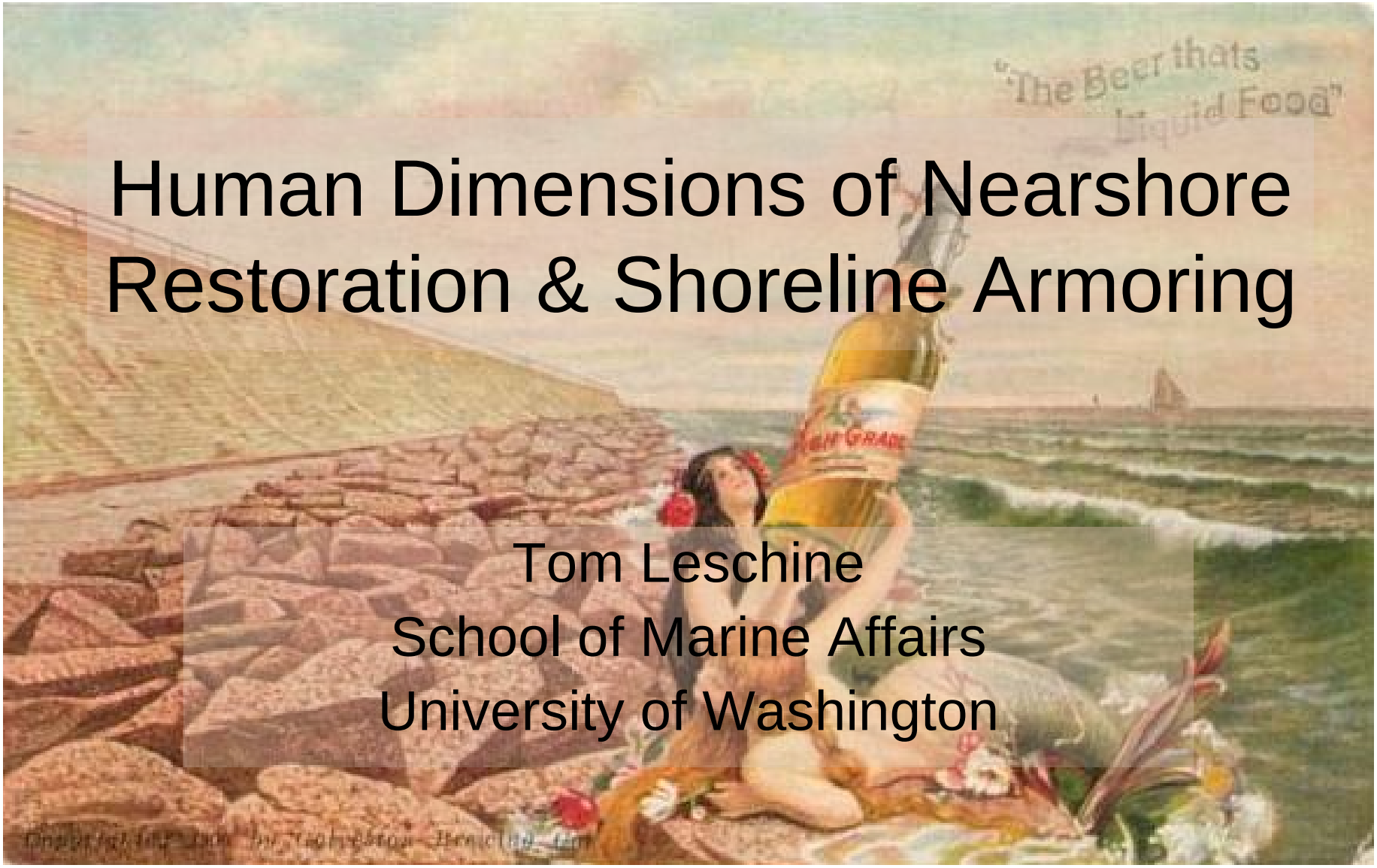
Presented at Puget Sound Shorelines and the Impacts of Armoring Workshop,
May 12-14 2009.
This presentation not peer reviewed.



Human Dimensions of Nearshore Restoration & Shoreline Armoring

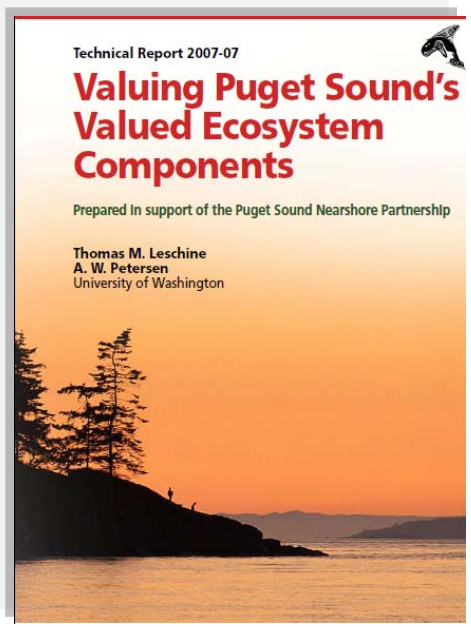
Tom Leschine
School of Marine Affairs
University of Washington

-Presented at PSNER Shoreline Armoring Workshop, Alderbrook Lodge, May 14, 2009

Toward Improved ‘Human Dimensions’ Understanding

- Human values regarding nature
- Ecosystems as “socio-ecological” systems
  - Shifting frames of reference?
- Quality of life and human well being
  - What social scientists try to measure
- VECs and ecosystem goods and services
  - How useful as endpoints for gauging restoration success in human-centered terms?
- Research strategies and results (a few)
- Next steps?

Social-Ecological System



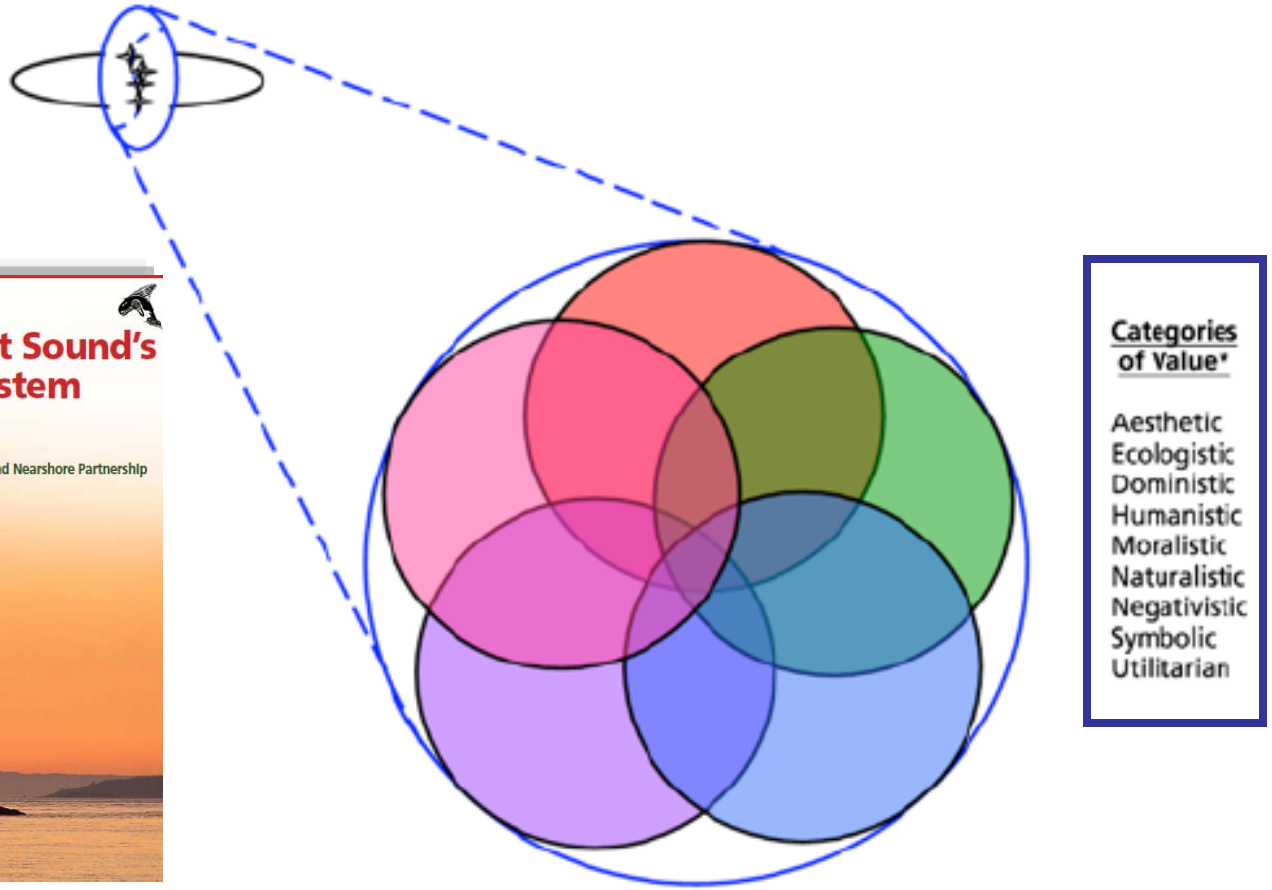


Figure 2. Human values with respect to the natural world: a "biophilia" perspective. VEC stars, if included, would cluster towards the center because they represent different values to different people. *For clarity, only five of the nine categories are shown.

-Leschine & Petersen, 2007, citing S. Kellert and E.O. Wilson on *Biophilia*

"A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise" -From *The Land Ethic,* Aldo Leopold, 1966

http://www.photodoktor.co.uk

Social – Ecological Systems

What's an ecosystem?

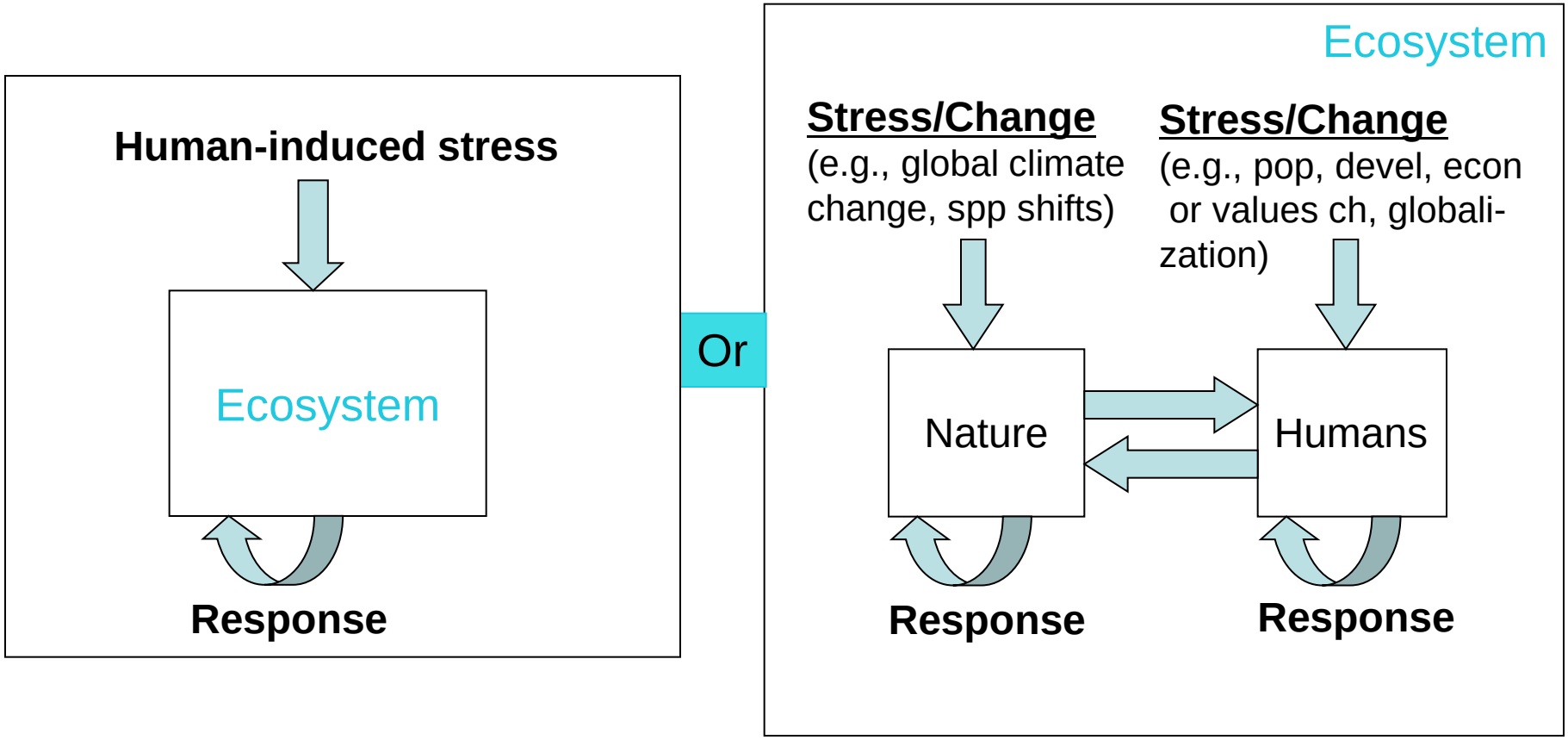


Table 2. Survey items and corresponding latent variables.

Latent variable	Survey item
Recreational visits	Number of visits to each waterway in the last 12 mo
Length of residence	Number of years lived in area
Age	Age in years
Social place attachment	I can recognise most of the people who live in this area.
	When shopping in my local area, I am likely to run into people I know.
Physical place attachment	There are places in this area that are special to me.
	I enjoy visiting places in this area.
Place belonging	I feel I belong in this area.
	I would like to continue living in this area.
Place commitment	I would like to contribute to making this area a better place to live.
	If there was a problem in this area I would help to fix it.
Place dependence	This area is my favorite place to be.
	I really miss this area when I'm away for too long. †
	This area means a lot to me. ‡
Social interaction, experience	Visiting a waterway for recreation allows me to catch up with other locals.
	Visiting a waterway for recreation allows me to be with friends or family.
Social interaction, casual contact	When visiting a waterway for recreation, how often do you run into people you know?
	When visiting a waterway for recreation, how many people who you know, would you normally see?

[Excerpt from typical "Quality of Life" Survey]

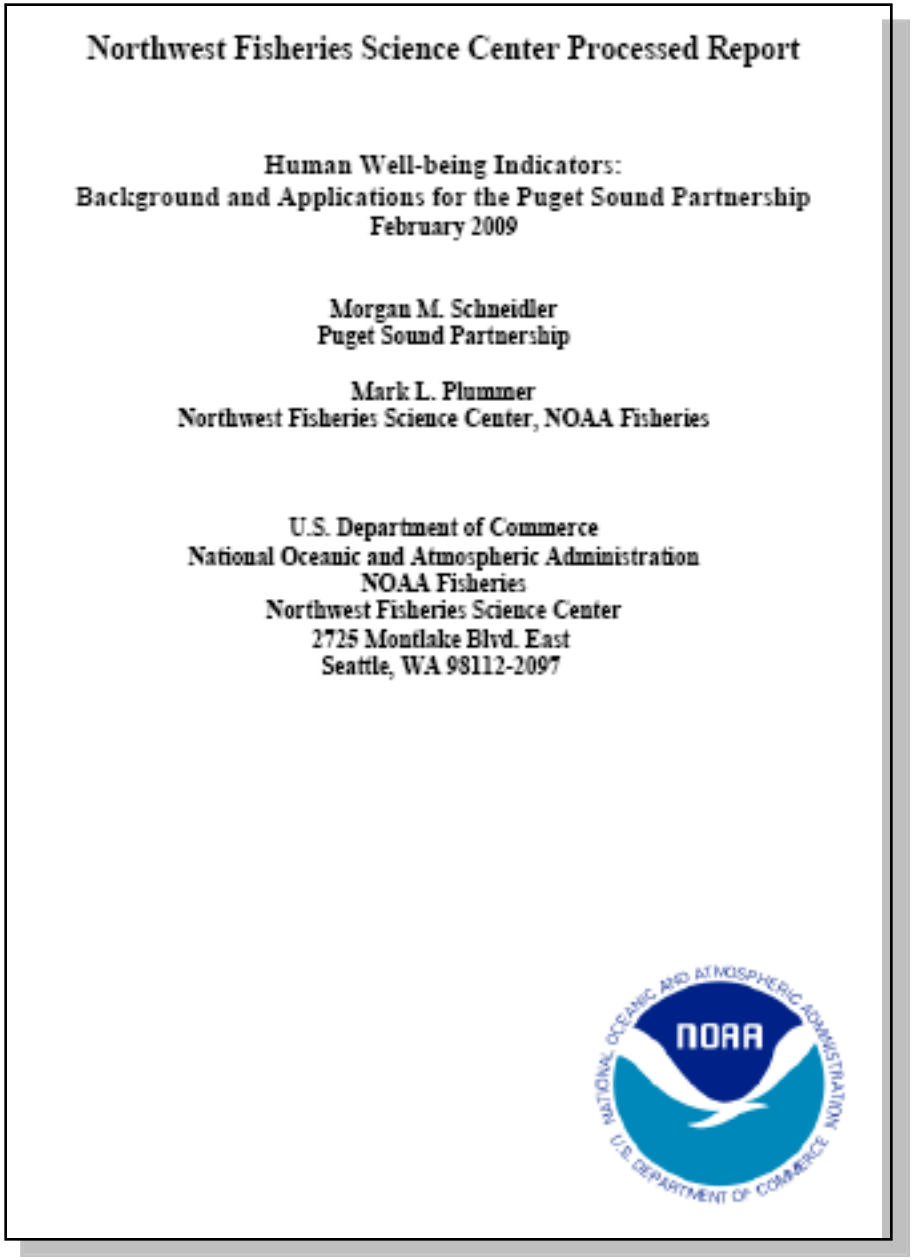
M. Cox et al. Relationships between Perceived Coastal Waterway Condition and Social Aspects of Quality of Life *Ecology & Society* 11(1): 2006.

Galveston Seawall Today, as Social Space

Quality of Life (aka Human Well Being), Defined

"An individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals expectations, standards and concerns. It is a broad concept affected in a complex way by a person's health, psychological state, personal beliefs, social relationships *and their relationship to salient features of their environment*."

-World Health Org. 1999



Northwest Fisheries Science Center Processed Report

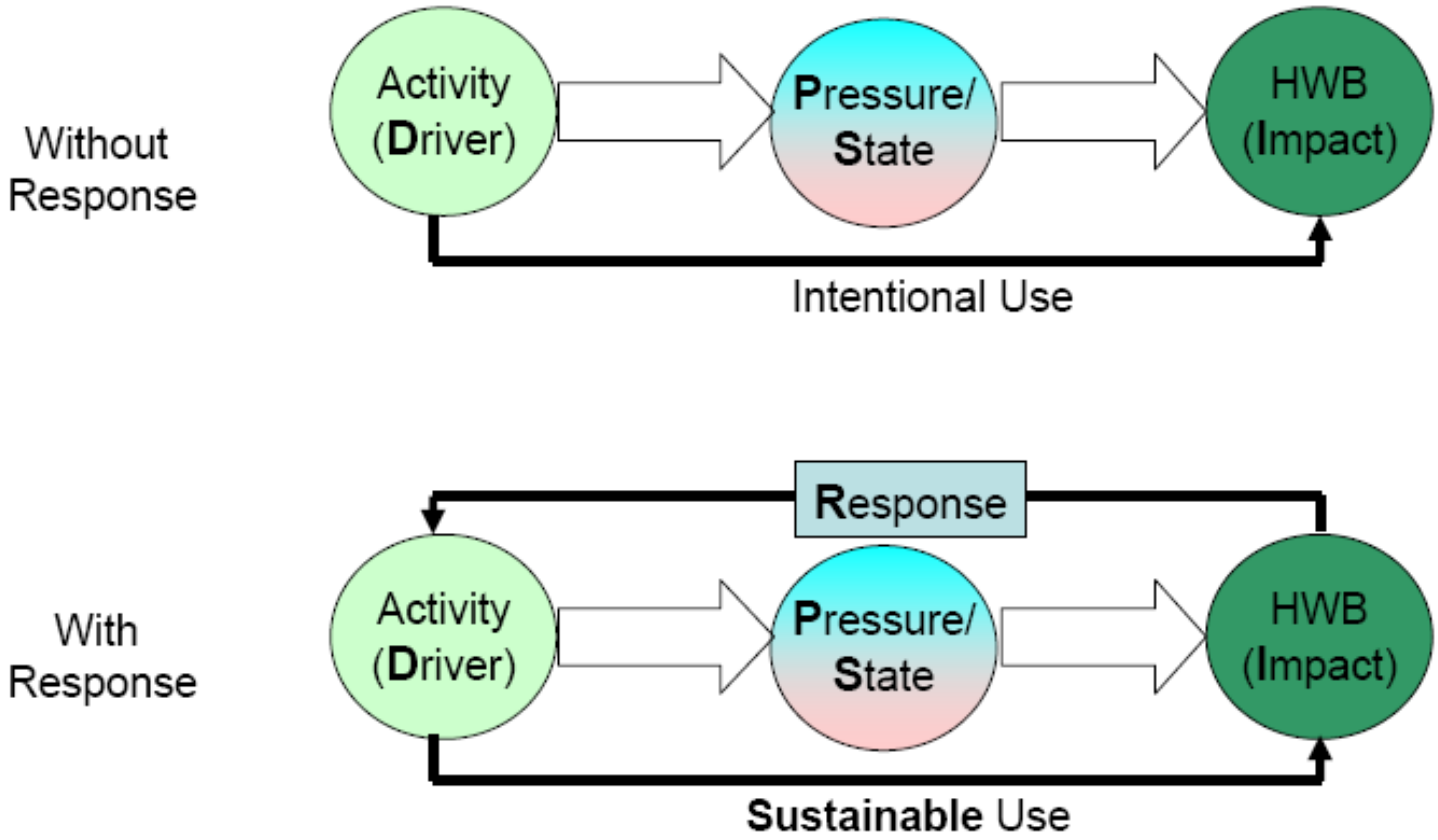
Human Well-being Indicators:
Background and Applications for the Puget Sound Partnership
February 2009

Morgan M. Schneidler
Puget Sound Partnership

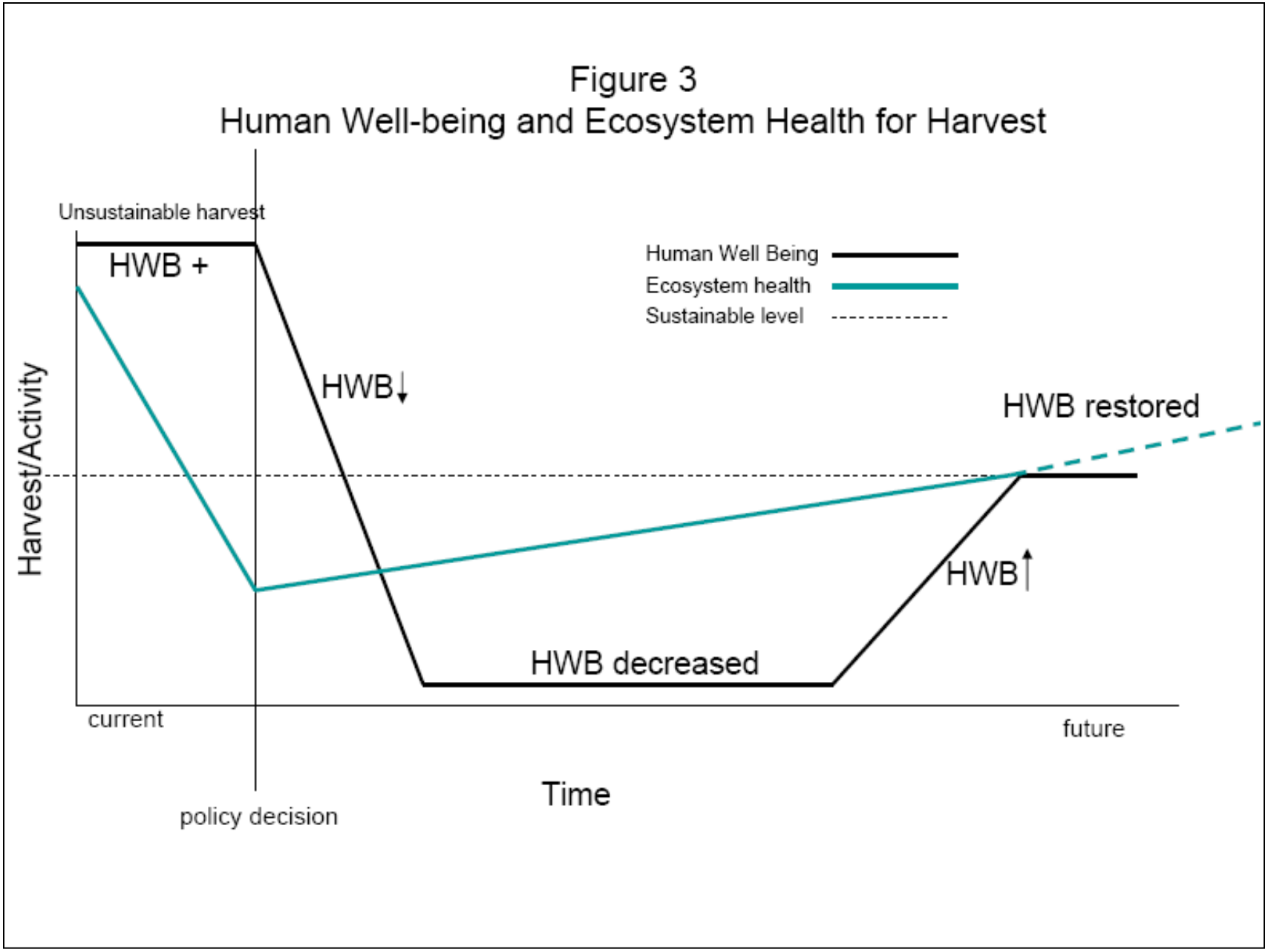
Mark L. Plummer
Northwest Fisheries Science Center, NOAA Fisheries

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
NOAA Fisheries
Northwest Fisheries Science Center
2725 Montlake Blvd. East
Seattle, WA 98112-2097

Figure 2
HWB & DPSIR: Sustainable Use Model



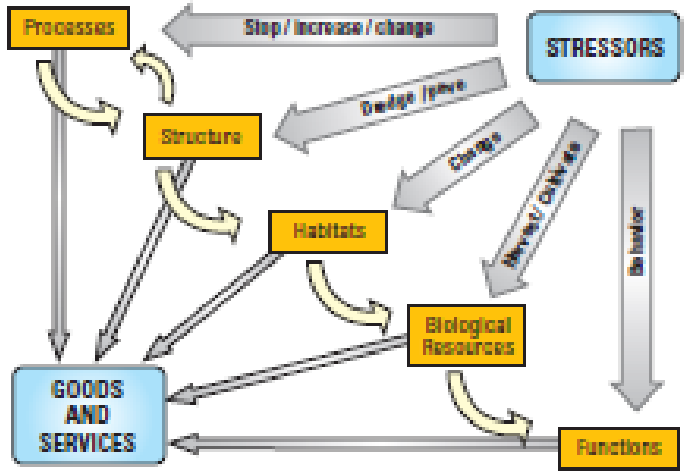
Source: Schneidler and Plummer, *HWB Indicators* (2009).



Source: Schneidler and Plummer, *HWB Indicators* (2009).

Framing Restoration Outcomes in Human-Focused Ways

- **PSNERP's Valued Ecosystem Components (VECs)**
  - Salmon
  - Forage fish
  - Native shellfish
  - Eelgrass and kelp
  - Coastal forests
  - Beaches and bluffs
  - Orcas
  - Marine and shore birds
  - Great Blue Herons

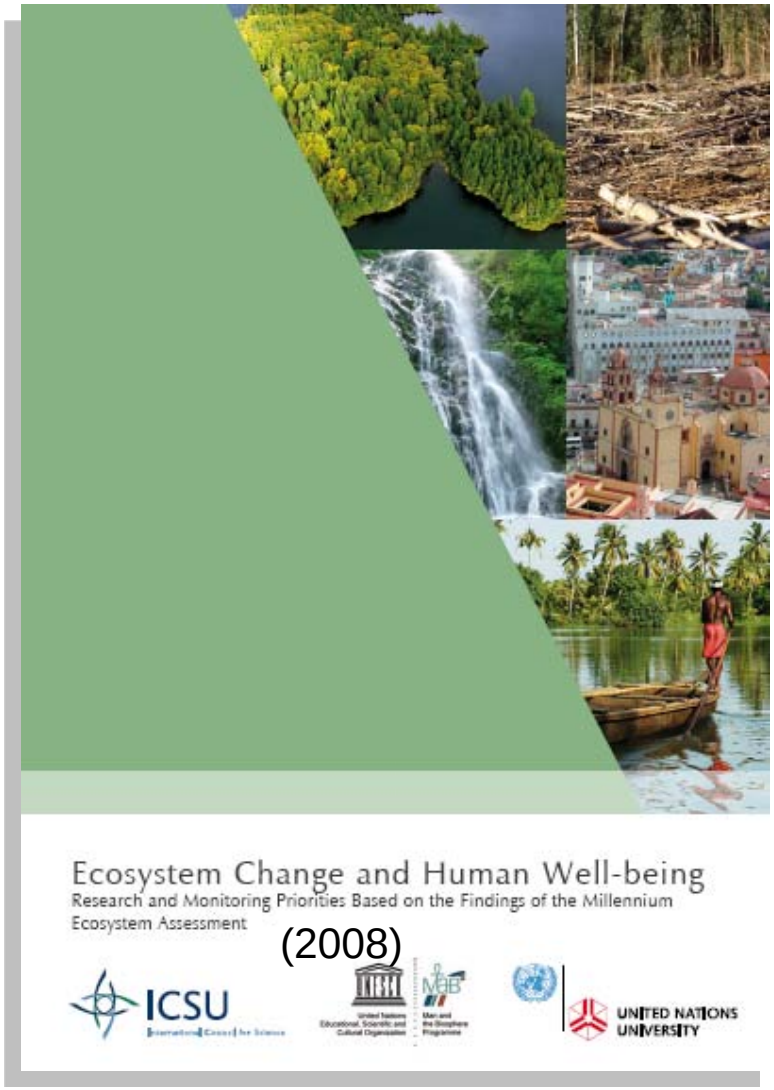


Conceptual model relating process, structure, habitat and resources to **ecosystem goods and services**

-CHIPS Research Plan 2006

➔Also the people's choice?

Ecosystem Services and Human Well Being



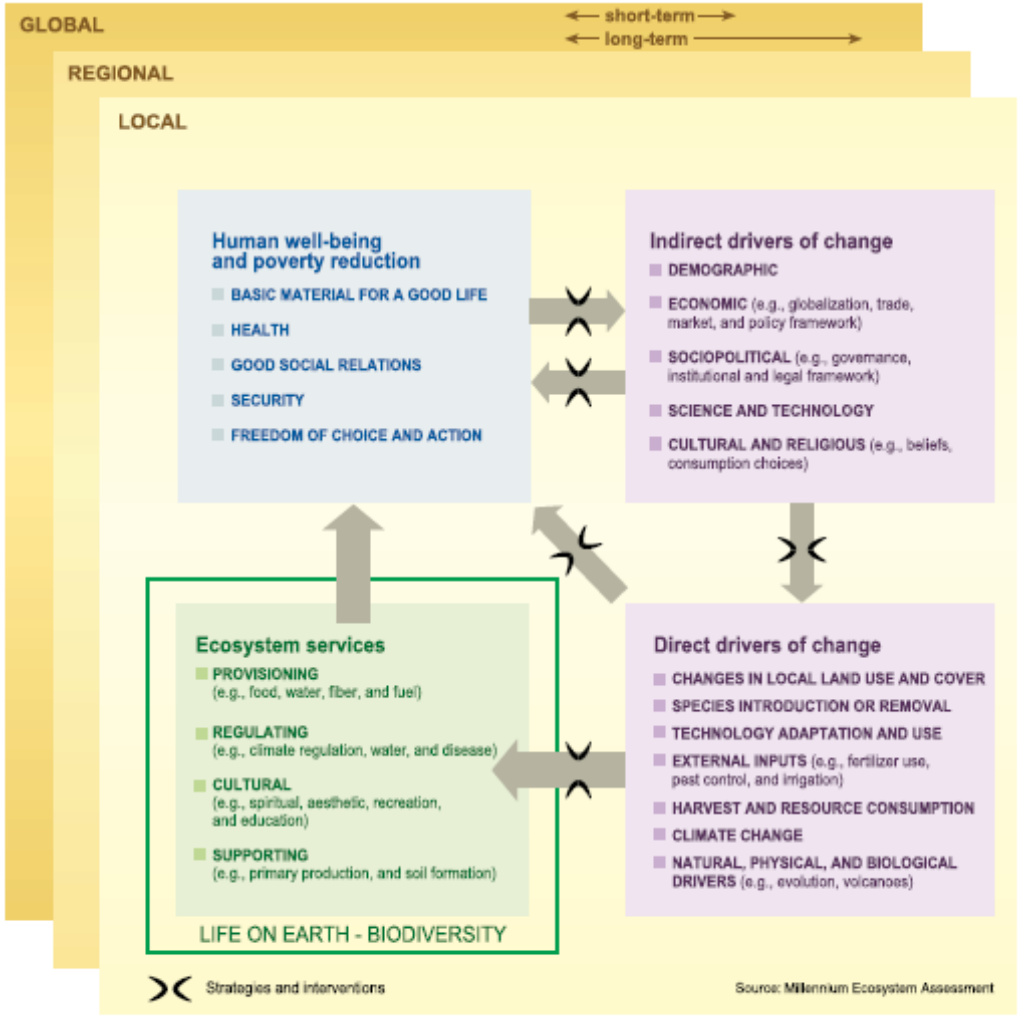
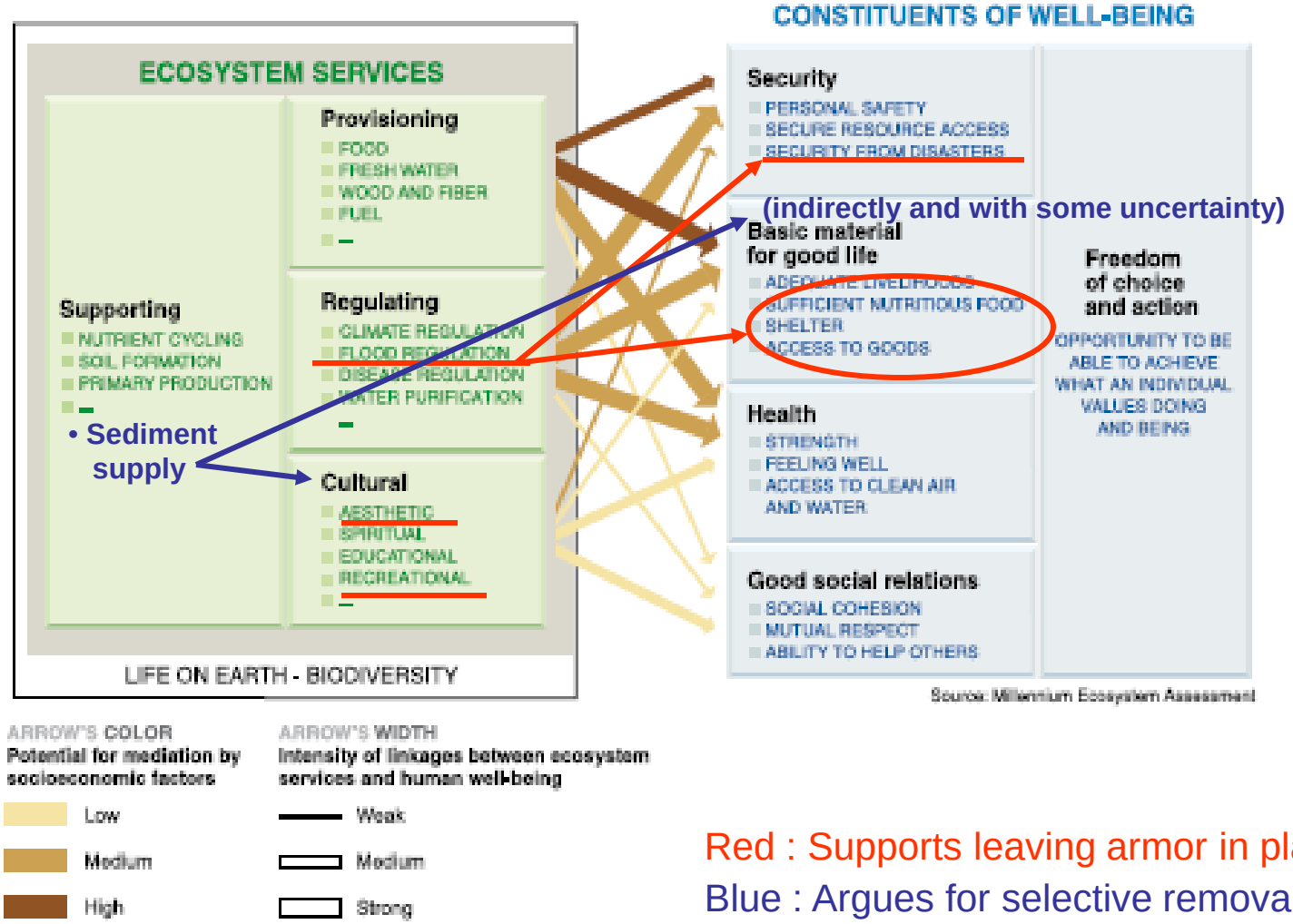


Figure 1. The conceptual framework of the Millennium Ecosystem Assessment (MA 2003).

Where does shoreline armoring fit from an ecosystem goods and services perspective?



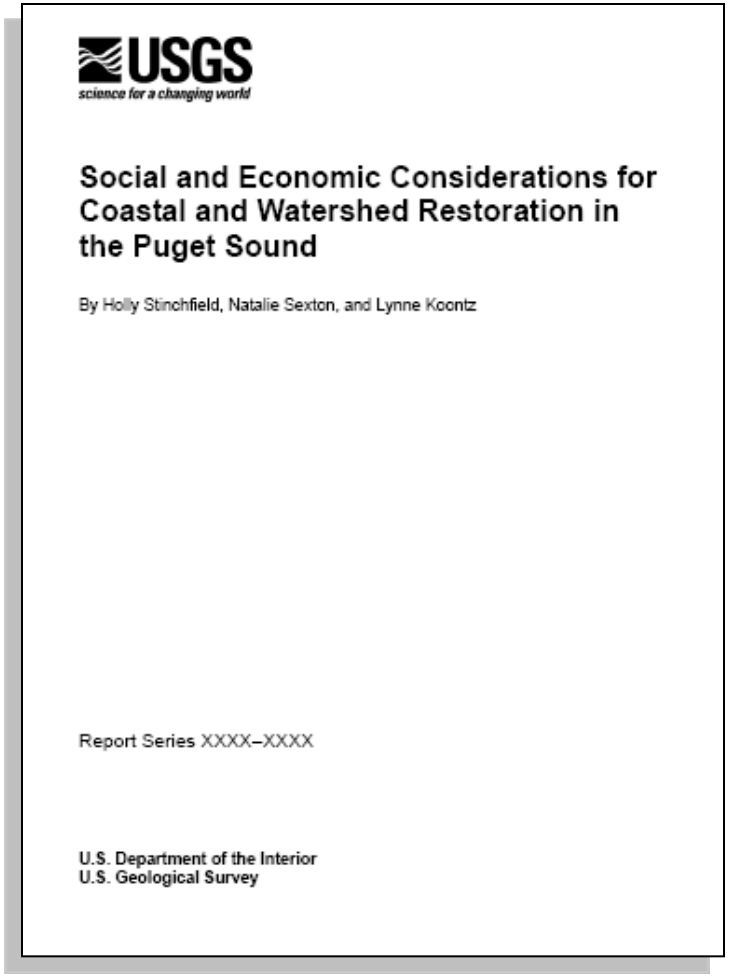
Red : Supports leaving armor in place

Blue : Argues for selective removal

Figure 2. The strength of linkages between ecosystem services and components of human well-being. (MA 2005)

Findings from previous research

- Restoration coupled to soc-econ & institutional factors and both can either impede or facilitate
- Urgency & knowledge both low
- People need compelling reasons to support & participate in restoration
- Welfare of future generations increasingly a compelling reason



USGS
science for a changing world

Social and Economic Considerations for Coastal and Watershed Restoration in the Puget Sound

By Holly Stinchfield, Natalie Sexton, and Lynne Koontz

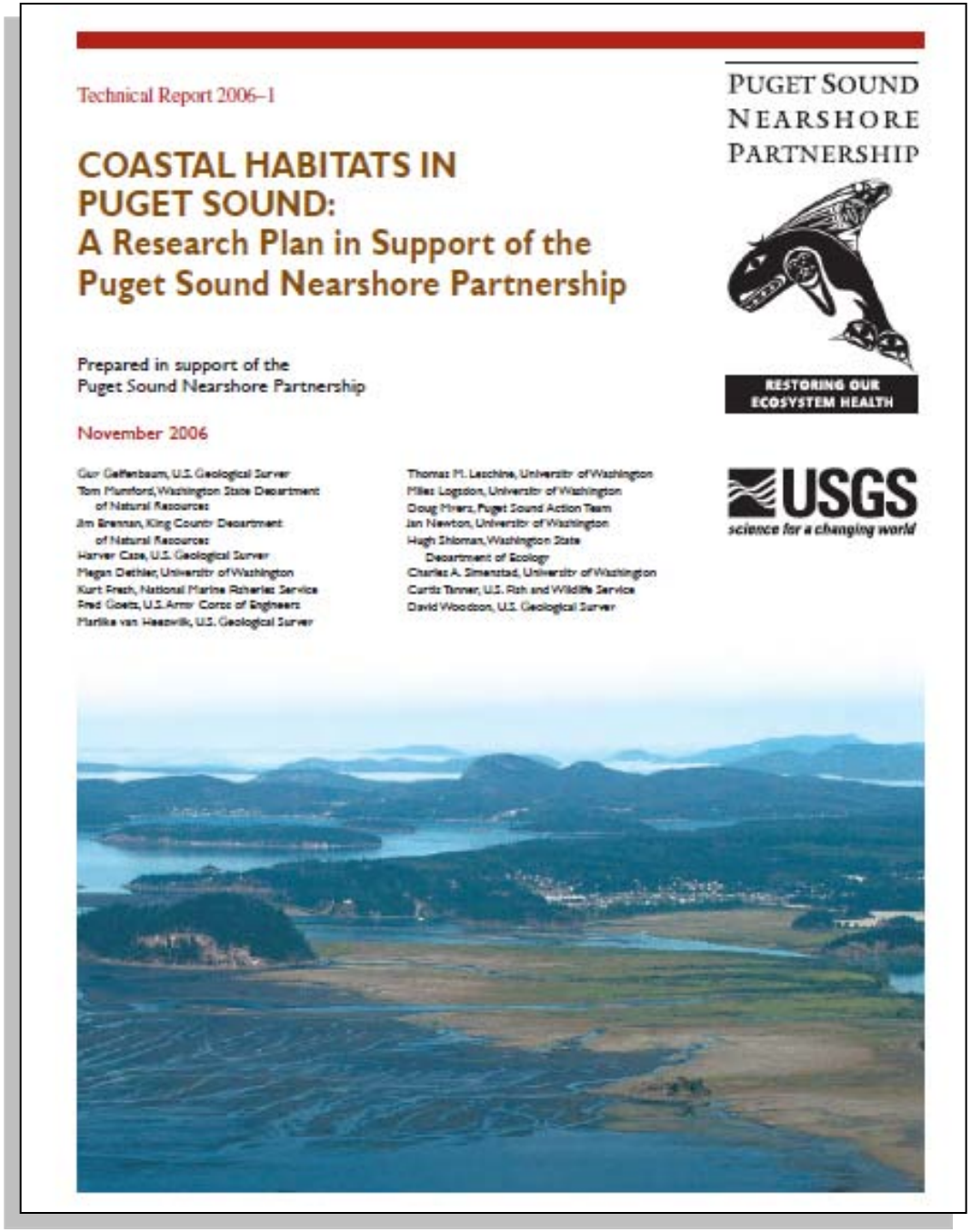
Report Series XXXX–XXXX

U.S. Department of the Interior
U.S. Geological Survey

Framing Research Strategies

Research Goal 4—

Understand the effects of social, cultural, and economic values on restoration and protection of nearshore ecosystems.



Technical Report 2006–1

PUGET SOUND NEARSHORE PARTNERSHIP

COASTAL HABITATS IN PUGET SOUND:
A Research Plan in Support of the Puget Sound Nearshore Partnership

RESTORING OUR ECOSYSTEM HEALTH

Prepared in support of the
Puget Sound Nearshore Partnership

November 2006

USGS
science for a changing world

Guy Gelfenbaum, U.S. Geological Survey
Tom Mumford, Washington State Department of Natural Resources
Jim Brennan, King County Department of Natural Resources
Harvey Cole, U.S. Geological Survey
Megan Dethier, University of Washington
Kurt Fresh, National Marine Fisheries Service
Fred Goetz, U.S. Army Corps of Engineers
Marilka van Heezwijk, U.S. Geological Survey
Thomas M. Leschine, University of Washington
Miles Logsdon, University of Washington
Doug Myers, Puget Sound Action Team
Jan Newton, University of Washington
Hugh Shipman, Washington State Department of Ecology
Charles A. Simenstad, University of Washington
Curtis Tanner, U.S. Fish and Wildlife Service
David Woodson, U.S. Geological Survey

CHIPS “Human Dimensions” Research Questions

- How nearshore ecosystem attributes *affect and/or are affected by*—
  - Governance, institutions and social-political processes
  - Human use patterns
  - Attitudes, perceptions and beliefs
  - Economic and demographic trends
  - Important geographic and stakeholder communities, including their roles in both use and conservation
- What science is needed to protect cultural heritage and resources of the nearshore ecosystem and how it can be provided

CHIPS HD Research Questions (cont'd.)

- What role the Puget Sound nearshore ecosystem plays in both historic and contemporary cultural heritage of Native American and non-Native American communities
- How to improve communication of scientific information regarding nearshore restoration, and ways that community attitudes, perceptions, and beliefs can shape and inform restoration science

Relationships between Perceived Coastal Waterway Condition and Social Aspects of Quality of Life

-M. Cox et al. *Ecology and Society* (2006).

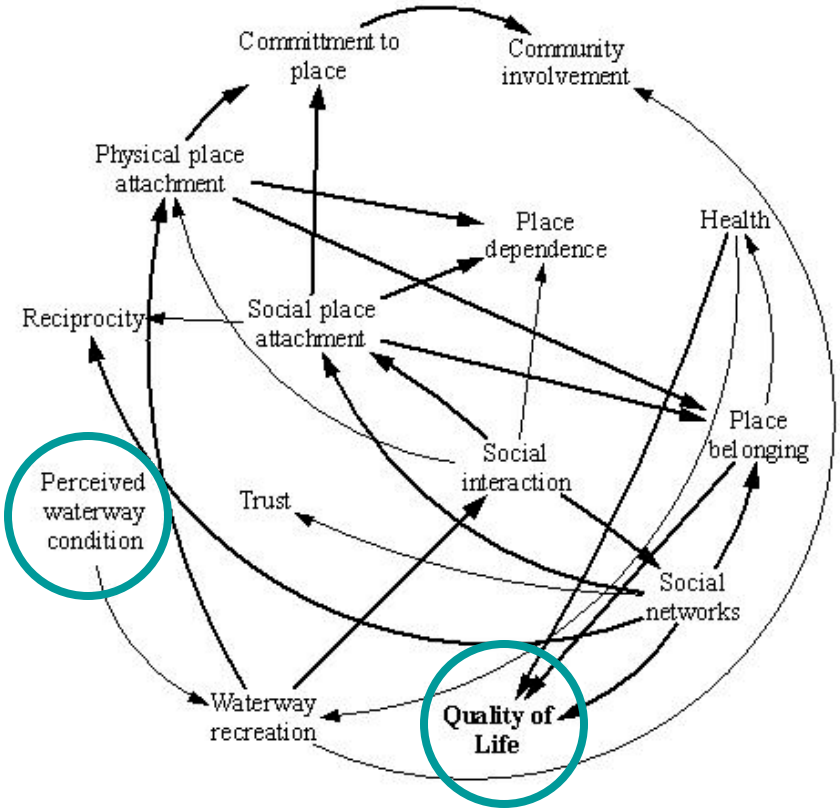
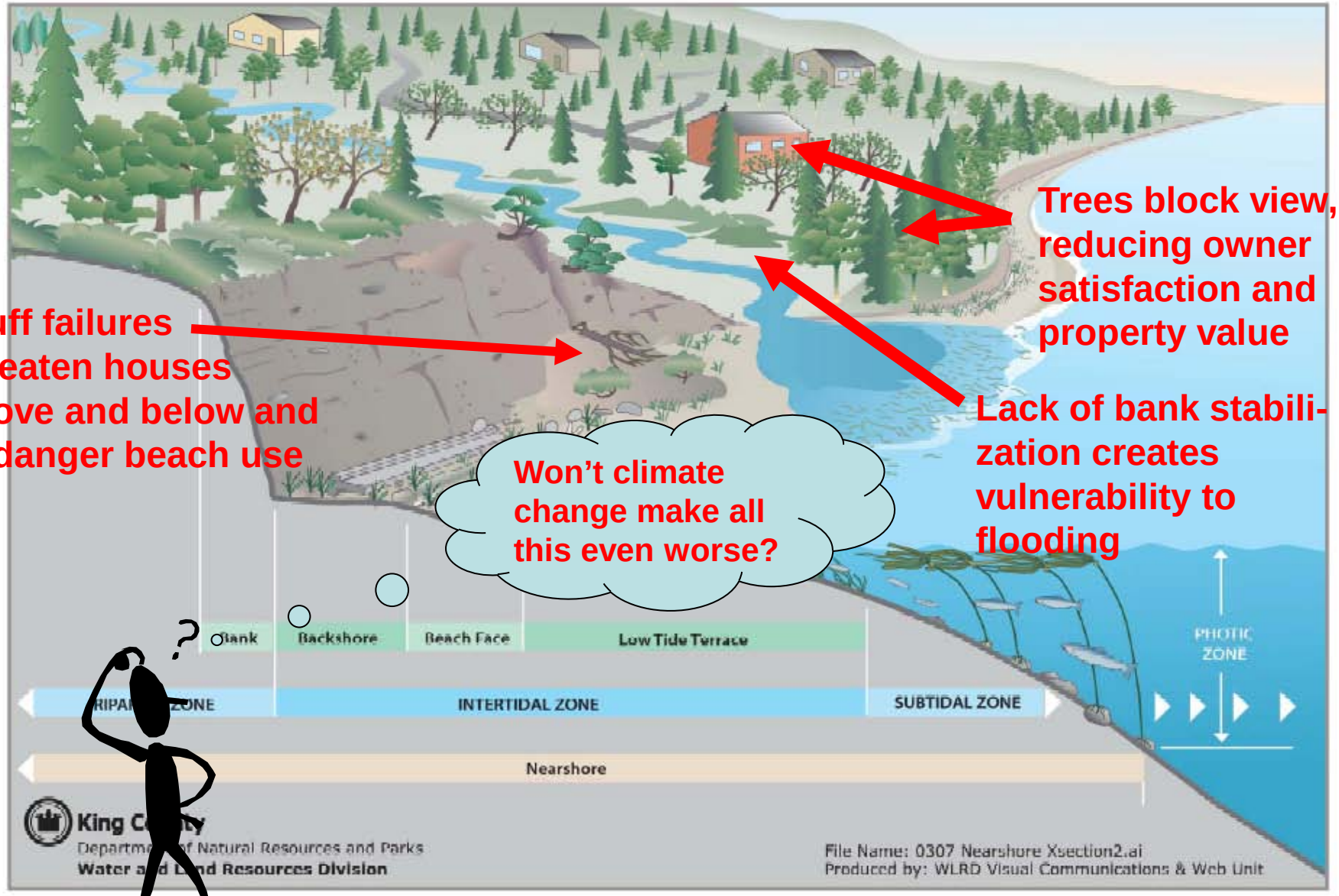


Figure. Significant paths between perceived waterway condition and quality of life in the Pumicestone region. Paths in **bold** are common to both study areas.

"There is a diverse literature linking the presence of natural areas with specific aspects of human well being. … However there have been as yet no attempts to directly link human well being with the "quality" of natural areas, and no attempts to assess the effects of the quality of natural areas on different aspects of well being within the same study."

What's wrong with this picture? (from possible societal perspectives)



A "conditional" restorationist contemplates a landscape that a "categorical" restorationist finds ideal (after Woolley & McGinnis 2000)

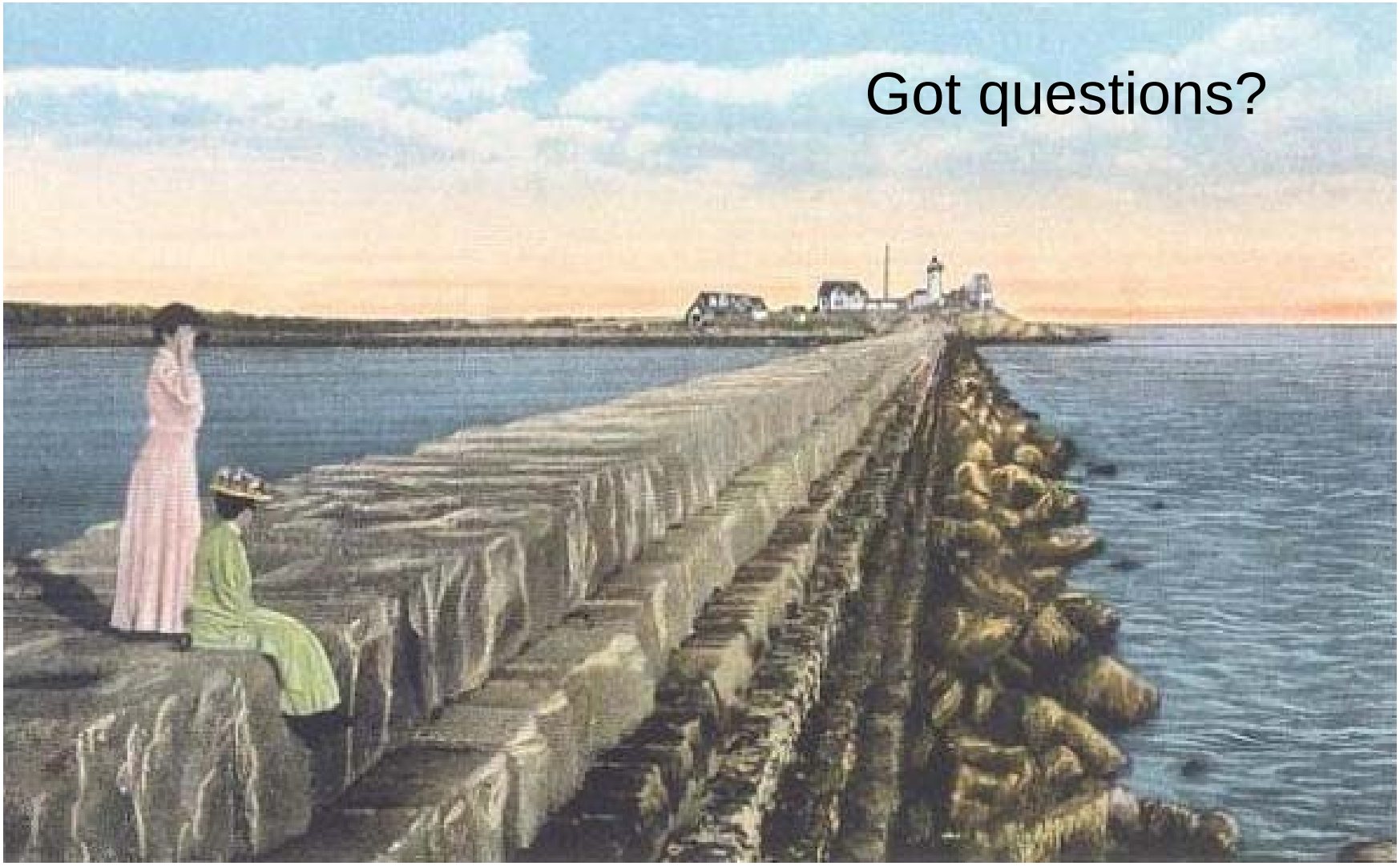
Suggesting a need for…

- Dialogue with Stakeholders
  - What does nearshore restoration mean to you?
  - What problems do you see in the nearshore environment and how could restoration address them in your view?
    - Today vs. in the lives of your children and grandchildren?
  - What roles do you see for yourself or members of your community in restoration?
  - What would be important to include or to assure did NOT occur as restoration proceeds?

-See R. Lipsky for more!

The look and feel of possible behavioral research addressing human use and seawalls

Or…


Got questions?