Approaches to Link Ecosystem Management Efforts in the Puget Sound Basin

An introduction to some of the key challenges and approaches to achieving our ecosystem protection and recovery objectives under the Puget Sound National Estuary Program

An Estuary of Local, Regional and National Significance

Progression of Environmental Management Paradigms

Managing for Long Term Ecosystem Sustainability

- Anticipatory
- Integrates major domains
- Integrates environmental, social, economic considerations

Geographic/Watershed-based Protection Approach

- Requires increased consensus and integration of actions
- Addresses cross program/cross media effects

Single Program 'Comprehensive' Planning

- Individual programs begin to look more at the systems they are working within
- Cumulative effects begin to be addressed

Single Program with Individual Permit/ Site Management Focus

- Reactive
- Centralized decision making

Clean Water Act (CWA)

SEC. 101. (a) The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.

- *This provides a solid foundation for linking the domains of water, land, ecology and human health and well being.*

CWA – National Estuary Program

- The NEP was established under Section 320 of the 1987 Clean Water Act (CWA) Amendments as a U.S. Environmental Protection Agency (EPA) ***place-based program to protect and restore the water quality and ecological integrity of estuaries of national significance***

- Section 320 calls for each NEP to develop and implement a Comprehensive Conservation and Management Plan (CCMP). The CCMP is a long-term plan that contains specific targeted actions designed to address water quality, habitat, and living resources challenges in its estuarine watershed.

National Estuary Program - continued

- Each NEP has a Management Conference made up of diverse stakeholders including citizens, local, state, and Federal agencies, as well as with non-profit and private sector entities. Using a consensus-building approach and collaborative decision-making process, the Management Conference works closely together to implement the CCMP.

- The Management Conference ensures that the CCMP is uniquely tailored to the local environmental conditions, is based on local input, and supports local priorities.

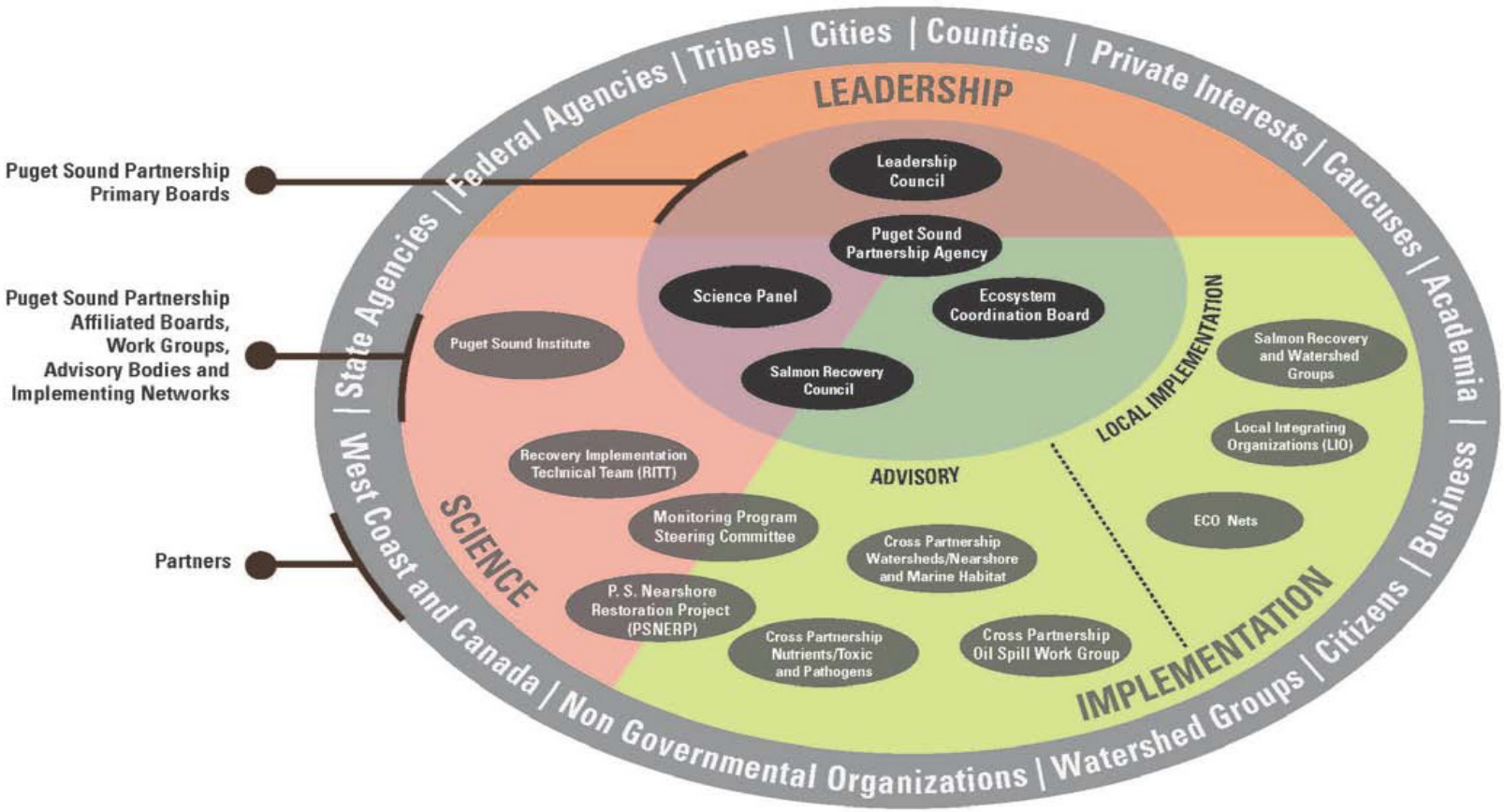
Action Agenda

The Puget Sound Action Agenda is the plan for cleaning up, restoring, and protecting Puget Sound by 2020

Essential Elements for Sustainability of Large Ecosystems

I. Efficient representation and coordination of people and organizations – establishing roles.
II. Establishing clear and common objectives as the basis of work – targets, principles and related stressors.
III. Organizing work to link and nest across scales of geography.
IV. Organizing effort into severable phases /investments over time - creating cycles of progress.

Linking organizations, roles and expertise – the Puget Sound Management Conference



The federal agencies comprising the Puget Sound Federal Caucus:

1. Federal Highway Administration
2. Federal Transit Administration
3. National Oceanic and Atmospheric Administration
4. National Park Service
5. National Resource Conservation Service
6. Navy Region Northwest
7. U.S. Army
8. U.S. Army Corps of Engineers
9. U.S. Coast Guard
10. U.S. Environmental Protection Agency
11. U.S. Fish and Wildlife Service
12. U.S. Geological Survey
13. U.S. Forest Service

GUIDING PRINCIPLES FOR ECOSYSTEM MANAGEMENT IN PUGET SOUND

A. Address threats and choose opportunities ***with the highest potential magnitude of impact.***

B. Address threats ***with the highest level of urgency***. (How imminent is the threat; will it result in an irreversible loss; how resilient are the resources that are affected?)

C. Use strategies that ***have a reasonable certainty of effectiveness*** and reflect a balanced ***precautionary and adaptive approach***.

D. ***Use scientific input*** – about the importance, urgency, and reversibility of threats; opportunities for management impact; effectiveness of actions; and monitoring and adaptation – in designing, implementing, and evaluating strategies.

E. ***Use strategies that are cost effective*** in making efficient use of funding, personnel, and resources with realistic expectations of achieving results.

F. ***Address the processes that form and sustain ecosystems and increase ecosystem resiliency*** rather than focus narrowly on fixing individual sites. Consider the Salish Sea ecosystem perspective.

G. Attempt to ***address threats at their origin instead of reacting after the damage has been done.*** Anticipate and prevent problems before they occur, and plan for extreme events. (With more people coming to the region and a changing climate, a proactive strategy is increasingly important.)

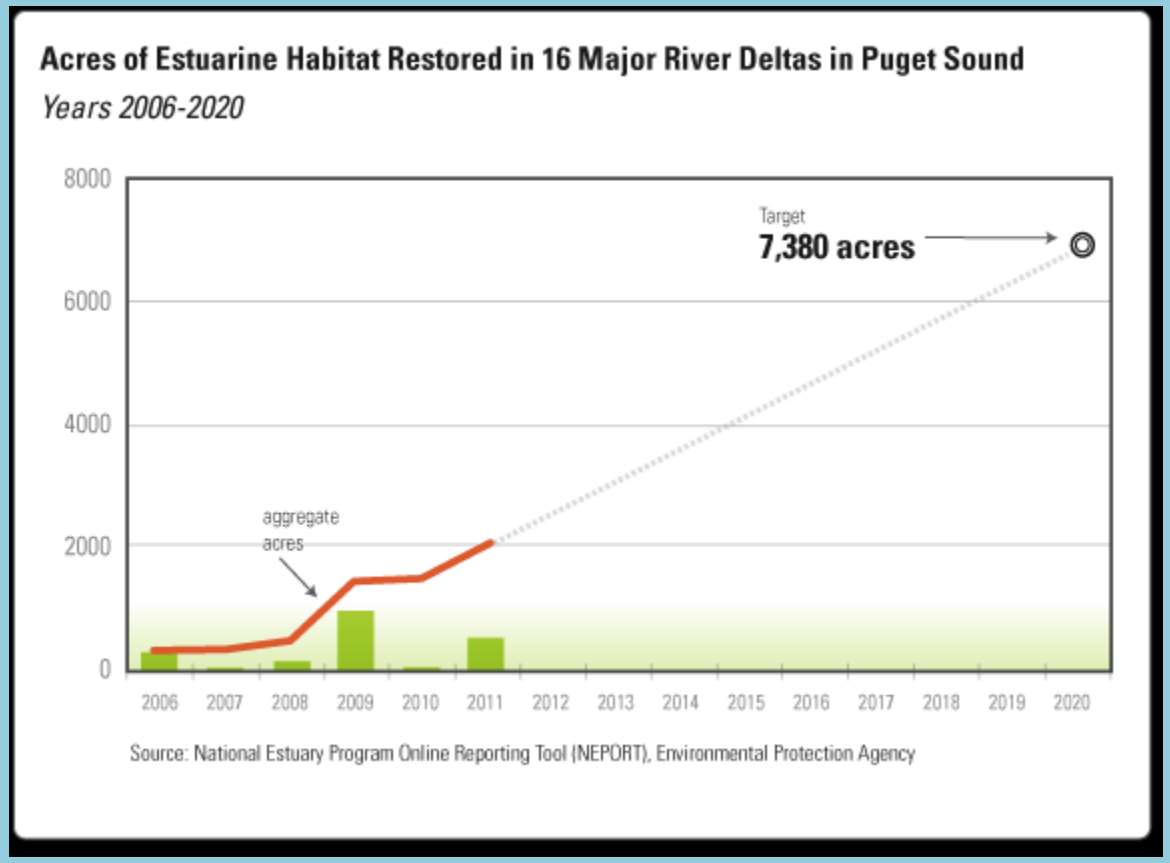
H. ***Account for the variations in ecosystem conditions and processes in different geographic areas*** of Puget Sound. Some parts of Puget Sound are fairly intact while others are severely degraded, and rebuilding strategies need flexibility to encompass regional differences.

I. ***Account for human communities and values as fundamental, central elements*** of the Puget Sound ecosystem (i.e., the Puget Sound social-ecological system).

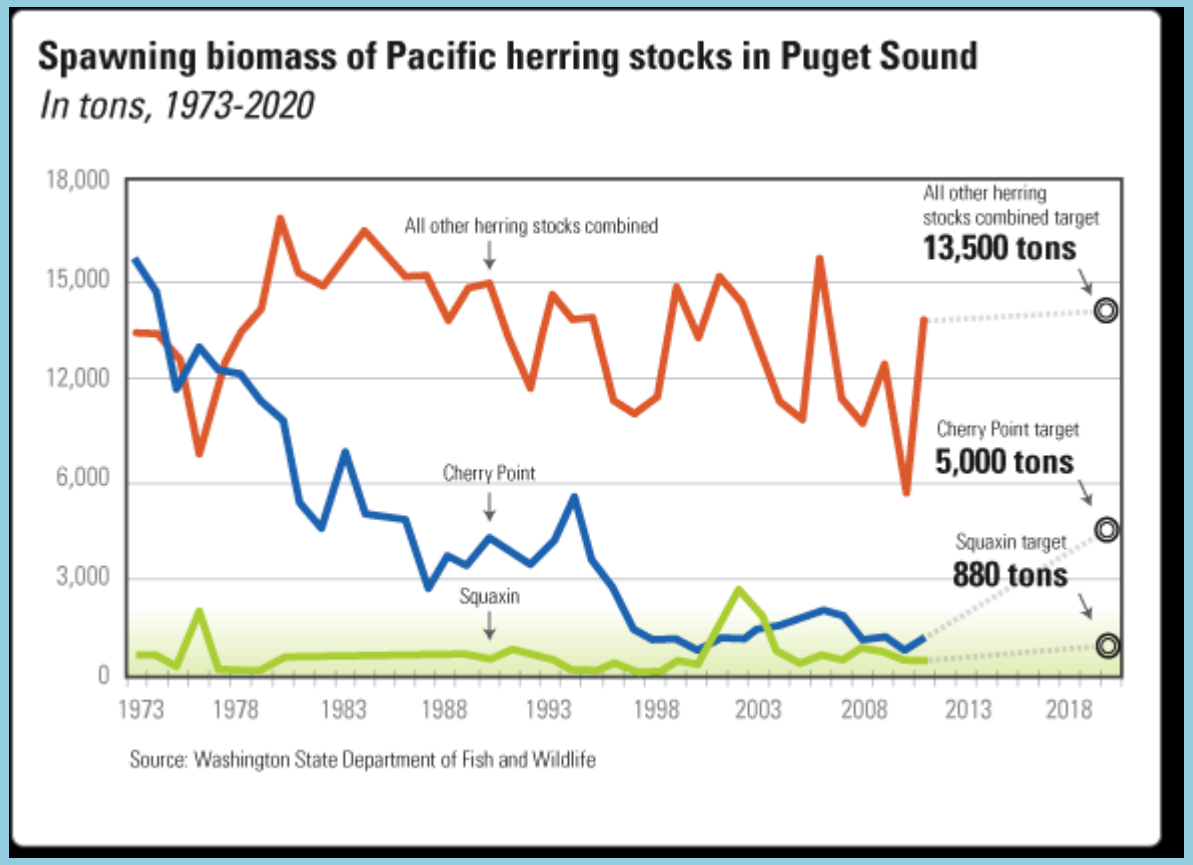
II. Clear and Common Objectives Sound-wide Recovery Targets

Puget Sound
Vital Signs
A dashboard of indicators on Puget Sound's health and vitality

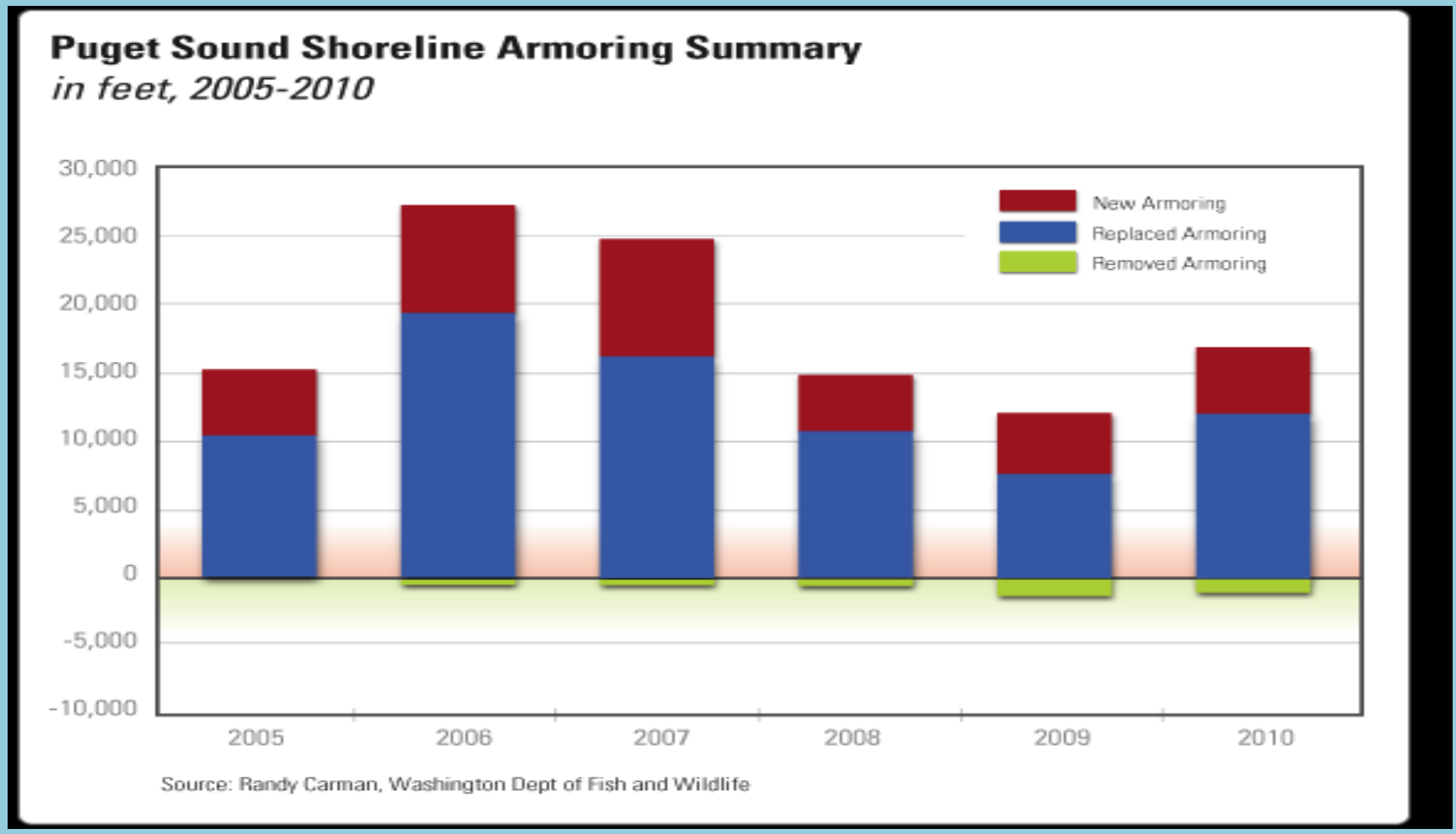
Management Target for Net Increase of Estuary Habitat



Management Target for Recovery of Herring Stocks



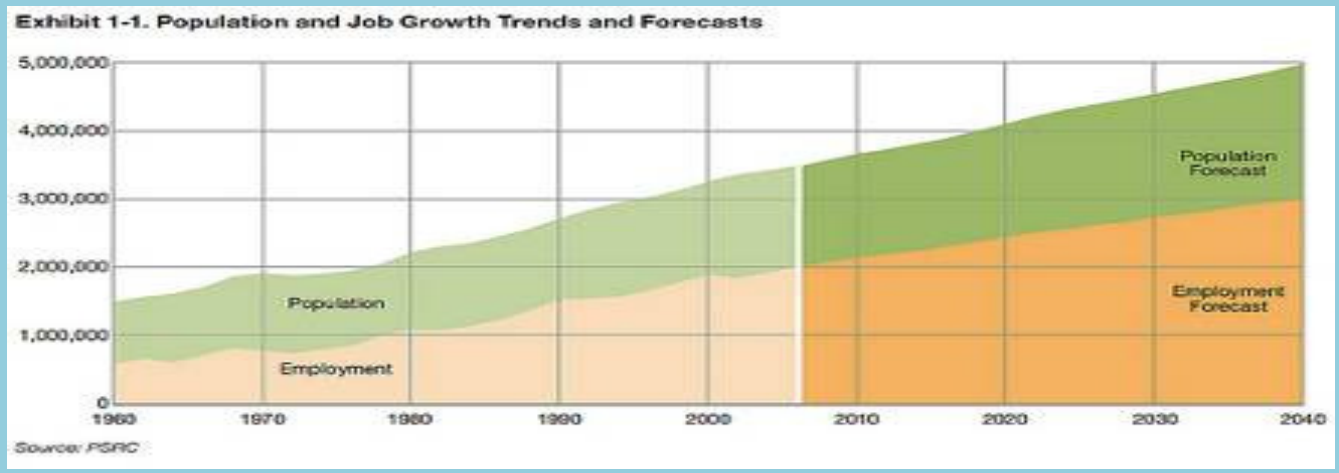
Summary of Management Target for Sustaining Shorelines



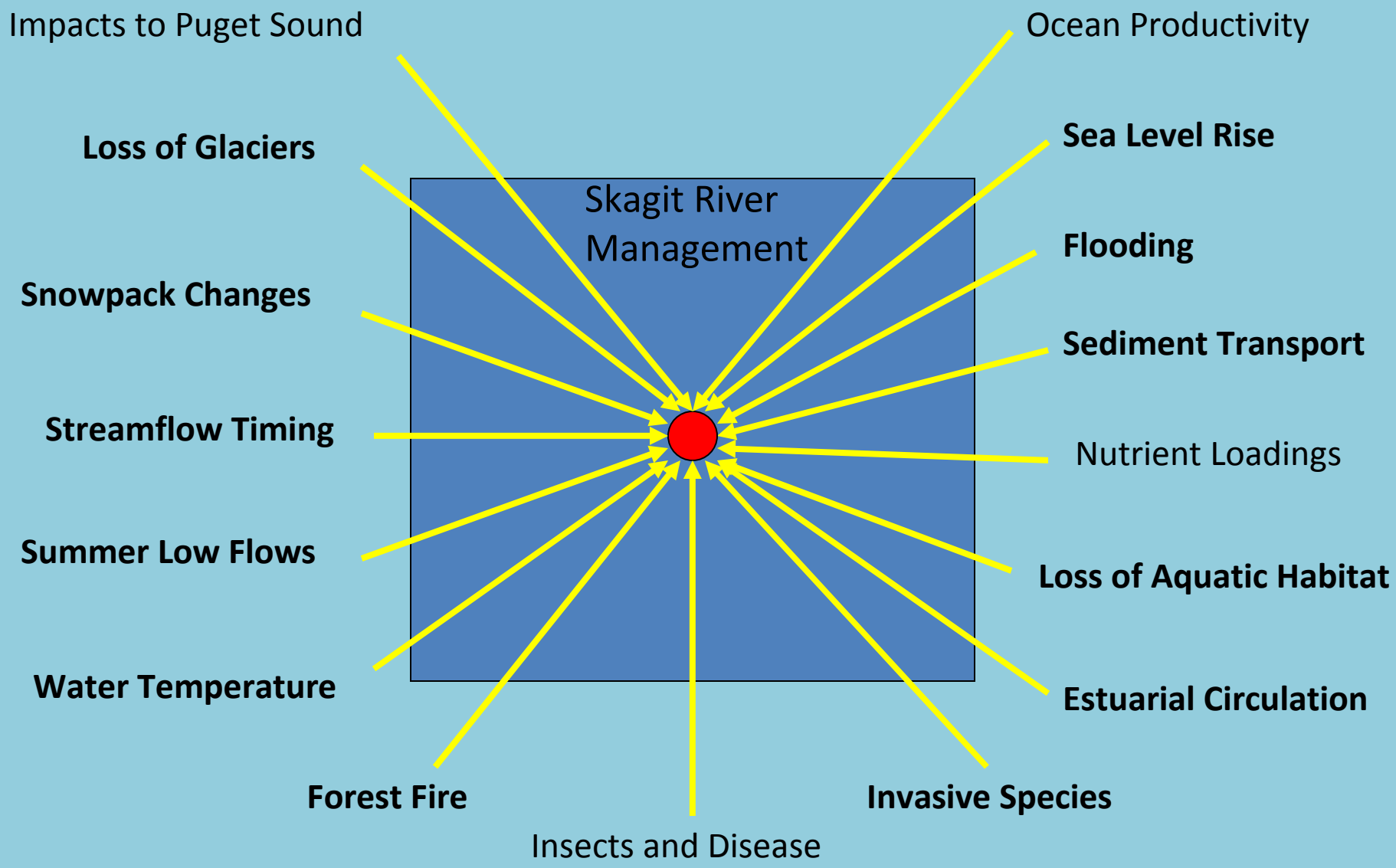
Secondary Ecosystem Challenges – Population and Climate Change

Accommodating an increase from 3.5 to 5 million people in the Puget Sound Basin by 2025 (40% increase) while

- holding the line on further degradation and
- restoring the overall system

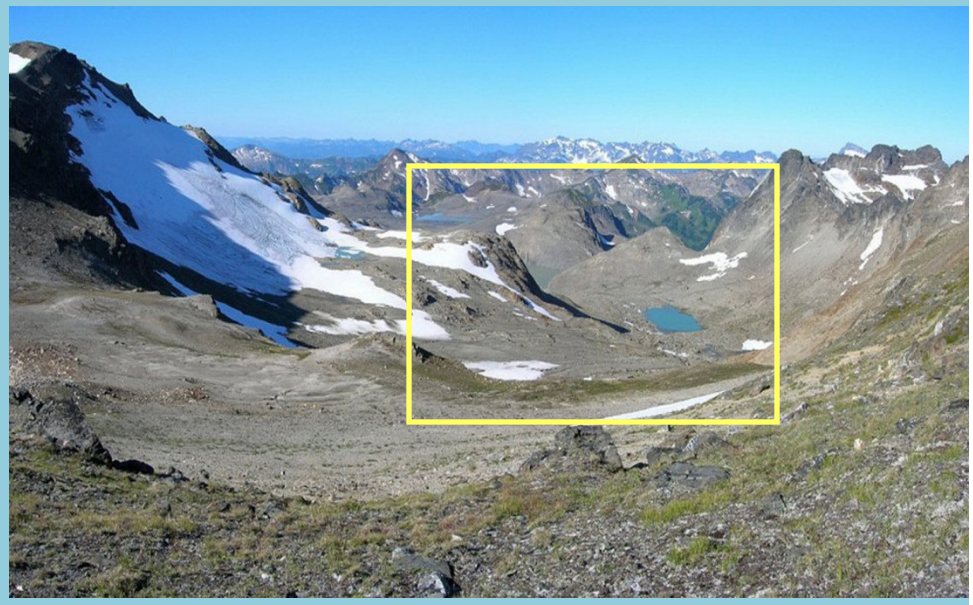


Climate Change Impact Pathways



Changes in Glaciers

1973

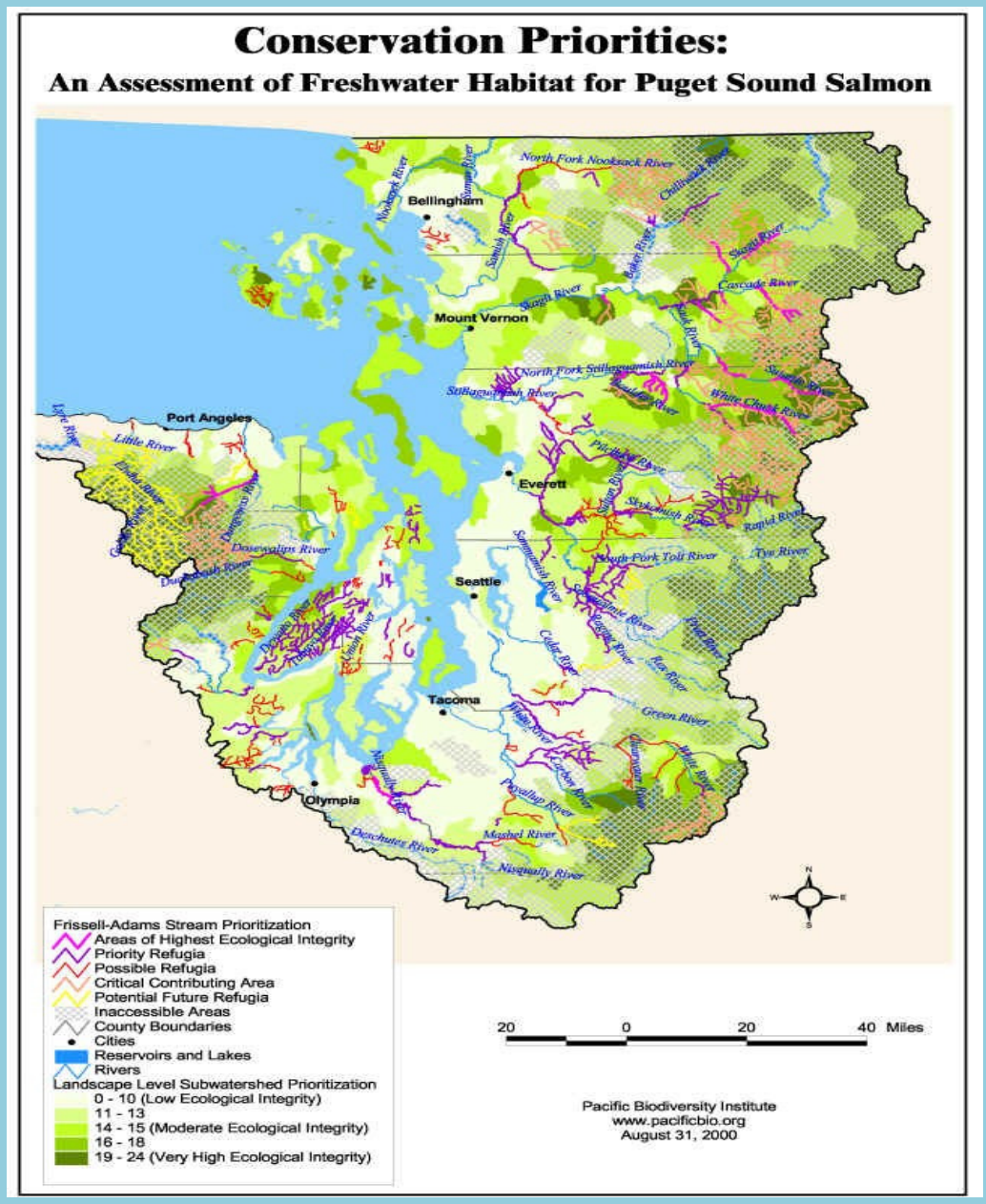


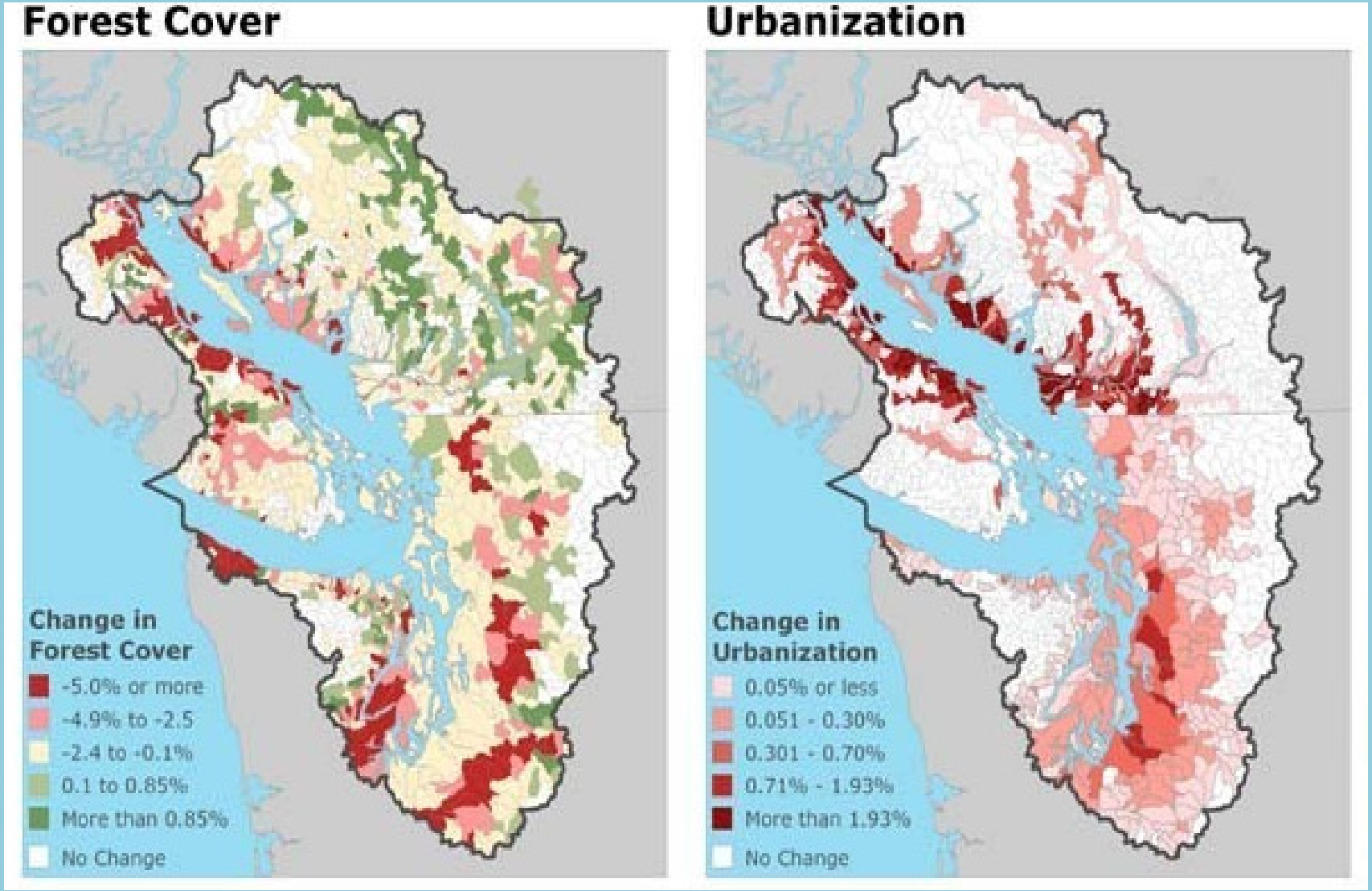
2006

Recession of Whitechuck Glacier
(Sauk Headwaters)

Photos courtesy of Dr. Mauri Pelto, Nichols College

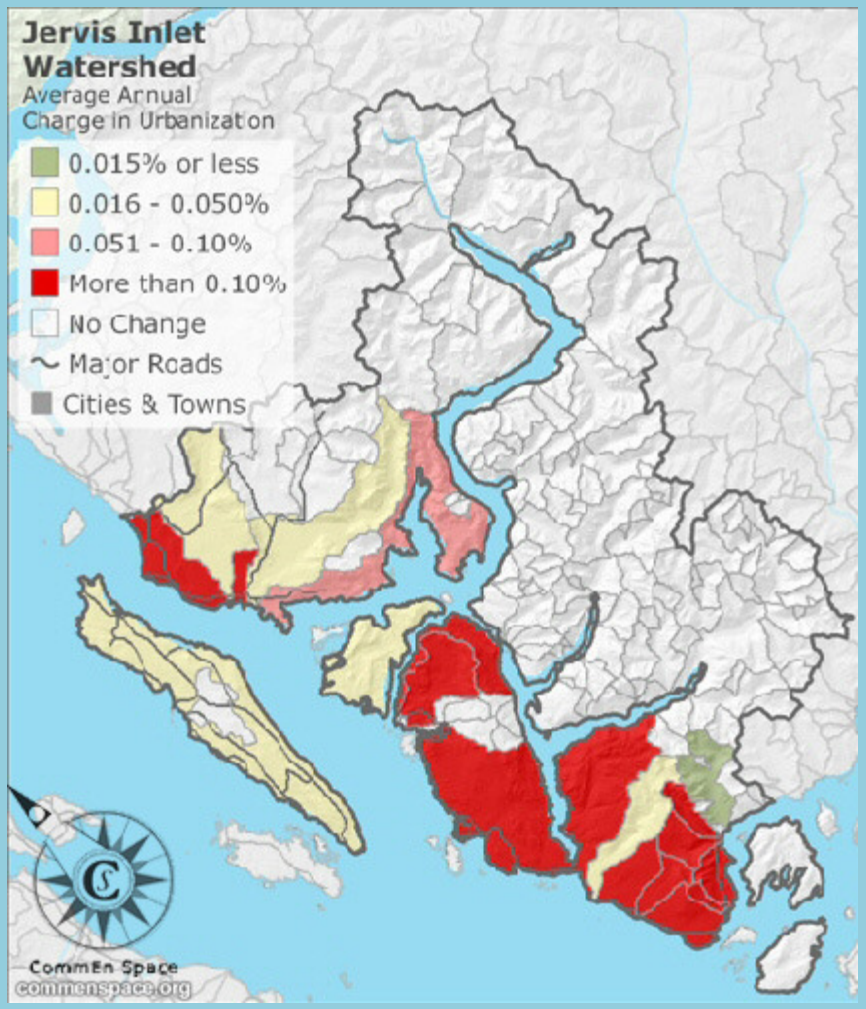
III. Organizing work to link and nest across scales of geography.

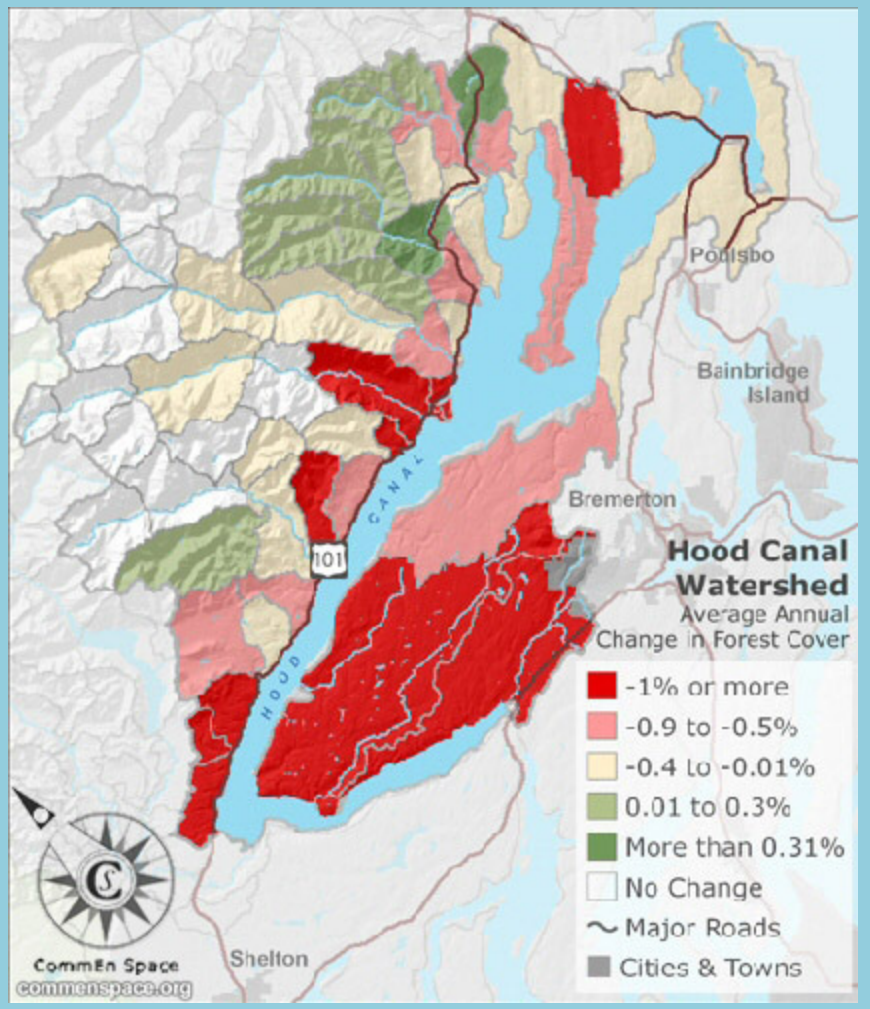




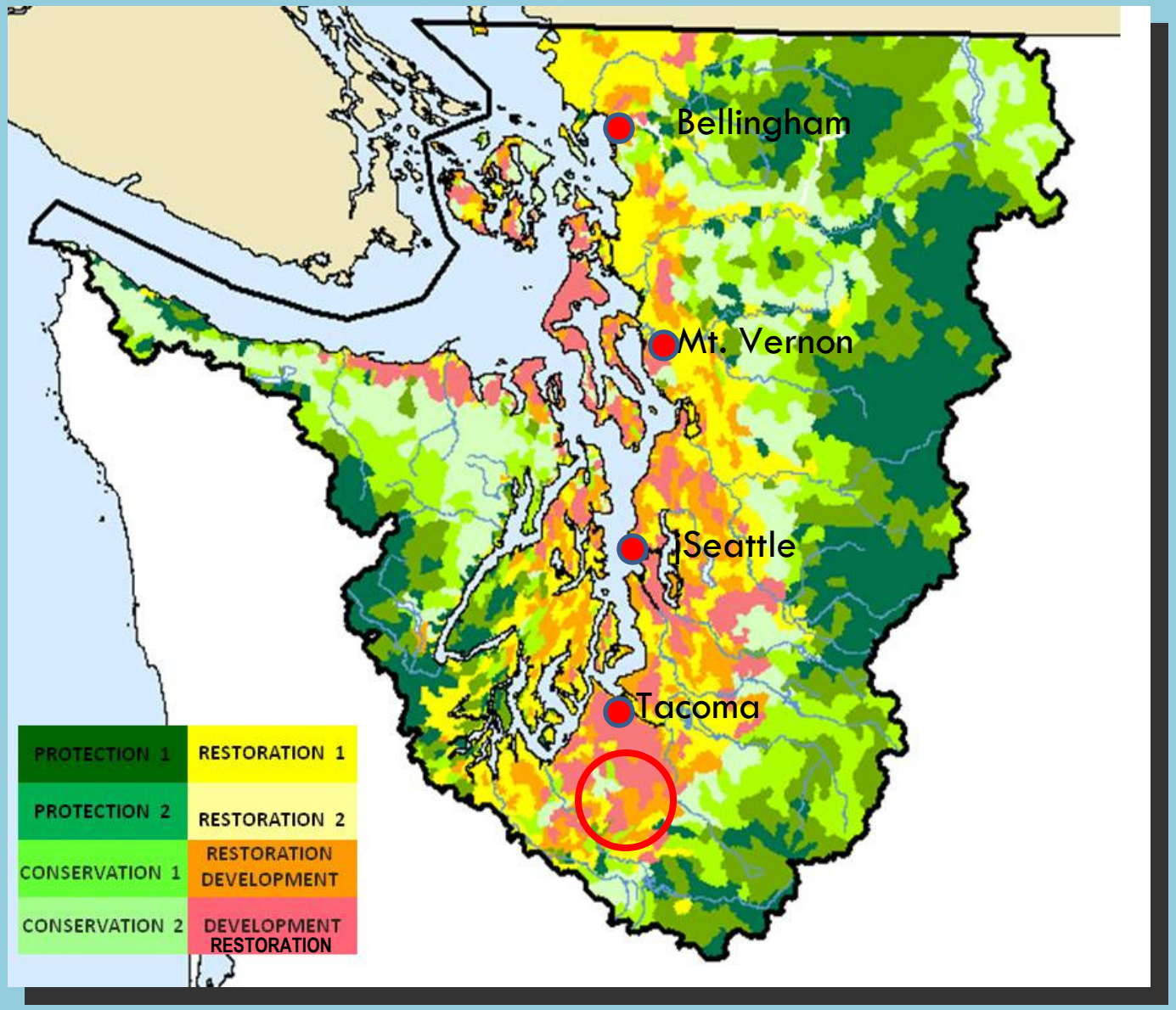
Urbanization and Forest Changes
1995 – 2002

Urbanization and Forest Changes –Sub-Basin Scale -

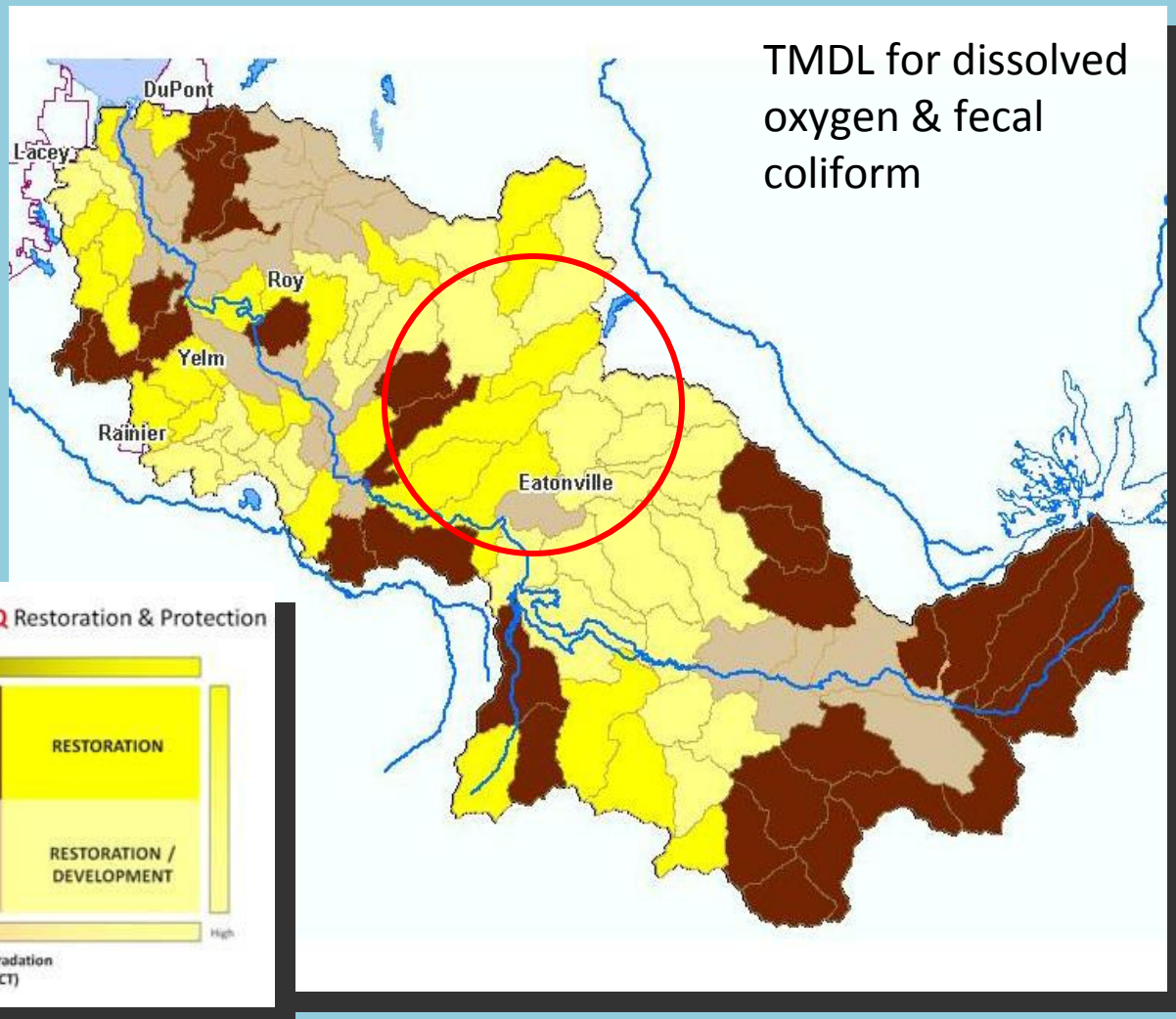




Sound Wide Results – Water Flow



WRIA 11 Results – Restoration & Protection Categories for Sediment



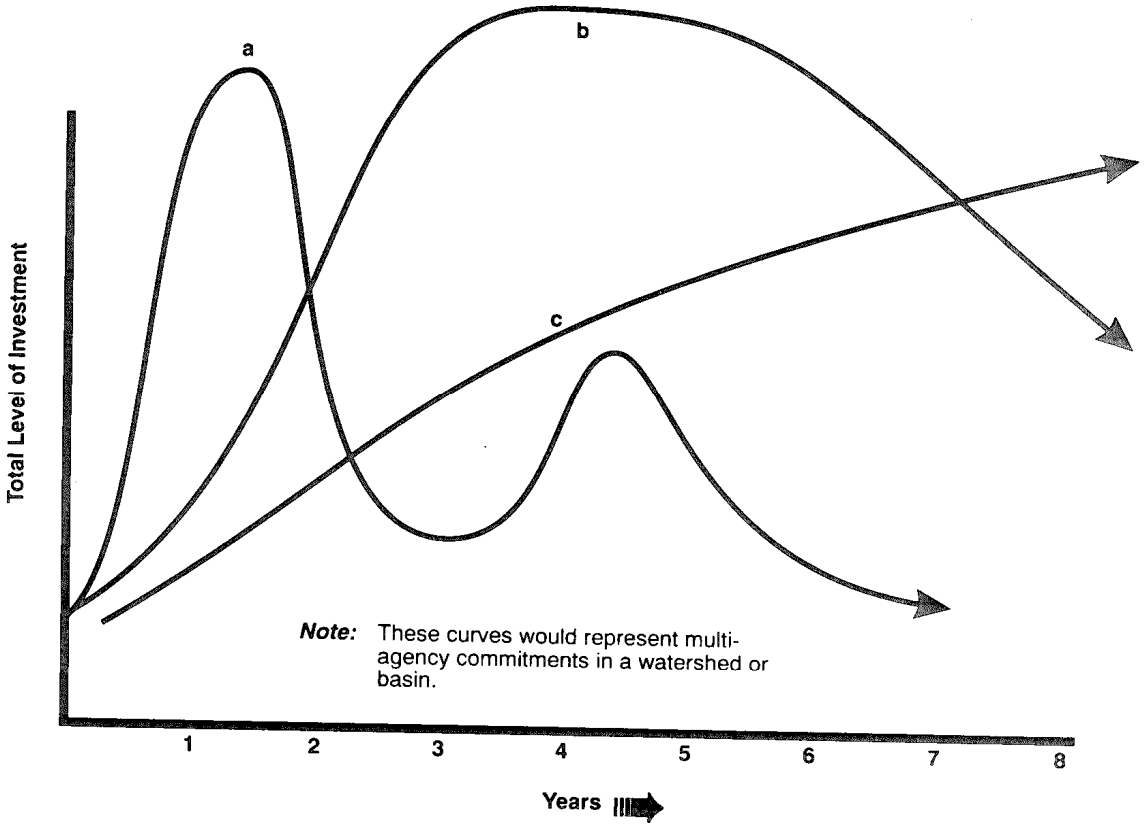
TMDL for dissolved oxygen & fecal coliform

IV. Conceptually organizing effort into related components and phases over time; creating cycles of progress.

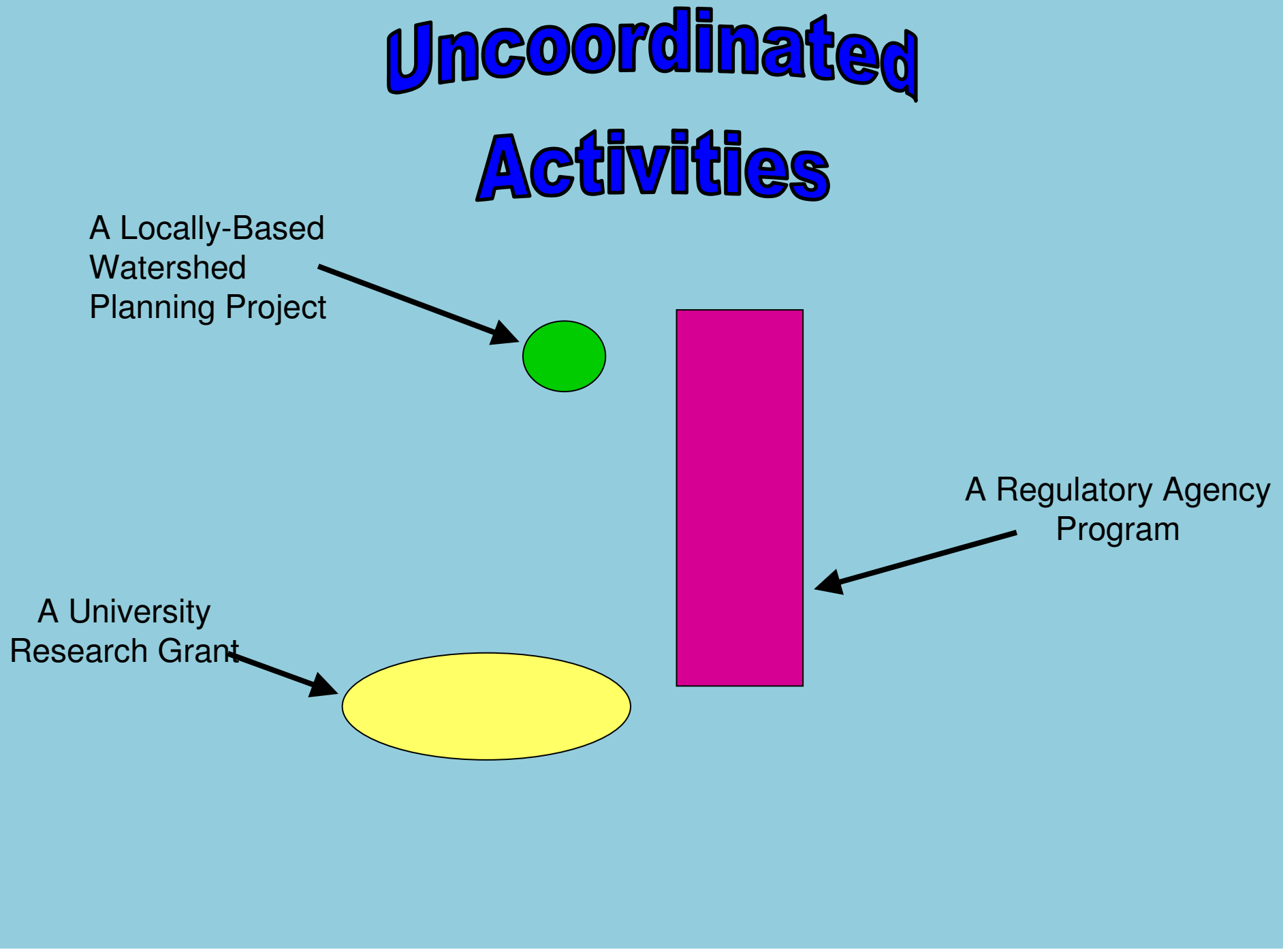
Enter, the Logic Model

Translating small project successes into larger program and policy changes

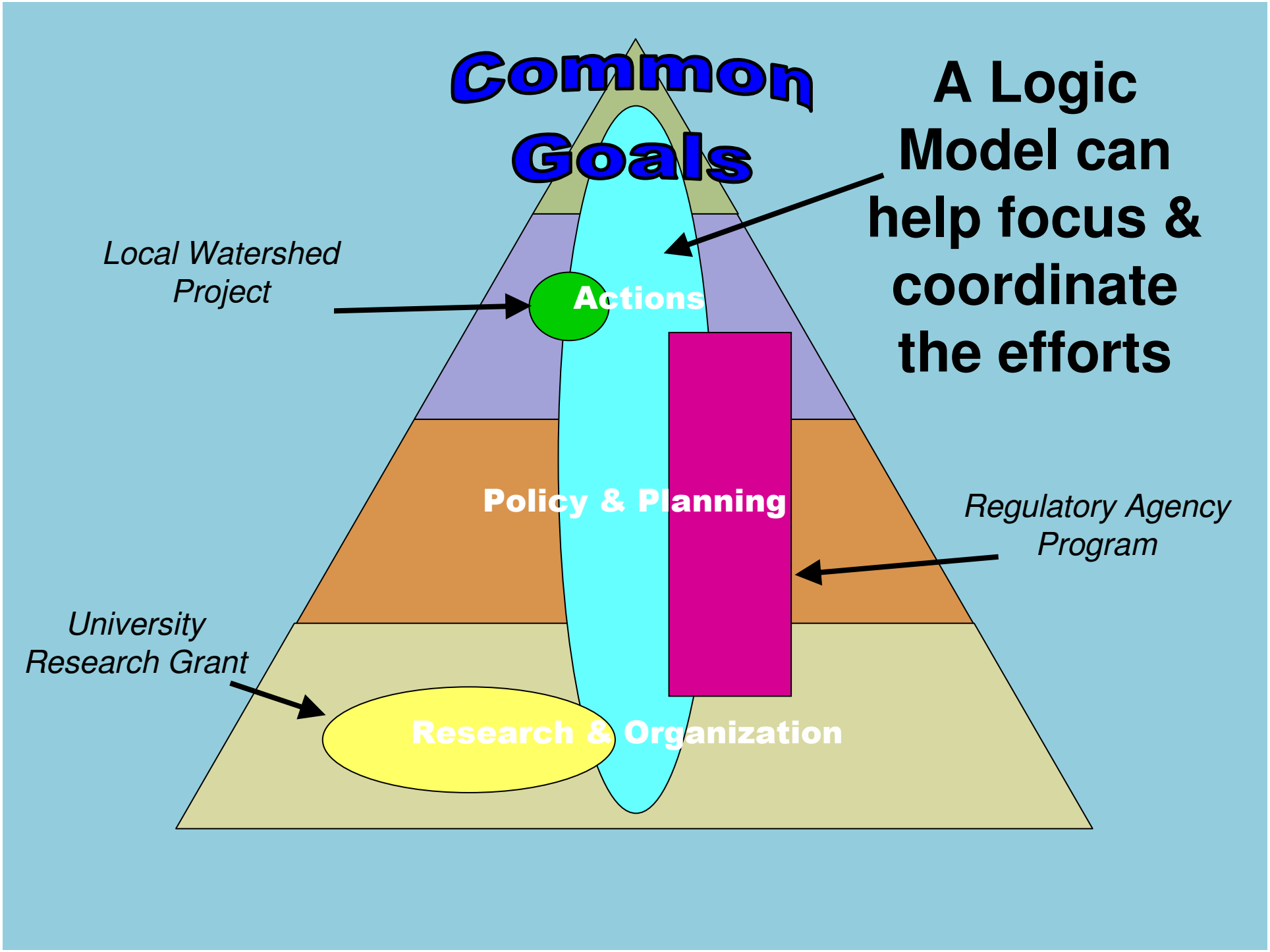
Figure 2b
Watershed Project Curves:
Cumulative Level of Effort



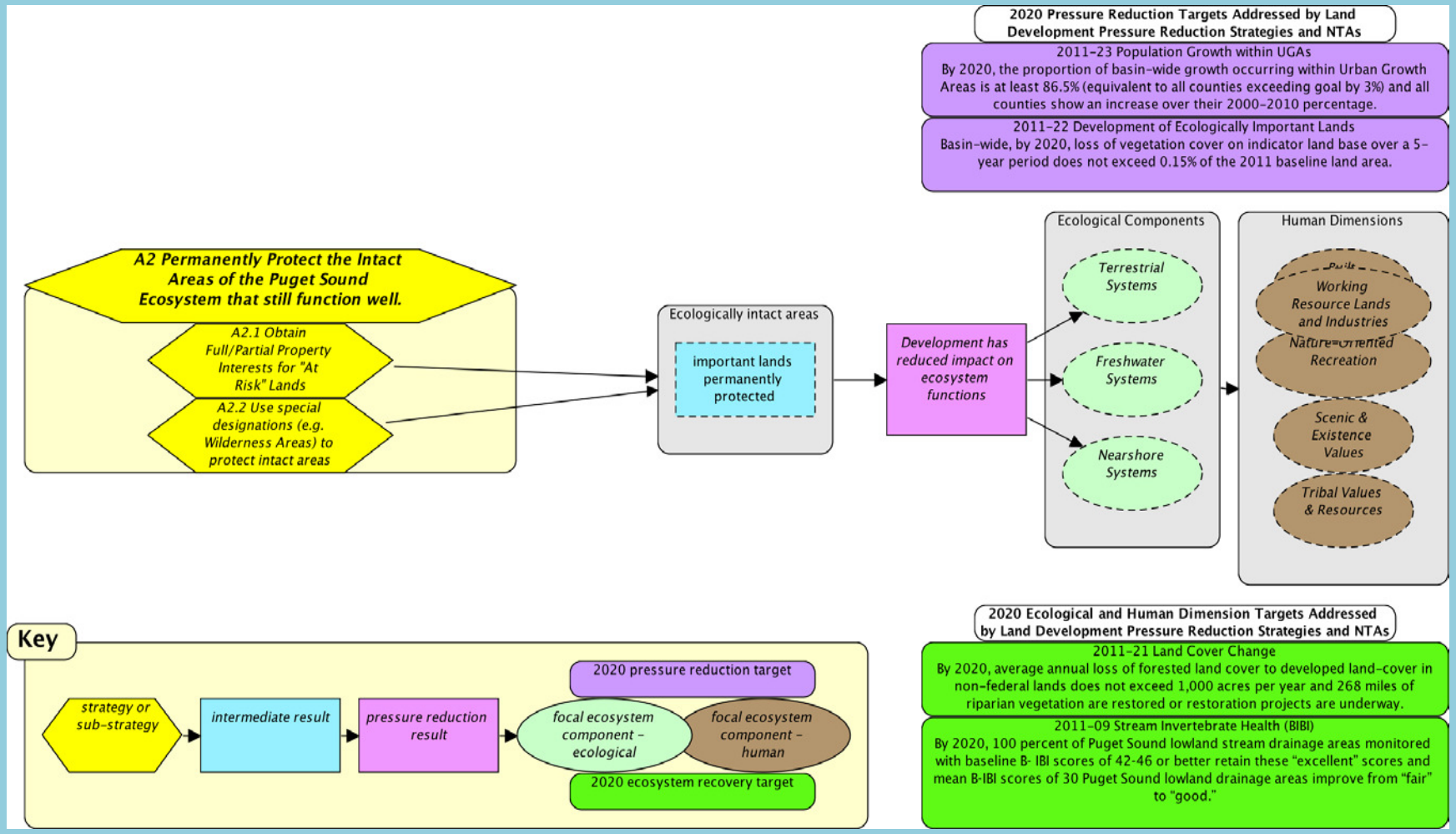
Uncoordinated Activities



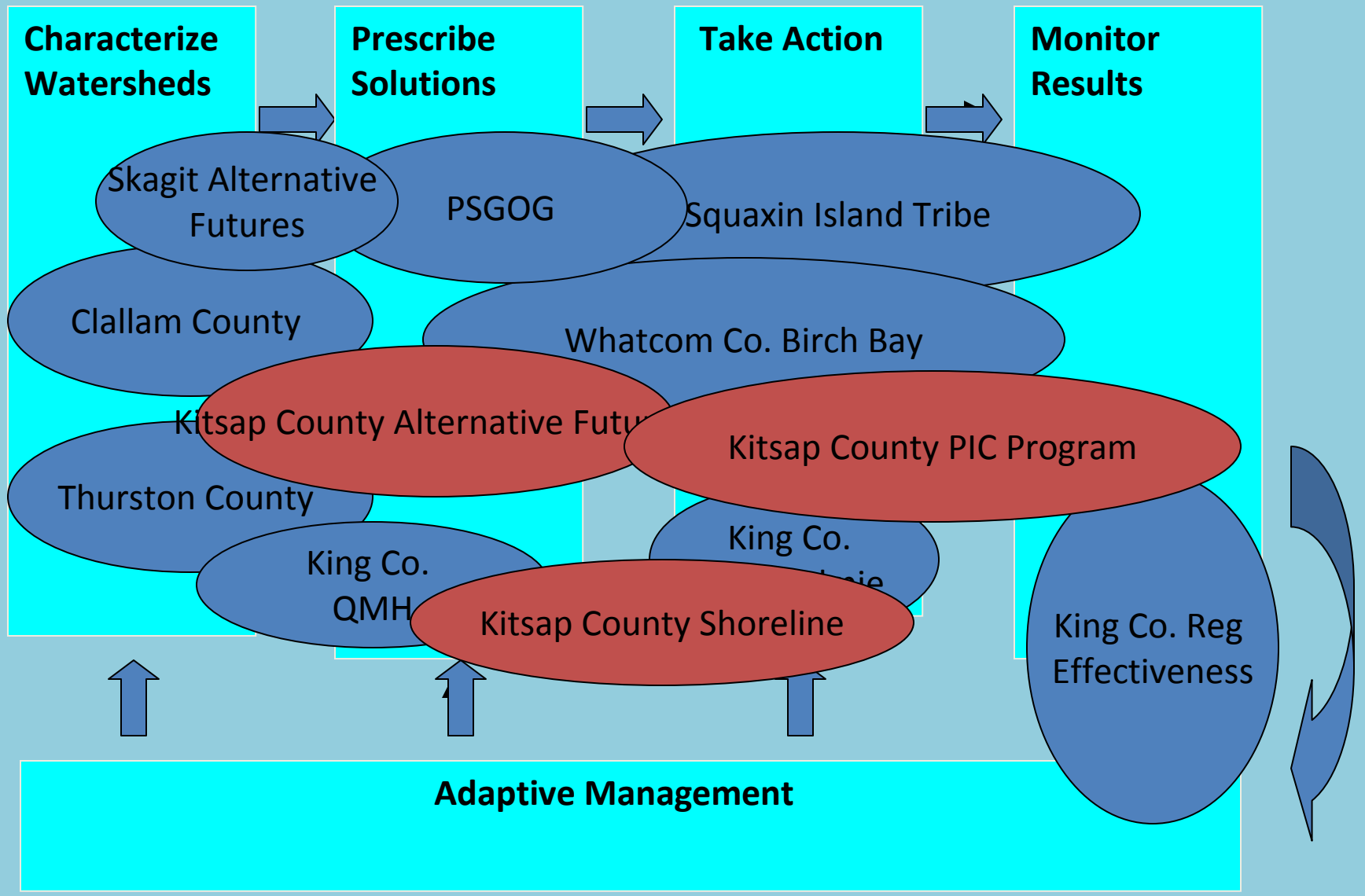

Common Goals
Logic Model
Actions
Policy & Planning
Research & Organization

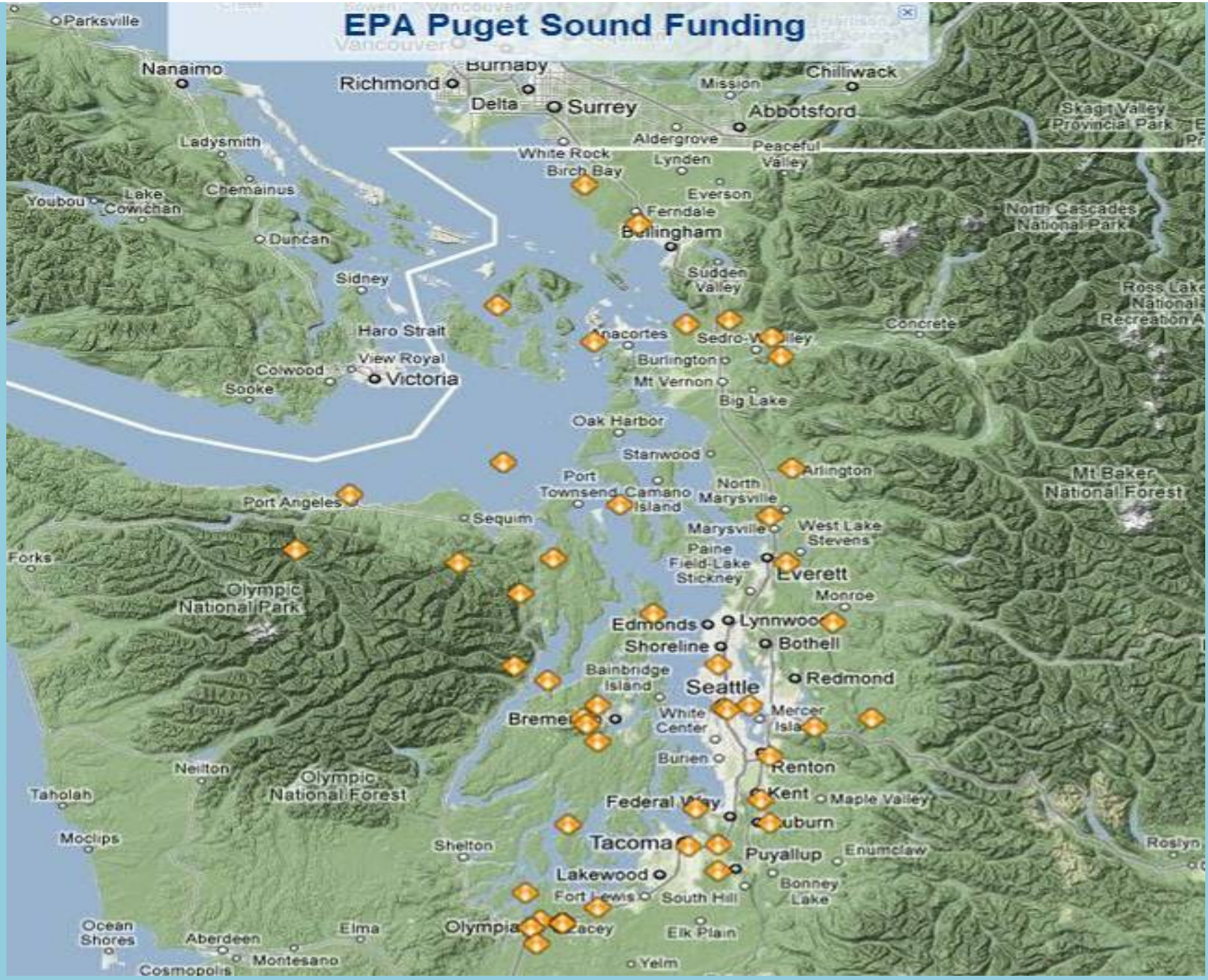

Common Goals
A Logic Model can help focus & coordinate the efforts
Local Watershed Project
Actions
Policy & Planning
Regulatory Agency Program
University Research Grant
Research & Organization

Use of Logic Chains to Guide Relationships and Sequences of Work



Examples of Projects Funded




EPA Puget Sound Funding
Parksville
Nanaimo
Richmond
Burnaby
Vancouver
Delta
Surrey
Mission
Chilliwack
Abbotsford
Skagit Valley Provincial Park
Aldergrove
Peaceful Valley
Ladysmith
White Rock
Birch Bay
Lynden
Everson
Chemainus
Youbou
Lake Cowichan
Ferndale
Bellingham
North Cascades National Park
Duncan
Sidney
Sudden Valley
Ross Lake National Recreation A
Haro Strait
Anacortes
Sedro-Woolley
Concrete
View Royal
Colwood
Victoria
Sooke
Burlington
Mt Vernon
Big Lake
Oak Harbor
Stanwood
Arlington
Port Townsend
Camano Island
North Marysville
Mt Baker National Forest
Port Angeles
Sequim
Marysville
West Lake Stevens
Forks
Paine Field-Lake Stickney
Everett
Olympic National Park
Monroe
Edmonds
Lynnwood
Shoreline
Bothell
Bainbridge Island
Seattle
Redmond
Bremerton
White Center
Mercer Island
Burien
Renton
Neilton
Olympic National Forest
Taholah
Kent
Maple Valley
Federal Way
Auburn
Moclips
Shelton
Tacoma
Puyallup
Enumclaw
Roslyn
Lakewood
Bonney Lake
Fort Lewis
South Hill
Ocean Shores
Aberdeen
Elma
Olympia
Tacoma
Elk Plain
Montesano
Cosmopolis
Yelm

Local Implementation Example

In Kitsap County, we have provided at $270,000 grant for sustaining ecological processes and working forests on lands at risk of development. ***The grant will be used to establish a community partnership to permanently protect working forest lands that provide key ecosystem benefits.***

This partnership, which includes *Olympic Property Group, Port Gamble S'Klallam Tribe, Suquamish Tribe, WSU Extension, Great Peninsula Conservancy, and Forterra* ***will work to minimize the conversion of forest lands to residential development by applying a variety of land conservation tools.*** We are protecting the lands both for now, and for the future.

Local Implementation Example

On Whidbey Island, in the town of Coupeville, ***we are constructing an innovative wetland facility that will collect, clean and cool surface water runoff before the water is discharge into Penn Cove.*** Some of the cleaned water will also be used for irrigation during the summer months.

The project will assess the effectiveness of this facility to reduce the harmful effects of urban run-off on water quality and habitat in Penn Cove, which has a robust commercial shellfish industry. To be successful, we need to make sure the people and industry that surrounds Penn Cove are successful and sustainable as well. *Partner organizations: University of Washington, Island County Marine Resources Committee, Island County Local Integrating Organization, and SvR Design*

Local Implementation Example

Our “When cows meet clams” Grant ***establishes an agricultural and forestry production, marketing, and tourism training program to help keep working farms and forests in the Snoqualmie Valley.***

The program includes training to ***expand the number of working farms and forests practicing sustainable approaches while raising awareness about the important role working lands have on quality of life.*** Again, people and environment, working together into the future.

Local Implementation Example

- *We are also using market forces to drive the behaviors that will protect the Puget Sound. The* Washington Department of Natural Resources will ***initiate demonstration projects in two watersheds to establish markets where forest landowners receive money to protect and maintain their lands. They will do this by having those who benefit pay for the ecosystem services they want to maintain***: for example, not cutting trees to avoiding surface water runoff or protecting salmon habitat.

- To do this, we ***will develop measures for valuing specific watershed services, identify potential buyers and sellers***, and develop an infrastructure for market transactions. By creating a market value, we are creating economic drivers for environmental protection. *Partner organizations: U.S. Forest Service, Washington Department of Health, Nisqually Tribe, Snohomish County, Nisqually Land Trust, Northwest Natural Resources Group and Willamette Partnership*

Local Implementation Example

Another example is the Upper Skagit Valley tribe and their restoration of Hanson Creek. In the Puget Sound basin, ***more than 90% of the wetlands and floodplains once associated with lowland alluvial rivers have been lost.*** This loss of wetlands has had profound impacts on Puget Sound's salmon populations, floodplain sediment and water holding capacity, and other ecosystem services. The Skagit is the only river system in the state that supports all five species of Pacific salmon; including six of the region's 22 populations of threatened Chinook salmon and the largest pink salmon stock in Washington. The Skagit River has reached flood stage more than 60 times during the last 100 years. This flooding has had a significant effect on agriculture, which is a major land use in the river delta areas of the Skagit watershed.

We are excited the Upper Skagit Indian Tribe has ***completed the Hansen Creek Restoration Project, restoring 140 acres of dynamic freshwater floodplain and 87 acres of wetlands, removing 72 acres of invasive plant species, and constructing 1.5 miles of park trails.***

Michael Rylko
Senior Technical Coordinator
Puget Sound National Estuary Program
USEPA Region 10
Office of Ecosystems, Tribal and Public Affairs
(206) 553-4014