



STATE OF WASHINGTON

RECREATION AND CONSERVATION OFFICE

October 2008

Item #15: Contract Renewal for Department of Fish and Wildlife Smolt Monitoring

Prepared By: Ken Dzinbal, Recreation and Conservation Office
Tim Smith, Washington Department of Fish and Wildlife
Erik Neatherlin, Washington Department of Fish and Wildlife

Presented By: Tim Smith, Washington Department of Fish and Wildlife

Approved by the Director:

Proposed Action: Decision

Summary

The Washington Department of Fish and Wildlife (WDFW) seeks continued support from the Salmon Recovery Funding Board (Board) for monitoring adult and juvenile salmonid abundance at selected, high priority sites. WDFW needs these sites to evaluate key populations identified for ESA recovery within each Major Population Group within each ESU as published in the "Washington State Framework for Monitoring Salmon Populations Listed under the Federal Endangered Species Act and Associated Freshwater Habitats."

WDFW is requesting \$207,771 for the October 2008 through December 2009 period to monitor adult and juvenile salmonids. If approved, this funding request will close the fiscal year 2009 gaps statewide on the "fish in / fish out" framework. That is, it will provide enough monitoring of adults and juveniles to estimate productivity for at least one major population group¹ per Evolutionary Significant Unit.

¹ Major population group is defined as one primary population per sub-geographic area



The request will fund the following specific projects:

Project	Funding Request
Grays River Chinook and Chum	\$74,829
Wind River Coho	\$20,000
Salmon Creek Summer Chum	\$32,192
Touchet Steelhead	\$80,750
Total	\$207,771

Without this funding, WDFW anticipates financial gaps for Lower Columbia Coast and Gorge populations, and Middle Columbia Walla Walla populations.

Background

NOAA and its associated technical review teams have identified 28 Major Population Groups and found that a minimum of 86 primary populations may require monitoring to effectively assess delisting criteria in Washington State.

The Washington Forum on Monitoring (Forum) adopted a strategy called the “Washington State Framework for Monitoring Salmon Populations Listed under the Federal Endangered Species Act and Associated Freshwater Habitats” (Framework). This Framework is designed to track salmon abundance and productivity and relate changes in freshwater productivity to habitat conditions.

However, the Framework recognizes that it is not economically feasible for Washington to monitor all 86 salmon populations and their habitats at the level of intensity suggested by the criteria laid out by NOAA. Instead, the Forum focused on the most important populations and proposed monitoring juvenile migrants at the mouths of 34 rivers, thereby obtaining information on 70 of the primary populations requiring monitoring.

WDFW and the tribes have monitored a number of adult salmon and steelhead populations that are important for managing harvest, but have little or no data about many other populations. This is especially true with regard to counting juvenile migrants. Attachment A lists all major population groups, primary populations, species, smolt and adult abundance monitoring being conducted, the entity conducting the monitoring, and fund sources.

WDFW combines funding from several sources to support the highest-priority monitoring for adult and juvenile abundance (fish-in / fish-out), including state general fund, BPA grants, Pacific Salmon Fund Southern Funds, PUD contracts, and Salmon Recovery Funding Board grants.

The Board has awarded funds to WDFW for adult and juvenile salmonid abundance monitoring since 2001.

Year	Board Funding
2001	\$650,000
2002	\$550,000
2003	\$550,000
2004	\$250,000
2005	\$250,000
2006	\$215,000
2007	\$358,044
2008	\$208,000

The NOAA directives for the 2008 PCSRF grant include a requirement that 10 percent of expenditures be used for monitoring. At a minimum, \$2.35 million must be dedicated to monitoring.

WDFW is asking the Salmon Recovery Funding Board to approve its funding request for \$207,771 for “fish in/fish out” monitoring through December 2009.

Attachments

- A. Table 1 – Analysis of all current migrant trap sites vs sites needed for evaluating key populations identified for ESA recovery.
- B. Power Point presentation handout provided by WDFW

Statewide Monitoring of listed species - Juveniles & Adults									
Table Provided by: WSPE			Table Updated by: mk		Table Updated: 11/17/2008 16:11				
Recovery Region	Major Population Groups ¹	Target Species	Primary Populations	Current Smolt Sites	Current		2009 - 2011		
					Juv	Adult	Juv	Adult	
Puget Sound	North Sound	Chinook	NF Nooksack	MS Nooksack	Y	Y	?	Y	
			SF Nooksack		Y	Y	?	Y	
	Whidbey Basin	Chinook	Upper Skagit ¹¹	MS Skagit	Y	Y	Y	Y	
			Lower Skagit		Y	Y	Y	Y	
			Upper Sauk (early)		Y	Y	Y	Y	
			Lower Sauk		Y	Y	Y	Y	
			Suiattle (early)		Y	Y	Y	Y	
			Cascade (early)		Y	Y	Y	Y	
			NF Stillaguamish	MS Stillaguamish	Y	Y	?	Y	
			SF Stillaguamish		Y	Y	?	Y	
			Skykomish	Skykomish	Y	Y	?	?	
			Snoqualmie	Snoqualmie	Y	Y	?	?	
	Steelhead ¹⁴	Steelhead ¹⁴	MS Skagit/Tribs Winter	MS Skagit	N	Y	N	Y	
			Lake WA Winter	Cedar/Bear	Y	Y	N	Y	
			Green (Duwamish) Winter	Green	Y	Y	Y	Y	
	Central/South Sound Basin	Chinook	White River	none	N	Y	N		
			Nisqually	none	Y	Y	Y	Y	
		Steelhead ¹⁴	Mainstem Puyallup Winter	Puyallup	Y	Y	?	Y	
			White River (Puyallup) Winter		Y	Y	?	Y	
	Hood Canal	Chinook	Skokomish	none	N	Y	N	Y	
			Mid Hood Canal	none	N	Y	N	Y	
		Summer Chum	Quilcene	none	N	Y	N	Y	
			Dosewallips	none	N	Y	N	Y	
			Duckabush	Duckabush	N	Y	N	Y	
			Lilliwaup	none	N	Y	N	Y	
			Union River	none	N	Y	N	Y	
			Hamma Hamma	Hamma Hamma	Y	Y	N	Y	
		Steelhead ¹⁴	Steelhead ¹⁴	Tahuya Winter	Tahuya/Little Tahuya	Y	Y	Y	Y
				Hamma Hamma Winter	Hamma Hamma	Y	Y	Y	Y
	Duckabush Winter			Duckabush	Y	Y	Y	Y	
	Eastern JDF	Chinook	Dungeness	Dungeness	Y	Y	Y	Y	
			Elwha	Elwha	Y	Y	?	?	
		Summer Chum	Jimmycomelately	none	N	Y	N	Y	
Salmon/Snow			Salmon	Y	Y	N	Y		
Steelhead ¹⁴		Dungeness Winter	Dungeness	Y	Y	Y	Y		

Recovery Region	Major Population Groups ¹	Target Species	Primary Populations	Current Smolt Sites	Current		2009 - 2011	
					Juv	Adult	Juv	Adult
Coastal	Ozette	Sockeye	Lake Ozette	Ozette River	Y	Y	?	?
Lower Columbia	Coast	Chinook	Grays/Chinook Fall	none	Y	Y	?	?
			Elochoman/ Skamokawa Fall	none	N	Y	N	Y
		Chum	Mill/Abernathy/ Germany	none	N	Y	N	Y
			Grays/Chinook River	Grays ¹⁵	Y	Y	N	N
			Elochoman/ Skamokawa	none	N	N	N	N
		Coho	Grays/Chinook	none	Y	Y	N	N
			Elochoman/Skamokawa	none	N	N	N	N
		Cascade	Chinook	Upper Cowlitz Spring	Cowlitz Falls	Y	Y	Y
	Cispus Spring				N	N	N	N
	Coweeman Fall			Coweeman ¹⁶	Y	Y	Y	Y
	Kalama Fall			Kalama River	N	Y	N	Y
	Kalama Spring				N	Y	N	Y
	NF Lewis Fall			Cedar Creek	Y	Y	N	?
	NF Lewis Spring				Y	Y	N	?
	EF Lewis Fall			none	N	Y	N	Y
	Washougal Fall		none	N	Y	N	Y	
	Chum		EF Lewis	none	N	N	N	N
			Washougal	none	N	N	N	N
	Coho		Lower Cowlitz	Cowlitz Falls	Y	Y	Y	Y
			SF Toutle	none	N	N	N	N
			NF Toutle	none	N	N	N	N
			Coweeman	Coweeman ¹⁶	Y	Y	Y	Y
			EF Lewis	none	N	N	N	N
	Steelhead		SF Toutle Winter	none	N	Y	N	Y
			NF Toutle Winter	none	N	Y	N	Y
			Coweeman Winter	Coweeman ¹⁶	Y	Y	Y	Y
			Kalama Winter	Kalama River	Y	Y	N	Y
		Kalama Summer		Y	Y	N	Y	
EF Lewis Winter		none	N	Y	N	Y		
EF Lewis Summer		none	N	Y	N	Y		
Washougal Summer	none	N	Y	N	Y			

Recovery Region	Major Population Groups ¹	Target Species	Primary Populations	Current Smolt Sites	Current		2009 - 2011	
					Juv	Adult	Juv	Adult
	Gorge	Chinook	Wind Tule Fall	none ⁵	N	Y	N	Y
			White Salmon Tule Fall		N	Y	N	Y
		Chum	Lower Gorge	Duncan Creek	Y	Y	N	N
				Hamilton Creek	Y	N	?	?
				Hardy Creek	Y	N	?	?
		Coho	Lower Gorge	none	N	N	?	?
			Upper Gorge	Wind River ¹¹	Y	Y	N	N
		Steelhead	Lower Gorge Winter	none	N	N	N	N
Upper Gorge Summer	Wind River		Y	Y	Y	Y		
Middle Columbia	Eastslope	Steelhead	Klickitat Summer	Klickitat River ¹¹	Y	N	?	?
			Klickitat winter		Y	N	?	?
	Yakima	Steelhead	Satus Creek Summer	Yakima River (Prosser Dam)	Y	Y	?	?
	Walla Walla	Steelhead	Walla Walla	Walla Walla ⁸	Y	N	?	?
Touchet			Touchet River	Y	Y	Y	Y	
Snake	Lower Snake ⁹	Chinook	Tucannon Spring	Tucannon River	Y	Y	Y	Y
			Snake Fall	Tucannon River	Y	Y	N	N
			Asotin Spring	Asotin Creek	Y	Y	Y	Y
		Steelhead	Tucannon Summer	Tucannon River	Y	Y	Y	Y
			Asotin Summer	Asotin Creek	Y	Y	Y	Y
	Grande Ronde	Chinook	Wenaha Spring	Grand Ronde	Y	Y	?	?
		Steelhead	Joseph Summer		Y	Y	?	?
			Lower Grande Ronde Summer		Y	Y	?	?
Upper Columbia	East Cascades	Chinook	Wenatchee Spring	Wenatchee	Y	Y	Y	Y
			Entiat Spring	Entiat	Y	Y	Y	Y
			Methow Spring	Methow	Y	Y	Y	Y
		Steelhead	Wenatchee Summer	Wenatchee	Y	Y	Y	Y
			Entiat Summer	Entiat	Y	Y	Y	Y
			Methow Summer	Methow	Y	Y	Y	Y
		Okanogan Summer	Okanogan	?	?	?	?	

Recovery Region	Major Population Groups ¹	Target Species	Primary Populations	Current		2009 - 2011	
				Current Smolt Sites	Juv	Adult	Juv
<p>¹ “Sub-regional groupings” (i.e., Geographic Regions of Diversity and Risk, Meta-population Strata, and Major Population Groups) were designated by the appropriate Technical Recovery Team.</p> <p>² Production” refers to sites where the total number of downstream migrants are estimated; “index” refers to sites at which an index of production (e.g. total catch, or catch per unit effort of fishing time) is made. Traps monitor naturally produced migrants.</p> <p>³ Subjective rating. In some full stock reports an explanation is provided regarding the assigned rating, especially for data rated "poor".</p> <p>⁴Traps operated less than 40% of the time; production estimates (rather than index counts) could be developed or substantially improved with additional monitoring.</p> <p>⁵ The smolt trap on the Wind River is located at the downstream-most viable trapping site to estimate nearly the entire Wind River production. Yet, nearly all of the listed Wind Tule Fall Chinook spawn downstream of this site. Therefore, estimation of Wind River tule fall chinook production is not viable with existing technology. Chinook production from the Wind and White Salmon Rivers includes non-listed stocks (Wind Spring Chinook, Wind Bright Fall Chinook, and White Salmon Bright Fall Chinook are not native to these systems and therefore are not part of the listed ESU) as well as listed tule fall chinook. Estimation of White Salmon tule fall chinook production would require DNA analysis. The USGS is planning to initiate trapping for chinook, coho, and steelhead on the Big White Salmon River in Spring 2006, with production estimates available in 2007. With funding for DNA analysis, the USGS trap could potentially fill the information gap for estimating listed tule fall chinook production.</p> <p>⁶ Production estimates are anticipated beginning in 2006.</p> <p>⁷ Listed Hood Canal summer chum production is currently estimated from the non-listed fall chum production using run timing. More accurate and precise estimates could be developed using DNA analysis at an additional cost.</p> <p>⁸ Traps are also located in Oregon sections of the mainstem Walla Walla River (USFWS) and on Mill Creek (ODFW), however, these are not listed since they measure production originating in Oregon and the lower Walla Walla trap integrates production from all of these sites.</p> <p>⁹ Downstream migrant traps are also operated on the Grande Ronde (ODFW) and mainstem Snake River (IFG). These are not listed since they measure production largely occurring outside of the State of Washington.</p> <p>¹¹ At least 2 to 4, of which at least one is an early run, will be designated as primary.</p> <p>¹² Trapping is currently directed at PIT tagging wild salmonids and currently does not make production estimates. Proposal is to jointly work to develop estimates at this site.</p> <p>¹³ A trap was put in place in 2008 but data are not yet available for production estimates.</p> <p>¹⁴ Puget Sound steelhead Major Population Groups and Primary Populations have not yet been determined. Any Puget Sound steelhead stocks included here are for reference only and may not be assigned primary status. Only Puget Sound steelhead stocks for which both smolt and adult data are available are shown here.</p> <p>¹⁵ Monitoring began in 2008.</p> <p>¹⁶ Monitoring began in 2006.</p>							

Washington Monitoring Forum Framework

“Fish in / Fish out”



Washington
Department of
**FISH and
WILDLIFE**

Salmon Recovery Funding Board

October 17, 2008

Discussion Elements

- Program Goal
- Monitoring Framework
- Cycle of Smolt Work
- History of SRFB Funding
- Current Funding Request

Program Goal

To monitor the number of adult spawners (Fish in) and subsequent smolt production (Fish out) for at least one **Primary Listed Population (PLP)** in each **Major Population Group (MPG)** of each Evolutionary Significant Unit (ESU)

From the Monitoring Forum's "Washington State Framework for Monitoring Salmon Populations Listed under the Federal Endangered Species Act and Associated Freshwater Habitats"

How is Smolt Monitoring Funded?

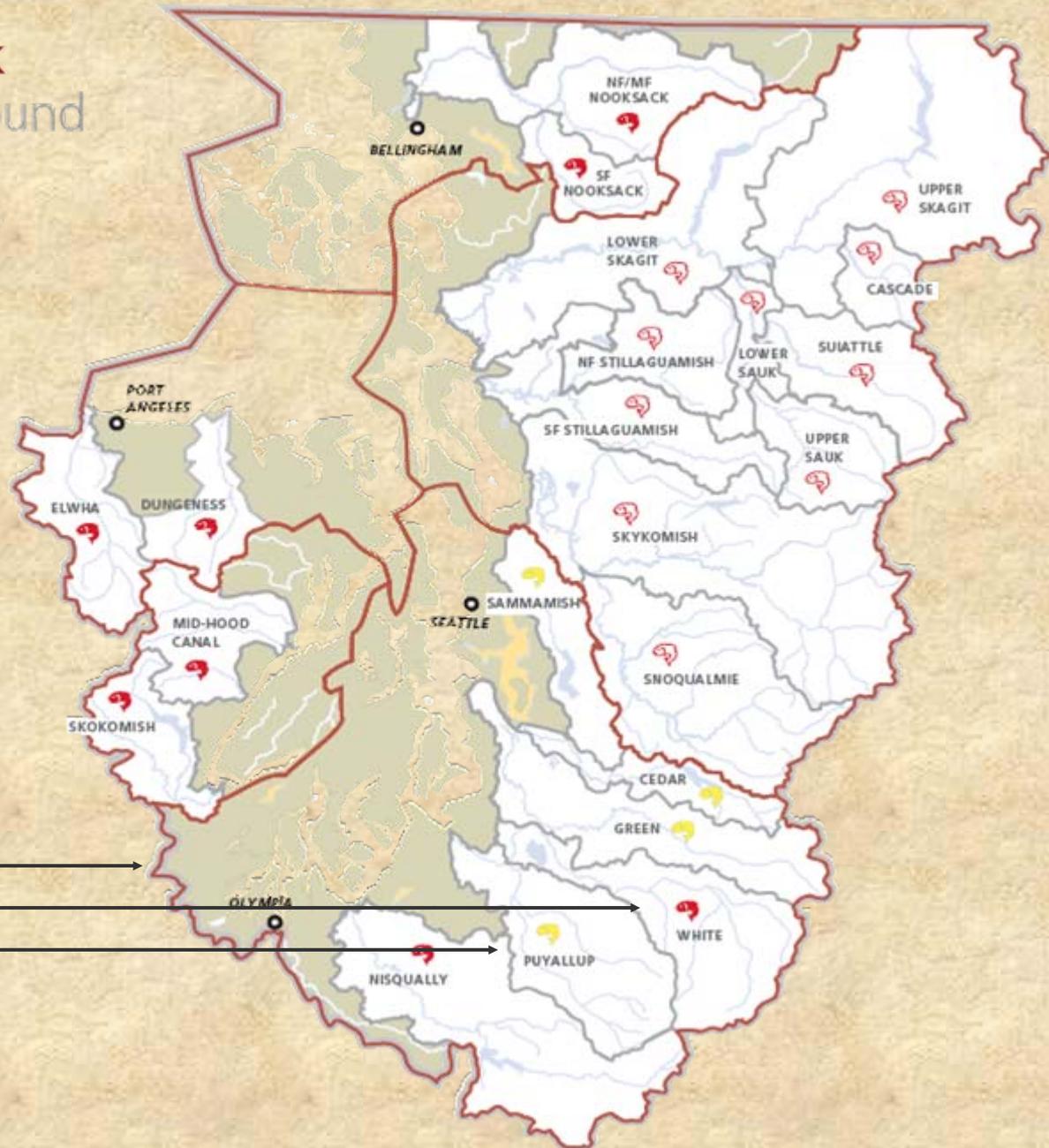
- WDFW 07/09 Biennial Budget Package
 - Washington Forum on Monitoring
- Dedicated Funding
 - i.e. mitigation funds
- Salmon Recovery Funding Board (since FY 2001)
- Bonneville Power Administration
- Local PUD's
 - e.g. Tacoma City Light and Chelan County
- Tribes, NGO's, and federal agencies



CHINOOK
Oncorhynchus tshawytscha

Live 3-5 years;
majority leave
freshwater during
their first year,
making extensive use
of protected estuary
and nearshore
habitats

Chinook Puget Sound Salmon Recovery Region



**What's an MPG
and a PLP?**

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



Washington Monitoring Forum Framework

Population

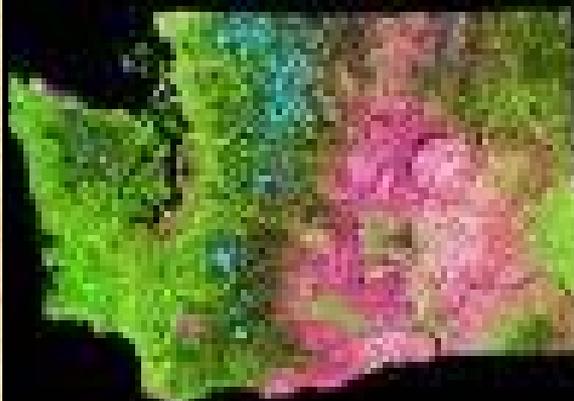
Fish
Monitoring



Fish in / Fish out

Habitat Limiting Factors

Remote
Sensing



Landsat
Aerial Photos

Field
Collection

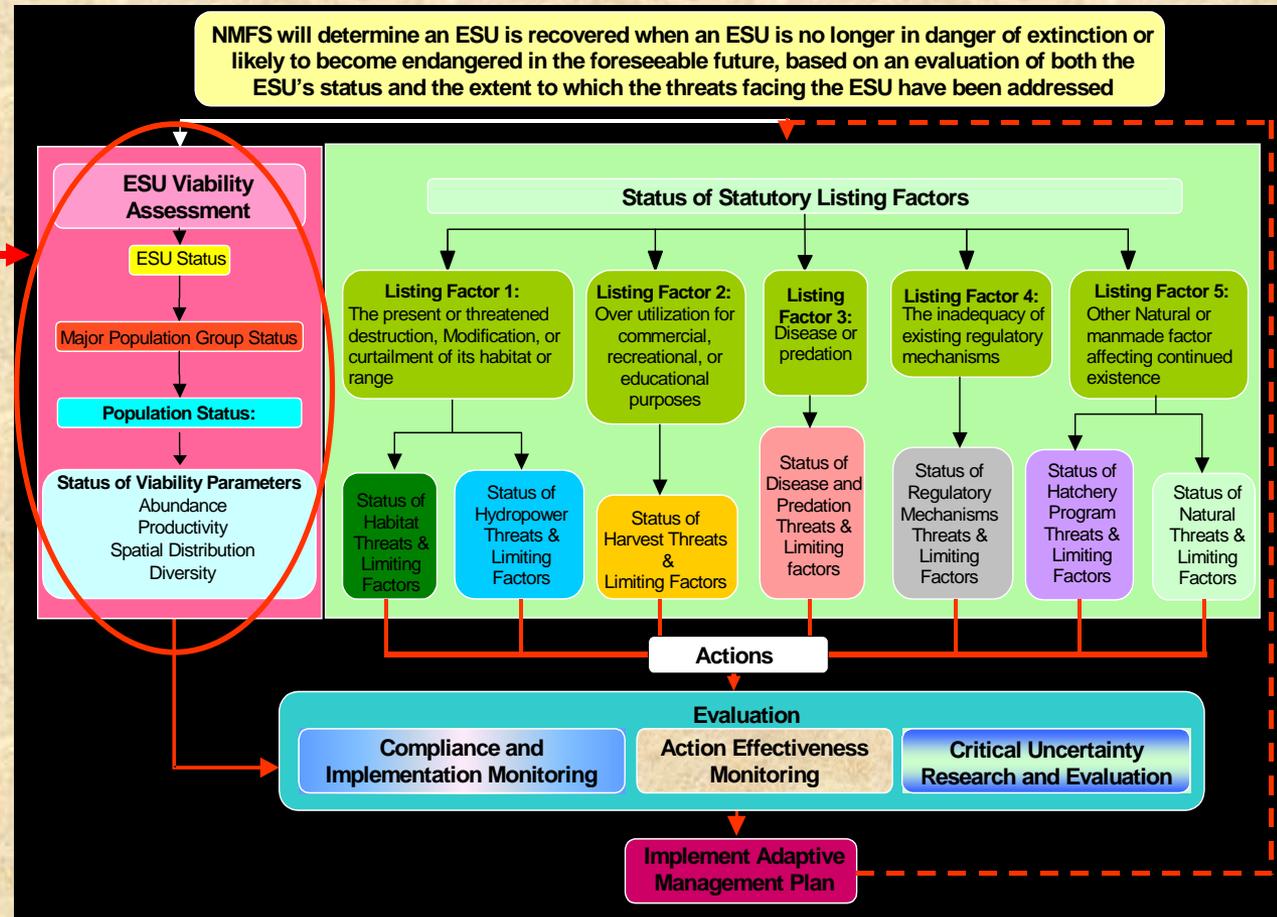
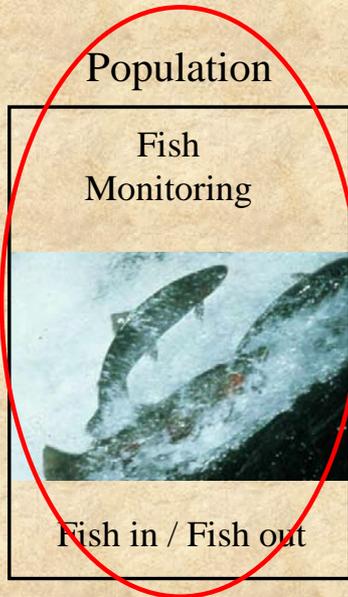


Habitat
H₂O Quality

Washington Monitoring Forum Framework



NMFS Decision Framework



Cycle of Smolt Monitoring Work

Logistics

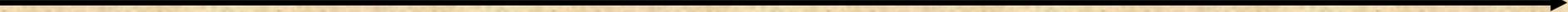
Buy traps and equipment,
hire technicians, prepare
field station, etc.

Collect Field Data

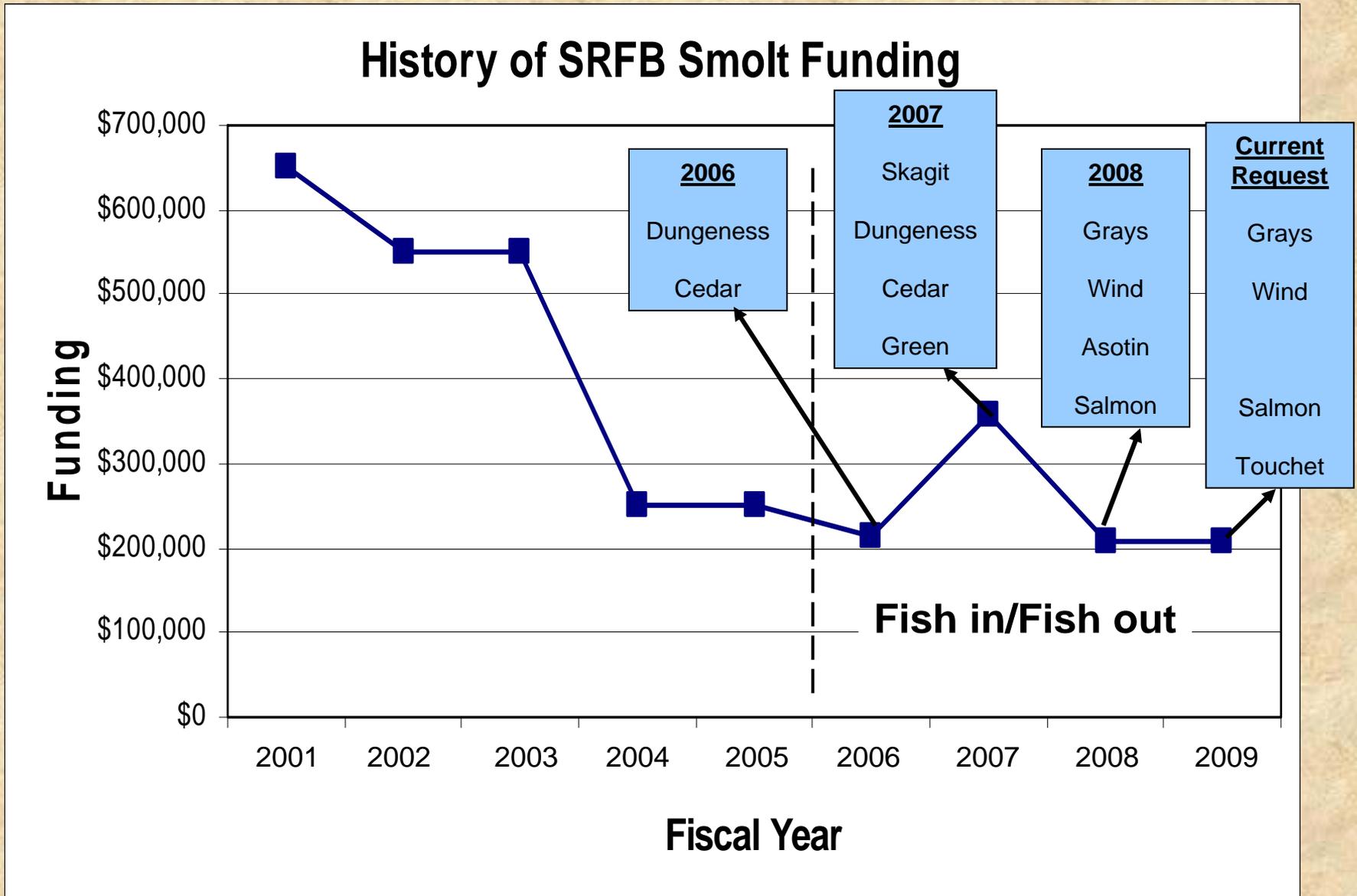
Data Analyses

Results and Reports

Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep



SRFB Used as Stop Gap Funding



Current SRFB Request

		Fish in / Fish out	Historic Dataset
Grays River =	\$74,829	√	√
Wind River =	\$20,000	√	√
Salmon Cr =	\$32,192	√	√
Touchet River =	\$80,750	√	√

Total SRFB Request = \$207,771

Thank You