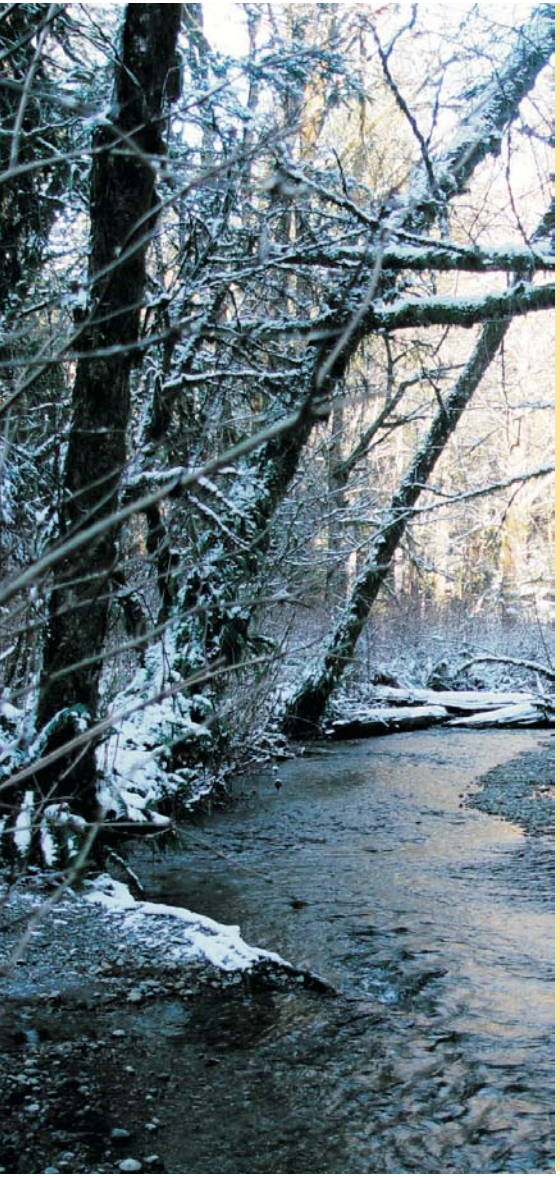
Puget Sound Salmon Recovery Region Plan Chinook



CHRIS DRIVDAHL

GOAL

To recover self-sustaining, harvestable salmon runs in a manner that contributes to the overall health of Puget Sound and its watersheds and allows us to enjoy and use this precious resource in concert with our region's economic vitality and prosperity.

> "A fundamental assumption of this plan is that local watershed efforts are the engine that will lead the region to recovery."
>
> SHARED STRATEGY FOR PUGET SOUND

Plan Timeframe
50 years

Estimated Cost
$1.42 billion
for first 10 years

Actions Identified to Implement Plan
More than 1000

Status
Harvest, hatchery, habitat plan submitted to NMFS 06/2005

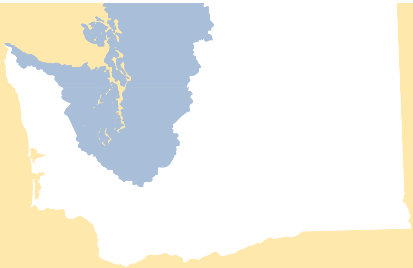
Human Population
4,093,500

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

Treaty Tribes
Lummi Nation, Nooksack, Stillaguamish, Jamestown S'Klallam, Muckleshoot, Nisqually, Port Gamble S'Klallam, Lower Elwha S'Klallam, Puyallup, Sauk-Suiattle, Skokomish, Squaxin Island, Suquamish, Swinomish, Tulalip, Upper Skagit

Listed Fish
Chinook, bull trout[1]

Regional Recovery Organization
Puget Sound Shared Strategy



MAJOR FACTORS LIMITING RECOVERY

- Degraded floodplain and in-river channel structure
- Degraded nearshore/marine and estuarine conditions and loss of associated habitat
- Riparian area degradation and loss of in-river large woody debris
- Excessive sediment in spawning gravels
- Degraded water quality and temperature
- Impaired instream flows
- Barriers to fish passage

KEY ACTIONS RECOMMENDED TO RECOVER FISH

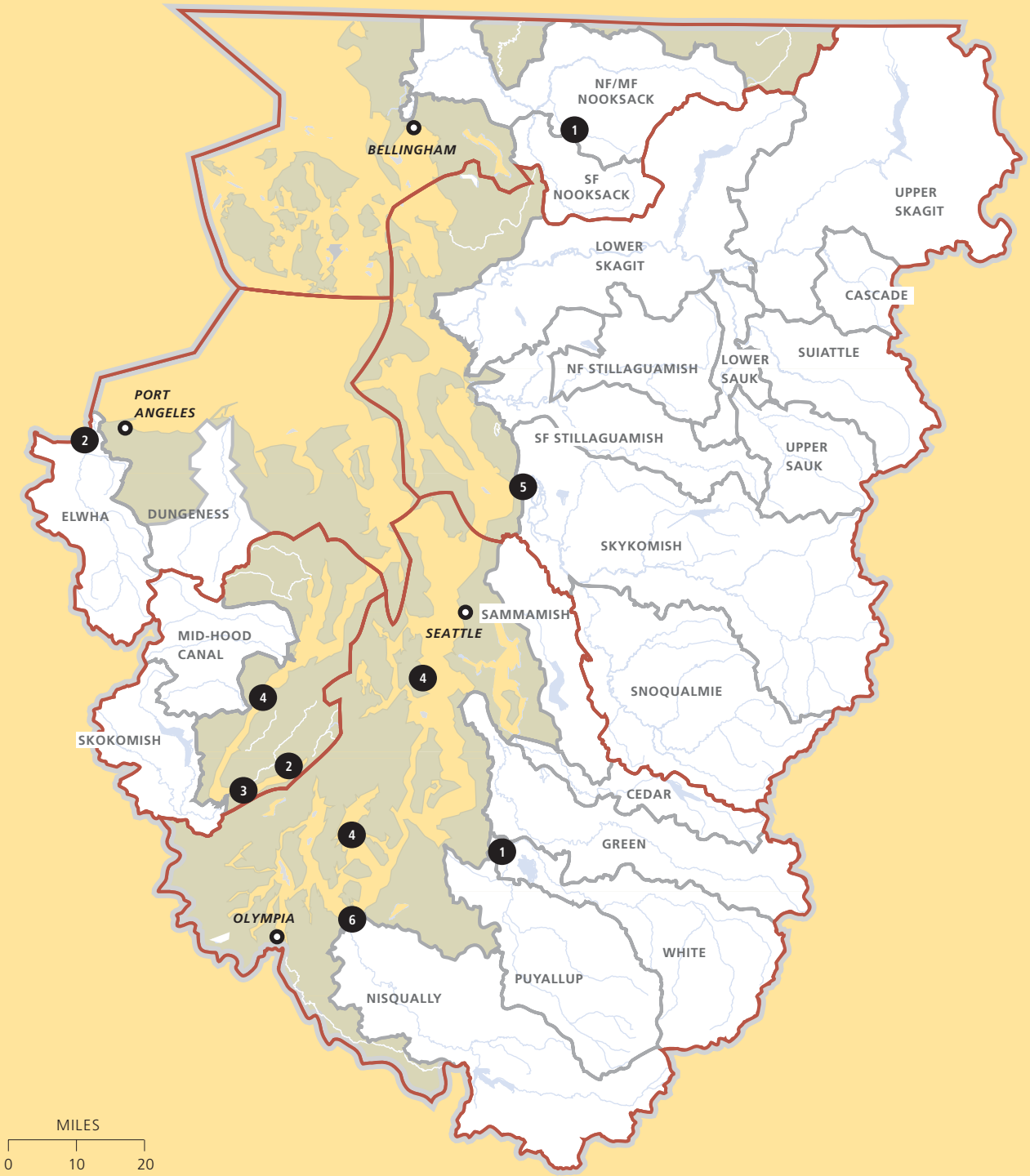
January 2006 to June 2007

- Implement high priority habitat actions in estuaries, floodplains, and riparian areas
- Protect most seriously threatened habitats and processes and coordinate protection plans across watersheds
- Identify restoration and protection priorities for nearshore
- Initiate programs to help farmers and other landowners protect salmon on private lands
- Define watershed and regional adaptive management procedures
- Integrate habitat actions with co-manager harvest goals and all hatcheries

Long Term

- Protect functioning habitat and habitat-forming processes
- Implement habitat restoration actions according to key factors and threats limiting recovery
- Remove major fish barriers across region
- Coordinate adaptive management and monitoring programs at regional and watershed levels
- Manage hatcheries for benefit of wild fish
- Reduce harvest of listed fish
- Develop robust regulatory and incentive programs to improve habitat protection on private property

[1] USFWS previously published a bull trout recovery plan (2004). The status of bull trout is currently under review and is expected to be complete by early 2006. At that time, USFWS will work with the Regional Board, WDFW, GSRO to incorporate elements of the State's plan into the federal plan.



Chinook
Key Actions
Puget Sound Salmon Recovery Region

Although each watershed area has its own individualized, tailored plan, there are common types of actions that all watersheds included in their chapters. These actions are related to the threats or limiting factors affecting salmon.

1

Floodplain Reconnection
Reconnecting two oxbows in the White River ($4.5M) will open over 100 acres of floodplain habitat to juvenile fish. Floodplain projects are one of the White's best chances at reducing the risk of extinction of early run Chinook, a population critical to regional success. Setting back dikes and levees to reconnect mainstem rivers with their floodplains is a priority in over half of the Puget Sound watersheds.

2

Fish Barriers
Removing the Middle Fork Diversion Dam on the Nooksack River ($5M) will open up 16 miles of habitat and increase the North Fork Nooksack population by over 30%. Opening access for fish—from the Elwha Dam to hundreds of road culverts has immediate benefits and is an important short-term element of most Puget Sound strategies.

ALL PHOTOS COURTESY SHARED STRATEGY FOR PUGET SOUND

3

Landowner Incentives

Across the densely populated Puget Sound, watersheds will work to engage landowners and communities in restoring the resource. For example, Hood Canal stakeholders are developing a creative program that provides materials and support to nearshore landowners to improve habitat conditions and reduce nonpoint pollution.

4

Marine Shorelines

In the next few years, scientists will have assessed 2,500 miles of Puget Sound marine shoreline to identify the highest priority sites for restoration and protection. Soon stakeholders will begin implementing the top projects identified. Nearshore habitats that provide food and shelter to migrating salmon are a vital piece of the regional recovery strategy, and their protection requires close partnerships among agencies, tribes, nonprofits, and landowners.

5

Estuaries

Estuary restoration is one of the most important actions Sound-wide, with over 3/4 of the watersheds ranking it a top priority. Restoring and protecting 2,720 acres in Snohomish estuary ($25M) will double the area of functioning habitat in the estuary, a key watershed priority for increasing survival rates of juvenile fish.

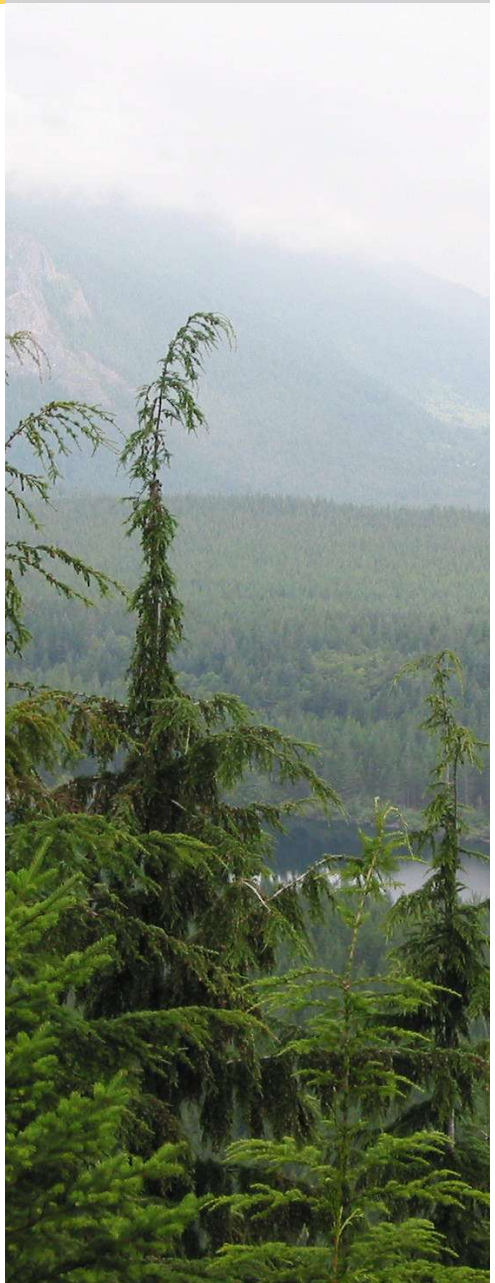
6

Habitat Protection

With a strategic combination of voluntary conservation easements, land acquisition, and regulatory approaches, the Nisqually watershed aims to achieve a formal commitment to protection in 95% of estuary habitat, 90% of mainstem river shoreline, and 85% of shorelines in two major tributaries. As the population of the region steadily increases, protecting functioning habitat and watershed processes will be a critical element of every watershed strategy.

DATA SOURCE: NOAA FISHERIES AND SHARED STRATEGY FOR PUGET SOUND

Puget Sound Salmon Recovery Region Chinook



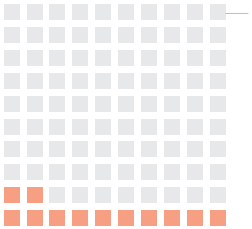
Chinook Spawner Abundance

Population	1996-2000	Low Productivity Target [1]	High Productivity Target [2]
NF Nooksack	120	16,000	3,800
SF Nooksack	200	9,100	2,000
Lower Skagit	2,300	16,000	3,900
Upper Skagit	8,920	26,000	5,380
Upper Cascade	330	1,200	290
Lower Sauk	660	5,600	1,400
Upper Sauk	370	3,030	750
Suiattle	420	610	160
NF Stillaguamish	660	18,000	4,000
SF Stillaguamish	240	15,000	3,600
Skykomish	1,700	39,000	8,700
Snoqualmie	1,200	25,000	5,500
North Lake WA	194*	4,000	1,000
Cedar	398*	8,200	2,000
Green	7,191*	27,000	Unknown
White	329*	Unknown	Unknown
Puyallup	2,400	18,000	5,300
Nisqually	890	13,000	3,400
Skokomish	1,500*	Unknown	Unknown
Mid-Hood Canal	389	5,200	1,300
Dungeness	123*	4,700	1,200
Elwha	1,319*	17,000	6,900
Total	32,853	271,640	60,580

* DATA 1987-2001

Chinook Productivity

Population	Present (Short Term Trend)[3]	Goal
NF Nooksack	1.42	3.40
SF Nooksack	1.07	3.60
Lower Skagit	1.06	3.00
Upper Skagit	1.06	3.80
Upper Cascade	1.05	3.00
Lower Sauk	1.03	3.00
Upper Sauk	.97	3.00
Suiattle	1.00	2.80
NF Stillaguamish	1.06	3.40
SF Stillaguamish	1.00	3.30
Skykomish	1.07	3.40
Snoqualmie	1.10	3.60
North Lake WA	1.04	3.00
Cedar	.97	3.10
Green	1.05	Unknown
White	1.14	Unknown
Puyallup	.96	2.30
Nisqually	1.06	2.30
Skokomish	1.04	Unknown
Mid-Hood Canal	1.11	3.00
Dungeness	1.07	3.00
Elwha	.97	4.60

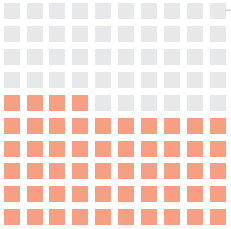


1 BOX = 1%

Total Abundance Low Productivity Target
271,640

Total Abundance 1996-2000
32,853 (12% of Goal)

[1] This is one adult fish returning from the ocean for each spawner.



Total Abundance High Productivity Target
60,580

Total Abundance 1996-2000
32,853 (54% of Goal)

[2] This is the number of spawners at the point where the population provides the highest sustainable yield for every spawner.

Abundance goal:
This is the number of adults needed on the spawning grounds to achieve recovery. Wherever possible it is expressed in natural spawner numbers.

Present abundance:
This is expressed as an average over a specified period of time.

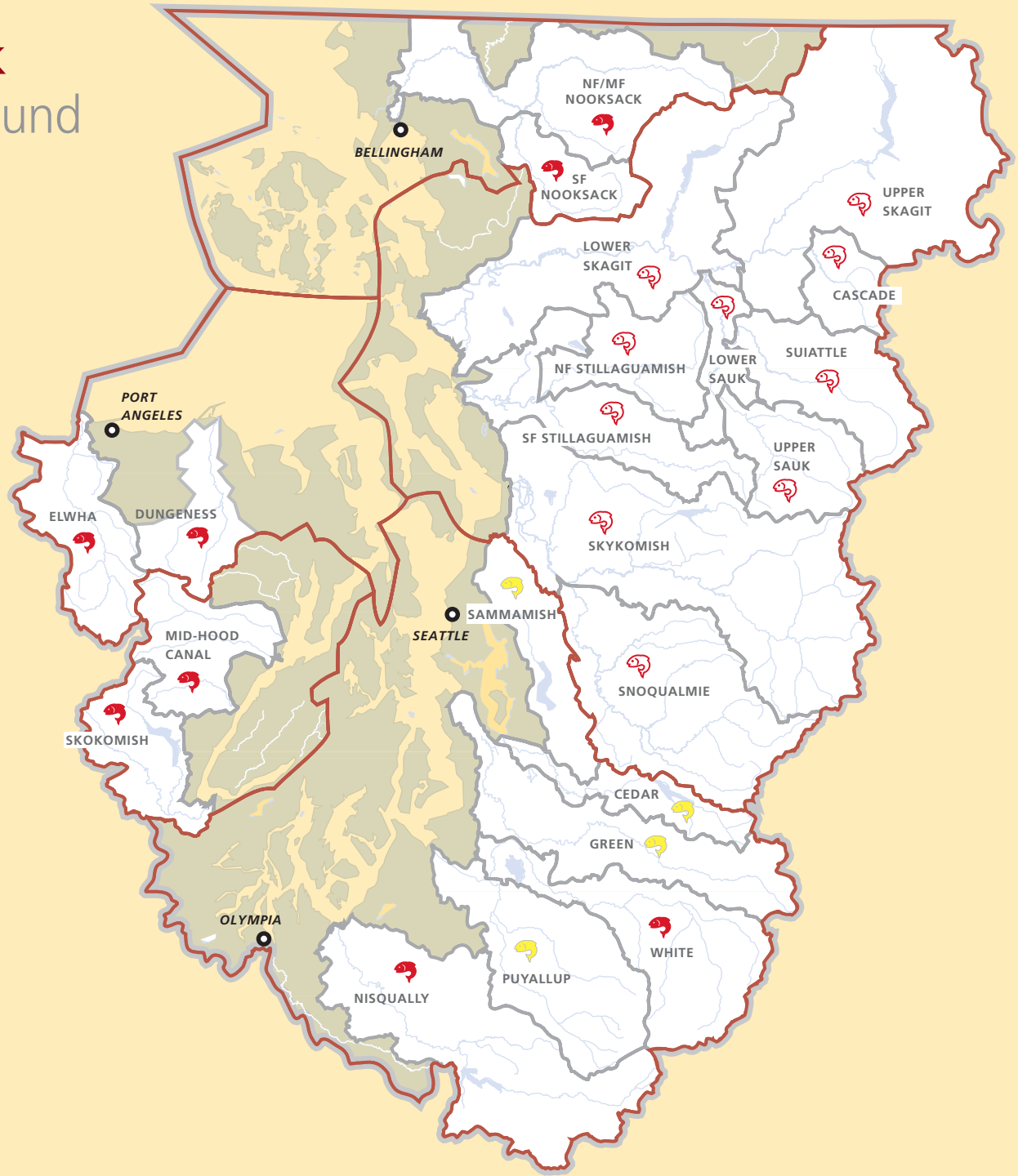
Productivity:
Population growth rate. This is how many fish return for each fish that spawns. A population must have productivity greater than 1 to increase over time.

[3] Calculated on all spawners.

Chinook
Puget Sound Salmon Recovery Region

CHINOOK
Oncorhynchus tshawytscha

Live 3-6 years; majority leave freshwater during their first year, making extensive use of protected estuary and nearshore habitats



- ESU Boundary
- Population
- No Population
- Major Population Group (MPG)
- Primary Population
- Contributing Population
- Status to be Determined

MILES
0 10 20

DATA SOURCE: NOAA-FISHERIES AND SHARED STRATEGY FOR PUGET SOUND