



Social Science for Coastal Decision-Making

February 9 to 11, 2016
Francis Marion Hotel
Charleston, South Carolina

Community-Based Ecosystem Services Mapping Workshop with the Lake Superior National Estuarine Research Reserve

Dr. Erika Washburn, Reserve Manager

Gail Epping Overholt, Coastal Training Program Coordinator



The Basics

- Ecosystem Services approach is being institutionalized across the federal science agencies, including NOAA, and within the Reserves
- Research Reserves are applying and advancing the concept in many different ways
- Lake Superior Reserve: holding a community workshop!
- We will share: challenges, context, approach and process to date



The Challenges

- Terminology.... An 'unstable lexicon'
- Partners are all on their own learning curves or starting points.
- It's tough for people to visualize what is meant by this approach or how it might benefit them.
- We are suffering from a lack of diverse experts in the early phases.
- The scale is under question and up for debate.
- Everyone approaches Ecosystem Services with different mental models of workshop audience / participants.



Why are we embracing Ecosystem Services?



- There's tons of interest in Ecosystem Services!
- In upper Midwest, this is being led in many cases by the Tribes.
- Fond Du Lac Band of Lake Superior Ojibwe and partners – hired Earth Economics for a watershed ES valuation, based on benefit transfer approach.



Why are we embracing Ecosystem Services?

- We need to find approach to planning and improve
- We need a framework around, alternative to allows everyone to see
- White House:



October 7, 2015

M-16-01

MEMORANDUM FOR EXECUTIVE DEPARTMENTS AND AGENCIES

FROM: Shaun Donovan, Director
Office of Management and Budget

Christina Goldfuss, Managing Director
Council on Environmental Quality

John Holdren, Director
Office of Science and Technology Policy

SUBJECT: Incorporating Ecosystem Services into Federal Decision Making

Our Approach and Process thus far....

We pulled together a team to focus on building interdisciplinary collaboration; finding researchers/scholars in humanities, social sciences & health fields with environment-human focus; and unveiling & strengthening community identity

The Twin Ports-Based People & Places Work Group (PPWG)

Deb Augsburger, UW-Superior / Gail Epping Overholt, Lake Superior NERR

Jerry Hembd, UW-Superior / Meghan Krausch, UW-Superior

Sakib Mahmud, UW-Superior / Jesse Schomberg, MN Sea Grant

Hilarie Sorensen, MN Sea Grant / Erika Washburn, Lake Superior NERR

Katie Williams, EPA Mid-Continent Ecology Division Lab



The PPWG...

- Began regular meetings on the topic of interdisciplinary collaboration
- Core PPWG members took advantage of an RFP through the National Sea Grant Office and, working with partners, applied for funds to organize an ES workshop
- Workshop proposal included partnership and letters of support by: LSNERR, MN and WI Sea Grant, MN and WI Coastal, the EPA MED lab, Fond Du Lac Band of Lake Superior Ojibwe, UW-Superior and UM-Duluth



Proposed ES Workshop Objectives

- Objective 1: to develop a draft community based map of ecosystem services for the St Louis River watershed
- Objective 2: to gather the community around a common understanding of the ecosystem services approach
- Objective 3: to generate a consistent set of community-relevant indicators and metrics to advance through local and regional research
- Objective 4: to pilot a workshop around facilitating this community mapping effort in what could evolve into a refined and replicated training for other coastal communities
- **Funding secured!!! \$\$\$\$\$**



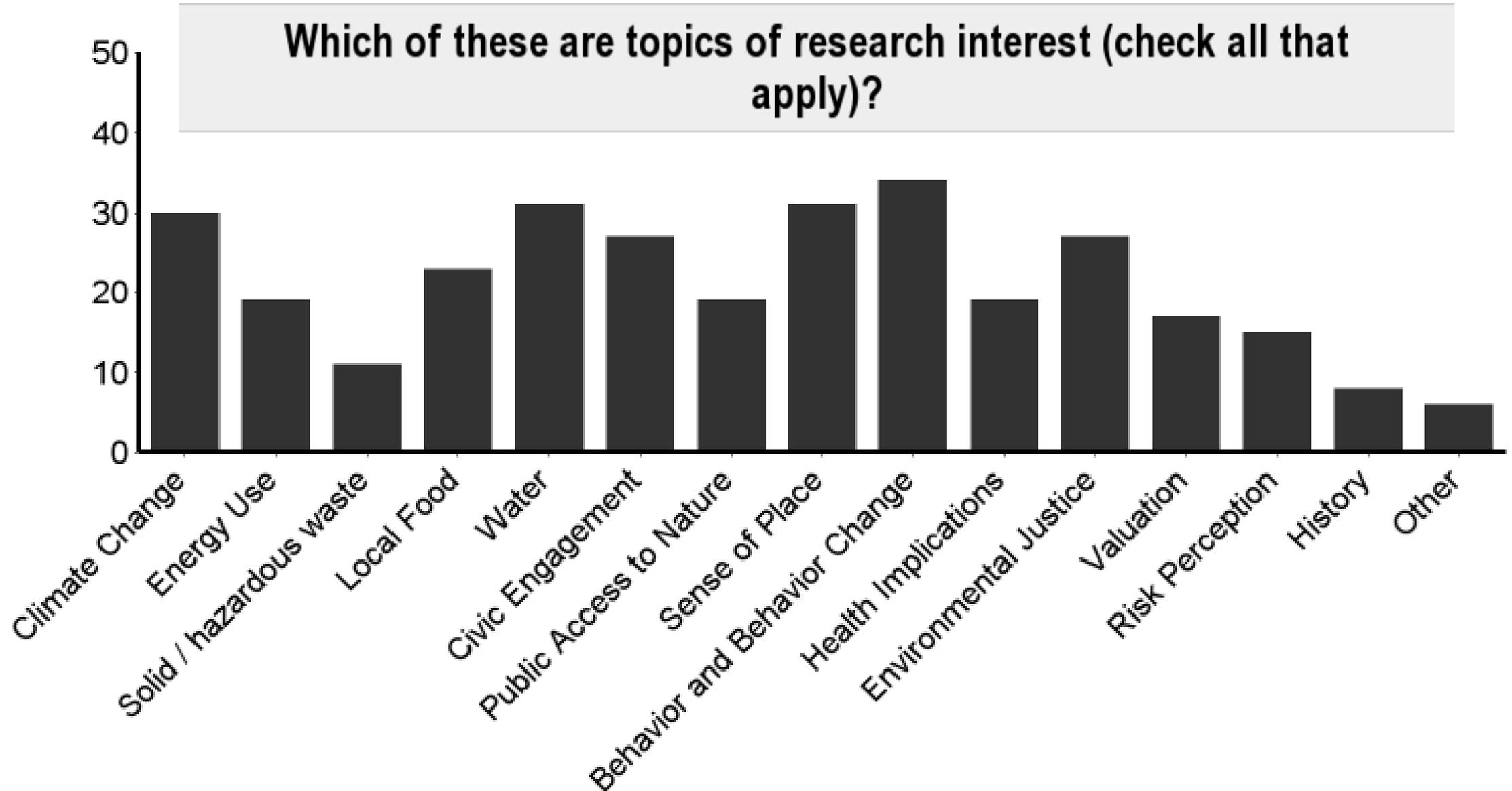
PPWG: “Let’s do a pre-workshop workshop!”

PPWG realized, we need more social scientists and others sooner than later and decided to organize the first “Twin Ports People & Places Forum” to begin gathering this community

- **What kind of research** is currently underway by our community?
- Are you interested in **applied work on human-environment** topics?
- Do you have **students** with similar interests?
- Are you interested in **local/regional applied** social science research?
- Are you interested in learning about **collaborative opportunities** with the Reserve, Sea Grant, US EPA, Fond Du Lac and other partners on research strategies to fill data gaps ... *here in our region?*
- Are you interested in **Ecosystem Services** work?



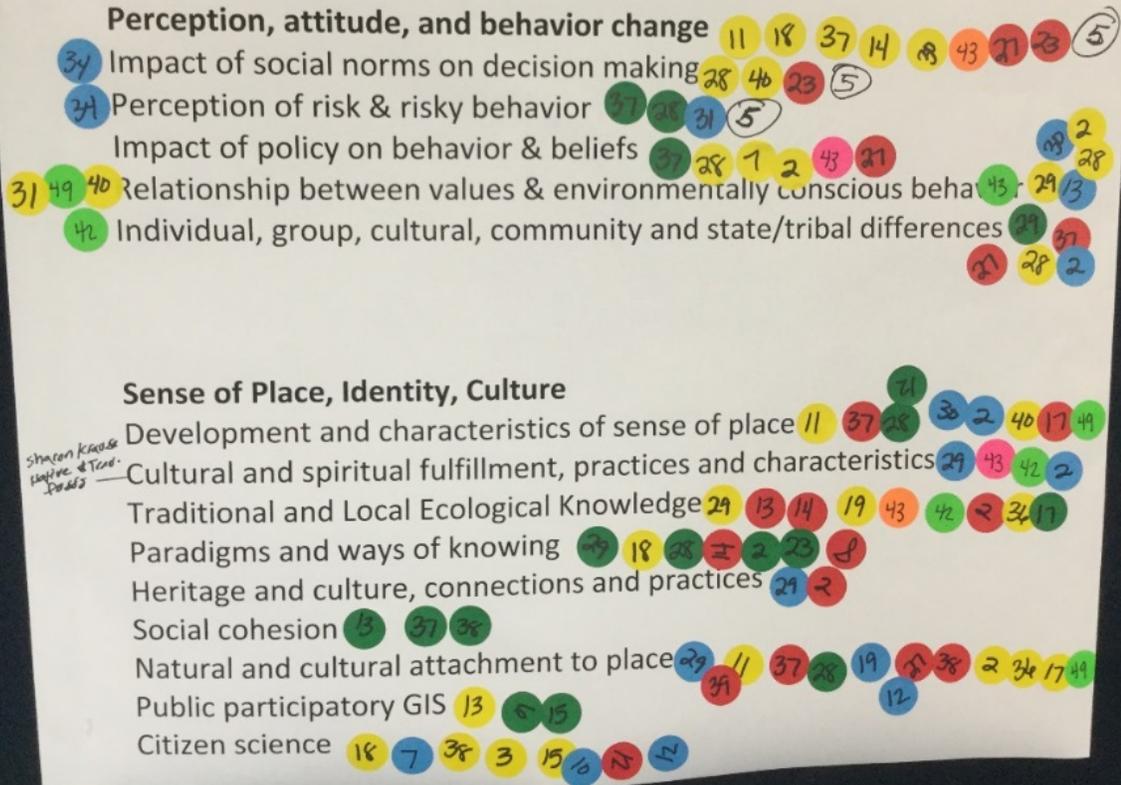
The People & Places Forum: 1st Survey Results

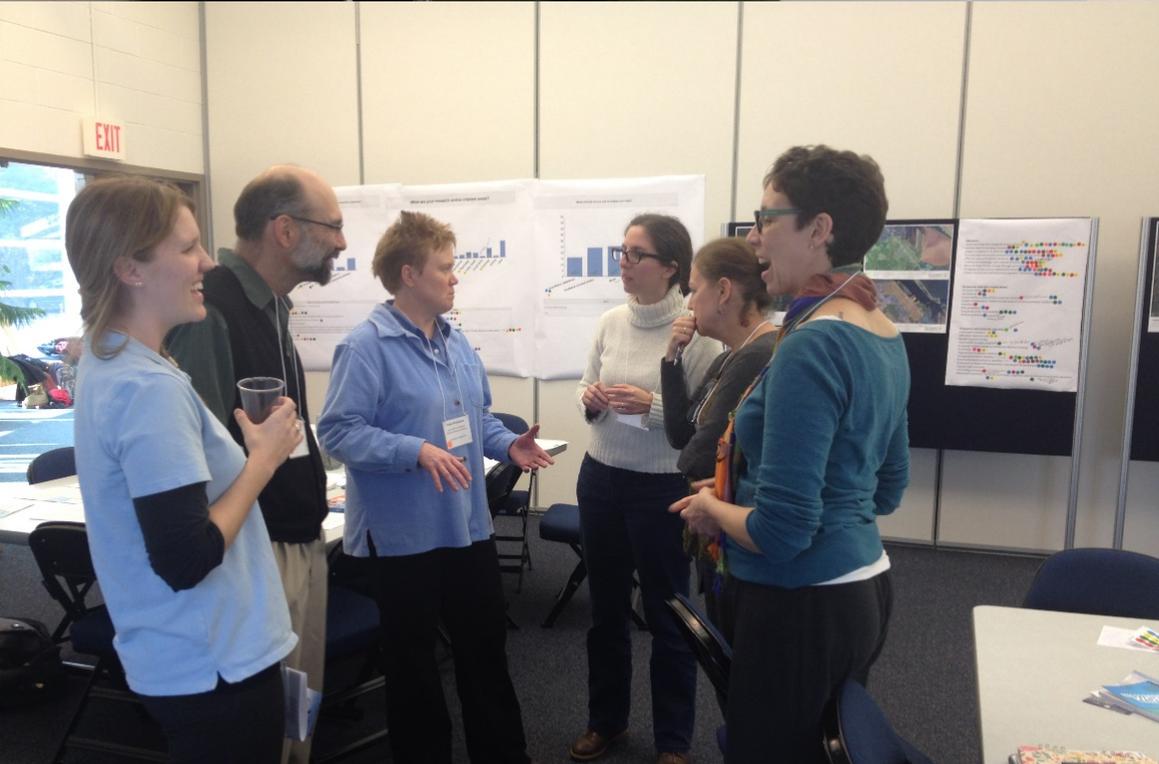


The People & Places Forum: How to elicit conversation and sharing? Brainstorm interactive 'Research Topics & Themes'!

- Perception, Attitude, and Behavior Change
- Sense of Place, Identity, Culture
- Human and Community Health or Wellbeing
- Communication
- Education
- Businesses and other organizations
- Economics and Economic Valuation
- Governance and Community-led Engagement
- Humanities and the Environment

The People & Places Forum November 2015, EPA lab





Governance and community-led engagement

- Effective governance and institutional models 1 *Priorities based budgeting in Douglas County* 9 24
- Best practices 18 28 *42-ambulatory efforts missing target?* 9 9
- Common pool resources management 45 38 5 9 15 24 24
- Decision making 14 14 43 38 5 35
- Collaboration and public participation 28 7 38 23 24 31 24
- Capacity building 16 28 14 5 5 23 26 31
- Collective impact 18 45 10
- Individual, group, cultural, community and state/tribal differences 38 29 45 42
- Environmental justice 29 3 7 18 2 38 6 3 5 17 2 35 24
- Science-policy interfaces 38 13 16 18 5 7 38 5 6 23 17 24 8 35
- Community definitions* 28 6 14

Humanities and the Environment 7 - Fall

- Understanding how historical processes created current patterns 40 36 23 24 41 29 5 37
- Storytelling and collective or shared knowledge 29 28 37 42 2 43 49 35 4 2
- Sharon Krause 4-16 110-Extension* How arts help us understand science 28 5 6 17 26 9 15 35 24 24
- Creative writing and narratives and connections to place 29 36 4 17
- Using the digital humanities to witness environmental change 6 7
- Visualization and environmental perception 40 5 3 23 31 15



Education

- Environmental (or ecological) science literacy
- Factors that foster/deter literacy
- Impact on behavior & attitudes
- Current educational and environmental science curriculums
- Effective educational interventions
- Traditional knowledge and cultural practices
- Documenting climate change through phenology
- Pedagogy of place (place-based education)
- Citizen science and volunteered geographic information

Businesses and other organizations

- Decision making
- Compliance
- Sustainability as part of the corporate mission
- Impact of employees' awareness/perception of environmental initiatives
- Incentives
- Risk perception
- Corporate social responsibility
- Circular economy

Economics and economic valuation

- Contingent valuation
- Valuation related to risk
- Benefit transfer studies
- Cost benefit analysis, tradeoffs
- Economic models based on beliefs and decision
- Incentives
- Payment for ecosystem services
- Ecological-economic benefits + Social
- Community level economic benefits
- Economics of Green infrastructure or Low Impact
- Human scale economy
- Local living economy
- Behavioral economics (study of psychology, cogn



Ecosystems Services and You!

Smith et al, 2013

Definitions

...ecosystem services are the benefits that people obtain from ecosystems. These benefits are derived from the capacity of ecosystems to provide goods and services to people. Ecosystem services are the benefits that people obtain from ecosystems. These benefits are derived from the capacity of ecosystems to provide goods and services to people.

EPA

ORD Cross-Cutting Research

Climate Change, Nitrogen & Co-Pollutant, Children's Environmental Health

Research Areas

- ...research areas include:
 - Climate Change
 - Nitrogen & Co-Pollutant
 - Children's Environmental Health

Overview

- ...overview includes:
 - Climate Change
 - Nitrogen & Co-Pollutant
 - Children's Environmental Health

Back to Our Approach for the ES Workshop... Where are we now?

- PPWG is:
 - adding to survey data the information collected at Forum
 - analyzing post-Forum survey
 - matching people and topics areas into research topical subgroups
 - drafting a directory of researchers across social science, health fields and humanities
 - Following up with all who expressed interest in ES

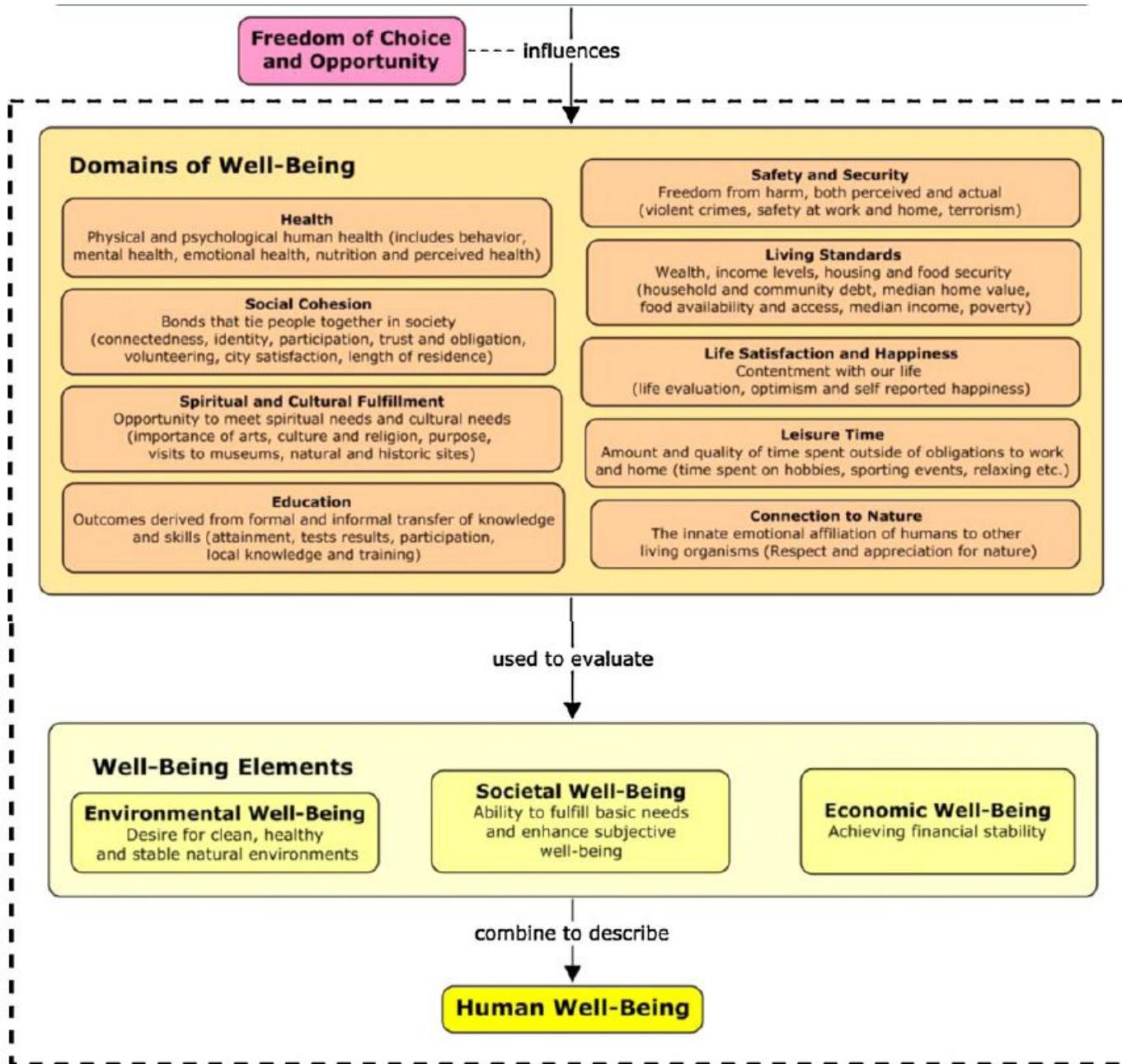


Back to Our Approach for the ES Workshop... Where are we now?

- Meanwhile...

- NOAA is providing experts in facilitation and economics
- Workshop scheduled: April 5-6 2016
- >> grappling with mental models!
- >> determining key messages and take homes
- >> finalizing community-approved ES vocabulary
- >> developing process agendas
- >> helping us decide options for conceptual mapping, visualization and GIS





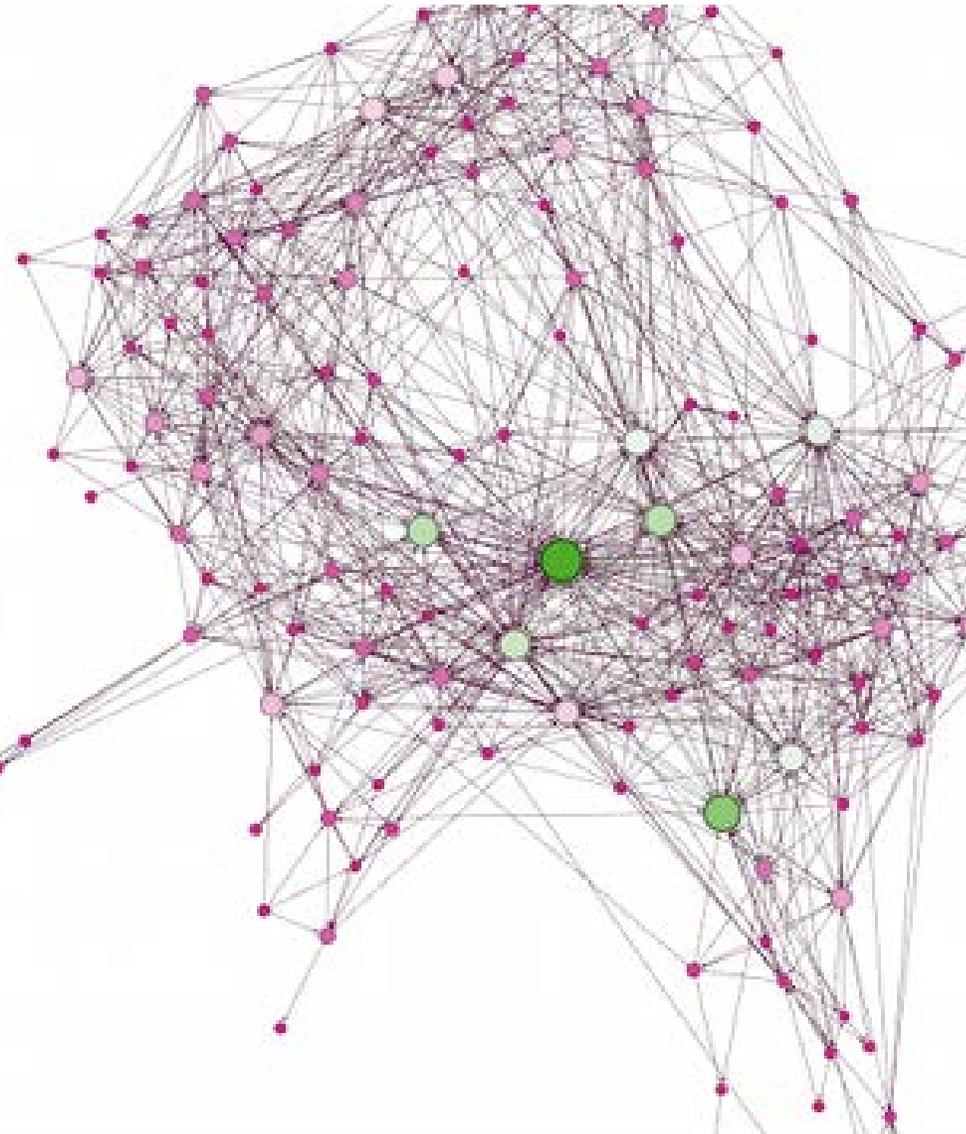
ES Workshop

Focus:

Social, Cultural, & Economic Domains

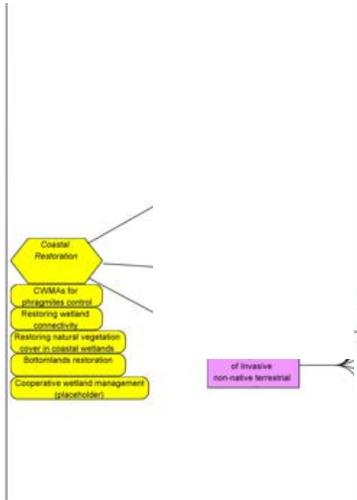
ES Workshop: Big Challenge - “conceptual mapping, visualization and GIS”

Q: How to display and build with participants:
 2D?
 3D?
 Can we manipulate connections?



Size / extent of characteristic communities / ecosystems	area coastal wetlands	
Size / extent of characteristic communities / ecosystems	area restorable wetlands	
plant community integrity	% coverage Phragmites	
Conservation status	% wetlands in conservation	
Coastal land use	% coastal area in natural land cover	✓
Conservation status	% coastal terrestrial land in conservation ownership	✓
Habitat availability		
Habitat availability		
Habitat availability		
Conservation status		
Channel condition		
Community architecture		
Conservation status		

Opportunities for educational growth and reflection



Conclusions

- ES are challenging conceptually
- There's growing interest and real benefits in engaging in this work
- It's an exciting time to be focused on this – lots of cutting edge opportunities
- There's a learning curve that must be understood when working with partners and stakeholders – whether researchers, academics, managers or decision-makers
- One lesson learned thus far: we will need another workshop, tailored for local decision-makers specifically... and we are already starting to think about that



extra

Core Indicators and Definitions

HEALTH	physical and psychological human health (behavior, mental and emotional health, nutrition and perceived health) + access to quality food and water, air quality
SOCIAL COHESION	bonds that tie people together in society (connectedness, identity, participation, trust and obligation, volunteering, city satisfaction, length of residence) + effective government, civil society, freedom of choice and action, social diversity, topophilia, tax revenue, groups / unions / associations
SPIRITUAL AND CULTURAL FULFILLMENT	opportunity to meet spiritual and cultural needs (importance of arts, culture and religion, purpose, visits to museums, natural and historic sites) + Recreational (cultural) places and activities
EDUCATION	outcomes derived from formal and informal transfer of knowledge and skills (attainment, test results, participation, local knowledge and training)

Core Indicators and Definitions, cont'd.

SAFETY AND SECURITY	freedom from harm, both perceived and actual (violent crimes, safety at work and home, terrorism) + access to critical services
LIVING STANDARDS	wealth, income levels, housing and food security (household and community debt, median home value, food availability and access, median income, poverty) + housing, economic security, equity, job satisfaction, property values, employment security
LIFE SATISFACTION AND HAPPINESS	contentment with our life (life evaluation, optimism and self reported happiness) + personal well being
LEISURE TIME	amount and quality of time spent outside of obligations to work and home (time spent on hobbies, sporting events, relaxing, etc.)
CONNECTION TO NATURE	the innate emotional affiliation of humans to other living organisms (respect and appreciation for nature) + Recreational (natural) places and activities, park lands, beach quality, scientific resources, coastal development, aesthetics