

Thank you for joining!

Please remember to mute your lines

Developing Human Wellbeing
Indicators for Hood Canal

Developing Human Wellbeing Indicators for Hood Canal

Kelly Biedenweg, PhD

Lead Social Scientist, Puget Sound Institute

Visiting Scientist, The USFS PNW Research Station



Puget Sound Partnership Vital Signs



What are Vital Signs?

- Indicators that help track progress in ecosystem
- Made up of things we care about and want to move needle on, across goals and ecosystem components
- Puget Sound wide (i.e., roll up to Puget Sound)
- Most of these indicators have ecosystem recovery targets for 2020

Different Types of Vital Signs

- Bio-physical (16)
- Human wellbeing (3)
- Pressure (3)
- Management response (9)
- Societal Response (1)



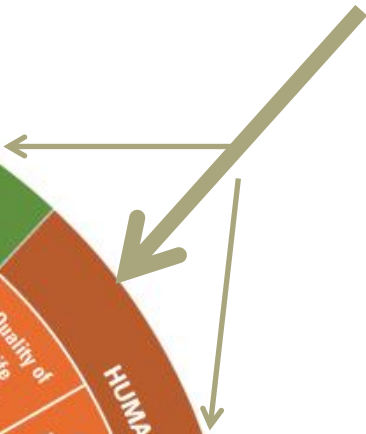
Over 30 scientists and a dozen organizations provide the data

1. Ken Balcomb, Center for Whale Research
2. Scott Berbells, Washington Department of Health
3. Bob Carey, The Nature Conservancy
4. Randy Carman, Washington Department of Fish and Wildlife
5. Paul Cereghino, National Oceanic and Atmospheric Administration
6. Christopher Clinton, Washington Department of Ecology
7. Pete Dowty, Washington Department of Natural Resources
8. Maggie Dutch, Washington Department of Ecology
9. Fred Felleman, NW consultant, Friends of the Earth
10. Leska Fore, Puget Sound Partnership
11. Stuart Glasoe, Washington Department of Health
12. Alana Knaster, Puget Sound Partnership
13. Ken Koch, Washington Department of Ecology
14. Christopher Konrad, U.S. Geological Survey
15. Christopher Krembs, Washington Department of Ecology
16. Adam Lindquist, Washington Department of Fish and Wildlife
17. Julie Lowe, Washington Department of Ecology
18. Dayv Lowry, Washington Department of Fish and Wildlife
19. Alex Mitchell, Puget Sound Partnership
20. Scott Pearson, Washington Department of Fish and Wildlife
21. Paul Pickett, Washington Department of Ecology
22. Kenneth B. Pierce Jr., Washington Department of Fish and Wildlife
23. Puget Sound Recovery Implementation Technical Team (RITT)
24. Mindy Roberts, Washington Department of Ecology
25. Mindy Rowse, National Oceanic and Atmospheric Administration
26. David St. John, Puget Sound Partnership
27. Hugh Shipman, Washington Department of Ecology
28. Fred Short, Washington Department of Natural Resources
29. Kurt Stick, Washington Department of Fish and Wildlife
30. Kari Stiles, Puget Sound Partnership
31. Markus Van Prause, Washington Department of Ecology
32. Dave Ward, Puget Sound Partnership
33. Jim West, Washington Department of Fish and Wildlife
34. Jo Wilhelm, King County

Puget Sound Ecosystem Monitoring Program Steering Committee



Puget Sound Partnership Vital Signs



What is the context for this?

Pressures or opportunities

Ecosystem Services

Can provide services that directly influence

Human Well Being



influence each other

Human Behavior

Examples:
Fishing
Advocacy
Seeking education

+/-
Positively and negatively influences

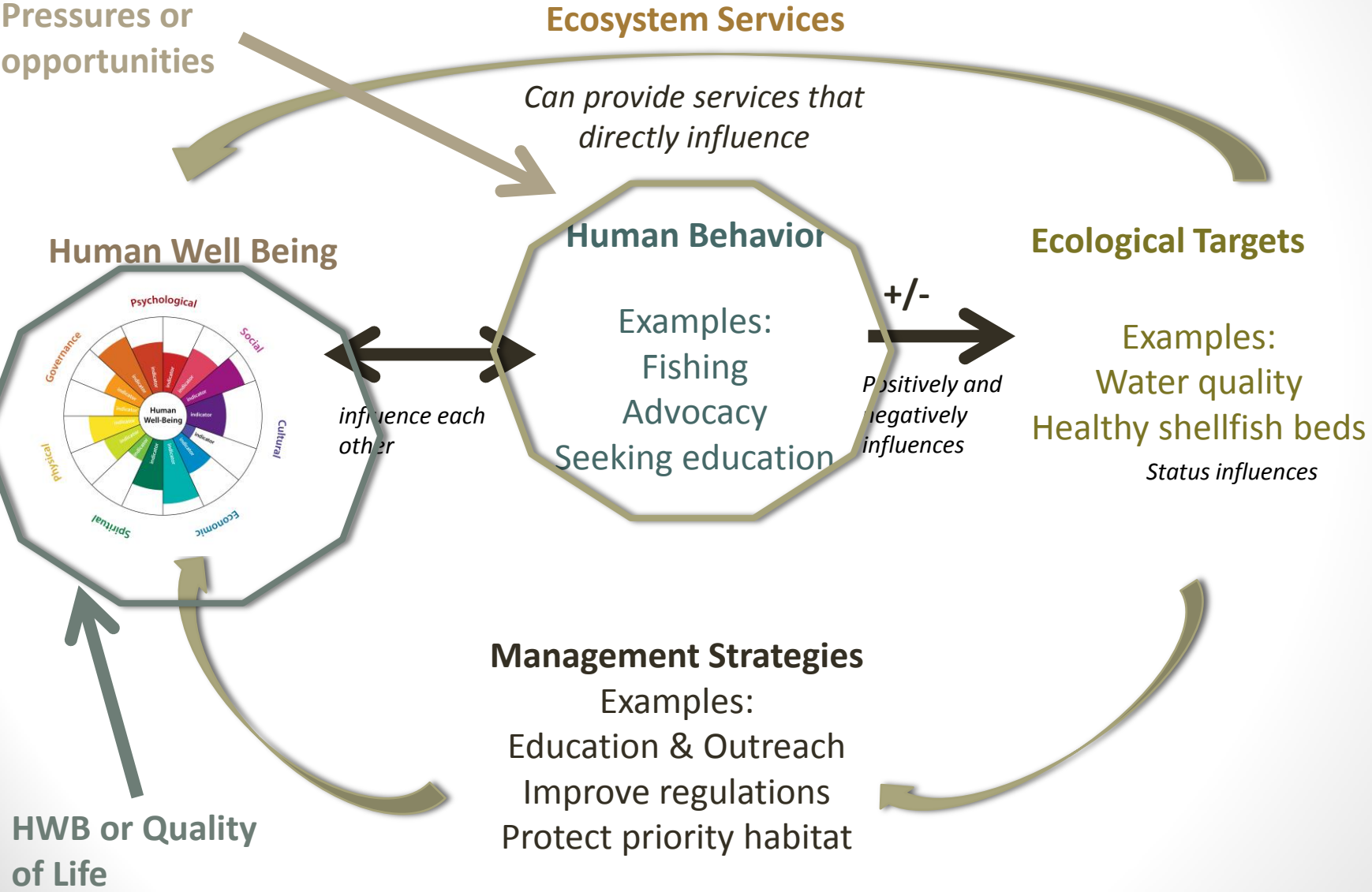
Ecological Targets

Examples:
Water quality
Healthy shellfish beds
Status influences

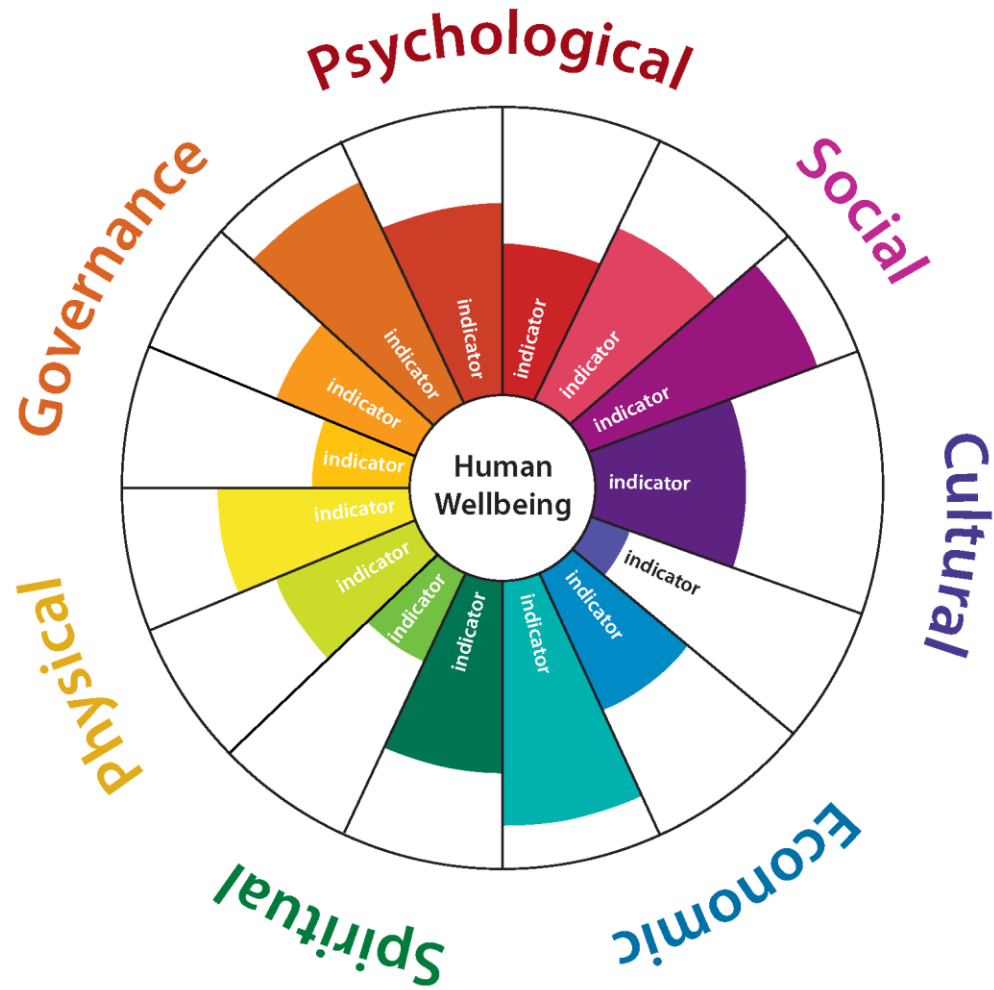
Management Strategies

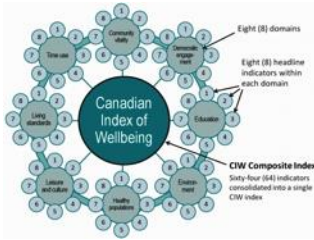
Examples:
Education & Outreach
Improve regulations
Protect priority habitat

HWB or Quality of Life



Defining Human Wellbeing Domains





Canadian Index of Wellbeing

Community Vitality

Democratic Engagement

Healthy Population

Leisure & Culture

Living Standards

Time Use

Education

Environment



Puget Sound Wellbeing

Social

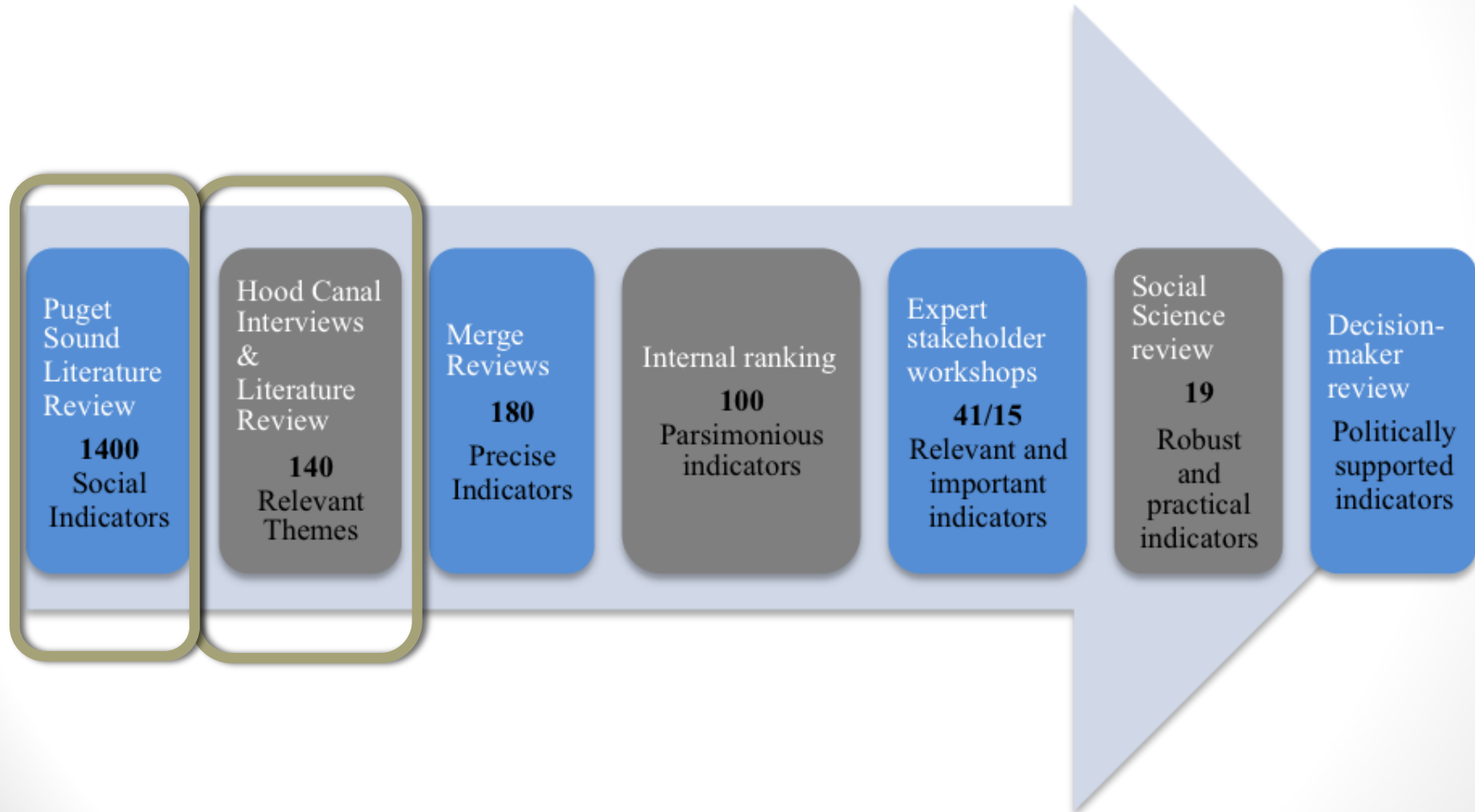
Governance

Physical & Psychological

Cultural

Economic

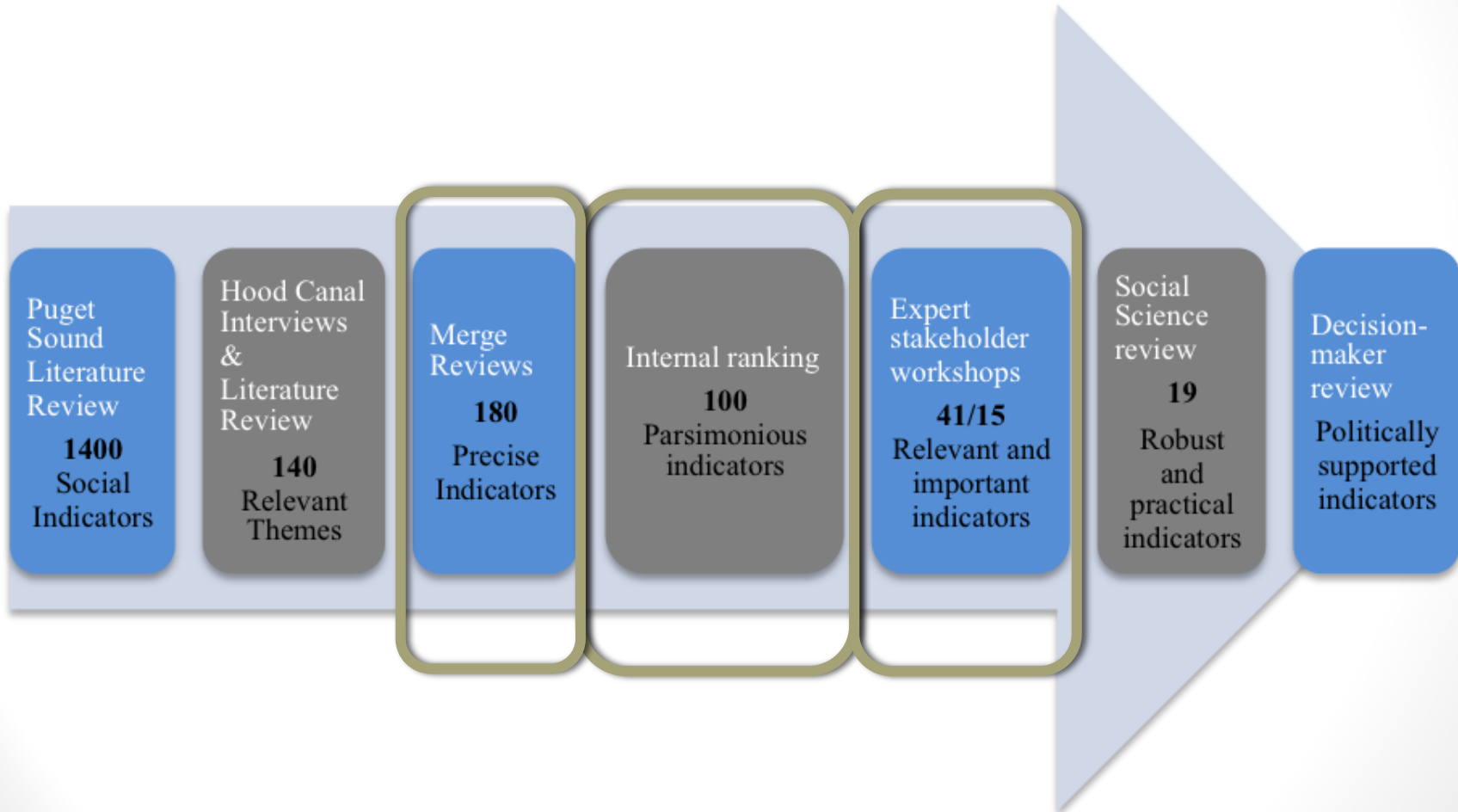
The Hood Canal HWB Indicator Development Process



Initial domains, attributes, and number of indicators from literature and interviews

Domain	Attribute	Number of Potential Indicators	Number of sources for Attribute*
Economic	Community-supportive job sector	5	5
	Agriculture	3	2
	Commercial fishing	1	2
	Shellfishing	3	6
	Timber	3	4
	Tourism	3	3
	Non-extractive/non-tourism	1	1
Governance	Access to natural resource extraction	1	2
	Access to recreational opportunities	4	3
	Communication	6	4
	Trust in government	2	2
	Social capital	3	1
	Stewardship	4	3
	Public participation	1	2
	Effectiveness of public policies	6	2
	Enforcement	0	1
Physical	Outdoor exercise	2	3
	Healthy diet	7	6
	Environmental health	1	2
	Recreation	8	6
	Shelter	3	2
Psychological	Identity	2	2
	Positive emotions	7	3
	Restoration/therapeutic	9	4
	Self-actualization	8	3
	Satisfaction	4	3
	Value formation	2	2
	Uniqueness	2	2
Social	Future and past generations	4	4
	Strong families	2	4
	Strong friendships	4	2
	Sense of community	5	2
	Pets	1	1
Spiritual/Cultural	Spiritual connection	5	4
	Cultural heritage	8	4
	Rural character	2	2

The Hood Canal HWB Indicator Process



4 Tables

- Cultural, Spiritual and Social
- Governance
- Economic
- Psychological and Physical Health



Step 1: Individual Rankings

How well does this indicator represent the main Hood Canal HWB issues? (*relevance*)



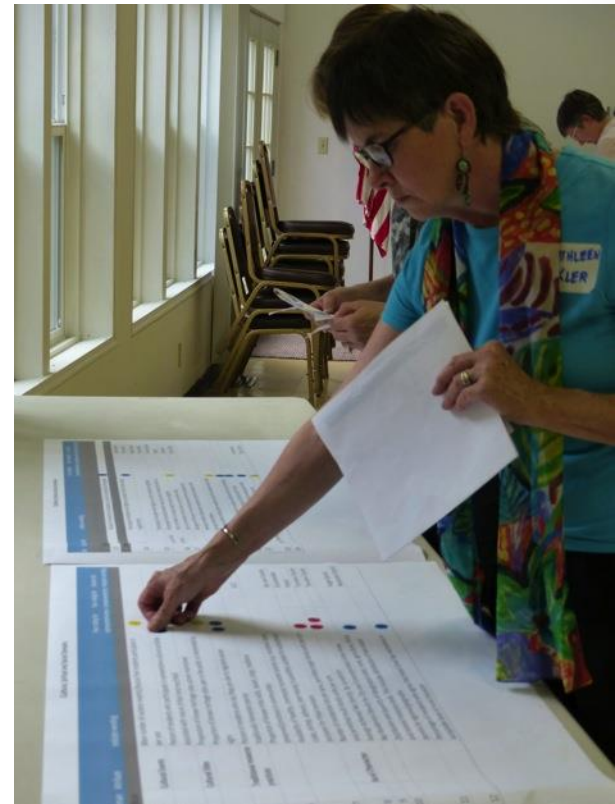
This is a great indicator



This might be a good indicator with refinement



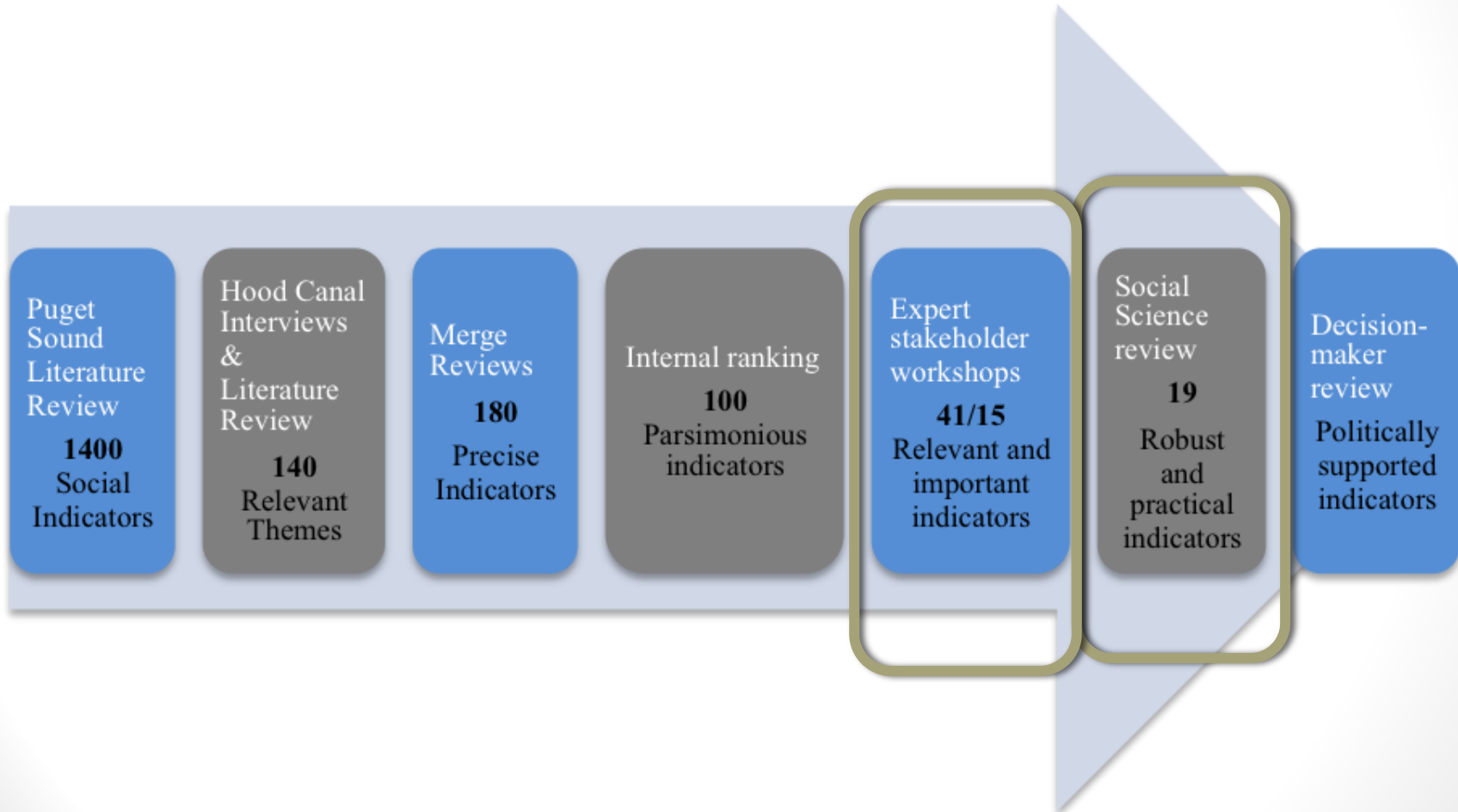
This is not in the top 5 indicators



Step 2: Narrow down to top 5-10



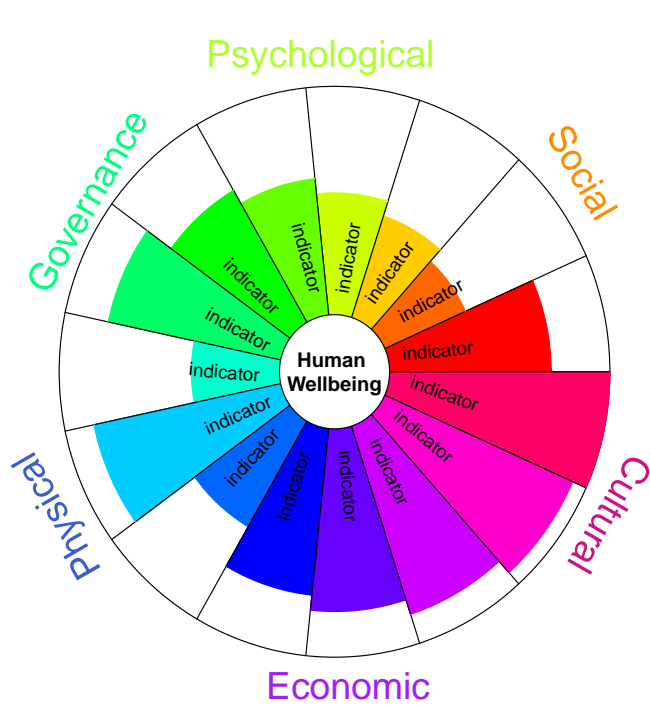
The Hood Canal HWB Indicator Process



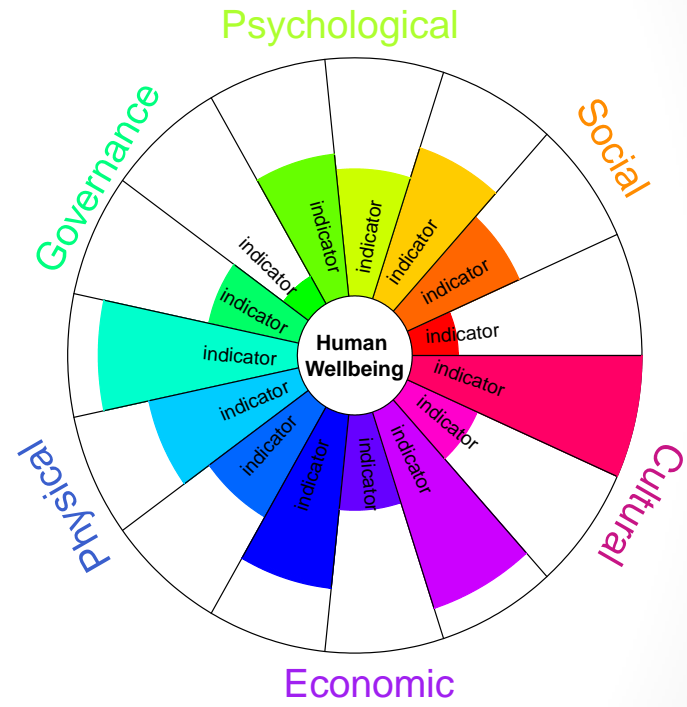
26 recommended indicators

Domain	Attribute	Indicator
Physical	Exercise	Approximate number of hours residents engage in outdoor activities (divided into work that involves outdoor physical activity, swimming, hiking, walking, running, mountain biking, human-powered watercraft, skiing, scuba, home care (garden, yard), & other motorcraft) per week
	Exercise	Percent of swimming beaches that meet safe swimming standards at all times during the summer
	Access to Local Food	Availability of commonly harvested species (e.g. hardshell clams, crabs, shrimp, salmon, deer, elk, mushrooms, rose hips, willow, cedar, other plants or animals)
	Safe Drinking Water	Drinking water testing results from Community Groups and wells
	Safe Food	Toxin levels in shellfish harvest areas, commercial and recreational: PSP, crypto, giardiasis, vibriosis, notovirus
	Air Quality	Number of days during the calendar year that air quality was good, moderate, unhealthful, very unhealthful, or hazardous (must include pollutants from smoke)
Psychological	Positive emotions	Percent of residents who describe experiencing positive feelings/emotions from being in nature in Hood Canal, such as awe, inspiration, fulfillment, appreciation, solitude, relaxation, sense of peace and reflection
	General subjective wellbeing	Percent of residents who express high life satisfaction or happiness and percent who express living in Hood Canal as a contributor to this
	Place Identity	Percent of residents who express a positive connection to the region
Governance	Access	Percent of shoreline that is publicly accessible or owned
	Access	Percent of residents who are satisfied with their access to public shorelines
	Communication	Percent of Hood Canal residents who have learned about resource management or recreation issues through different media this year: newspaper, radio, website, printed media, app, educational resources for school aged children, word of mouth; include source
	Trust in government	Number of Hood Canal residents who report trust in experts and local and state government and collaborative government efforts
	Effectiveness of Public Policies	Percent of identified PIC failures with corrective action initiated within 2 weeks
	Stewardship	Percent of participants engaging in a natural resource stewardship activity/year
Cultural	Cultural Events	Percent of residents who participate in natural-resource inspired cultural activities
	Traditional resource practices	Proportion of residents who say that they would like to regularly access traditionally/commonly harvested natural resources and are able to do so as much as needed
	Rural Character	Distribution and quantity of urban, rural, agriculture, forest, mineral resource, conservation and stewardship lands.
Social	Trust	Percentage of residents who trust people in their surrounding community
	Strong Families and Friendships	Average number of days/year participate in outdoor activities with family members and/or friends
	Strong Communities	Percent of residents who have worked with other residents to manage resources, prepare cultural events, solve community challenges, or share harvested goods in the past year
Economic	Jobs	Number of jobs and living wages per worker by resource-based employment/industry categories and economic clusters by county, and unemployment rates at subarea level matching state database
	Jobs	Number of new jobs created by natural resource employment sector/year
	Industry	Percent of economic activity that is from natural resource-based small business
	Industry	Percent of revenue to local economy from agriculture, commercial shellfish, commercial fishing, timber, non-timber products and tourism
	Industry	Number of local supporting businesses to industry, by natural resource sector

If we monitor these....



Year 1



Year 2

Thank you!

- NSF grant #1215886
- Research team from UW, Puget Sound Institute and Puget Sound Partnership
- Hood Canal Coordinating Council staff
- Hood Canal residents

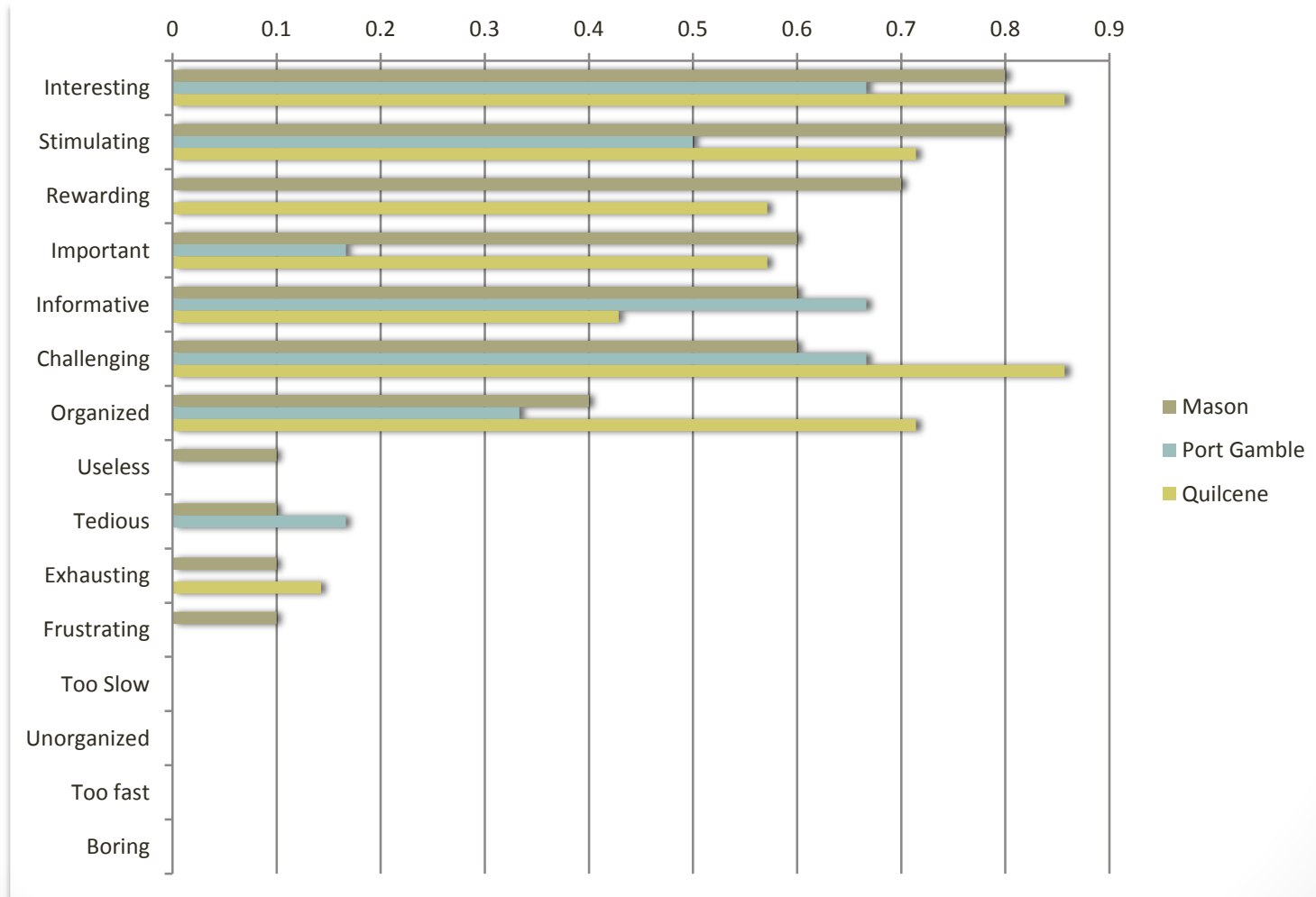
For more information:

Kelly Biedenweg

kbied@uw.edu



Workshop Evaluations I



Workshop Evaluations II

	Belfair	Port Gamble	Quilcene	Total Average
Importance of workshop	8.68	8.00	8.50	8.39
Ease of completing activities	6.09	6.58	7.43	6.7
Ability of activities to help refine indicators	7.40	7.58	8.57	7.85
Quality of background Information	5.36	6.67	7.17	6.4
How well the workshop met expectations	8.00	7.80	8.67	8.16