Evaluating Resilience: Insights from Florida

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Evaluating Resilience: Insights from Florida

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Presentation for Hampton Roads Adaptation Forum 2019
What is a “Wicked” Problem?

- Complexity of elements, subsystems and interdependencies
  - Low
  - Medium
  - High

- Uncertainty in relation to risks, consequences of action, and changing patterns
  - Low
  - Medium
  - High

- Divergence and fragmentation in viewpoints, values, strategic intentions
  - Low
  - Medium
  - High

“Wickedness”

Rittel and Webber (1973), Head (2008)
Adaptive Resilience

• Assumes non-linear (unpredictable) change in complex social-ecological systems
• Prioritizes adaptive governance, social learning, cross-scale interactions
• Emphasizes interdisciplinary research and collaboration
• Builds capacity to deal with issues outside your direct experience

Holling 1973;
Image credit: blog.daverooney.ca
Adaptive Resilience

- Intentionally mitigate exposure to risks
- Withstand shocks and stress
- Respond quickly and appropriately
- Learn from disturbances to adapt and improve
- Deal with the unexpected
Dimensions and Drivers of Adaptive Resilience

**Leadership & Strategy**
- Promotes leadership & effective management
- Empowers a broad range of stakeholders
- Fosters long-term & integrated planning

**Health & Wellbeing**
- Meets basic needs
- Supports livelihoods & employment
- Ensures public health services

**Economy & Society**
- Fosters economic prosperity
- Ensures social stability, security, & justice
- Promotes cohesive & engaged communities

**Infrastructure & Environment**
- Provides reliable communication & mobility
- Ensures continuity of critical services
- Provides & enhances natural & manmade assets

https://www.100resilientcities.org/
Local Knowledge, Sense of Place, and Coastal Resilience in Mosquito Lagoon, FL
Mosquito Lagoon, FL

• Estuary, not river or lagoon
• Ecosystem services
• Environmental “crisis”
  • 1960s – NASA transforms area
  • 1990 – National Estuary Program
  • 2011 – Massive brown tide
Premise of Research

1. Mosquito Lagoon is human-natural system in crisis
2. Millions of dollars are pouring into restoration
3. Sense of place can inform restoration priorities

“Knowledge relevant for decision making cannot be reduced to objective facts devoid of context and subjective interpretation”

Leschine 2010; Pahl-Wostl et al. 2007; Scannel and Gifford 2010
Photo credit: IRL Butterfly, Don Johnston
Big Questions

• How can dialogue about restoration create opportunities for multi-directional communication and learning?
• How can mapping place attachment and meaning inform coastal restoration and resilience?
Measurement

16 focus groups*
  • n = 85

Facilitated sketch mapping*
  • Meaningful places
  • Degraded places
  • Priority places (group)

Online mapping app
  • n = 1007

Tell us about your meaningful place.

The goal of this mapping exercise is to learn about places in the Indian River Lagoon that are meaningful to you in order to inform future restoration efforts. While other studies have explored biophysical aspects of the lagoon, your perspectives can enrich that scientific data with practical, day-to-day considerations. We appreciate your participation.

Entry ID*
Please enter your first, middle and last initials followed by this submission number. (e.g. HRT1)
If this is the first meaningful place you’ve marked

Mark a meaningful area on the map.
Please go to the map and mark an area in highlighted region of the Indian River Lagoon that is meaningful to you. (You will be able to choose up to three meaningful places).

Please rate how meaningful this place is to you on a scale from 1 to 5.*
(1 is least meaningful and 5 is most meaningful)
Participatory Mapping

Meaningful Places
(132 Polygons Drawn)

Times Selected
0-4
5-6
7-8
9-10
11-15

Miles

Degraded Places
(38 Polygons Drawn)

Times Selected
1-2
3-4
5
6-7
8-10

Miles
Participatory Mapping

Intersection of High Degradation and High Meaning

- Intersection
- High Meaning (11-15)
- High Degradation (8-10)
Participatory Mapping: Priority Places

Group-Identified Priority Places
46 Polygons Drawn

Overlaid with Degraded+ Meaningful Places

© OpenStreetMap (and) contributors, CC-BY-SA
Focus Groups

Priority Themes:

• **Education / Visibility of projects**
  
  “Education, outreach programs... The [oyster reef] that I was on, it’s visible from Marine Discovery Center, easily. And they bring a lot of young minds through the Ponce Inlet and they see [the restoration].” –graduate student/restoration scientist

• **Scale of restoration / Interconnectedness**
  
  “I feel like [choosing a priority for restoration] is like saying, ‘what’s more important; your heart or your lungs?’” –local resident

  “Doing restoration work in the condition of the IRL right now is like doing cosmetic surgery on someone in the ICU” –local resident

• **Empowering community knowledge and action**
  
  “They denied the [citizen science] work I’m involved with right now ... with water quality testing and they said, ‘you’re not scientists, we’re not going to use this data.’ We seem to have somebody holding us back and holding our heads under water [when we’re] trying to get things going.” –conservation volunteer
Summary

• Sense of place (attachment + meaning) measured on maps
• Focus groups revealed restoration priorities, provided opportunities for engaged communities
• Community-engaged work empowered communities in decision-making
• Highlighted opportunities for better communication
  • scientist to scientist | scientist to community | community to scientist
• Engagement goes beyond “educating the public”
Key Takeaways

• Coastal resilience is a wicked problem
• Break ‘resilience’ down into more tangible pieces
• Set actionable goals and measurable objectives
• People matter
• COLLABORATION IS CRITICAL
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Thank you.

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