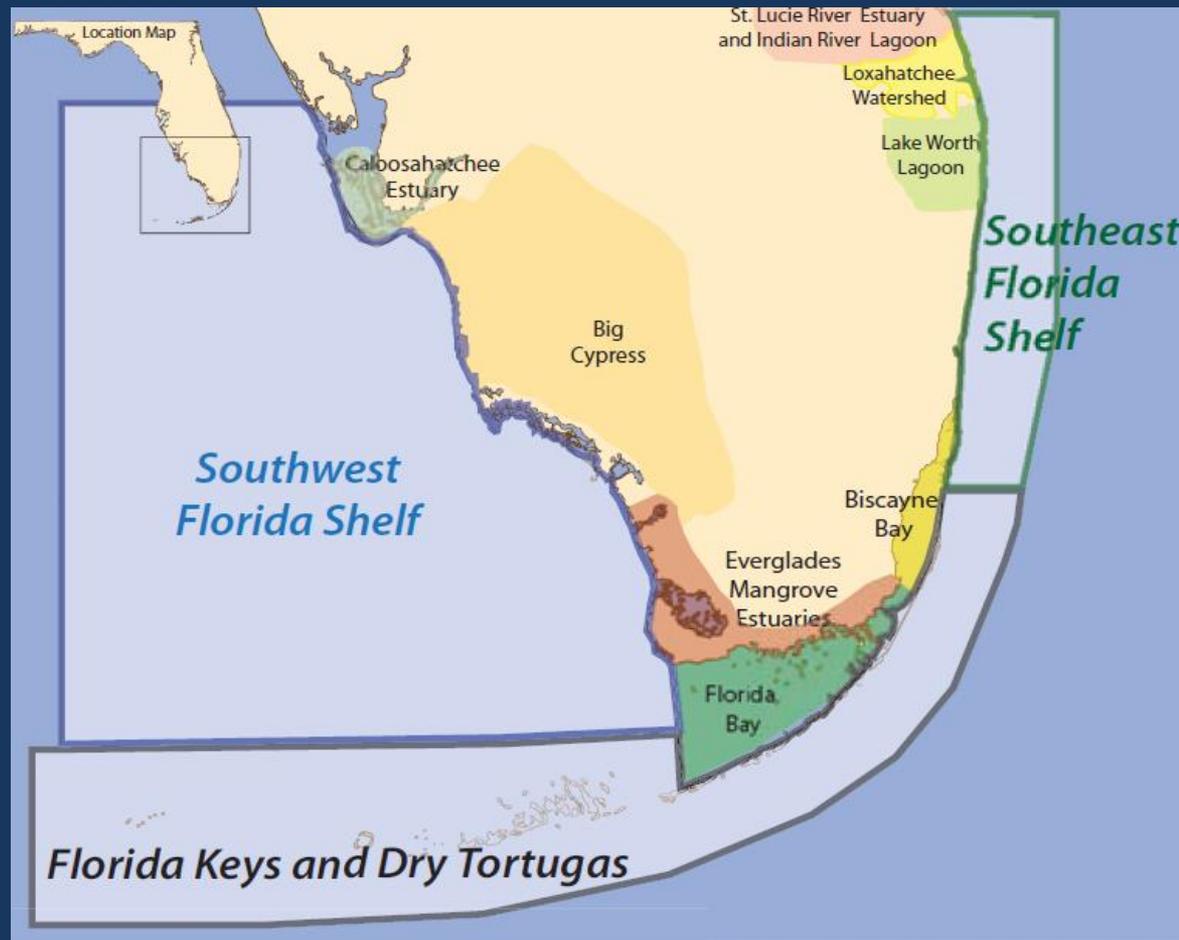
Climate: El Nino/1° C increase

MARES Project – EBM Goals

“reach a science-based consensus about the defining characteristics and fundamental regulating processes of a South Florida coastal marine ecosystem that is both sustainable and capable of providing the diverse ecosystem services upon which our society depend”

Who?

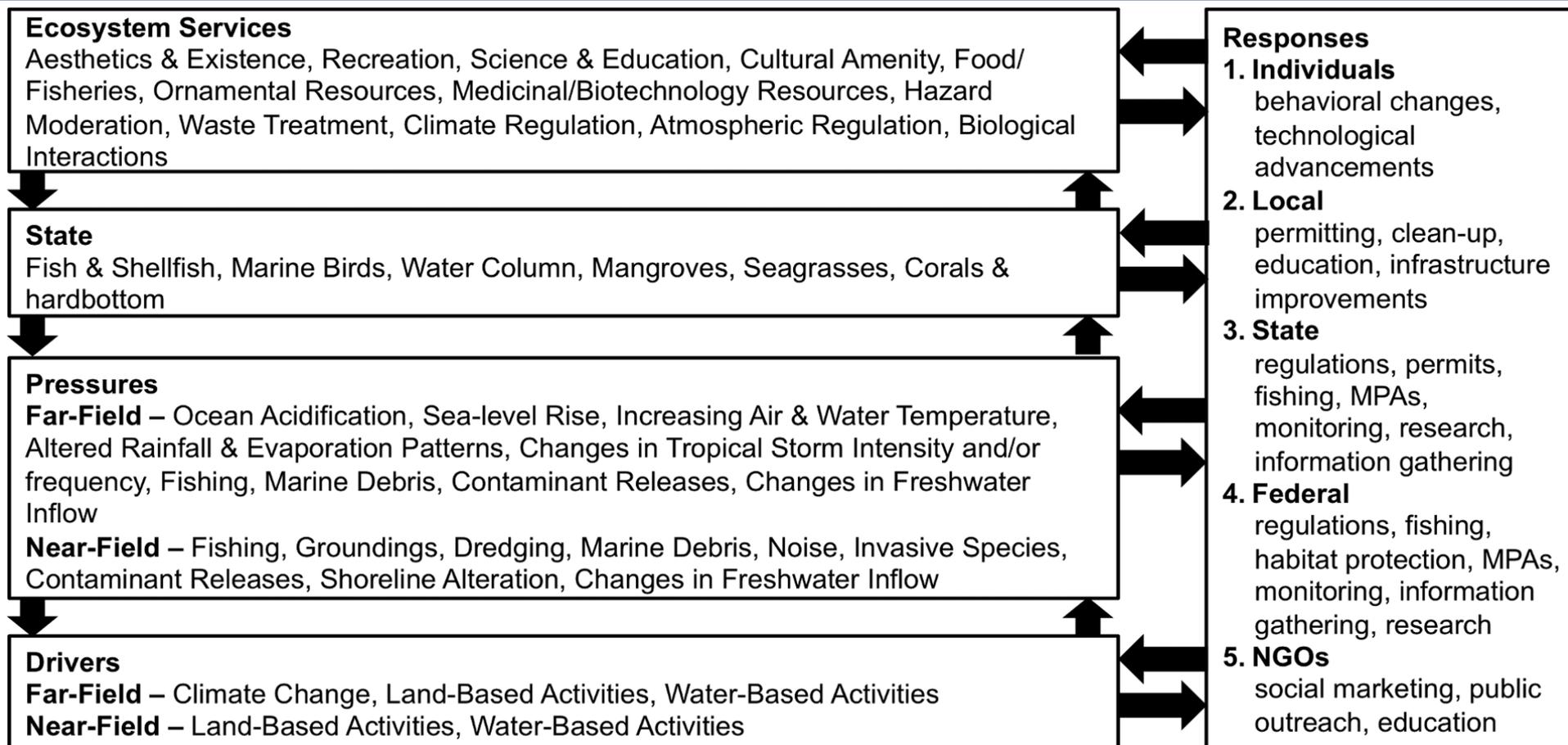
- ~100 Pis
 - Fed/State/Academic/NGO
- 24 writers
 - BPS & HDS
- Leaders Group
 - Scientists, NGOs, & managers



SPECIAL ISSUE OF ECOLOGICAL INDICATORS AVAILABLE SOON!

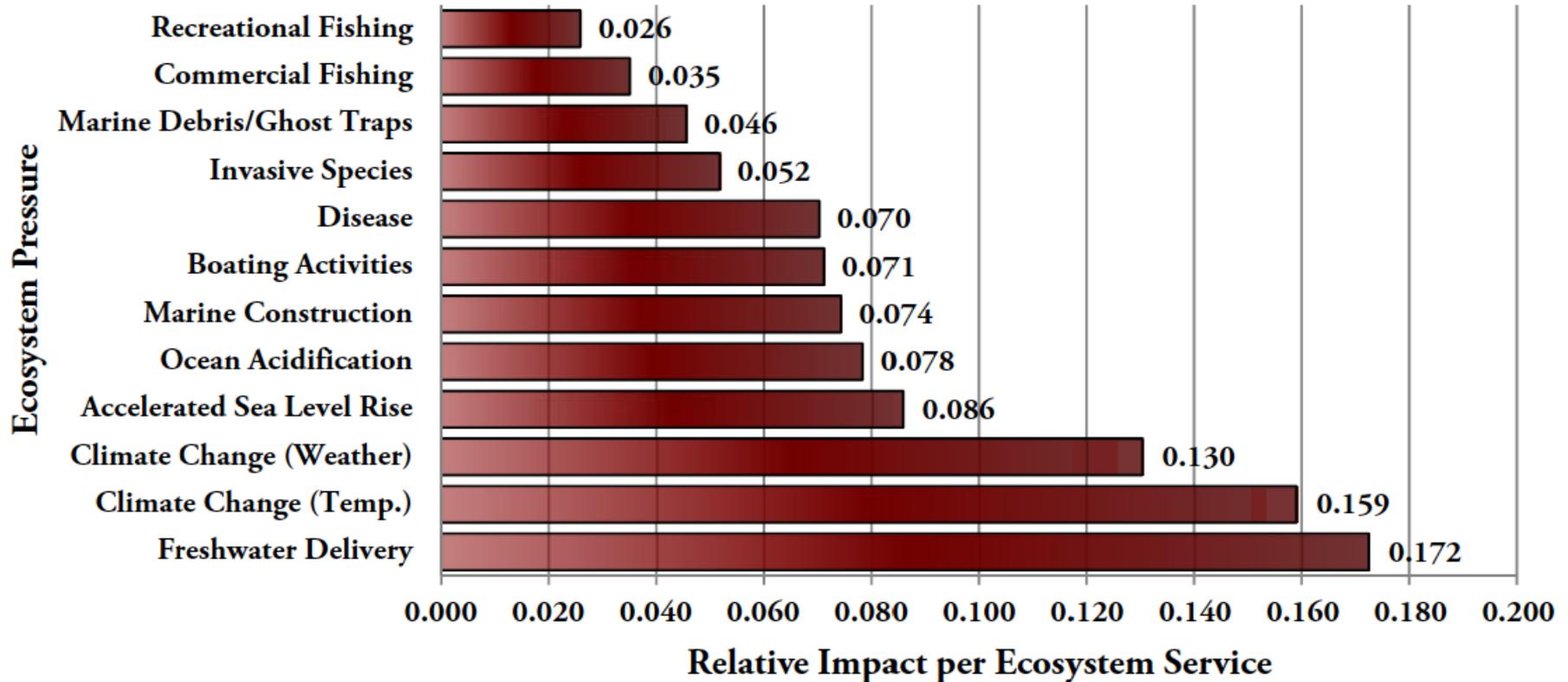
Identifies Focal Ecosystem Components

Merges ecosystem services with DPSIR



HOLISTIC ECOSYSTEM SERVICE RISK

Direct Impact of MARES Ecosystem Pressures on Ecosystem Services



FUTURE DIRECTIONS

- Juvenile Sportfish Performance Measure that is incorporates climate change scenarios
- West Florida Shelf IEA (Schirripa)
- Evaluating Ecosystem Service resilience under climate change scenarios

QUESTIONS????????

Acknowledgements:

Joan Browder
Joseph Serafy
Michael Schirripa
Geoffrey Cook
Joe Contillo
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