

Well-Being Indicators in the Puget Sound Basin

A summary and categorization of types of social indicators and metrics used by government and non-government agencies in the Puget Sound Basin

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Summary

The Puget Sound Institute, in collaboration with the Hood Canal Coordinating Council, is exploring methods and metrics to incorporate social data into their Integrated Watershed Management Plan. As a first step to this endeavor, we sought to define the types of indicators currently in use by compiling data from existing efforts across several fields of practice. This report summarizes the intentions to measure social indicators associated with human well-being and governance within government and non-governmental organizations in the Puget Sound. The first layer of data collection looked specifically at the intention to measure social indicators. Further coding categorized the identified indicators into Domains (community, health, economic), Components for each domain, Attributes, and Identified Metrics (Indicators). The last two categories did not always exist for each identified component. This report is accompanied by excel spreadsheets providing the raw data and coded data for each metric. We hope that this data will be useful when brainstorming potential social indicators for management plans, identifying sources for data, and promoting opportunities for collaboration across social sectors in the Puget Sound Basin.

Data Sources

Snowball sampling was used over a seven-week period to establish a comprehensive list of social indicators used in the Puget Sound Region. Data were collected from twelve counties, seven cities, seven marine resource committees, two tribes and thirteen organizations/agencies through published documents and reports. Counties and tribes were chosen according to the Puget Sound Partnership list of Puget Sound Counties and Tribes (PSP n.d.). Skokomish Tribal Nation and Port Gamble S'Klallam Tribe were chosen from the fifteen listed Puget Sound tribes because of their involvement with the Hood Canal Coordinating Council (PSP n.d.; HCCC n.d.). Other tribes were not contacted due to the limited research period. Cities were preselected based on population size (Seattle, Tacoma, Olympia and Everett), as well as on recommendations from key informants based on their work on sustainability projects. Smaller cities, such as Mountlake Terrace and Shoreline, were also included in order to increase diversity of the sample size.

Data sources included management plans, agency websites, and other white papers. We began data collection with initial documents from the Puget Sound Partnership, Puget Sound Institute, and Hood Canal Coordinating Council. Subsequent documents and websites were selected based on citations within these original documents. On each website, we searched for documents from agency departments such as public health, natural resources, cultural resources, parks and recreation, planning and development, commissions, public works and historic preservation. In each department we searched for documents such as management plans, comprehensive plans or components of comprehensive plans, trends report, or monitoring plans/reports as well as any data reports. We read through each document looking for terms such as indicators, measures, goals, key attributes, and components. Data from documents with those terms were recorded in an excel spreadsheet. If data sources were provided in the document, they were also recorded in the excel spreadsheet as well as any other notes or comments the authors had made. Once all the documents were reviewed, we used the websites' search function for the following terms: sustainability, sustainability indicators, environmental indicators, quality of life, health trends, environmental health indicators, quality of life indicators, as well as for specific reports with indicators mentioned in previous documents. Not all management and monitoring plans were chosen to be reviewed based on previous experience searching and reading through management

plans that demonstrated little human component (e.g. salmon recovery plans). Data collection ended once all counties and specific cities had been analyzed as well as when indicators, attributes and components became repetitive.

We compiled data into an excel spreadsheet using terminology from the Open Standards for the Practice of Conservation and the Puget Sound Partnership (CMP 2007). Data was sorted into domain, component, attribute and indicator columns. The excel spreadsheet contains exact replicates of the wording used in the documents on how they described and defined the attributes, indicators or measures as well as the data source used, if applicable. We excluded indicators about the natural environment, performance measures that did not measure sustainability, or when no relation between the natural environment and the social environment could be found.

The Puget Sound Partnership defines domain as “distinct ecological areas that contain unique qualities or traits; terrestrial, freshwater, marine, interface/ecotone” (Levin et al. 2011). We adapted this definition of domain as distinct human dimensions areas that contain unique qualities or traits. Domains that were found in documents included human health, human well-being, quality of life, built environment, physical environment, personal environment, climate protection, resource conservation, and others. The rest of the data were sorted using Open Standards terminology: components, key attributes and indicators.

Open Standards defines “human wellbeing targets [that] focus on those components of human wellbeing affected by the status of conservation”. Targets “should collectively represent the array of human wellbeing needs dependent on the conservation targets”. Conservation targets “are specific species, ecosystems or ecological processes chosen to represent the overall biodiversity of a site or the focus of a thematic program”. Open Standards focuses only on human wellbeing targets that are impacted from the status of conservation. For this data set, we also included components (or targets) that may be conflicting with conservation such as land use, resource consumption and working resource areas and industries such as fishing and agriculture.

Key human wellbeing attributes are defined as “aspects of a target that if present, define a healthy target and if missing or altered, would lead to the outright loss or extreme degradation of the target over time. Key attributes of human wellbeing can be quite broad and include aspects that fall well outside the domain of conservation” (CMP 2007).

An indicator is defined as:

“A measurable entity related to a specific information need such as the status of a target/factor, change in a threat, or progress toward an objective. A good indicator meets the criteria of being: *measurable, precise, consistent, and sensitive*.

1. Measurable – Able to be recorded and analyzed in quantitative and qualitative terms
2. Precise – Defined the same way by all people
3. Consistent – Not changing over time so that it always measures the same thing
4. Sensitive – Changes proportionately in response to the actual changes in the condition being measured” (CMP 2007).

Data Coding

Documents were sorted into four different sector types: health, natural resources, sustainability, and planning and economic development. Natural resource documents were those that were provided from either a natural resource department or agency. Documents were considered as health documents if they were gathered from Public Health departments or had a primary focus of components, attributes and indicators on human health. Planning and economic development documents were any document that referred to economics, growth, or planning. Documents that focused on sustainability measures or indices were labeled as economic development and development if they were gathered from planning or economic development departments. Documents were sorted as sustainability if the primary objective of the document was to measure sustainability of a city or county and was not a direct effort from a county/city planning department.

Components and attributes were then coded in an iterative process between the two authors, looking for common themes. Prior definitions of categories from PSP, HCCC, and NOAA informed the categories finally selected (PSP 2009a; PSP 2009; HCCC 2011b). Appendix 1 provides a list of definitions for each component. Domains were necessary in order to group the components into a few main human dimensions categories: Community, Economic, and Human Health. For component definitions, see Appendix 2.

1. Community – This definition was expanded from HCCC’s current definition of the livable communities’ component. HCCC defines livable communities as:
“Human needs and prosperity require livable communities appropriate for the demographic, economic, and aesthetic values people expect in Hood Canal. Housing recognizes the rights/needs of property owners without significantly compromising other human and ecological priorities. Rural character is conserved through appropriate land use planning/practices, economic policies, and appropriate infrastructure” (HCCC 2011b).
This domain was broadened to encompass the unique aspects of society, surroundings and experience that shape communities, except for economic which is a separate domain. Community refers to the quality of an area as perceived by people such as residents, employees, or visitors. It includes safety, social interactions, opportunities for recreation, aesthetics, existence of cultural resources and infrastructure.
2. Economic –Economic indicators reflect how well the economy is doing and how well it will do in the future. Natural resources economics studies the problem of governing common-pool natural resources, of dynamically optimal rates of resource extraction, and of resource markets (Hackett 1998). Indicators encompassed in this domain provide information about the economy as well as opportunities to contribute back to the economy, such as human capital.
3. Human Health – This domain encompassed all aspects of human health that could be directly or indirectly impacted by the status of the Puget Sound. Indicators that related to health issues such as sexually transmitted diseases were excluded from the data set.

Findings

Approximately 300 documents were analyzed during the research period for key attributes and/or indicators resulting in a total of 67 documents. 52 of the documents (78%) contained measurable

indicators as defined by Open Standards while only 47% of the documents provided data sources (see Appendix 1). The majority of documents came from departments of planning and economic development and natural resource management agencies/departments, 37% and 42% respectively (see Table 1).

Table 1:

	Planning and Economic Development	Sustainability	Health	Natural Resource Management
Total	25	5	9	28
Percentage	37%	8%	13%	42%

Table 2:

Domain	Community	Economic	Health	Uncategorized
Count	661	494	239	7
Percentage	47%	35%	17%	1%

A total of 1401 key attributes and indicators were recorded from the 67 documents. Components and attributes fell primarily under the Community domain, followed by Economic and lastly grouped into the Health domain (Table 2). The two primary community components were built environment and transportation, each comprising 18% of the indicators. Working resource areas and industries comprised 48% of economic indicators and 44% of indicators fell into the environmental health component in health. Primary attributes for each component are listed below in Table 3. For a complete list of attributes for each component, refer to Appendix 3 tables A1, A2 and A3. For a complete list of indicators, see separate excel document “Social Indicators Data”

Percentage breakdown of each component, separated by each domain:

Community Components (661 Total Indicators):

- Built Environment 18%
- Transportation 18%
- Resource Consumption 13%
- Nature Based Recreation 12%
- Social Capital 11%
- Stewardship 11%
- Cultural 7%
- Demographics 3%
- Effective Government 5%
- Miscellaneous – 2%

Economic Components (494 Total Indicators):

- Working Resource Areas and Industries 48%
- Income Security/Financial 23%
- Housing 13%
- Human Capital 8%

- Development 5%
- Consumption/Retail 3%
- Miscellaneous – 1%

Health Components (239 Total Indicators):

- Environmental Health – 44%
- Health Condition/Problems – 15%
- Health Behavior – 14%
- Nutrition – 14%
- Health Care – 11%
- Mental Health – 2%

Table 3: Primary attribute of each component, separated by domain.

Community Domain:

Component	Primary Attribute	Percentage of component indicators
Built Environment	Land Use	22%
Cultural	Arts and Cultural Organizations	43%
Demographics	Population	100%
Effective Government	Democratic Engagement/Participation	20%
	Recreation Fiscal Sustainability	20%
Nature Based Recreation	Recreation Activity and Use	42%
Resource Consumption	Energy Consumption	37%
Social Capital	Community Involvement	36%
Stewardship	Lands Preserved, protected, conserved or restored	25%
Transportation	Transportation Mode	21%

Economic Domain:

Component	Primary Attribute	Percentage of component indicators
Development	Business Establishments	61%
Income Security/Financial	Employment	40%
Housing	Housing Affordability	65%
Human Capital	Education Level	24%
Working Resource Areas and Industries	Agriculture	36%

Health Domain:

Component	Primary Attribute	Percentage of component indicators
Environmental Health	Water Quality and Quantity	60%
Health Behavior	Physical Activity	56%

Health Care	Access to Health Care	78%
Health Condition/Problems	Obesity and Overweight	22%
Mental Health	Stress	50%
Nutrition	Access to fresh and health foods	35%
	Fish and Shellfish Safety	35%

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Appendix 1: Document Summary by Institution

Agency/County/City	Document Total	With Measurable Indicators	With Data Sources
Clallam County	1	0	0
Island County	1	0	0
Jefferson County	0	0	0
King County	3	3	2
Kitsap County	1	0	0
Mason County	3	2	1
Pierce County	5	4	3
San Juan County	2	2	2
Skagit County	1	1	0
Snohomish County	1	1	0
Thurston County	3	3	3
Whatcom County	0	0	0
Edmonds	1	1	0
Everett	0	0	0
Mountlake Terrace	1	1	1
Olympia	2	1	1
Seattle	2	0	1
Shoreline	2	2	0
Tacoma	2	2	1
Clallam MRC	0	0	0
Island County MRC	0	0	0
Jefferson County MRC	0	0	0
North Pacific MRC	0	0	0
San Juan MRC	1	0	0
Skagit MRC	0	0	0
Snohomish MRC	0	0	0
Port Gamble S'Klallam Tribe	0	0	0
Skokomish Tribal Nation	0	0	0
Communities Count	1	1	1
County Health Rankings	1	1	1
ECONorthwest - prepared for Skagit County	1	1	1
HCCC	5	3	1
NOAA	3	3	2
PSP	10	7	4
Puget Sound Regional Council	3	3	3
San Juan County Land Bank	3	3	0
Sightline Cascadia Scorecard for the Pacific Northwest	1	1	0

Sustainable Seattle	2	2	2
Sustainable South Sound	1	1	1
Thurston Regional Planning Council + Puget Sound Action Team	1	1	1
Washington State	3	2	1
Total	67	52	33
Percentage		78%	49%

Appendix 2: Definitions of Components

Community Components Definitions (661 Total Indicators)

1. Built environment: This component contains the spaces and resources needed for people to live, play and work. This component includes but not limited to urban parks and spaces, community gardens, access to services, land use and land cover. Aesthetics and sense of place are also included under the built environment to also express how residents feel about the built environment.
2. Transportation: After sorting the collected indicators, we noticed there were a lot of attributes associated with transportation and felt it was necessary to create it as its own component. Transportation encompasses the movement of people and good throughout the region as well as the infrastructure necessary.
3. Resource Consumption: This component includes consumption rates, costs and infrastructure of various resources including water, energy as well as how used materials are discarded and/or recycled. This component is essential in order to monitor trends of consumption over time. The trends may not necessarily be a decrease over time nor show stewardship or sustainability of natural resource use.
4. Nature Based Recreation – This component only focuses on nature based recreational activities that are passive or active. Consumptive recreation activities such as fishing and shellfishing have been separated from non-consumptive recreation activities. Recreation requires public access to recreational sites and is included as part of this component (HCCC 2011).
5. Social capital “refers to the stock of ‘civic virtues’ and networks of civic engagement, involvement, reciprocity norms, trust, volunteerism, and sharing essential to democratic communities... Social capital is sometimes measured through participation rates in voluntary service groups such as PTA, unions, service clubs and town hall meetings” (Hackett 1998).
6. Stewardship – This component reflects the responsible use and protection of the natural environment through conservation and sustainable practices of communities, individuals and agencies/organizations.
7. Cultural – This component focuses on “the abundance and intrinsic value of cultural resources and practices within the region, including tribal sites, cultural traditions and areas of significance” (PSP 2009). The attributes represent cultural values of both tribal and non-tribal people.
8. Demographics are defined as the characteristics of a population. Many agencies and organizations monitored population growth alongside sustainability/development.
9. Effective government captures the efficiency of agencies and organizations. This component looks at the governing agency itself, but also its ability to get community participation in management processes.

Economic Components Definitions (494 Total Indicators):

- Working Resource Areas and Industries – This component combined PSP’s working resource lands and industry and working marine industry targets. This component reflects “the cultural and economic significance of Puget Sound’s working marine environments [and working resource lands]” (PSP 2009). Some attributes, but not all, that fell under this component were forestry, agriculture, and fisheries.

- Income Security/Financial – This component looks at the status of financial activity in an area through wages, employment, and unemployment, income and poverty.
- Housing – This component encompasses indicators that represent the economic and financial aspects of the housing market. Quality of housing services such as homeownership rates is also included under this component because of their direct relation to financial ability to own/rent a home. The quantitative aspect of housing, such as number of houses per 1,000 persons falls under the built environment component.
- Human capital refers to one of the five capitals of sustainable development. It is defined as “the knowledge, skills, and capabilities of people that can be deployed to create a flow of useful work for community and economy” (Hackett 1998).
- Development – This component looks at economic growth and economic development through GDP and business establishments.

Health Components Definitions (239 Total Indicators):

1. Environmental health addresses external environmental factors that have impacts on an individual’s health status such as air quality and water quality.
2. Health Condition/Problems are the state of fitness of an individual or population.
3. Health Behavior – This component incorporates any activity that is undertaken by an individual that may have a positive or negative impact on their health. Smoking, drugs and alcohol have negative impacts while physical activity has a positive impact.
4. Nutrition is defined as the intake of food in relation to the body’s dietary needs. Good nutrition requires an adequate, well balanced diet as well as access to safe and healthy food. This component encompasses safety of food, access to food and consumption.
5. Health care encompasses access, coverage and quality of services available for individual to maintain, restore or promote their health. .
6. Mental Health – According to the World Health Organization, mental health is the “state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community (WHO 2007).

Appendix 3: Attributes to Each Component

Table A1: Attributes to Each Community Component

Domain	Component	Attribute	Number of Indicators
Community	Built Environment	Access to Shops and Services	6
Total: 661		Aesthetics	12
		Community Gardens	3
		Density and Sprawl	11
		Infrastructure	3
		Land Cover	17
		Land Use	27
		Noise	1
		Perception	2
		Recreational Facilities	9
		Shoreline Armoring	4
		Space for Living and Working	2
		Urban Parks and Open Space	23
		Uncategorized	2
		Total	122
	Cultural	Arts and Cultural Organizations	19
		Cultural Traditions and Historical Sites	15
		Funding	1
		Participation	2
		Subsistence	5
		Tribal Treaty Rights	2
		Total	44
	Demographics	Population	20
	Effective Government	Climate Change Preparedness	2
		Democratic Engagement/Participation	7
		Disaster Preparedness	6
		Effectiveness	4
		Emergency Declarations	2
		Infrastructure	1
		Meetings Held	4
		Recreation Fiscal Sustainability	7
		Uncategorized	2
		Total	35

	Nature Based Recreation	Access to Natural Resources	20
		Demand	3
		Infrastructure	1
		Recreation Activity and Use	33
		Recreational Fishing	10
		Recreational Shellfishing	2
		Stewardship Activities	1
		Swimming Beaches	3
		Uncategorized	6
		Total	79
	Resource Consumption	Cost	2
		Energy Consumption	33
		Energy Resources	2
		Greenhouse Gasses	3
		Human Impact	1
		Waste and Recycling	31
		Water Consumption	17
		Total	89
	Social Capital	Attachment	1
		Citizen Science	2
		Cohesion	2
		Community Involvement	27
		Risk and Protective Factors for Youth	3
		Safety	22
		Social Justice	12
		Social Support	5
		Uncategorized	2
		Total	76
	Stewardship	Education/Outreach/Clearinghouses	7
		Funding	2
		Green Purchasing and Recycling	7
		Greenways	4
		Incentive Programs	2
		Lands preserved, protected, conserved or restored	19
		Preservation of Historic Sites	2
		Sustainability Training	3

		Sustainable Development	15
		Sustainable Management Practices	5
		Uncategorized	9
		Total	75
	Transportation	Access to Transit	2
		Commute Time	9
		Commute Trip Reduction	2
		Distance to Work	1
		Fuel Consumption	12
		Marine Transportation	5
		Miles Traveled	16
		Movement of Goods and People	6
		Satisfaction	3
		Traffic	4
		Transit Ridership	11
		Transportation Cost	4
		Transportation Infrastructure	11
		Transportation Mode	26
		Transportation Safety	6
		Vehicle Trips	2
		Uncategorized	1
		Total	121

Table A2: Attributes to Each Economic Component

Domain	Component	Attribute	Number of Indicators
Economic	Consumption/Retail	Consumer Price	2
Total: 493		Consumer Sentiment	3
		GDP	1
		Retail Sale	8
		Revenue and Expenditure	1
		Total	15
	Development	Building Permits	8
		Business Establishments	14
		Forbes Index	1
		Total	23

	Financial	Annual Wages	1
		Employment	45
		Employment Benefits	3
		Income	26
		Living Wage	9
		Poverty	16
		Unemployment	12
		Uncategorized	1
		Total	113
	Housing	Foreclosure	1
		Home Ownership	6
		Homelessness	2
		Housing Affordability	40
		Housing Availability	1
		Housing Diversity	5
		Housing Occupancy/Vacancy	5
		Uncategorized	2
		Total	62
	Human Capital	Creativity	4
		Education Level	9
		Education Opportunities	6
		High School Graduation	8
		Literacy and Proficiency	7
		School Readiness	3
		Uncategorized	1
		Total	38
	Working Resource Areas and Industries	Agriculture	86
		Aquaculture	7
		Industry Projections	2
		Fisheries	65
		Forestry	38
		Industry Projections	2
		Other Marine Based Industry	19
		Mining	1
		Renewable Energy	1
		Shellfishing	20

		Stewardship Activities	2
		Tourism	8
		Total	238
	Miscellaneous	No Attribute	5
		Total	5

Table A3: Attributes to Each Health Component

Domain	Component	Attribute	Number of Indicators
Health	Environmental Health	Air Quality	28
Total: 239		Pollution	6
		Toxic Release	2
		Toxins	3
		Water Quality and Quantity	62
		Uncategorized	3
		Total	104
	Health Behavior	Alcohol and Tobacco	10
		Physical Activity	19
		Sexual Activity	5
		Total	34
	Health Care	Access to Health Care	21
		Health Care Expenditures	1
		Quality of Care	5
		Total	27
	Health Condition/Problems	Asthma	6
		Diabetes	4
		Health Status	7
		Heart Disease and Cancer	2
		Lifespan	4
		Low Birth Weight	2
		Infant Mortality	3
		Obesity and Overweight	8
		Total	36
	Mental Health	Happiness	1

		Stress	2
		Suicide	1
		Total	4
	Nutrition	Access to fresh and healthy food	12
		Food Illness	2
		Fruit/Vegetable Consumption	4
		Fish and Shellfish Safety	12
		Food Safety	4
		Total	34

Appendix 4: Excel Spreadsheet with Raw Data and Specific Metrics Associated with Attributes

See attached file : Social Indicators Data October 2012