

**Puget Sound Partnership
DRAFT Dashboard of Ecosystem Indicators
(20 Proposed Dashboard Measures)**

Strategic Outcome Family of Measures (& Team Champion(s))	Action Agenda Goal	HLI - Yes = X	DIENSION	MESAURE	Strategic Outcome Measure Names	Outcome Measure Names	Operational Definitions	Calculation (if Data Source any)	Data Frequency	Action Agenda Objective	Component	Comments
Performance (John Becker & Mary Beth Brown, Puget Sound Partnership)			p R O G R A M p R O G R A M		Funding for the Sound		Federal. State and local funding allocated to the Action Agenda	Puget Sound Partnership	Annual			
					Action Agenda Engagement		% of Action Agenda items actively being addressed	Puget Sound Partnership	Annual			
People (Trina Wellman, University of Washington; Jacques White, Long Live the Kings; & Angela Grout, Environmental Protection Agency)	Human Well-being		H U M A N		Personal Vehicle Miles Traveled		Per capita vehicle miles traveled	Puget Sound Regional Council; check with Brian Smith, from Department of Transportation	Annual			State-mandated in Climate Bill; Methodology needs to be finally determined to include annual estimate of mostly observed Vehicle Miles Traveled totaled by county, and/or average weekday estimate of vehicle miles traveled (or by 5 daily time periods)

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	Human Well-being		H U M A N		Public Transit System Ridership		Total ridership for ferries, bus and rail	Puget Sound Regional Council; check with Brian Smith, from Department of Transportation	Annual			Keep in mind that using only PSRC as a data source will reflect only ridership within four counties: King, Kitsap, Snohomish and Pierce. We'll need other transit agencies from other parts of the sound to be complete. As this measure is a "pairing" with the vehicle miles traveled measure, we should try to get the same geographic distribution for both.
	Human Well-being		H U M A N		Per Capita Water Usage		Per capita use = total residential gallons billed per regional water district ÷ population of district	Individual utilities	Annual			
	Human Well-being		H U M A N		Commercial Fisheries Harvest (tribal and non-tribal)		Annual wild harvest (pounds) of tribal and non-tribal commercial fisheries (salmon, crab, shellfish, groundfish, shrimp) in Puget Sound (wild)	Pacific Fisheries Information Network - http://pacfin.psmfc.org - State of the Sound	Annual			PacFin data base reported annually by Pacific Marine Fisheries Commission.

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	Human Well-being		H U M A N		Swimming Beaches		Percent of core beaches meeting water quality standards during swim season (allowing one exceedance)	Departments of Ecology and Health				This measure looks at a set of core beaches, which have been monitored every year since 2004 by the Washington BEACH Program. The percent of core beaches meeting standards reflects the fecal bacteria water quality at swimming beaches and the human health risk of playing at these beaches. Ecology can report quarterly, but yearly 1/1 is more appropriate as it covers the full season. The baseline is 62% and the target is 75% by 1/1/2013.
	Human Well-being		H U M A N		Participation in recreational fish, shellfish and hunting harvest (permits).		Permits issued for recreational fishing, shellfish harvesting and hunting	Outdoor Recreation Survey, Recreation and Conservation Office and Department of Fish and Wildlife				
Water (Rob Duff)	Water Quality	X	N A T U R A L		Marine Water Quality	Marine	Marine Water Quality Index	Department of Ecology	Annual			This index has been recently formulated and presented to the Science Panel, local governments and the CERF Conference last November. No formal publication as yet. <u>Contact:</u> Christopher Krembs

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	Water Quality	X	N A T U R A L		Freshwater Quality	Freshwater	Freshwater Water Quality Index	Department of Ecology	Monthly			The Water Quality Index (WQI) is intended as a tool to summarize and report Ecology's Freshwater Monitoring Unit's routine stream monitoring data. The WQI is a unitless number ranging from 1 to 100; a higher number is indicative of better water quality. Scores are determined for temperature, pH, fecal coliform bacteria, dissolved oxygen, total suspended sediment, turbidity, total phosphorus, and total nitrogen. Constituent scores are then combined and results aggregated over time to produce a single yearly score for each sample station. This report presents the methodology behind the WQI and the results of a trend analysis on monthly WQI scores at our long-term monitoring stations. Contact: Dave Hallock
	Water Quantity	X	N A T U R A L		Water Availability		% time in-stream flows met August to September	Department of Ecology & United States Geological Survey	Annual			Flows are set knowing they are difficult to achieve, but are set to maintain the salmon and other species; Ecology is pursuing a comparison of present flows to a rolling historical record

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Species (Ken Currens)	Species & Food Web		N A T U R A L N A T U R A L N A T U R A L		Salmon	Fish Abundance	Wild Chinook salmon population counts with distribution (not hatchery salmon)				Department of Fish and Wildlife & Tribes	Data are not available to calculate total salmon abundance for all 6 species, so Chinook would be a dashboard surrogate. Data available and well-vetted. Species occurs throughout the Puget Sound.
	Species & Food Web				Orcas	Orcas abundance	Southern Resident killer whale population trends		State of the Sound			
	Species & Food Web				Jellyfish	Jelly fish abundance	(Density of jelly fish/unit area or volume) X area or volume		National Oceanic and Atmospheric Administration?			
	Species & Food Web				Terrestrial Bird Species	Marbled murrelets and other birds abundance; breeding bird counts for composite (index) for a vareity of species or selected other terrestrial species	Birds/km2 sampled x area		Department of Natural Resources	Methods are well-documented in the scientific literature; ESA-listed species; Data available; Sensitive to loss of forest habitats, forestry impacts; Another potential ecotone transient species		

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Shorelines (Tim Quinn, Department of Fish and Wildlife; & Helen Berry, Department of Natural Resources)	Habitat		N A T U R A L		Shoreline Armoring		%s of freshwater and marine water shorelines armored				Department of Fish & Wildlife HPA? database	
	Habitat		N A T U R A L		Eel Grass		Areal extent (number of acres) of eelgrass in greater Puget Sound		Annual		Department of Natural Resources Nearshore Habitat Program	
Stormwater (Rob Duff, Department of Ecology)	Habitat		N A T U R A L		Toxics in fish		As relates to pacific herring, English sole and salmon		Annual		Department of Fish and Wildlife	

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			N A T U R A L		Toxics in sediment		Health of sediments with respect to concentrations of toxics and abundance and structure of living organisms	Department of Ecology	Sites rotated annually; Full rotation every five years			A Sediment Quality Triad Index was generated from data collected throughout Puget Sound by Ecology and NOAA. This index, based on sediment chemistry, toxicity, and invertebrate community structure data, was used to classify and quantify sediment quality in six monitoring regions and five strata, and for the entire Puget Sound study area. Results were also compared with data from estuaries around the U.S. Ecology is also proposing a sediment chemistry index as an alternative to the triad. While the majority of the Puget Sound study area had sediments of high quality (68%), 31% displayed some degree of degradation, while 1% was of lowest quality. Degraded sediments were found primarily in urban areas, often near biologically sensitive habitat, which may have a disproportionate impact on the health of Puget Sound biota. Contact: Maggie Dutch
Land (Tim Quinn, Department of Fish and Wildlife)	Habitat	X	N A T U R A L		Land Use/Land Cover	% land use/land cover; % impervious surface	Extent and condition of ecological systems (landcover by type)	National Oceanic and Atmospheric Administration CCAP? data	Five to six years	working lands		

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There are currently 20 proposed dashboard indicators in total

 Dashboard Indicators

 12 Science Update Informed Indicators