

200??



COLUMBIA  
BASIN  
FISH AND  
WILDLIFE  
AUTHORITY



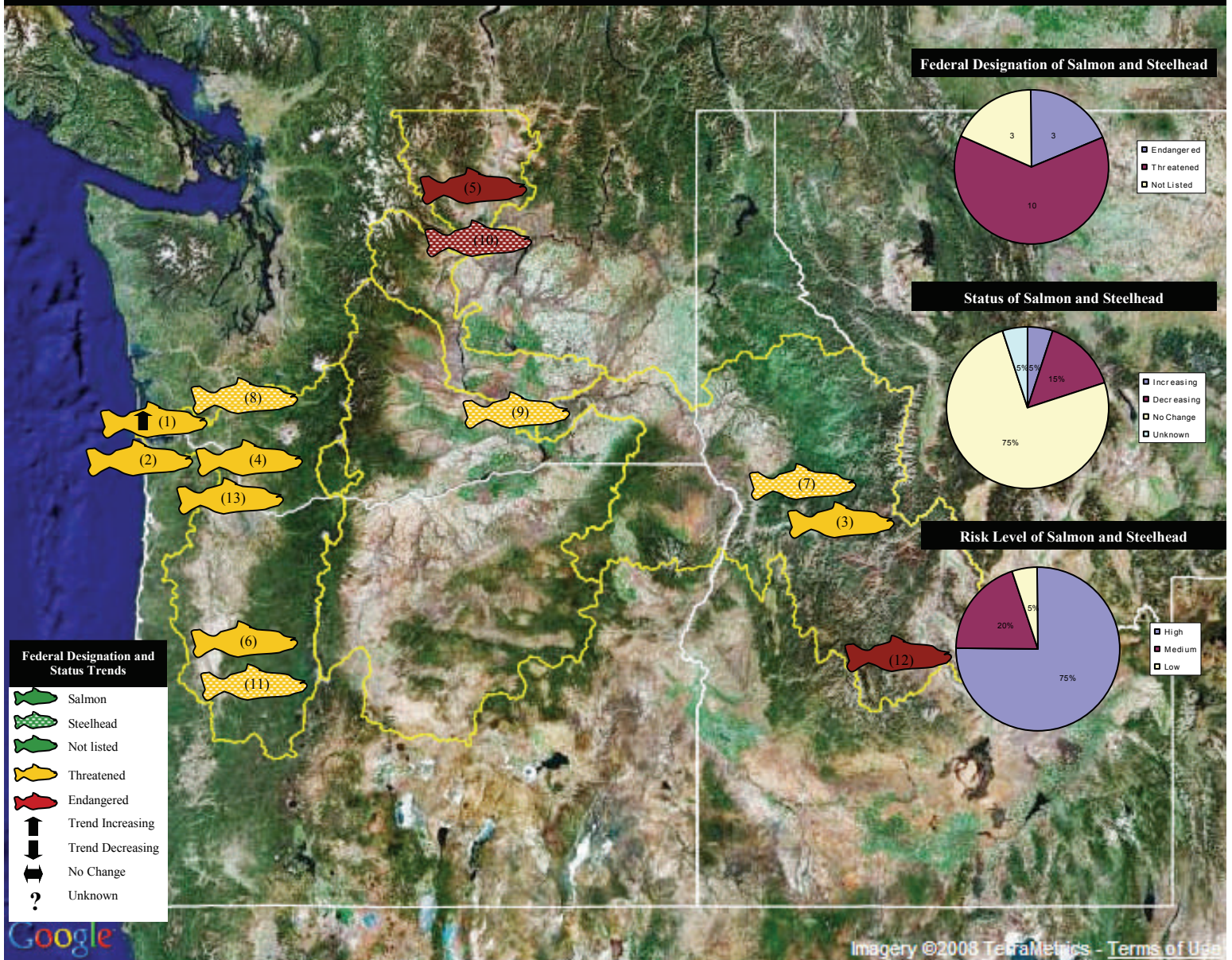
# Status of Fish and Wildlife Resources in the Columbia River Basin

**DRAFT**  
(The numbers in this report  
do not represent actual data)



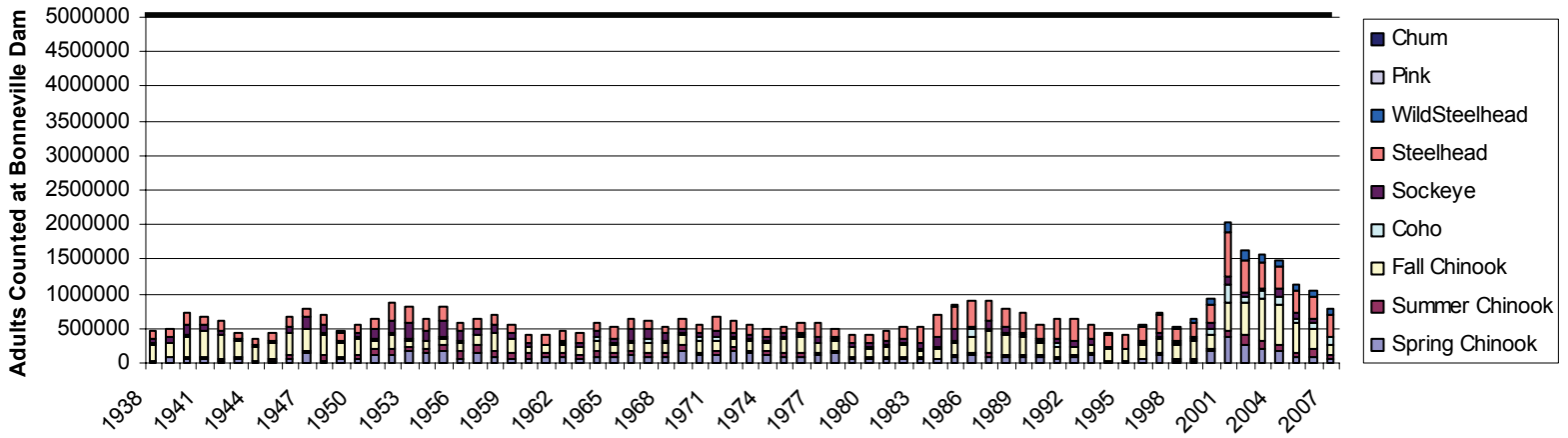
# Columbia River Basin

Status and Trends of Salmon and Steelhead in the Columbia River Basin



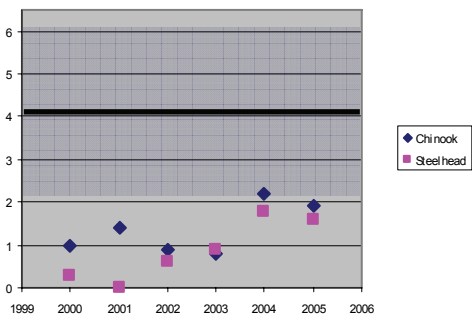
Recovery Domain	ESU/DPS	Federal Designation (year listed)	Status	Risk Level
Willamette/Lower Columbia	Columbia River Chum (1)	Threatened (1999)	Increasing, Decreasing, No Change, Unknown	Percentage of populations in the ESU at High, Medium, Low
	Lower Columbia River Chinook (2)	Threatened (1999)		
	Upper Willamette River Chinook (3)	Threatened (1999)		
	Lower Columbia River Steelhead (4)	Threatened (1998)		
	Lower Columbia River Coho (5)	Threatened (2005)		
	Upper Willamette River Steelhead (6)	Threatened (1999)		
Interior Columbia	Snake River Fall Chinook (7)	Threatened (1992)		
	Snake River Spring/Summer Chinook (8)	Threatened (1992)		
	Upper Columbia River Spring Chinook (9)	Endangered (1999)		
	Snake River Basin Steelhead (10)	Threatened (1997)		
	Middle Columbia River Steelhead (11)	Threatened (1999)		
	Upper Columbia River (13)	Endangered (1997)		
	Snake River Sockeye (14)	Endangered (1991)		

### Adult Salmon and Steelhead Counts at Bonneville Dam (1938-2008)



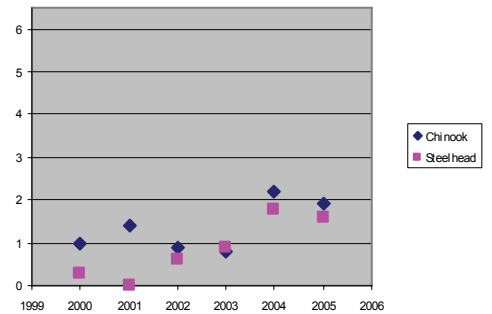
#### Smolt-to-Adult Return

Wells/Rock Island...

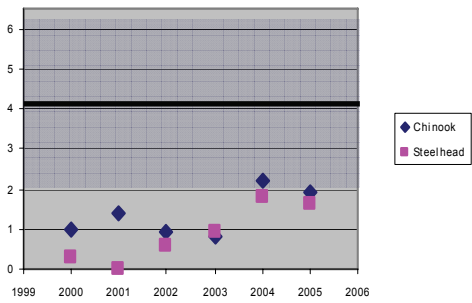


#### SAR Ratio to Transport-In-River Survival

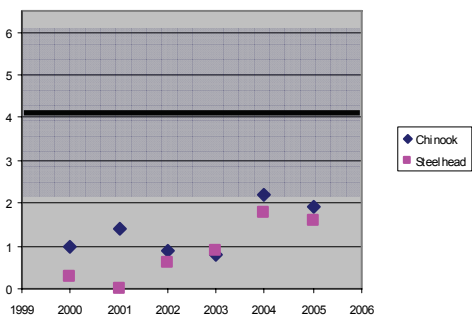
Lower Granite to Bonneville



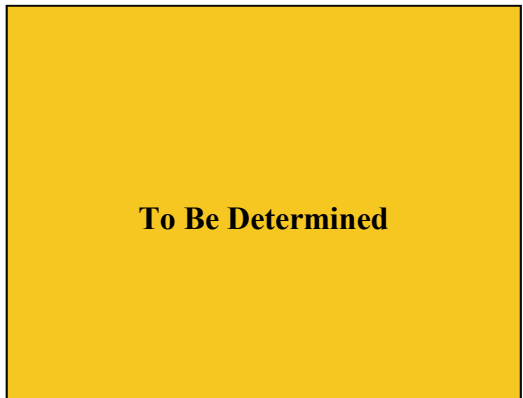
Granite Dam



McNary



#### System Survival



#### Predation

Fish

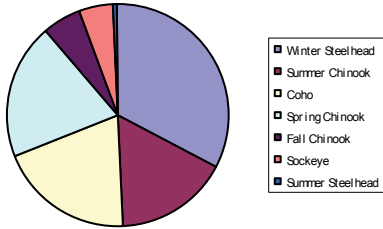
Birds

Pinnipeds

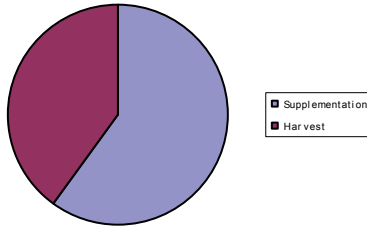
# Columbia River Basin

## Hatchery Production of Salmon and Steelhead in the Columbia River Basin (2007-2008)

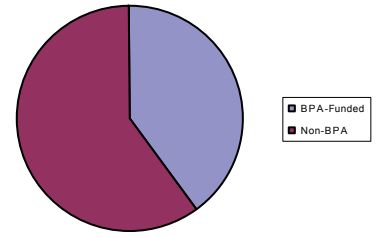
**Hatchery Releases**  
Total Release = #####



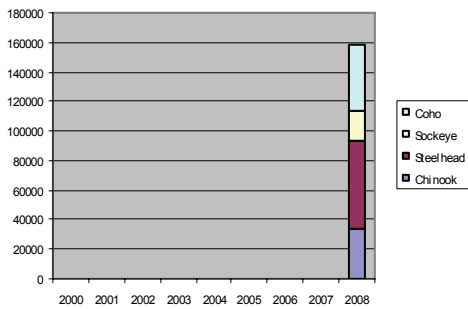
**Hatchery Releases by Production Type**



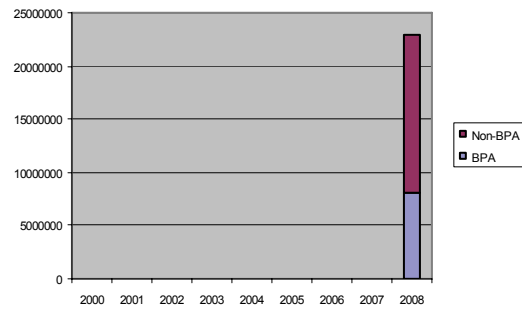
**Hatchery Releases by Entity**



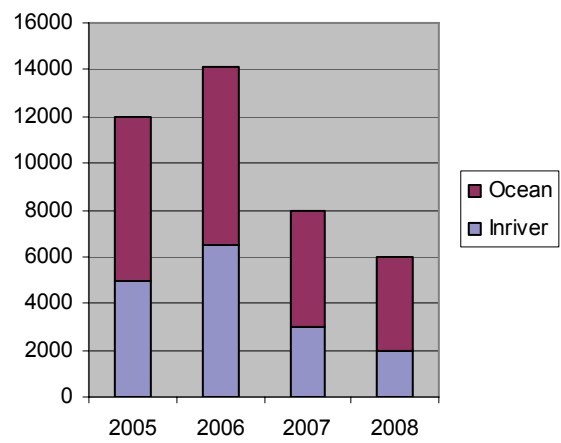
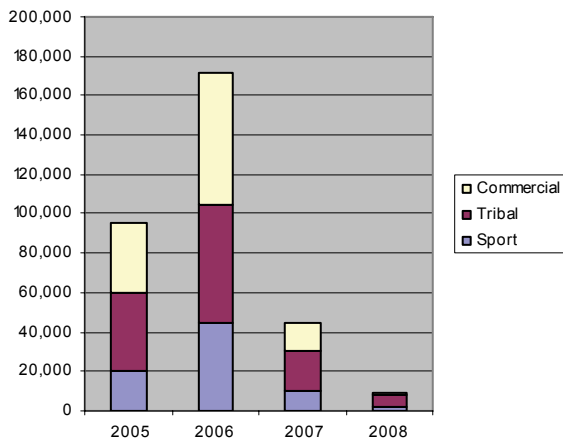
**Returns by Species to Hatcheries**



**Hatchery Funding by Entity**



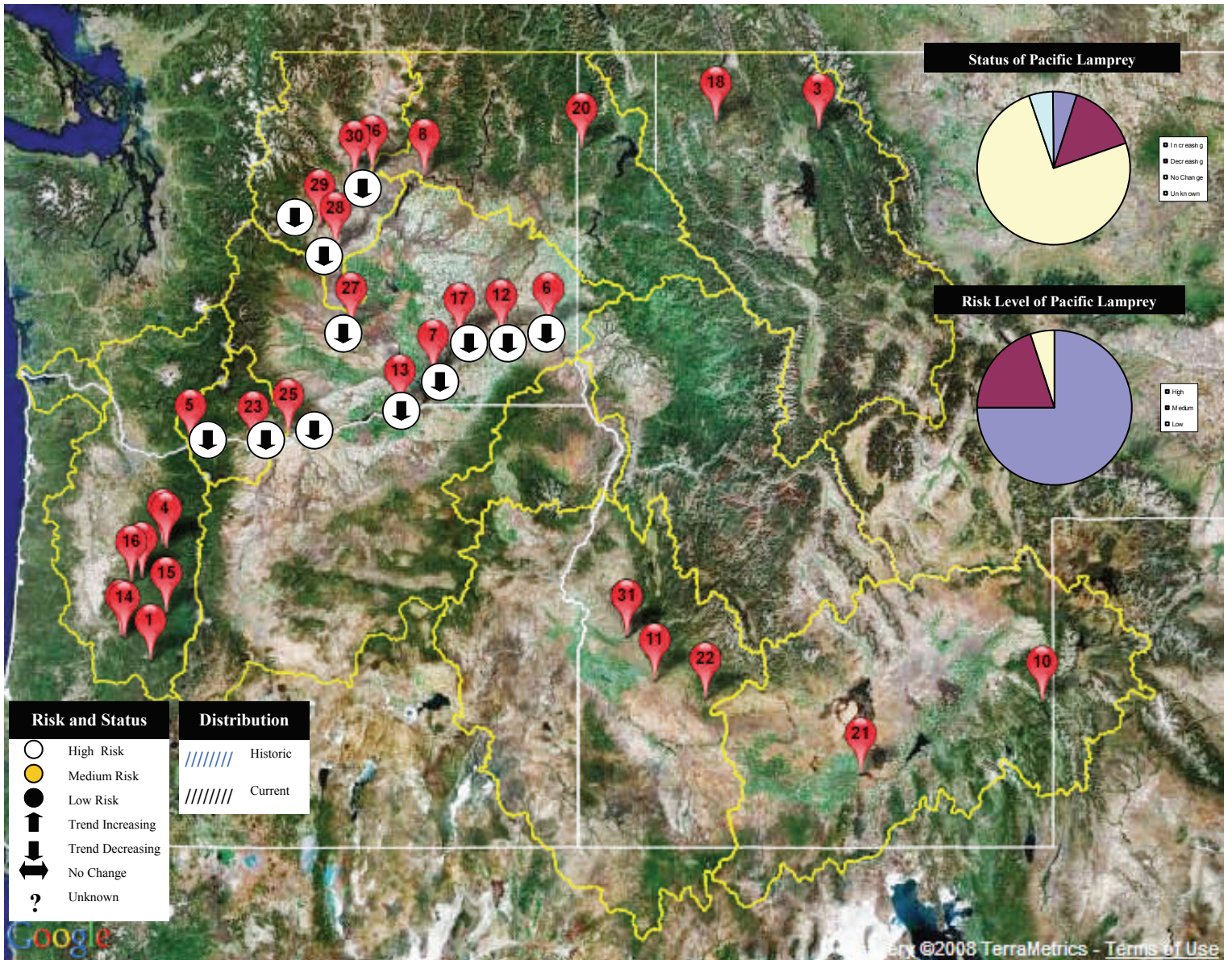
## Columbia River Basin Salmon and Steelhead Harvest (2007-2008)



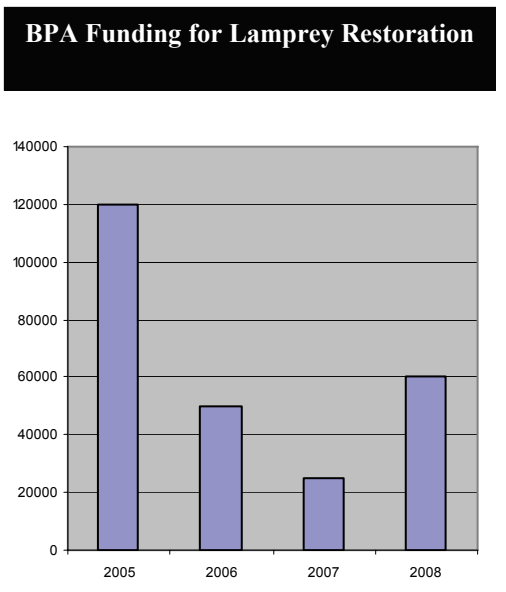
Species/Race	Ocean	Mainstem	Tributary	Program Fish	Non-Program Fish
Chum					
Fall Chinook					
Spring Chinook					
Spring/Summer Chinook					
Winter Steelhead					
Summer Steelhead					
Coho					
Sockeye					



## Distribution and Status of Pacific Lamprey



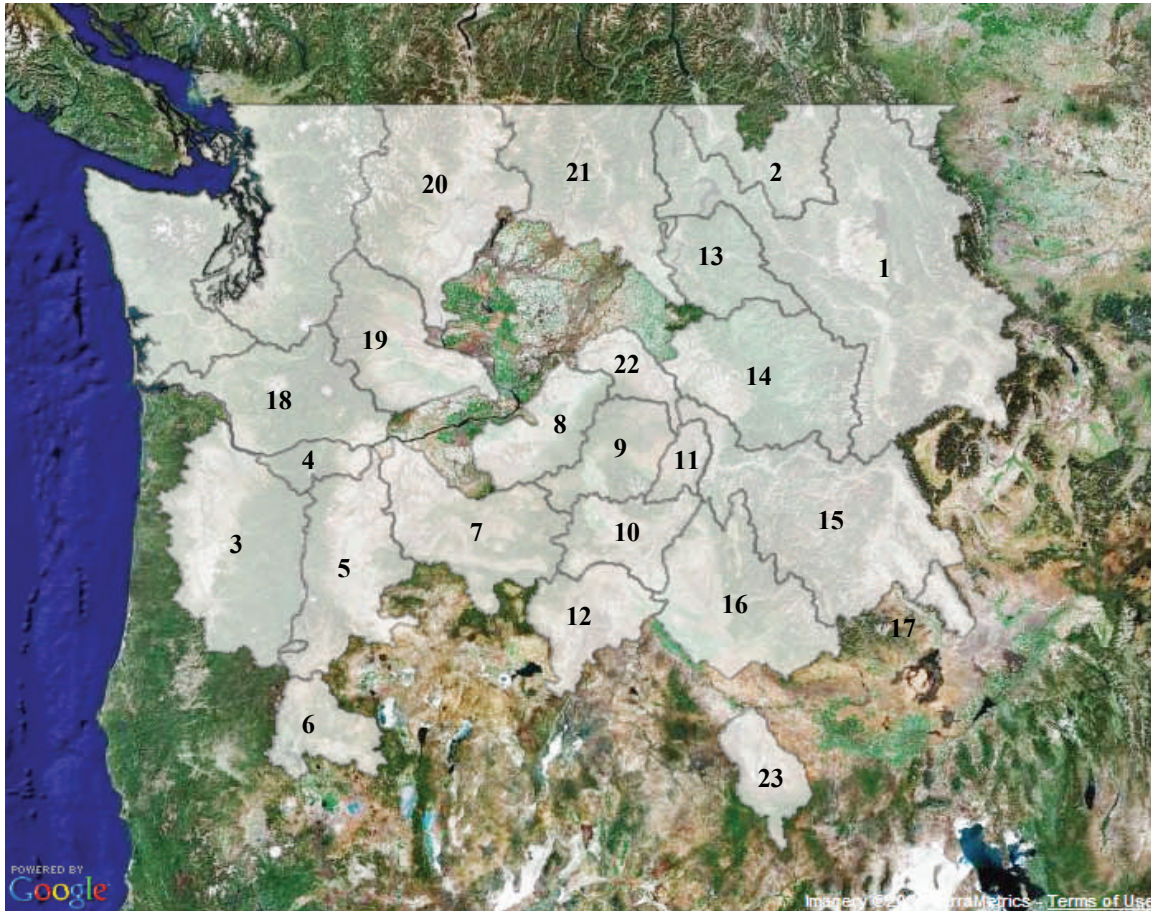
Dam	2007 Adult Count	Average 1994-2007 (range)	Risk Level
Bonneville	19,313	46,077 (19,313-117,029)	High
The Dalles	6,085	12,422 (6,066-28,995)	High
John Day	5,731	10,614 (4,005-26,821)	High
McNary	1,281	5,547 (1,281-13,325)	High
Ice Harbor	290	731 (203-1,702)	High
Lower Monumental	59	205 (59-476)	High
Little Goose	72	223 (4-660)	High
Lower Granite	34	230 (27-1,122)	High
Priest Rapid	6,593	2,306 (392-6,593)	High
Rock Island	1,300	1,802 (5-4,878)	High
Rocky Reach	696	1,056 (370-2,521)	High
Wells	35	366 (21-1,408)	High



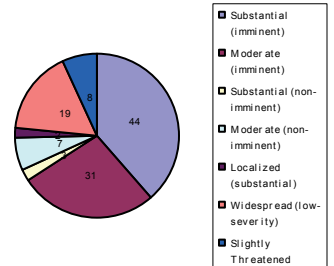


# Columbia River Basin

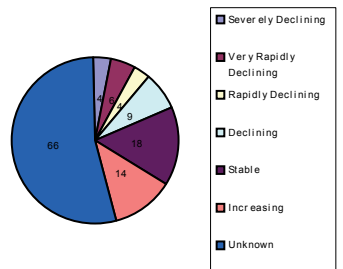
## Status and Recovery of ESA-Listed Bull Trout Core Areas in the Columbia River Basin



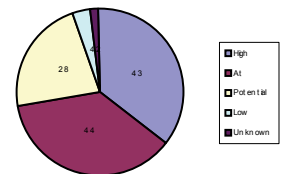
### Bull Trout Core Area Threats



### Bull Trout Core Area Trends



### Bull Trout Core Area Risks

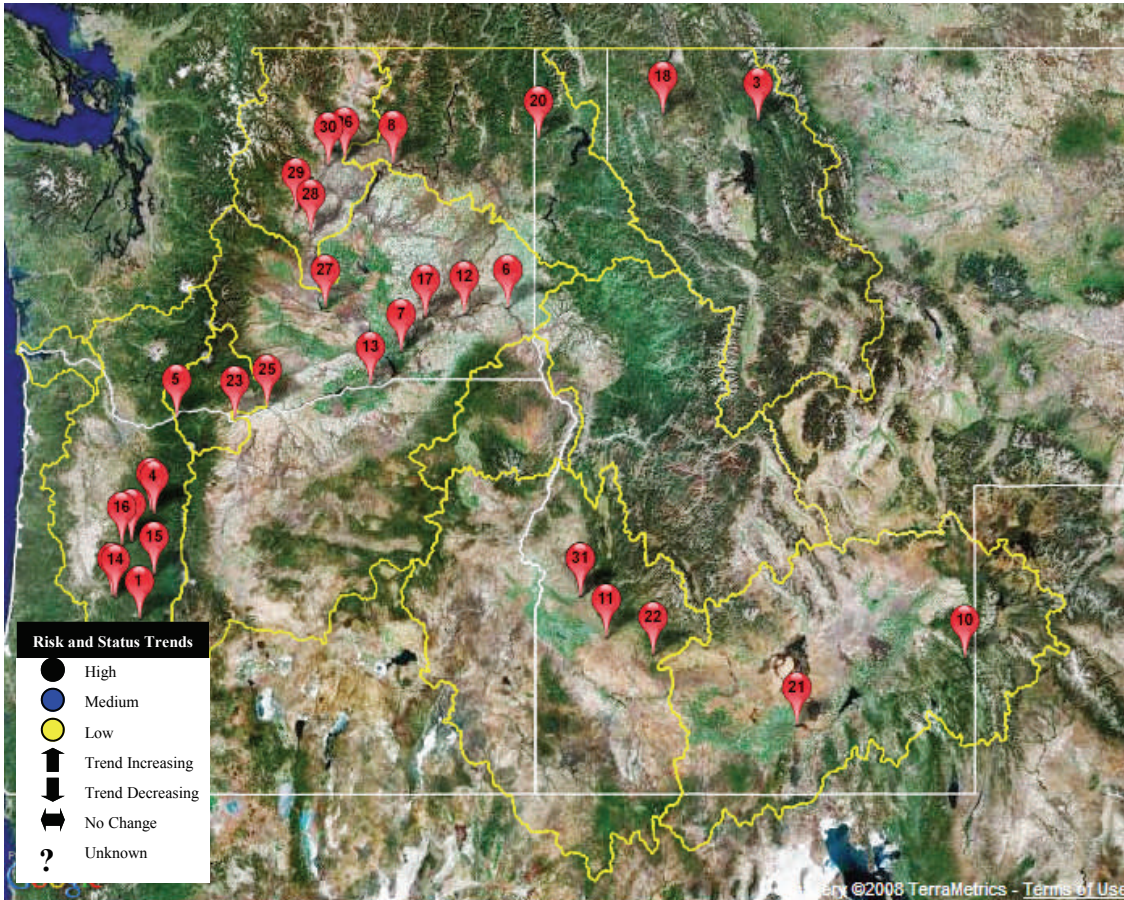


Recovery Unit	Population Abundance	Recovery Unit	Population Abundance
Clark Fork River (1)		Coeur d'Alene Lake Basin (13)	
Kootenai River (2)		Clearwater River (14)	
Willamette River (3)	50-250	Salmon River (15)	
Hood River (4)	25-125	Southwest Idaho (16)	
Lower Deschutes River (5)	1,000-2,500	Little Lost River (17)	
Odell Lake (6)	1-50	Lower Columbia River (18)	
John Day River (7)	Unknown for Middle and North Fork, 1-50 for Upper Mainstem	Middle Columbia River (19)	
Umatilla-Walla Walla River (8)		Upper Columbia River (20)	
Grande Ronde River (9)		Northeast Washington (21)	
Imnaha-Snake River (10)		Snake River Washington (22)	
Hells Canyon Complex (11)		Jarbridge River (23)	
Malheur River (12)			

U.S. Fish and Wildlife Service. 2008. Bull Trout 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service. Portland, OR.



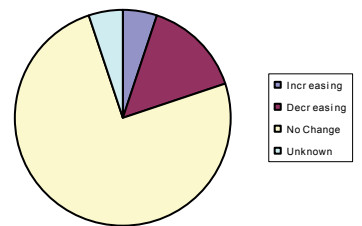
## White Sturgeon Population Status (2007-2008)



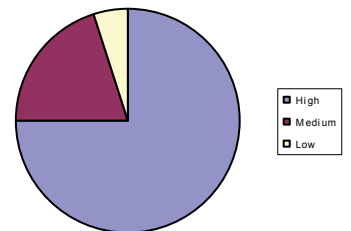
### White Sturgeon Harvest

1. Bonneville
2. The Dalles
3. John Day
4. McNary
5. ....

### Status of White Sturgeon

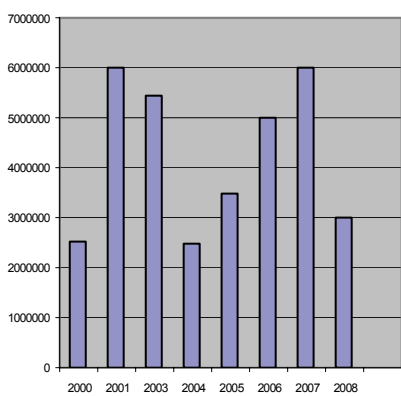


### Risk Level of White Sturgeon

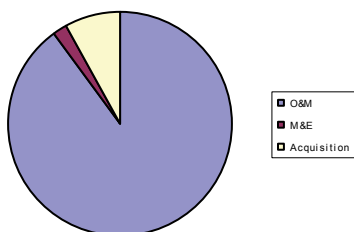


## Resident Fish Substitution (2007-2008)

### BPA Resident Fish Substitution Funding



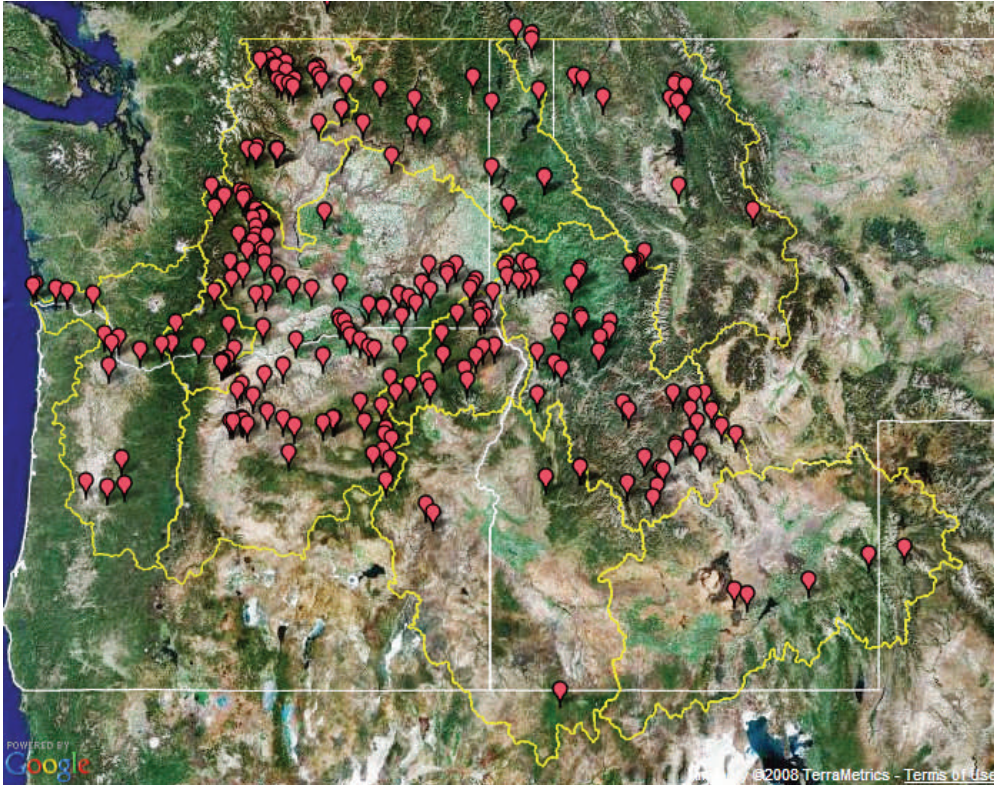
### BPA Resident Fish Substitution Funding by Category





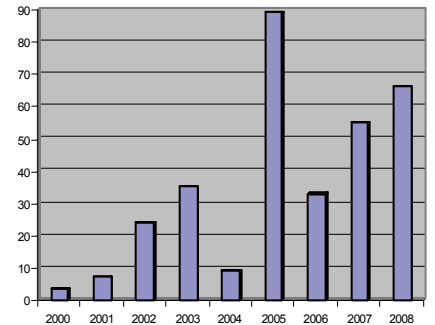
# Columbia River Basin

## BPA –Funded Region-wide Habitat Project Types

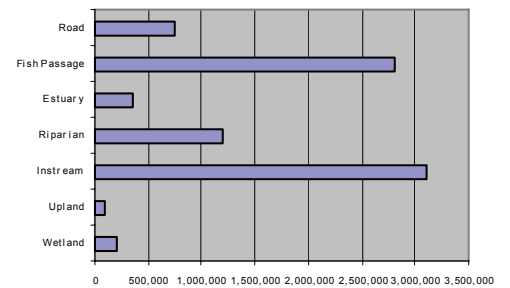


## Funding for Region-wide Habitat Project Types

BPA Funding for Habitat Restoration by Year (in millions)



BPA Funding for Habitat Restoration by Activity Type (2007-2008)

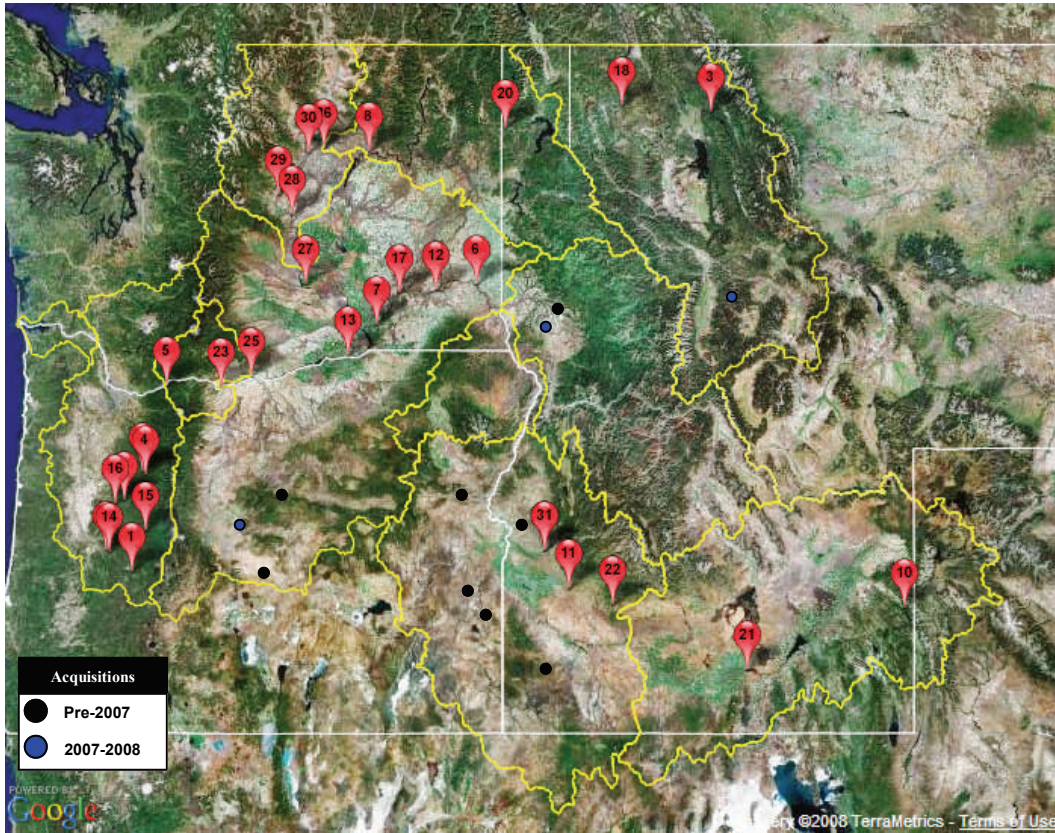


## BPA 2008 Region-wide Habitat Status

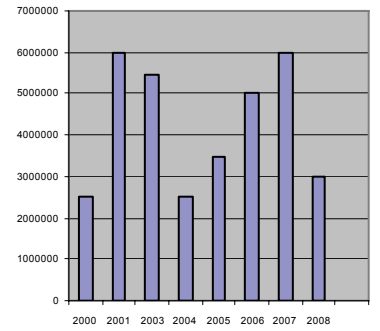
Project-type	Performance indicator	2000-2008 Average
Instream habitat projects	2,000 stream miles treated	1,850
Wetland habitat projects	8,445 acres created 20,100 acres treated	7,500 16,345
Estuarine habitat projects	1,045 acres created 3,560 acres treated	900 2,980
Land acquisition projects	132,00 acres acquired/protected 390 streambank miles acquired protected	145,000 410
Riparian habitat projects	4,125 stream miles treated 25,600 acres treated	5,010 23,390
Upland habitat projects	410,360 acres treated	345,500
Fish passage projects	3,845 barriers removed 7,900 stream miles accessed 375 fish screens installed	2,230 6,650 285
Watershed planning and assessment projects		
Research, monitoring, and evaluation projects	60,000 miles of streams monitored 135 assessments completed	58,350 105
Water acquisition projects	3,060 acre –feet of water restored to streams	2,450
Road projects	350 miles corrected	220



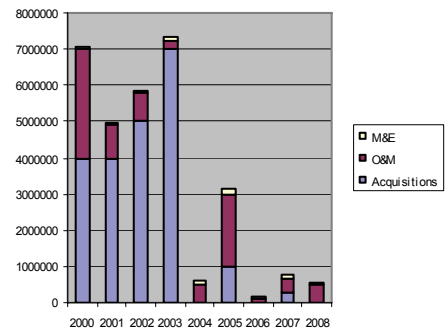
## Wildlife Acquisitions



### BPA Funding for Wildlife (2002-2008)



### Wildlife Funding by Category (2007-2008)

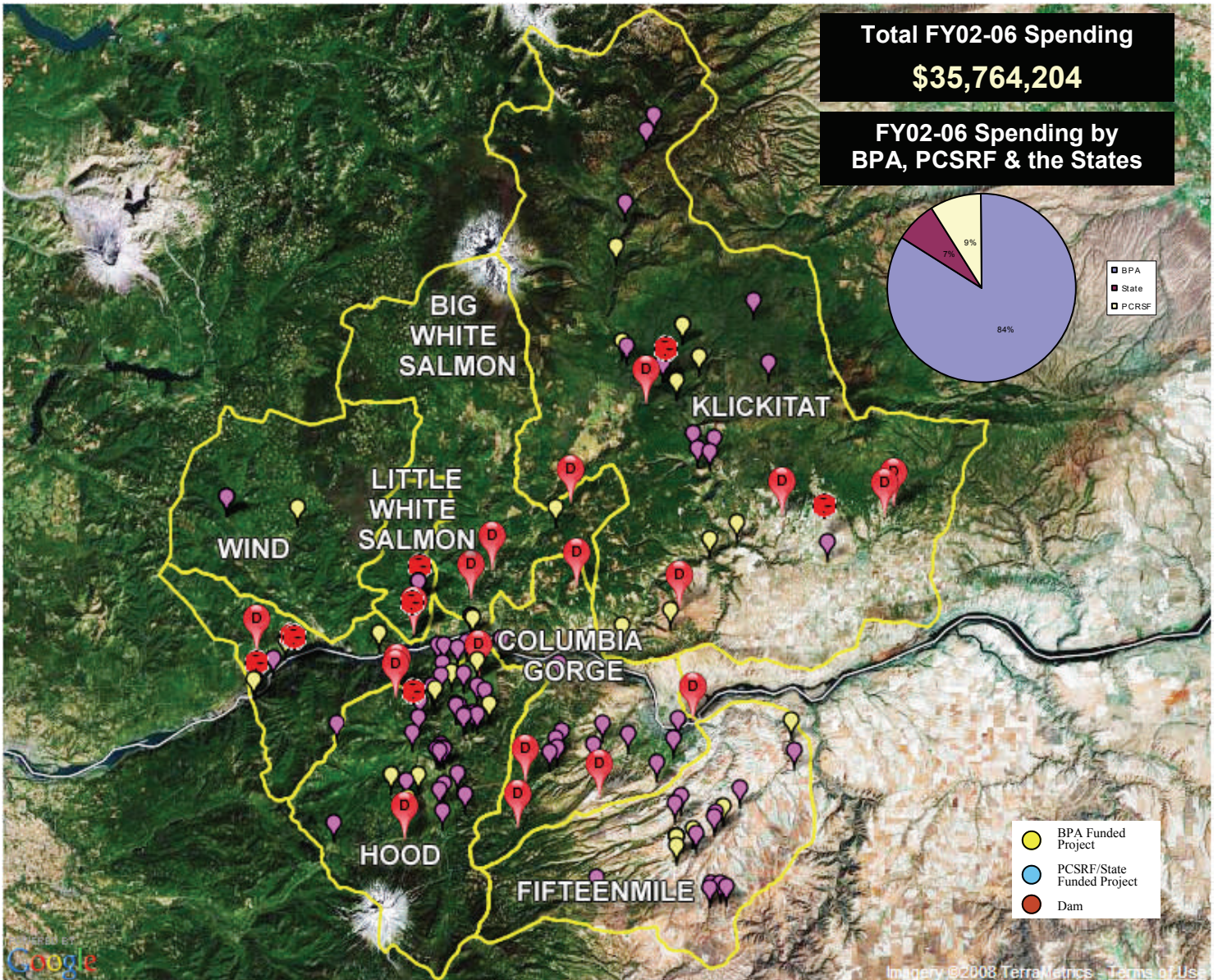


## Wildlife Habitat Losses Hydroelectric Facilities in the Columbia River Basin

Dam	Habitat Units Lost	Goal	Total HUs Credited	% Mitigated	% of Projects with Long-term Management Funds Agreement
Bonneville (OR) (1)	6,159		590		
Bonneville (WA) (1)	6,159		871		
The Dalles (OR) (2)	1,165		0		
The Dalles (WA) (2)	1,165		329		
John Day (OR) (3)	18,280		14,057		
John Day (WA) (3)	18,280		11,019		
McNary (OR) (4)	4,710		8,406		
McNary (WA) (5)	18,834		32,810		
Albeni Falls (9)	28,658		9,872		
Chief Joseph (7)	8,833		567		
Grand Coulee (8)	111,785		107,842		
Big Cliff (22)	413		32		
Cougar (26)	11,124		511		
Detroit (23)	11,298		0		
Dexter (27)	6,648		196		
Foster (24)	3,544		96		
Hills Creek (29)	19,489		1,565		
Lookout Point (28)	25,454		1,296		
Anderson Ranch (19)	9,619		1,063		
Black Canyon (17)	2,170		57		
Minidoka (20)	10,503		1,744		
Palisades (21)	37,070		16,093		



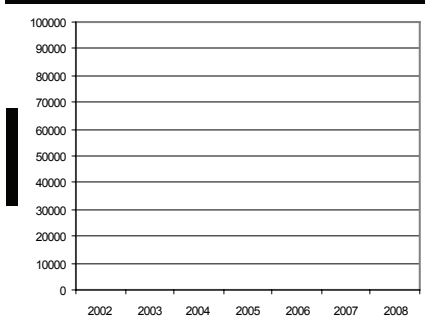
# Columbia Gorge



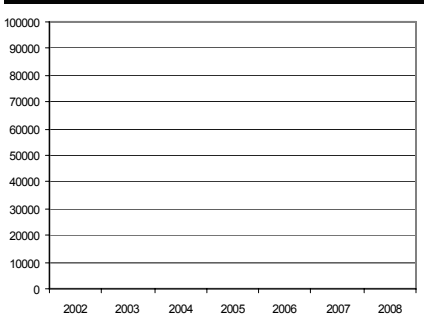
The Columbia Gorge Province is bounded by Bonneville Lock and Dam at river mile 145 and The Dalles Dam at river mile 191 on the Columbia River, and encompasses an area of 3,293 square miles. Subbasins in the Columbia Gorge Province include the Big White Salmon River, Columbia Gorge Mainstem (i.e., Bonneville Reservoir), Hood, Fifteenmile, Klickitat, Little White Salmon, and Wind. Chinook (spring and fall), chum, steelhead (summer and winter), and bull trout populations throughout the province are listed under the federal Endangered Species Act. This province is characterized by a complex geologic structure and vegetation pattern. Fed by glaciers in the Oregon and Washington Cascades, the rivers in the province flow from high elevation coniferous forests and transition through fruit orchards and other irrigated agriculture in the lowlands before entering the Columbia River. Forestry, ranching, agriculture, orchards, and tourism are significant factors in the economy of communities in the province.

Land Ownership	
Federal.....	27%
Private.....	56%
Tribal.....	17%

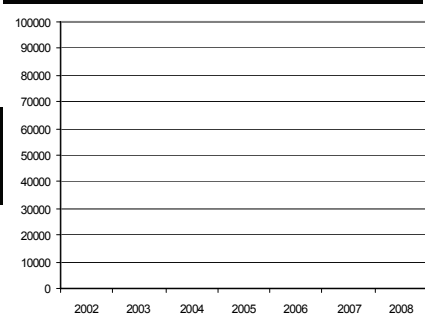
**FY 2002-2008 Funding by PCSRF**



**FY 2002-2008 Funding by BPA**



**FY 2002-2008 Funding by State**





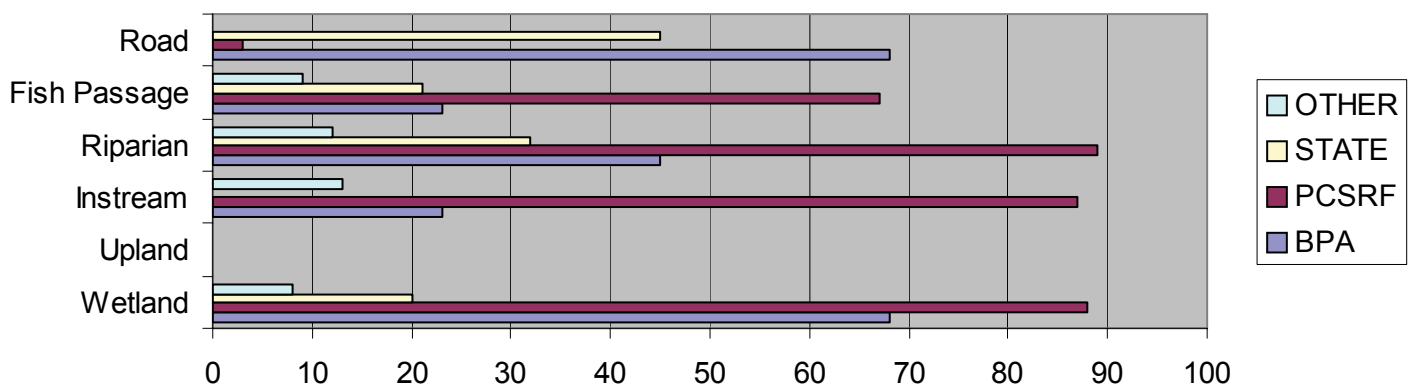
**Major Habitat Factors Limiting Recovery in the Columbia Gorge Province**

Major Limiting Factors	Big White Salmon	Columbia Gorge	Fifteenmile	Hood	Klickitat	Little White Salmon	Wind
Physical habitat quality/quantity	•	•		•			
Water quality			•	•		•	
Water quantity	•	•					
<b>BPA projects addressing major habitat limiting factors</b>	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

**Habitat Status in the Columbia River Gorge Province**

Project-type	Implementation Indicator	Average (Must identify time period)
Instream habitat projects	2,000 stream miles treated	1,850
Wetland habitat projects	8,445 acres created 20,100 acres treated	7,500 16,345
Estuarine habitat projects	1,045 acres created 3,560 acres treated	900 2,980
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Road projects	350 miles corrected	220

**2007-2008 Funding for Completed and Reported Restoration by Activity Type**

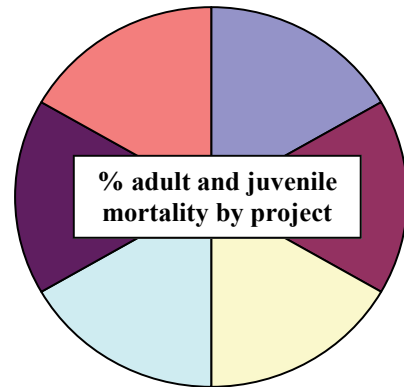


# Columbia Gorge

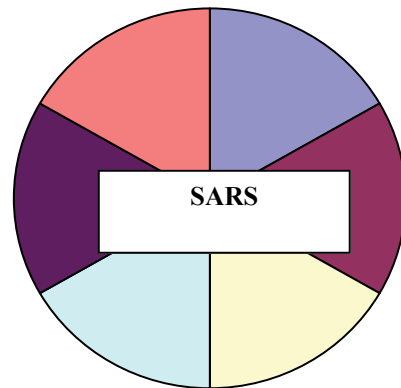
## Focal Species Status

<b>Bull Trout</b>	<b>Threatened</b>
<b>Chinook (Spring)</b>	<b>Threatened</b>
<b>Chinook (Fall)</b>	<b>Threatened</b>
<b>Chum</b>	<b>Threatened</b>
<b>Coastal Cutthroat Trout</b>	<b>Depressed</b>
<b>Coho</b>	<b>Threatened</b>
<b>Pacific Lamprey</b>	<b>Depressed</b>
<b>Rainbow Trout</b>	<b>Unknown</b>
<b>Steelhead (Summer)</b>	<b>Threatened</b>
<b>Steelhead (Winter)</b>	<b>Threatened</b>
<b>White Sturgeon</b>	<b>Depressed</b>

## Hydrosystem Performance



## System Survival



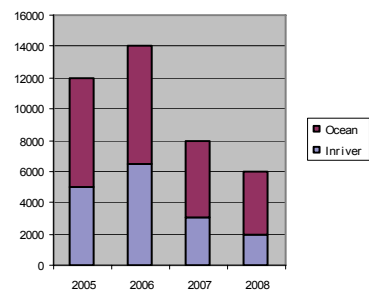
## Hatchery Releases and Returns to Hatcheries in the Hood Subbasin

Hatchery	Species	Released	Hatchery Spawners (Target and Non-target)
Carson			
	Spring Chinook		
Klickitat			
	Spring Chinook		
Little White Salmon			
	Spring Chinook		
	Fall Chinook (Upriver)		
	Coho		
PowerDale Dam			
	Spring Chinook		
	Fall Chinook		
	Summer Steelhead		
	Winter Steelhead		
	Coho		
Spring Creek			
	Fall Chinook (Tule)		
Total			

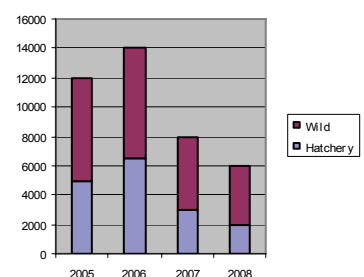
## Salmon and Steelhead Harvest

Total Harvest  
#####

Location (River/Ocean)

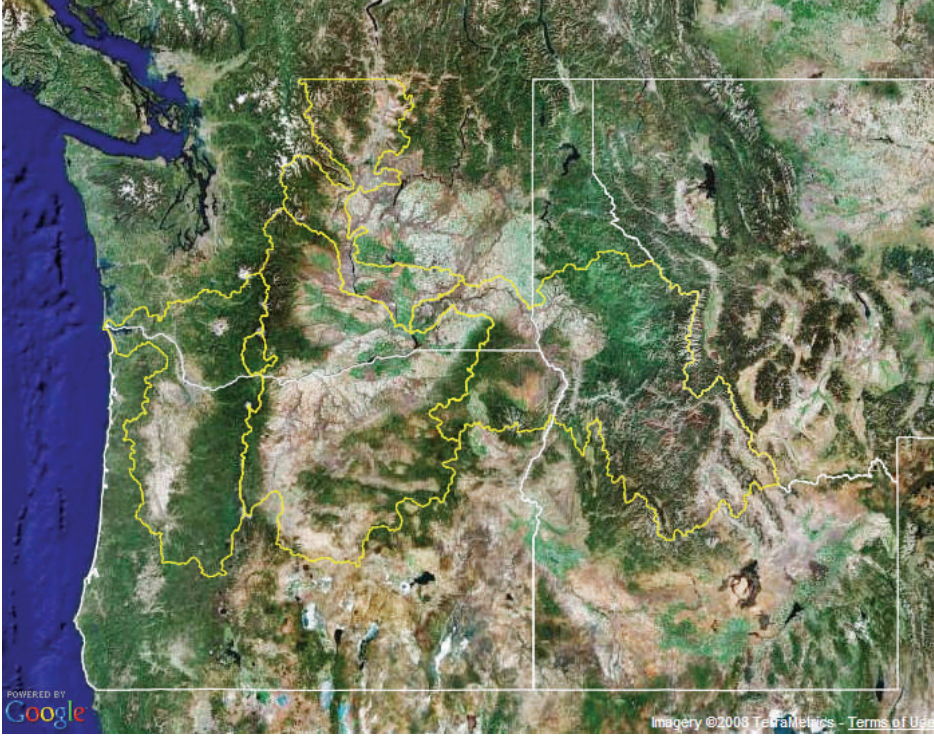


Hatchery vs Wild





## Status and Recovery of ESA-Listed Salmon and Steelhead in the Columbia Gorge Province



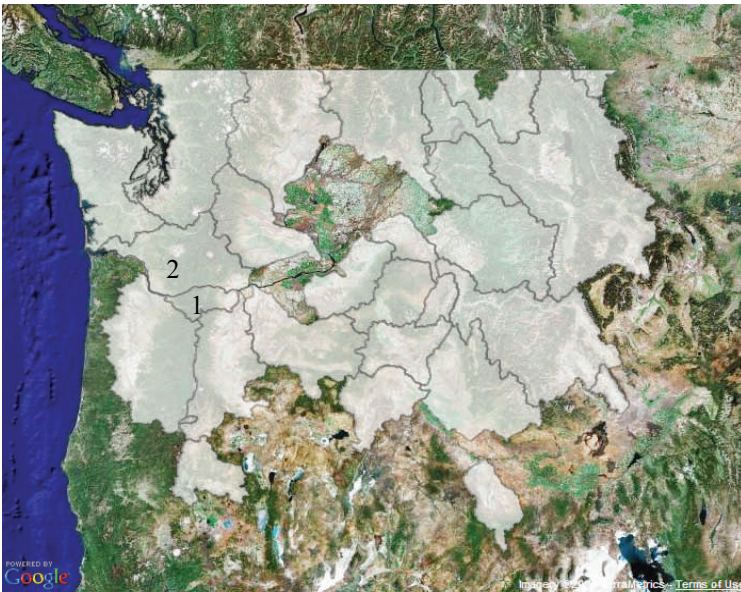
### Major Population Groups

	% Meeting Target	Trend
Abundance		Increasing, Decreasing, Stable
Production		
Spatial Structure		
Diversity		

Potential information to be included in this section:

- Abundance
  - total spawners and NORs relative to aggregate SU target
- Productivity
  - SARs
- Spatial Structure
  - % accessible area utilized

## Bull Trout Status in the Columbia Gorge Province



Recovery Unit	Number of cores	Abundance	Trend	Threat	Risk
Hood River (1)	1	50-250	Unknown	Moderate (imminent)	High
Lower Columbia River (2) Klucit River = Gorge Core	2 (one in Gorge)	Unknown for Gorge core	Unknown for Gorge core	Moderate (imminent) for Gorge Core	At

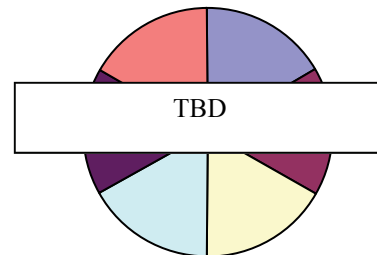
U.S. Fish and Wildlife Service. 2008. Bull Trout 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service. Portland, OR.

## Wildlife Habitat Losses Hydroelectric Facilities in the Columbia Gorge Province \*

Dam	HUs Lost	Goals	Hus Credited	% Mitigated	% of Projects with Long-term Management Funds Agreement
Bonneville (OR)	6,159				
Bonneville (WA)	6,159				
The Dalles (OR)	1,165				
The Dalles (WA)	1,165				

\*BPA. 2007. Wildlife Crediting for BPA's Fish and Wildlife Program. Bonneville Power Administration, Portland, OR.

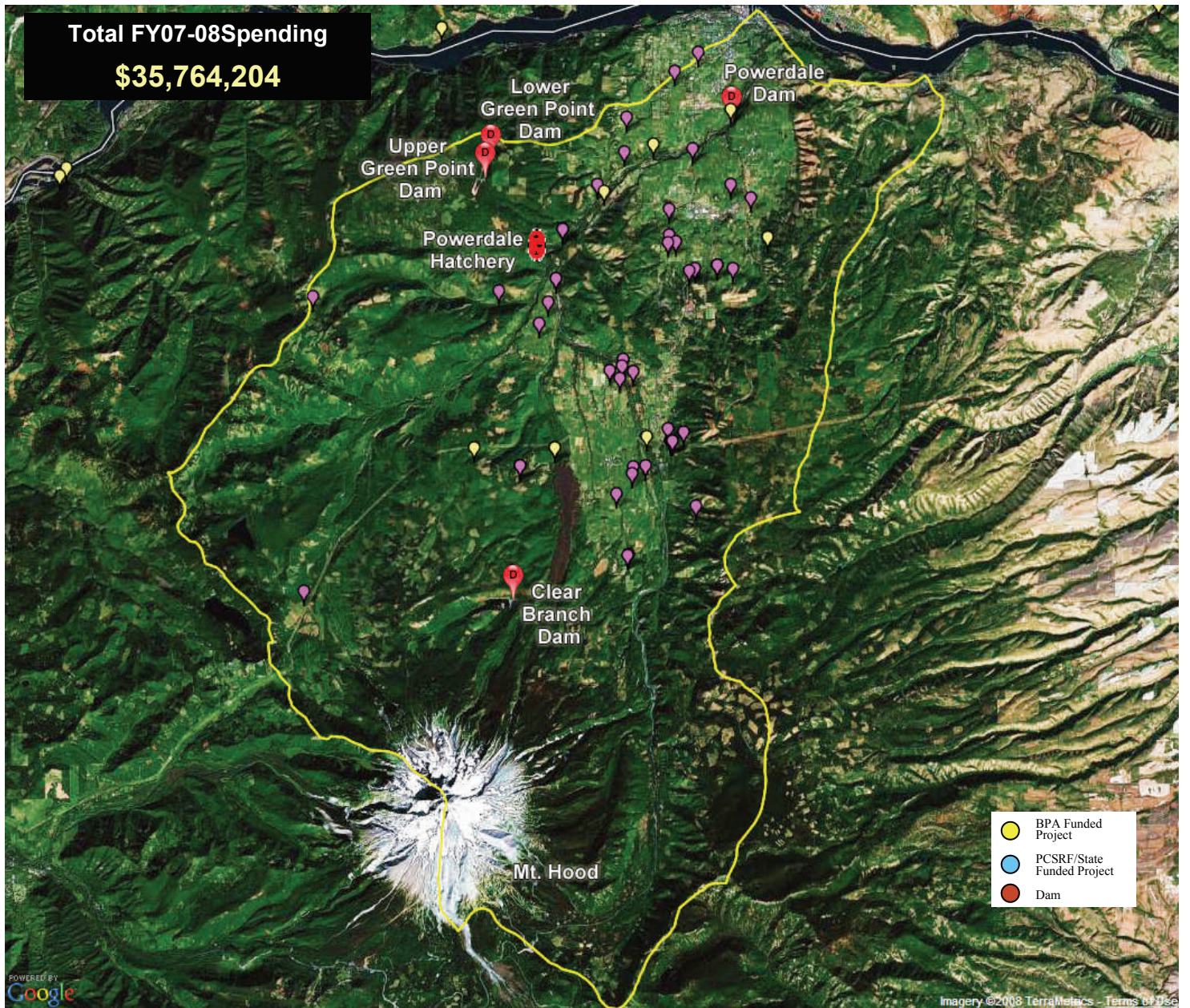
## Acres Meeting Objectives



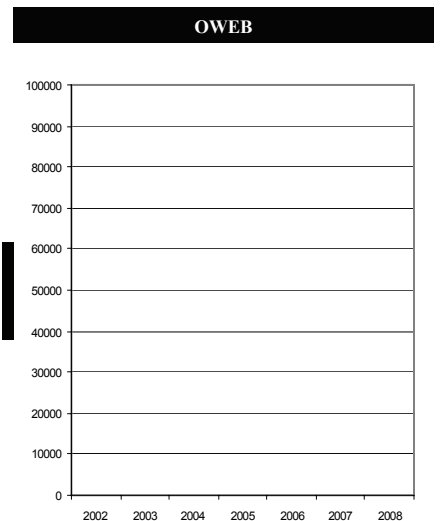
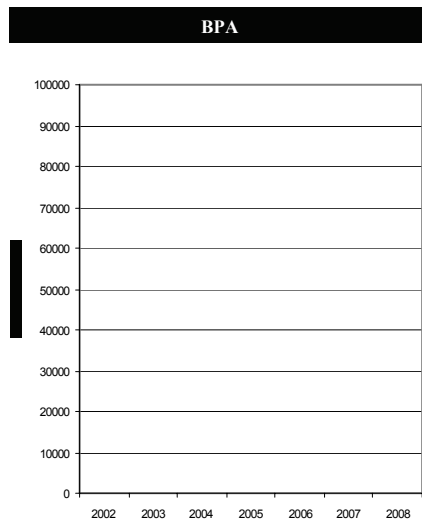
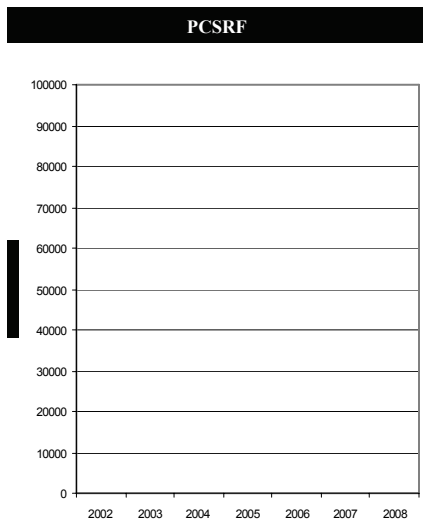
Pie chart represents six subbasins sampled in the Columbia Gorge Province during 2007-2008.



# Columbia Gorge



## 2000-2008 Funding Sources





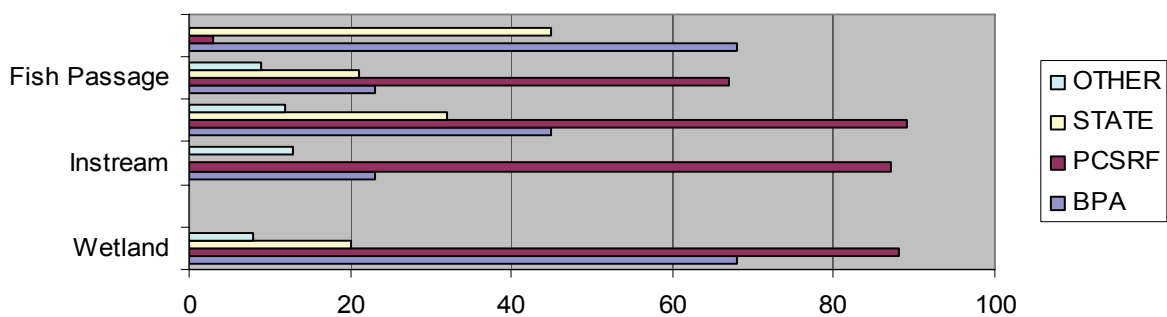
# Subbasin: Hood



Major Habitat Factors Limiting Recovery in the Hood Subbasin							
Major Limiting Factors	Summer Steelhead	Winter Steelhead	Spring Chinook	Fall Chinook	Bull Trout	Coastal Cut-throat Trout	Pacific Lamprey
Physical habitat quality/quantity	•	•		•			
Water quality			•	•		•	
Water quantity	•	•					
Habitat Access							
BPA projects addressing major habitat limiting factors	Yes/No	Yes/No	Yes/no	Yes/No	Yes	No	No

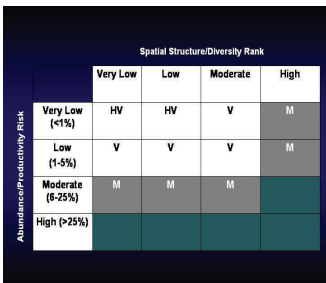
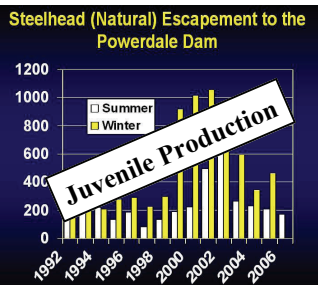
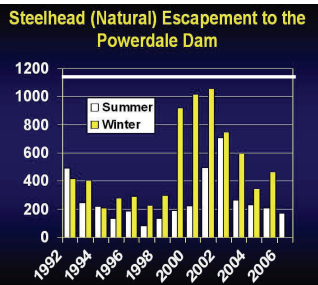
2007-2008 BPA –funded Habitat Projects in the Hood Subbasin		
Project-type	Implementation Indicator	Average (Must Identify Time Period)
Instream habitat projects	2,000 stream miles treated	1,850
Land acquisition projects	132,00 acres acquired/protected 390 stream bank miles acquired protected	145,000 410
Riparian habitat projects	4,125 stream miles treated 25,600 acres treated	5,010 23,390
Upland habitat projects	410,360 acres treated 45,980 acres restored	345,500 60,790
Fish passage projects	3,845 barriers removed 7,900 stream miles accessed 375 fish screens installed	2,230 6,650 285
Watershed planning and assessment projects		
Research, monitoring, and evaluation projects	60,000 miles of streams monitored 135 assessments completed	58,350 105
Water acquisition projects	3,060 acre –feet of water restored to streams	2,450
Road projects	350 miles corrected	220

2007-2008 Reported Funding for Implementation Projects



# Columbia Gorge

## Steelhead



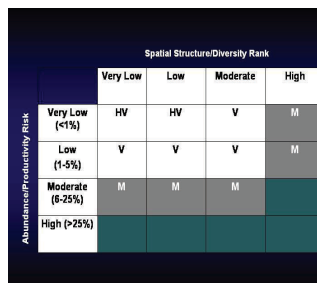
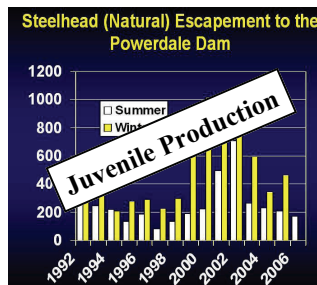
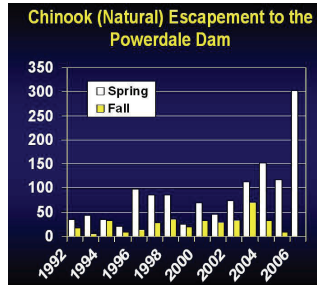
## Summer

**Federal Designation:** Threatened  
**ESU:** Lower Columbia  
**Major Population Group:**  
**Biological Objective:** 600 adults<sup>1</sup>  
**Status:** 168 natural adults (2006)<sup>2</sup>  
**Trend:** (Increasing, Stable, Decreasing, Unknown)  
**Risk Level:** (High, Medium, Low)  
**Wild Juvenile Production:**  
**% MSA Occupied:**  
**Lambda:**

## Winter

**Federal Designation:** Threatened  
**ESU:** Lower Columbia  
**Major Population Group:**  
**Biological Objective:** 1,100 adults<sup>1</sup>  
**Status:** 597 adults (2005)<sup>2</sup>  
**Trend:** (Increasing, Stable, Decreasing, Unknown)  
**Risk:** (High, Medium, Low)  
**Wild Juvenile Production:**  
**% MSA Occupied:**  
**Lambda:**

## Chinook



## Spring

**Federal Designation:** Threatened  
**ESU:** Lower Columbia  
**Biological Objectives:** 125 natural adults<sup>1</sup>  
**Status:** 302 adults and jacks (2006)<sup>2</sup>  
**Trend:** (Increasing, Stable, Decreasing, Unknown)  
**Risk:** (High, Medium, Low)  
**Wild Juvenile Production:**  
**% MSA Occupied:**  
**Lambda:**

## Fall

**Federal Designation:** Threatened  
**ESU:** Lower Columbia  
**Biological Objective:** 1,400 natural adults (TRT)  
**Status:** 8 adults and jacks (2005)<sup>2</sup>  
**Trend:** (Increasing, Stable, Decreasing, Unknown)  
**Risk:** (High, Medium, Low)  
**Wild Juvenile Production:**  
**% MSA Occupied:**  
**Lambda:**

## Pacific Lamprey



**Federal Designation:** Species of Concern  
**Biological Objective:** None  
**Status:** Unknown

2007-2008 Hatchery Releases and Returns to Hatcheries in the Hood Subbasin

Hatchery	Species	Program Type	Release Goal/Released (By life stage)	Return Goal to Hatchery/Actual Return	Harvest	Harvest Fraction	PNI
	Spring Chinook						
	Summer Steelhead						
	Winter Steelhead						
	Fall Chinook						
<b>Total</b>							

<sup>1</sup> Coccoli, H. and 9 coauthors. 2004. Hood River Subbasin Plan including Lower Columbia Gorge Tributaries. A Report Prepared for the Northwest Power and Conservation Council. Portland, Oregon.

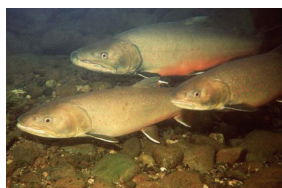
<sup>2</sup> Olsen, W. A. 2007. Hood River and Pelton Ladder Evaluation Studies: Annual Report 2006. Oregon Department of Fish and Wildlife. Salem, Oregon. (via Stream-Net)



# Subbasin: Hood



## Bull Trout

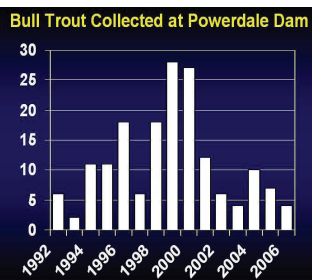


**Federal Designation:** Threatened  
**Core Population:** Hood (Within Hood River Recovery Unit)  
**Biological Objective:**  $\geq 500$  adults<sup>1</sup>

**Status:** 4 adults passed Powerdale Dam (2006)<sup>2</sup>

**Short-term Trend:** (Increasing, Stable, Declining, Very Rapid Decline, Unknown)

**Threat Rank:** Moderate, imminent; localized, substantial; substantial, imminent; moderate, non-imminent; widespread, low-severity; unthreatened, slightly  
**Risk:** High, Potential, At, Unknown, Low



## Coastal Cutthroat Trout

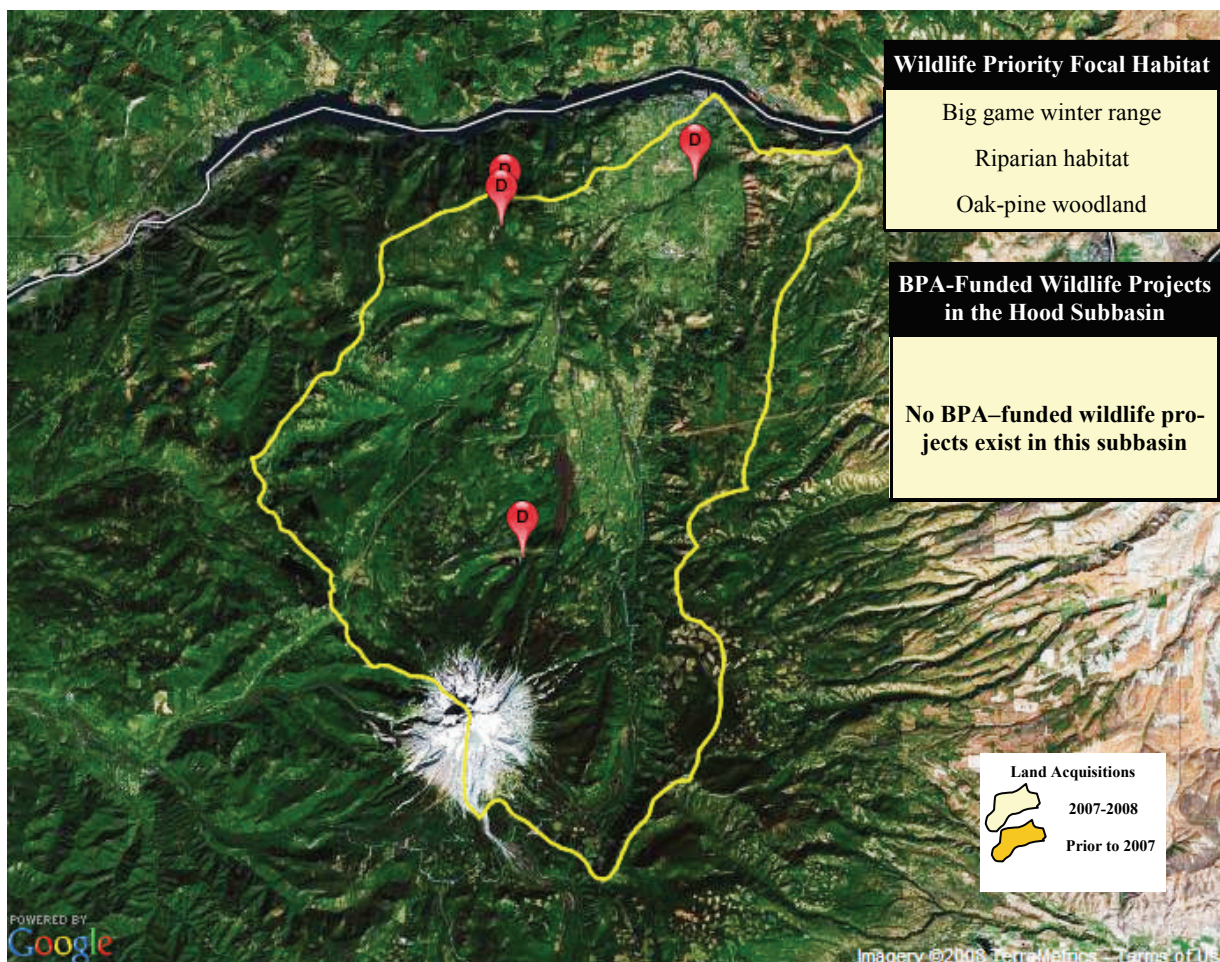
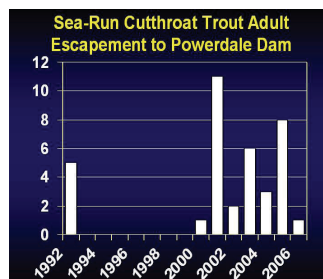


## Resident

**Federal Designation:** Species of Concern  
**Biological Objective:** None  
**Status:** Unknown

## Sea-Run

**Federal Designation:** Species of Concern  
**Biological Objective:** None  
**Status:** 1 adult passed Powerdale Dam (2006)<sup>2</sup>



<sup>1</sup> Coccoli, H. and 9 coauthors. 2004. Hood River Subbasin Plan including Lower Columbia Gorge Tributaries. A Report Prepared for the Northwest Power and Conservation Council. Portland, Oregon.

<sup>2</sup> Olsen, W. A. 2007. Hood River and Pelton Ladder Evaluation Studies: Annual Report 2006. Oregon Department of Fish and Wildlife. Salem, Oregon. (via Stream-Net)