At 16,000 square miles, the Puget Sound Basin, between the Cascade and Olympic Mountains in Northwest Washington, is the second largest estuary in the United States. Twenty percent of the area is land, with a diversity of farms, forests, parks, small towns, and busy cities. The remainder is freshwater, estuarine, and marine waters; more than 20 major river systems and their tributary creeks drain mountain elevations of 7,000 feet or more and drop to sea level within 50 to 70 miles. Puget Sound is home to two-thirds of the state’s people.

In 2007, the Puget Sound Partnership became a state agency responsible for recovery of salmon and restoration of the Puget Sound ecosystem. In 2008, the partnership completed an action agenda for the restoration of the ecosystem, and in 2009, produced its first biennial “State of the Sound” report. There are 15 lead entities in the region.
Listed Fish
- Chinook (threatened) – 1999
- Steelhead (threatened) – 2007
- Bull trout (threatened) – 1999

Major Factors Limiting Recovery
- Degraded floodplain and channel structure
- Degraded nearshore, marine, and estuarine conditions
- Riparian degradation and loss of in-river woody material
- Degraded water quality and temperature
- Excessive sediment
- Impaired stream flows
- Barriers to fish passage

Recovery Plan Snapshot
- Time frame – 50 years
- Estimated cost – $1.42 billion for first 10 years

Recovery Plan Implementation
Three-year implementation schedule identifies $240 million in habitat project needs.

Regional Recovery Organization
Puget Sound Partnership

Federally Recognized Tribes

Counties
- All or parts of Whatcom, Skagit, Island, San Juan, Snohomish, King, Pierce, Thurston, Mason, Kitsap, Jefferson, and Clallam

Threats to Salmon Recovery
Salmon recovery in Puget Sound is particularly vulnerable to threats associated with a growing human population such as urban development, land conversion, and climate change. Fish passage, water and habitat availability, water temperature, and food sources for salmon and steelhead are affected by the following.

Climate Change will increase stream temperatures, change flow patterns and ocean conditions, and change landscape habitat forming processes and habitat conditions.

Human Population Growth and Development will increase pressure for more water withdrawals and diversion; increase demand for more roads and residential, commercial, and industrial development; and challenge the adequacy, implementation, and enforcement of land use regulations.

Uncertain Long-Term Funding for implementation of recovery actions (federal, state, and other sources) will challenge our ability to stay the course.
Are listed populations abundant and productive?

**FISH: ABUNDANCE TRENDS**

- Graphs show wild adult and juvenile abundance data for species at the Evolutionarily Significant Unit (ESU), Distinct Population Segment (DPS), and Major Population Group (MPG) scales. ESUs and DPSs are the scale at which species are listed and de-listed under the federal Endangered Species Act.

- Bar charts show the number of returning adult wild fish, separated by what was harvested and what returned to spawn.

- Pie charts show the percentage of juvenile sampling locations where trends have increased, decreased, or not changed. Juvenile data generally are not available for all populations of each species. Trends in juvenile Chinook abundance were available for nine populations in four of the five MPGs. No data was available for the North Sound MPG. Trends in juvenile steelhead were available for five stocks (MPGs not yet identified).

Data Sources: Washington Department of Fish and Wildlife and Tribes

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**FISH: STATUS SUMMARY**

- 2010 status ratings are determined by the Washington Department of Fish and Wildlife and tribes.

- Includes listed and non-listed species.

Data Source: Washington Department of Fish and Wildlife
CHINOOK

**ADULT ABUNDANCE**
- SPAWNERS
- WASHINGTON HARVEST
- B.C./ALASKA HARVEST

**JUVENILE ABUNDANCE**
- NO CHANGE
- DECREASING

### Strait of Juan De Fuca MPG
- SPAWNER GOAL RANGES: 21,700
  - SPAWNER GOAL RANGE: 8,100
- SPAWNER GOAL RANGES: 2,709
  - SPAWNER GOAL RANGE: 1,312

### Hood Canal MPG
- SPAWNER GOAL RANGES: 5,200
  - SPAWNER GOAL RANGE: 1,712
- SPAWNER GOAL RANGES: 1,700
  - SPAWNER GOAL RANGE: 1,300

### Central/South MPG
- SPAWNER GOAL RANGES: 70,200
  - SPAWNER GOAL RANGE: 14,835
- SPAWNER GOAL RANGES: 11,700
  - SPAWNER GOAL RANGE: 7,334

### Whidbey Basin MPG
- SPAWNER GOAL RANGES: 149,440
  - SPAWNER GOAL RANGE: 33,680
- SPAWNER GOAL RANGES: 27,334
  - SPAWNER GOAL RANGE: 5,800

### North Sound MPG
- SPAWNER GOAL RANGES: 25,000
  - SPAWNER GOAL RANGE: 353
- SPAWNER GOAL RANGES: 353
  - SPAWNER GOAL RANGE: 5,800
Are freshwater and estuarine habitats healthy and productive?

WATERSHED HEALTH:
LAND USE AND LAND COVER

- Developed land includes any land with a significant portion consisting of human-made structures. Impervious surfaces mainly are artificial structures that are covered by impermeable materials like pavement, rooftops, and soils compacted by urban development.

- Percentages are based on the total area of Puget Sound, including uplands, mountains, and other lands unlikely to be developed. Development and impervious surfaces typically are concentrated in lowlands (<1000 feet elevation), and along coastlines and river valleys.

- Data are from the Coastal Change and Analysis Program (CCAP).

DATA SOURCE: WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

New Habitat Data is on the Way

The statewide effort to collect status and trend information on watershed condition at the regional scale began with field sampling in Puget Sound and Hood Canal in 2009. Habitat data were collected at 50 stream sites across the area, consistent with the watershed health indicators and protocols adopted by the Forum on Monitoring Salmon Recovery and Watershed Health. Sampling in Washington’s other salmon recovery regions is underway. Results of that work will be included in future “State of Salmon in Watersheds” reports.

The charts to the right depict preliminary data for three Forum watershed health indicators — riparian shade, large wood, and in-stream biological health. We include them here as examples of the indicator data now being collected and analyzed. It is difficult to interpret data on individual indicators. We expect that individual watershed health indicators like these will be combined into a single, high level regional index of watershed health or habitat condition for future reports. As subsequent data are collected, it will be possible to show changes over time. Finally, to the extent it is collected on the same indicators with compatible protocols, future reports may include complementary information collected by partners at local or watershed scales.

DATA SOURCE: WASHINGTON DEPARTMENT OF ECOLOGY

![Graphs showing data for riparian shade, large wood, and instream biological health]
Is water clean enough to support wild salmon?

WATERSHED HEALTH:
WATER QUALITY

- Water quality is measured by a Water Quality Index. This is a number that aggregates water quality data at a monitoring station for temperature, acidity, fecal coliform bacteria, dissolved oxygen, nutrients, and sediments from October 1 to September 30.
- 22 sampling stations are reflected in the index.
- There are approximately 290 sites requiring management for high water temperatures.

DATA SOURCE: WASHINGTON DEPARTMENT OF ECOLOGY

Do rivers and streams have flows that support wild salmon?

WATERSHED HEALTH:
WATER QUANTITY

- Most years based on 27 monitoring stations.

DATA SOURCE: WASHINGTON DEPARTMENT OF ECOLOGY
What are trends in salmon funding?

PLAN IMPLEMENTATION:
FUNDING

• Total Salmon Funding Recovery Board-related funding was $394 million in state and federal, and local match from 1999-2010. 2010 data are preliminary.

• Charts to the right reflect all money administered by the Salmon Recovery Funding Board through the Pacific Coastal Salmon Recovery Fund, salmon recovery fund (state match), Puget Sound Acquisition and Restoration fund, Family Forest and Fish Passage Program, Estuary and Salmon Restoration Program, federal Puget Sound Chinook critical stock program, and hatchery reform.

• The table of percentages below reflects funding from the Pacific Coastal Salmon Recovery Fund and salmon recovery fund (state match) only – the two primary funding sources for grants through the Salmon Recovery Funding Board. The large statewide monitoring projects funded by the board are reflected in the statewide funding overview, not in individual regional overviews.

DATA SOURCE: WASHINGTON RECREATION AND CONSERVATION OFFICE

DISTRIBUTION OF PACIFIC COASTAL SALMON RECOVERY FUND AND SALMON RECOVERY FUND (STATE MATCH) BY CATEGORY

<table>
<thead>
<tr>
<th></th>
<th>PROJECTS</th>
<th>ADMIN.</th>
<th>MONITORING</th>
<th>TOTAL</th>
</tr>
</thead>
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<tr>
<td>1999</td>
<td>81%</td>
<td>19%</td>
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<tr>
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<td>100%</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>2001</td>
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</tr>
<tr>
<td>2003</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>$2,275,664</td>
</tr>
<tr>
<td>2004</td>
<td>99%</td>
<td>1%</td>
<td>0%</td>
<td>$16,426,922</td>
</tr>
<tr>
<td>2005</td>
<td>93%</td>
<td>7%</td>
<td>0%</td>
<td>$16,391,119</td>
</tr>
<tr>
<td>2006</td>
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<td>0%</td>
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<td>2007</td>
<td>96%</td>
<td>4%</td>
<td>0%</td>
<td>$14,503,610</td>
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<td>2008</td>
<td>91%</td>
<td>9%</td>
<td>0%</td>
<td>$9,989,747</td>
</tr>
<tr>
<td>2009</td>
<td>67%</td>
<td>30%</td>
<td>3%</td>
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<tr>
<td>2010</td>
<td>99%</td>
<td>0%</td>
<td>1%</td>
<td>$11,310,413</td>
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</table>
Are public resources used cost-effectively and efficiently?

**PLAN IMPLEMENTATION:**
**RECOVERY PLAN IMPLEMENTATION**

- Major limiting factors are identified in recovery plans, and are based on federal listing determinations. These are the main habitat factors that must be addressed for recovery.

- Percentages are averages of progress toward implementing actions addressing each major habitat limiting factor. They do not reflect the biological response of fish.

- Estimates of progress are based on best professional judgement.

- Recovery plan implementation is relatively recent—from 4 to 6 years.

DATA SOURCE: PUGET SOUND PARTNERSHIP
Are public resources used cost-effectively and efficiently?

PLAN IMPLEMENTATION:
WATERSHED PLANNING SUMMARY

An in-stream flow rule was developed based on the Watershed Planning Act in the Quilcene-Snow Water Resource Inventory Area (WRIA) 17.

Eight WRIAs are participating in the Watershed Planning Act, and all have county adopted watershed plans that are being implemented. The WRIAs are: Nooksack (1), San Juan (2), Island (6), Nisqually (11), Elwha-Dungeness (18), the Hood Canal portion of Kennedy-Goldsborough (14b), Skokomish-Dosewallips (16) and Quilcene-Snow (17).

Watershed Planning Highlights and Outcomes

- Nooksack (WRIA 1): In-stream flows were set in 1985 and now are being re-evaluated in the basin for consideration of treaty reserve water rights for the Nooksack Indian Tribe and the Lummi Nation.
- San Juan (WRIA 2): The planning unit examined in-stream flow rule setting needs for seven streams on the islands and concluded these streams were more important for fish food and shelter than spawning. Further in-stream flow work was not pursued.
- Lower Skagit (WRIA 3) and Upper Skagit (WRIA 4): Watershed planning efforts stopped before a plan could be finished, but the work produced useful information to enable adoption of in-stream flow rule amendments. Later, the Swinomish Indian Tribal Community formally challenged rule amendments, and settlement actions are underway.
- Island (WRIA 6): The planning unit did not recommend setting in-stream flows, and instead has focused on water reuse and protecting aquifer recharge zones.
Are public resources used cost-effectively and efficiently?

**PLAN IMPLEMENTATION:**
**FISH PASSAGE AND HABITAT PROJECTS**

- Map shows fish and habitat protection and restoration project locations from 2000 to 2010.

DATA SOURCES: WASHINGTON RECREATION AND CONSERVATION OFFICE, WASHINGTON DEPARTMENT OF FISH AND WILDLIFE, WASHINGTON DEPARTMENT OF NATURAL RESOURCES, NORTHWEST INDIAN FISHERIES COMMISSION, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, NORTHWEST FISHERIES SCIENCE CENTER, U.S. FOREST SERVICE, REGIONAL FISHERIES ENHANCEMENT GROUPS
Are hydroelectric facilities operating in a fish friendly manner?

**PLAN IMPLEMENTATION:**
**DAMS WITH FISH PASSAGE STANDARDS**
- Performance standards for passage vary by dam and may be set by a Federal Energy Regulatory Commission license, a Corps of Engineers 401 water quality certification, or a Habitat Conservation Program.
- Two dams that do not provide passage are scheduled for removal (Elwha and Glines Canyon).
- Dams recently may have received new federal licenses with fish passage improvements to meet new standards, for which passage success is not yet determined.
- Many dams are operating in non-anadromous fish zones and are not included in this indicator.

**DATA SOURCE:** WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

<table>
<thead>
<tr>
<th>NO STANDARDS</th>
<th>HAVE STANDARDS</th>
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<tbody>
<tr>
<td>DON'T HAVE STANDARDS</td>
<td>STANDARDS UNDER NEGOTIATION</td>
</tr>
<tr>
<td>2008</td>
<td>6</td>
</tr>
<tr>
<td>2010</td>
<td>6</td>
</tr>
<tr>
<td>NOT MEETING STANDARDS</td>
<td>MEETING STANDARDS</td>
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<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
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<td>0</td>
<td>0</td>
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</tbody>
</table>

Is water clean enough to support wild salmon?

**PLAN IMPLEMENTATION:**
**WATERSHED CLEANUP PLANS**

- Are hydroelectric facilities operating in a fish friendly manner?
- Are streams accessible to wild salmon?
- Is water clean enough to support wild salmon?

**DATA SOURCE:** WASHINGTON DEPARTMENT OF ECOLOGY

Are streams accessible to wild salmon?

**PLAN IMPLEMENTATION:**
**FISH PASSAGE BARRIERS**
- Number of barriers corrected are estimates. Because of incomplete reporting, these numbers are expected to be lower than actual values.
- Stream miles opened reflects the number of miles estimated to be opened to fish passage by year.

**DATA SOURCES:** WASHINGTON DEPARTMENT OF FISH AND WILDLIFE, WASHINGTON DEPARTMENT OF NATURAL RESOURCES, WASHINGTON DEPARTMENT OF TRANSPORTATION, WASHINGTON RECREATION AND CONSERVATION OFFICE, FORESTS AND FISH, U.S. FOREST SERVICE, BUREAU OF LAND MANAGEMENT

<table>
<thead>
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<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
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<tbody>
<tr>
<td>BARRIERS CORRECTED</td>
<td>163</td>
<td>208</td>
<td>122</td>
<td>144</td>
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<tr>
<td>STREAM MILES OPENED</td>
<td>N/A</td>
<td>N/A</td>
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<table>
<thead>
<tr>
<th>2004</th>
<th>2006</th>
<th>2008</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLANS COMPLETED OR UNDERWAY</td>
<td>567</td>
<td>866</td>
<td>478</td>
</tr>
<tr>
<td>PLANS NEEDED</td>
<td>1704</td>
<td>1136</td>
<td>56</td>
</tr>
</tbody>
</table>

- Cleanup plans address water quality impairments covered by total maximum daily load management plans.

**DATA SOURCE:** WASHINGTON DEPARTMENT OF ECOLOGY
Do rivers and streams have flows that support wild salmon?

**PLAN IMPLEMENTATION:**
**STREAMFLOW**

- Water restored to streams includes water from purchases, donations, or leases. The focus is on summer low flow periods and in-stream reaches where water availability is a limiting factor for fish.
- An acre-foot is one foot of water covering one acre of land.
- 74 percent (14 of 19) of the WRIAs in the region have in-stream flows set.

DATA SOURCE: WASHINGTON DEPARTMENT OF ECOLOGY

Do hatchery practices protect wild salmon?

**PLAN IMPLEMENTATION:**
**HATCHERY PROGRAMS MEETING SCIENTIFIC STANDARDS**

- Standards are recommendations from the Hatchery Scientific Review Group, an independent scientific panel established and funded by Congress to assemble, organize, and apply the best available scientific information for hatchery reform.
- Programs are defined as a single release or group of smolt releases, that come from the same broodstock and are released in the same watershed. Releases from a broodstock into a different watershed, are considered to be independent hatchery programs.
- Data are for Washington Department of Fish and Wildlife hatchery programs.

DATA SOURCE:
WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

**PERCENTAGE OF HATCHERY PROGRAMS MEETING STANDARDS**

<table>
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<th>2008</th>
<th>2010</th>
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<tbody>
<tr>
<td><strong>CHINOOK</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 programs</td>
<td>39%</td>
<td>45%</td>
<td>44%</td>
</tr>
<tr>
<td><strong>COHO</strong></td>
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<td></td>
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</tr>
<tr>
<td>11 programs</td>
<td>18%</td>
<td>40%</td>
<td>78%</td>
</tr>
<tr>
<td><strong>STEELHEAD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 programs</td>
<td>7%</td>
<td>21%</td>
<td>21%</td>
</tr>
<tr>
<td><strong>FALL CHUM</strong></td>
<td></td>
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<td>N/A</td>
<td>N/A</td>
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</tbody>
</table>