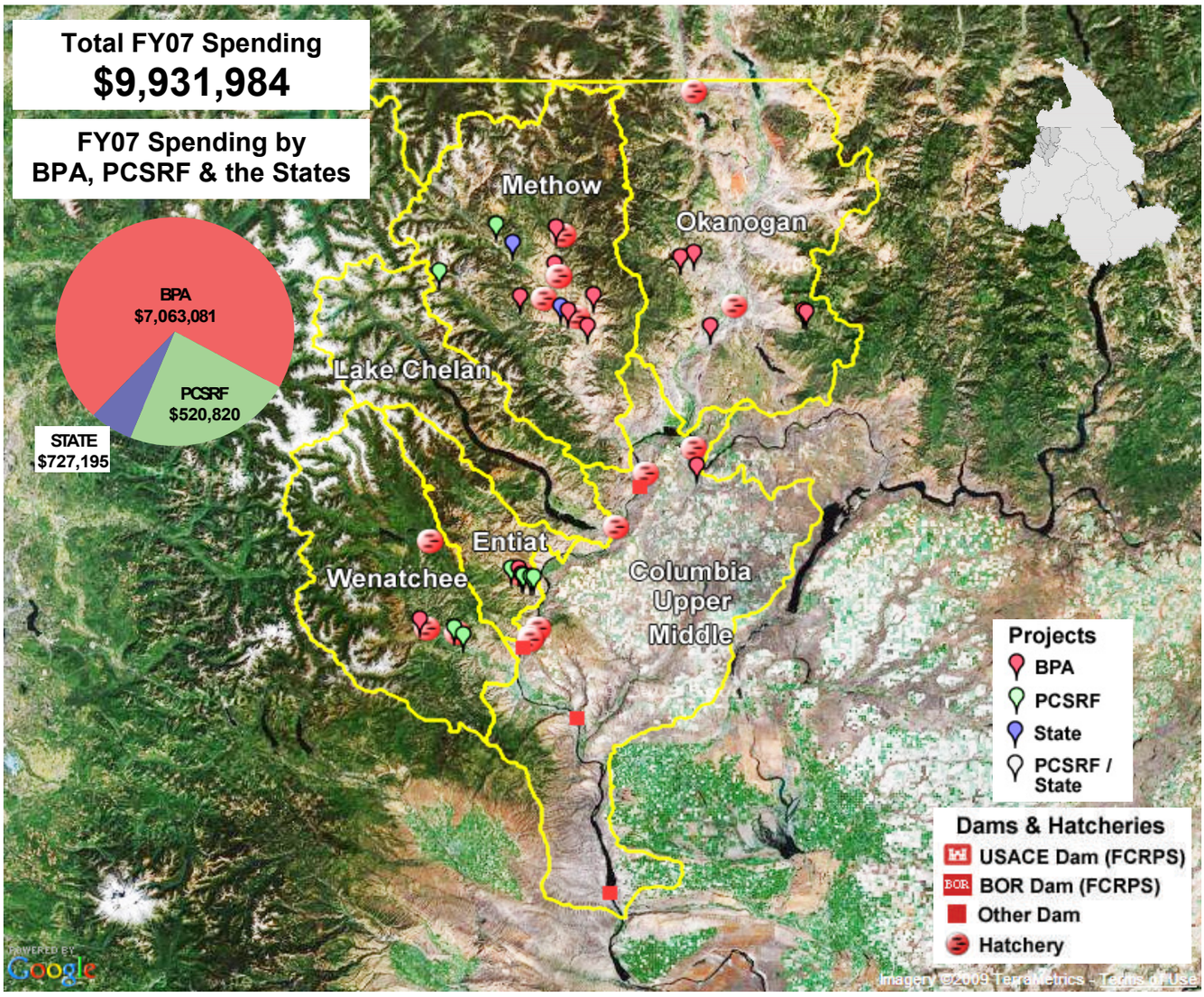
Columbia Cascade



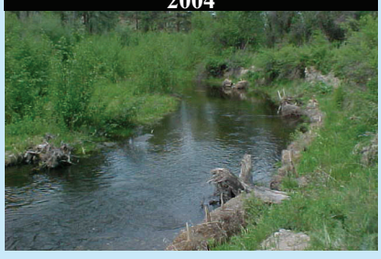
Land Ownership
Federal……...49%
Private……46%
Tribal……...6%

The Columbia Cascade Province, located in north-central Washington and southern British Columbia, extends from Wanapum Dam to Chief Joseph Dam on the Columbia River and encompasses an area of 9,403 square miles. Subbasins in the Columbia Cascade Province include the Columbia Upper Middle, Entiat, Lake Chelan, Methow, Okanogan, and Wenatchee. Spring Chinook, summer steelhead, and bull trout populations throughout the province are listed under the federal Endangered Species Act. This province is characterized by habitat conditions that range from pristine to severely degraded. The upper watersheds are primarily forested and have undergone substantial management activities. Lower reaches of the principal streams within each of the subbasins are mostly privately owned and managed for agricultural purposes. Forestry, ranching, agriculture, orchards, and recreation are significant factors in the economy of communities in the province.

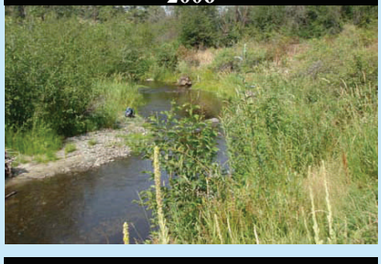
BPA FY 2008 Habitat Project Accomplishments in the Columbia Cascade Province[1]			
Habitat Zone	**Project-type**	**Planned Value**	**FY 2008 Performance Indicator (Actual Value)**
Wetland	Realign, connect, and/or create channel	0.2 acres	0.2 acres affected
Instream	Increase instream habitat complexity	0.2 stream miles	0.4 stream miles treated
	Realign, connect, and/or create channel	0.6 miles	0.6 stream miles after treatment
	Realign, connect, and/or create channel	0.5 miles	0.5 stream miles before treatment
	Install well, install pipeline, install sprinkler	0 cfs water	2 cfs of water conserved
	Install well, install pipeline, install sprinkler	45.4 cfs water	49.3 cfs of water protected
	Install well, install pipeline, install sprinkler, acquire water instream	23.2 miles	30 miles of primary stream reach improved
	Install well, install pipeline, install sprinkler, acquire water instream	68.7 miles	37.9 miles of total stream reach improvement
	Install fish passage structure	0.5 miles	0.5 miles habitat accessed
Riparian	Plant vegetation	4.77 miles	5.14 miles planted
	Purchase land, lease land	1.47 miles	miles protected
Riparian-Upland	Land purchase	93 acres	293 acres protected
	Plant/remove vegetation	500.1 acres	480.1 acres treated
	Install fence	4.33 miles	4.14 miles of fence installed
	Improve road	2.10 miles	1.10 road miles treated

Habitat Improvement Project—Improvement of Anadromous Fish Habitat and Passage in Omak Creek[2]

2004



2006



2007

During 2007, approximately 4,500 feet of fence was installed to exclude cattle from Grindstone Creek and to allow riparian vegetation to recover and help improve sediment and temperature problem present in the creek. An additional 2,000 feet of enclosure fencing was installed to enclose 4 acres of stream and riparian habitat associated with Grindstone Creek.

Since 2000, similar fencing efforts have occurred throughout the Omak watershed resulting in livestock being excluded from riparian areas. To document the effectiveness of the livestock exclusion, photo-monitoring points were established in 2000. Annual measurements, at 20 location, include canopy closure and water temperature. Data show that canopy coverage continues to increase with the exclusion of livestock. In 2000, the average canopy closure was 10.3% whereas, in 2008 the average closure estimate was 77%.

Columbia Cascade

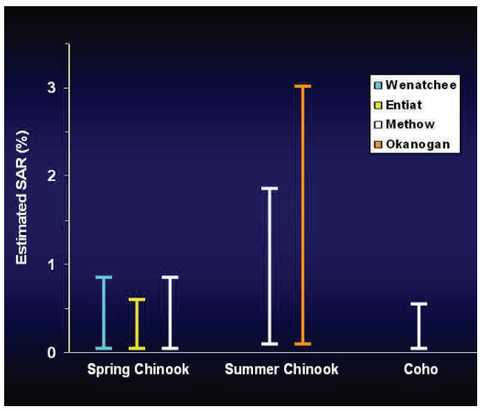
Focal Species in the Columbia Cascade Province[a]

Focal Species	Columbia Upper Middle	Entiat	Lake Chelan	Methow	Okanogan	Wenatchee
Bull Trout						
Chinook-Spring						
Chinook-Summer						
Westslope Cutthroat Trout						
Coho						
Kokanee						
Pacific Lamprey						
Rainbow Trout						
Sockeye						
Steelhead—Summer						

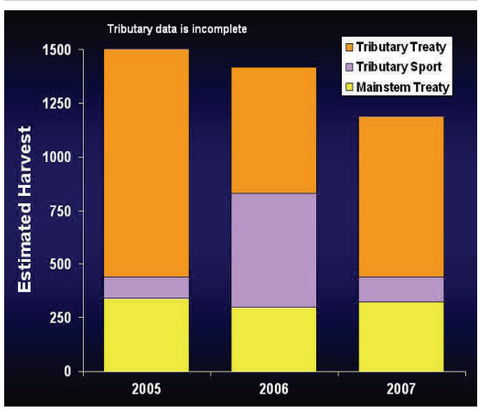
Not a focal species | Not listed | Species of Concern[b] | Threatened[c]

[a]Focal species were identified by subbasin planners during the Northwest Power and Conservation Council's subbasin planning process. Since the completion of subbasin planning, the list of focal species has been amended through the Fish and Wildlife Program Amendment process. This list represents the most current suite of focal species.
[b] USFWS Status
[c] ESA Status

Ranges in Smolt-to-Adult Return (SAR) for Salmon and Steelhead Originating from the Columbia Cascade Province (1994 to present)[3]



Columbia Cascade Province Salmon and Steelhead Harvest[4]



2007 Hatchery Releases and Returns to Hatcheries in the Columbia Cascade Province

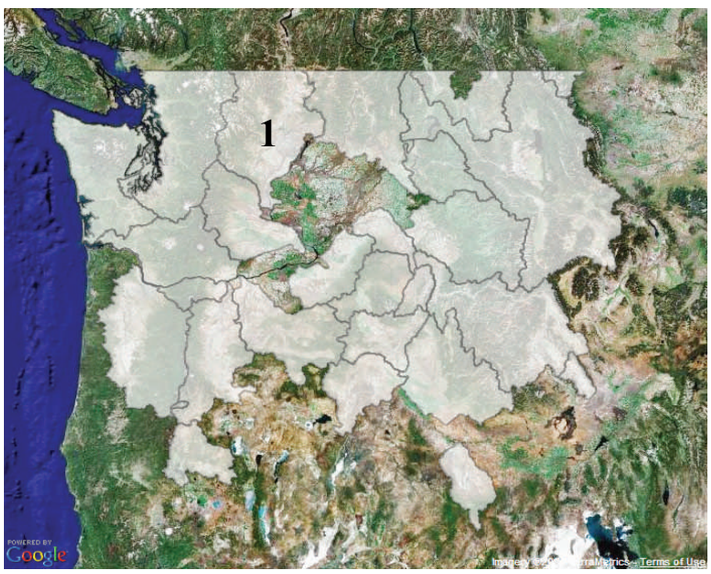
Species	Release Goal/ Released	Return Goal/Return to Collection Facility
Spring Chinook		/
Fall Chinook (Upriver River Bright)		/
Fall Chinook (Tule)		/
Summer Steelhead		/
Winter Steelhead		/
TOTAL		/

Species/ Race	Mainstem Harvest—2007		Tributary Harvest—2007	
	Sport	Treaty	Sport	Treaty
Spring Chinook	Unknown	—	115	751
Summer Chinook	Unknown	367	0	0
Summer Steelhead	Unknown	Unknown	Unknown	Unknown

Status and Recovery Standards for ESA-Listed Salmon and Steelhead in the Columbia Cascade Province[5]

ESU or DPS	Major Population Group (MPG)	Populations and Viability			Number of Natural Spawners	
		No. of Populations	No. Meeting Viability Standards	Minimum No. Needed to Meet Standards	Minimum if MPG Viability Standards Met	Minimum if all Populations Meet Standards
Upper Columbia Spring Chinook	Wenatchee-Methow	3	0	3	4,500	4,500
Upper Columbia Steelhead	Wenatchee-Methow	5	0	4	3,000	3,000

Bull Trout Status in the Columbia Cascade Province[6]



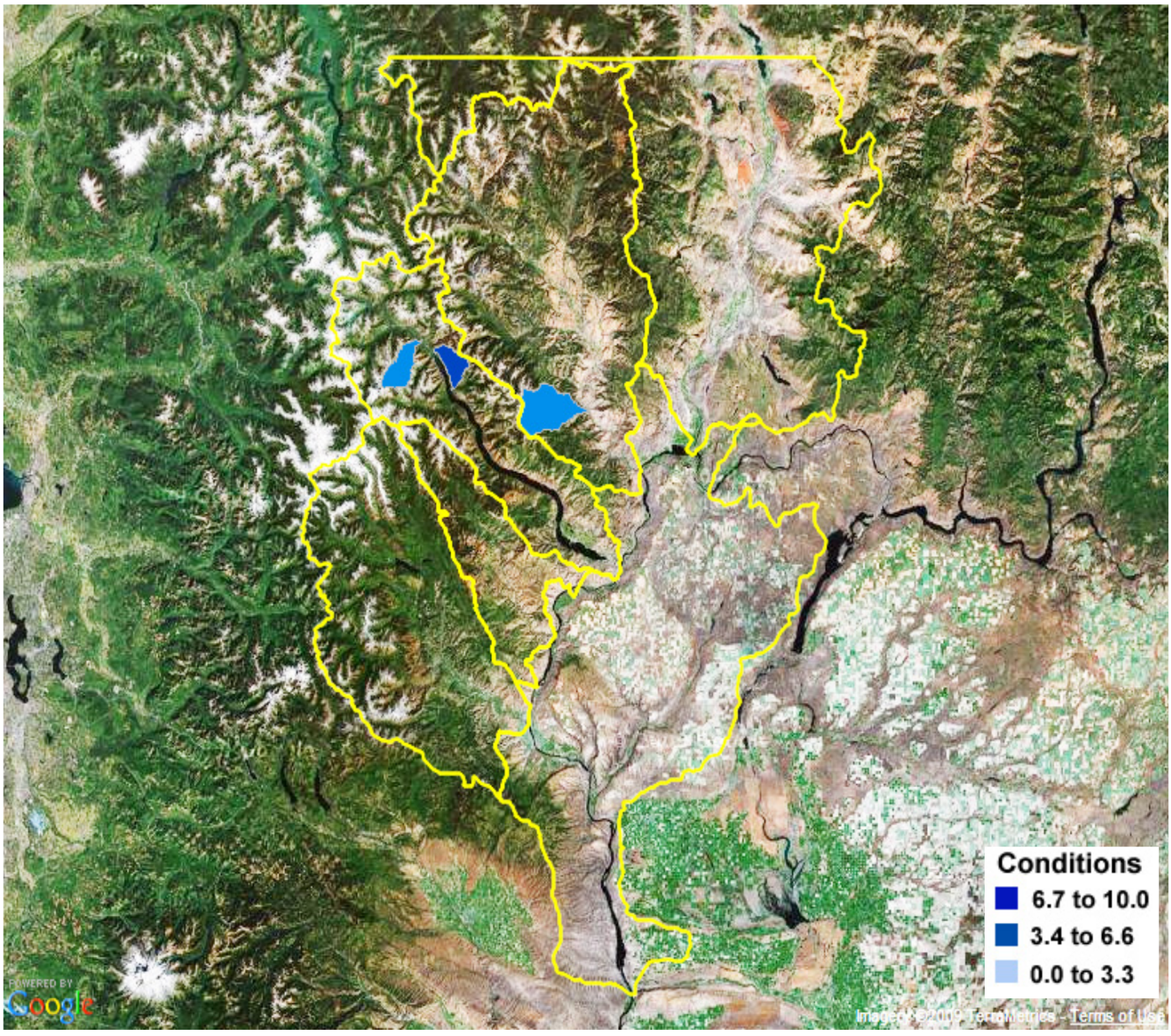
Recovery Unit	Number of cores	Abundance	Trend	Threat	Risk
Upper Columbia (1)	3	350-1,500	Stable (2) Declining(1)	Moderate, imminent (2) Widespread, low-severity (1)	At (1) High(1) Potential (1)

Wildlife Habitat Losses by Hydroelectric Facility in the Columbia Cascade Province

No losses associated with hydro facilities in this province.

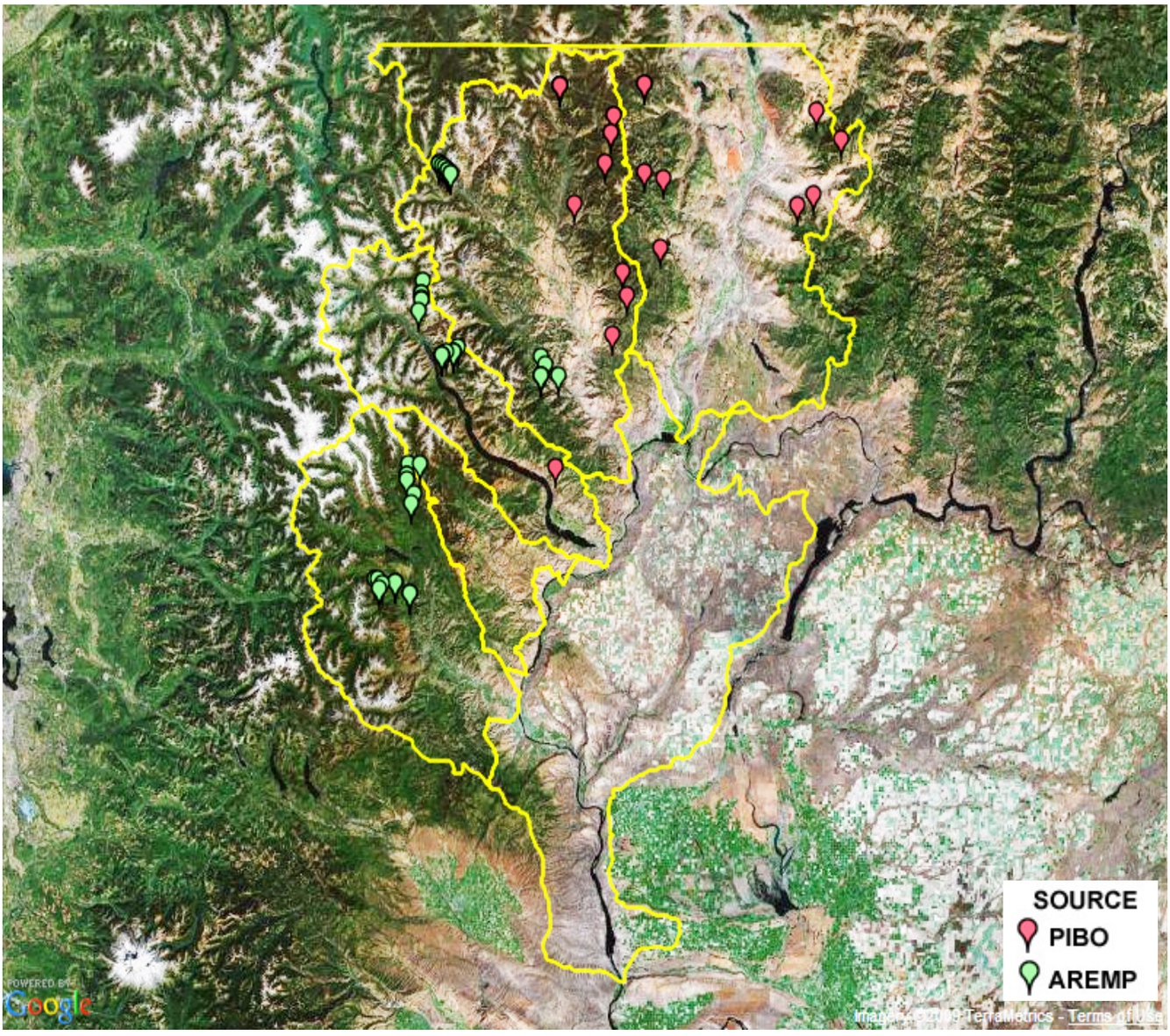
Columbia Cascade

Watershed Conditions for National Forest and Bureau of Land Management Lands in the Columbia Cascade Province[7]



Watershed condition is based upon work completed by the USDA Forest Service (FS) and USDI Bureau of Land Management (BLM) Aquatic and Riparian Effectiveness Monitoring Program (AREMP). AREMP personnel evaluate the status and trend of watershed condition on FS, BLM, and National Park Service administered lands within the range of the Northern Spotted Owl. Watershed condition scores are determined for all watersheds that contain a minimum of 25 percent federal ownership. AREMP applies a decision support model to evaluate the premise that watersheds are in good condition. Watersheds are judged to be in good condition where the physical processes, such as wood and sediment delivery, and habitat attributes are adequate to maintain or improve the diversity and abundance of native or desired non-native aquatic species.[7] A score of 10 indicates full support for the premise that a watershed is in good condition and a score of 0 indicates no support for the premise. A fifteen-year assessment of watersheds is being done in 2009, with an expected publication date of early 2010.

Stream Inventory Sites on National Forest and Bureau of Land Management Lands in the Columbia Cascade Province[8]



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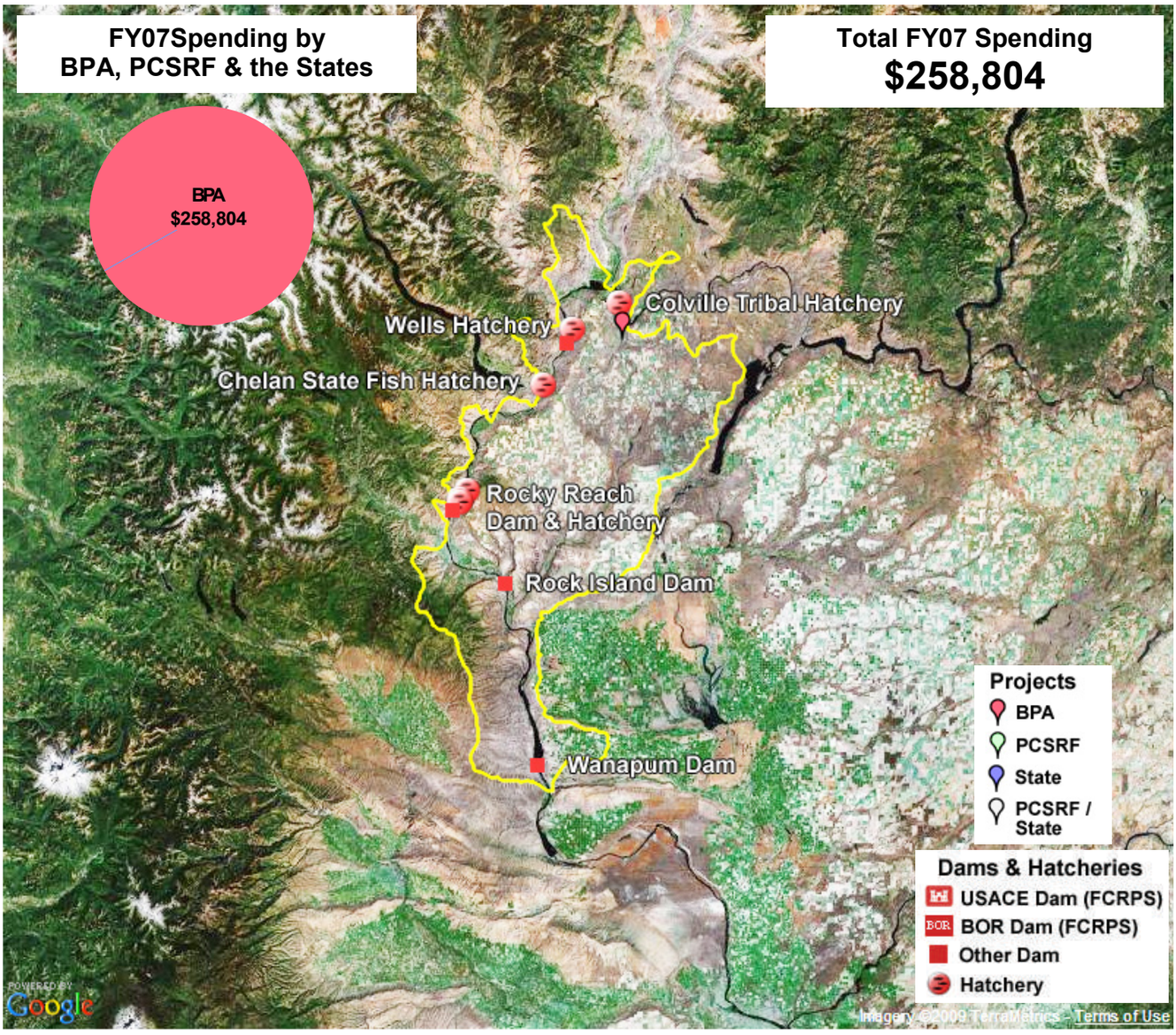
Red Symbol—Indicates locations where stream inventory information is collected by the USDA Forest Service and USDI Bureau and Land Management through the PacFish/InFish Biological Opinion Monitoring Program (PIBO). The locations and information reported are for the sentinel and integrator sites used to track habitat status and trend within the PIBO area over time.[8]

Columbia Cascade



In the Columbia Upper Middle Subbasin, summer steelhead, Chinook salmon (both spring and summer runs), and rainbow trout have been identified as focal species. Steelhead are listed as threatened under the federal Endangered Species Act whereas, spring Chinook have been listed as endangered. Steelhead in the subbasin are part of the Upper Columbia River Distinct Population Segment (DPS), Chinook salmon are part of the Upper Columbia River Evolutionarily Significant Unit (ESU). Recovery criteria for a steelhead DPS or a salmon ESU do not necessarily require that all populations achieve viability (extinction risk = low) prior to de-listing. However, recovery plans for Upper Columbia River steelhead and Chinook salmon have recommended that all populations become viable.

Subbasin: Columbia Upper Middle

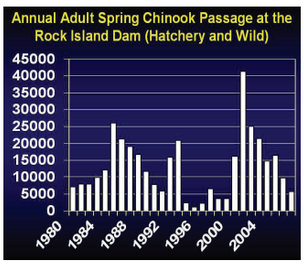
Key Factors Limiting Columbia Upper Middle Subbasin Focal Species
Factors limiting Columbia Upper Middle Subbasin focal species are described in the Mainstem section.

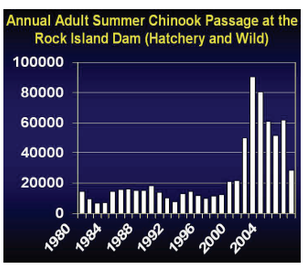
BPA FY 2008 Habitat Project Accomplishments in the Columbia Upper Middle Subbasin[1]

Habitat Zone	Project-type	Planned Value	FY 2008 Accomplishment (Actual Value)
Riparian-Upland	Plant/remove vegetation	266 acres	266 acres planted
	Install fence	1.30 miles	1 mile of fence installed
Riparian	Plant/remove vegetation	0.7 miles	0.7 miles

Columbia Cascade

Chinook





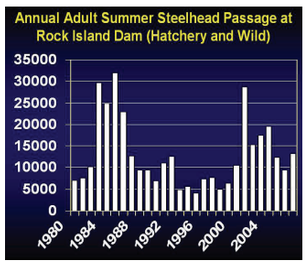
Spring

ESA Listing Status: Endangered
ESU: Upper Columbia
MPG: Wenatchee-Methow
Population: Wenatchee, Entiat, Methow
Biological Objective: None
Status: 5,572 adults at Rock Island Dam (2007)[9]
Wild Juvenile Production:

Summer

ESA Listing Status: None
ESU: Upper Columbia
MPG:
Biological Objective: None
Status: 28,222 adults at Rock Island Dam (2007)[9]
Wild Juvenile Production:

Steelhead



Summer

ESA Listing Status: Endangered
ESU: Upper Columbia
MPG: Wenatchee-Methow
Population: Wenatchee, Entiat, Methow
Biological Objective: None
Status: 7,665 adults at Rock Island Dam (5,628 wild) (2007)[9]
Wild Juvenile Production:

Rainbow Trout

ESA Listing Status: Species of Concern
Biological Objectives: None
Status: Unknown
Wild Juvenile Production: Unknown

2007 Hatchery Releases and Returns to Hatcheries in the Columbia Upper Middle Subbasin

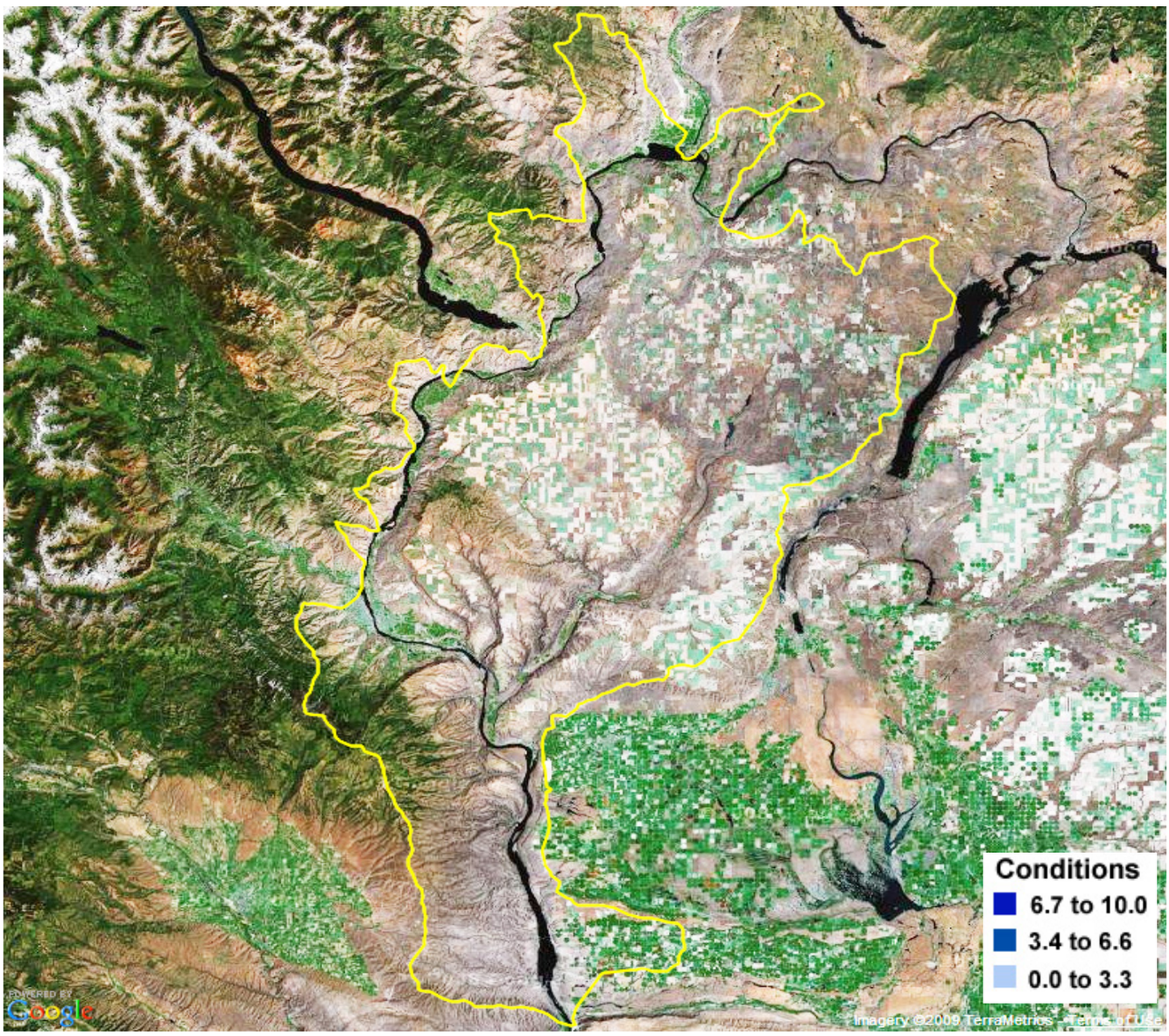
Hatchery/Acclimation Pond	Species	Release Goal/Released	Return Goal/Actual Return
Colville Tribal	Westslope Cutthroat		/1,069
Wells	Summer Chinook		/2,370 (mixed)
	Summer Steelhead		572 (mixed)
Methow Pond			
Chelan	Westslope Cutthroat		/2,146
	Kokanee		/150
Turtle Rock			
Eastbank	Spring Chinook		/2,134 (mixed)
	Summer Chinook		/10,902 (mixed)
	Coho		/243 (mixed)
Dryden Pond			
Rock Island			
Lake Wenatchee/ Chiwawa			
Rocky Reach			
Lake Wenatchee Net Pens			
Total			

Subbasin: Columbia Upper Middle

BPA-Funded Wildlife Projects in the Columbia Upper Middle Subbasin
There are no wildlife projects in this subbasin.

Columbia Cascade

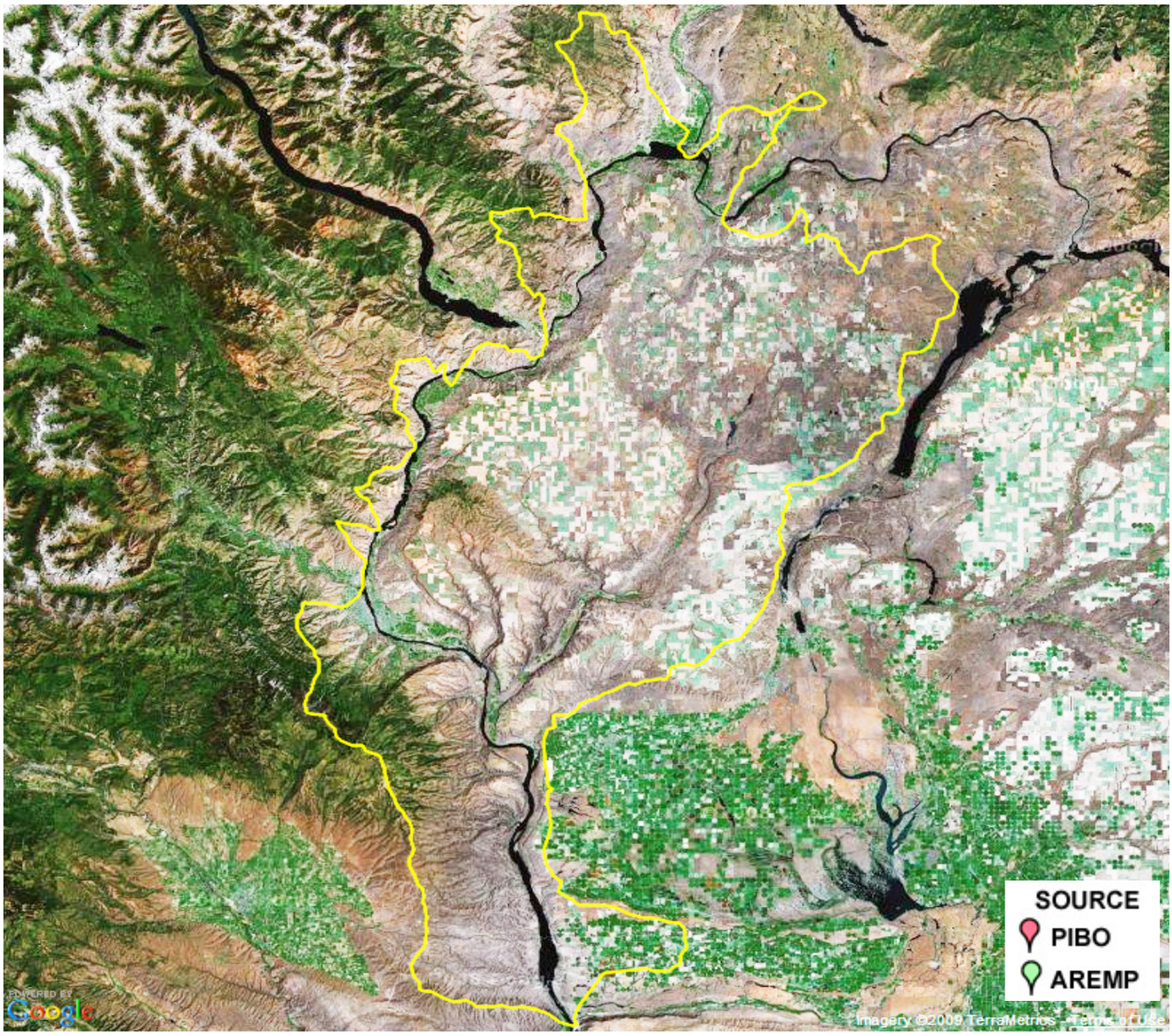
Watershed Conditions for National Forest and Bureau of Land Management Lands in the Columbia Upper Middle Subbasin[7]



Watershed condition is based upon work completed by the USDA Forest Service (FS) and USDI Bureau of Land Management (BLM) Aquatic and Riparian Effectiveness Monitoring Program (AREMP). AREMP personnel evaluate the status and trend of watershed condition on FS, BLM, and National Park Service administered lands within the range of the Northern Spotted Owl. Watershed condition scores are determined for all watersheds that contain a minimum of 25 percent federal ownership. AREMP applies a decision support model to evaluate the premise that watersheds are in good condition. Watersheds are judged to be in good condition where the physical processes, such as wood and sediment delivery, and habitat attributes are adequate to maintain or improve the diversity and abundance of native or desired non-native aquatic species.[7] A score of 10 indicates full support for the premise that a watershed is in good condition and a score of 0 indicates no support for the premise. A fifteen-year assessment of watersheds is being done in 2009, with an expected publication date of early 2010.

Subbasin: Columbia Upper Middle

Stream Inventory Sites on National Forest and Bureau of Land Management Lands in the Columbia Upper Middle Subbasin[8]



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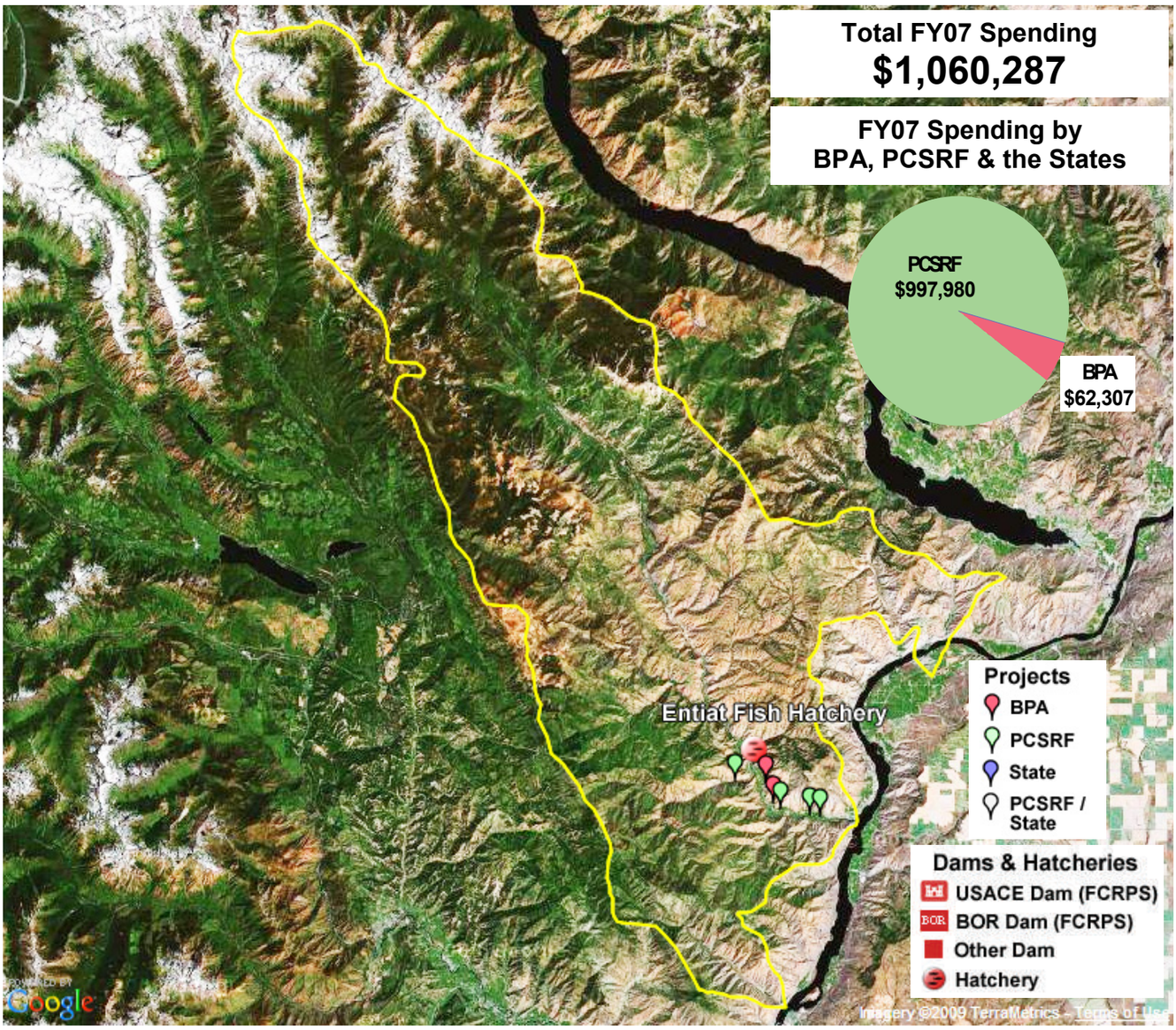
Columbia Cascade



In the Entiat Subbasin, summer steelhead, Chinook salmon (both spring and summer/Fall runs), coho, Pacific lamprey, bull trout, and westslope cutthroat trout have been identified as focal species. Steelhead are listed as threatened under the federal Endangered Species Act whereas, spring Chinook have been listed as endangered. Steelhead in the subbasin are part of the Upper Columbia River Distinct Population Segment (DPS), Chinook salmon are part of the Upper Columbia River Evolutionarily Significant Unit (ESU), and bull trout are within the Upper Columbia River Recovery Unit. Recovery criteria for a steelhead DPS or a salmon ESU do not necessarily require that all populations achieve viability (extinction risk = low) prior to de-listing. However, recovery plans for Upper Columbia River steelhead and Chinook salmon have recommended that all populations become viable. Recovery criteria for bull trout vary among recovery units.

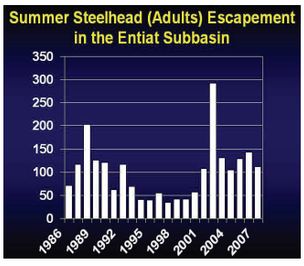
Subbasin: Entiat

Key Factors Limiting Entiat Subbasin Focal Species[1,2]								
Factors for Decline/Limiting Factors/ Threats		**Species/Race, and Life-Stage Most Affected**						
		Spring Chinook	**Summer/ Fall Chinook**	**Summer Steelhead**	**Coho**	**Pacific Lamprey**	**Bull Trout**	**Westslope Cutthroat Trout**
Habitat	Estuary and Nearshore Marine Habitat Degradation	Smolts	Smolts	Smolts	Smolts			
	Floodplain Connectivity and Function	Juveniles	Fry, summer parr, winter parr	Juveniles, adults	Juveniles			
	Channel Structure and Complexity	Juveniles, adults	Fry, summer parr, winter parr, adults	Juveniles, adults	Juveniles, adults		Juveniles, adults	Juveniles, adults
	Riparian Areas and LWD Recruitment	Juveniles	Fry, summer parr, winter parr	Juveniles, adults	Juveniles, adults		Juveniles, adults	Juveniles, adults
	Stream Flow	Juveniles	Summer parr	Juveniles	Juveniles	Juveniles	All	All
	Water Quality	Eggs	Eggs	All		All	All	All
	Fish Passage	Adults	Adults	Juveniles, adults		Juveniles, adults		
Hydro	Mainstem Columbia River Hydropower-related Adverse Effects	Smolts	Smolts	Smolts	Smolts	Juveniles, adults	Juveniles, adults	
Hatchery	Competition with hatchery fish of all species	Juveniles	Juveniles	Juveniles			All	All
Harvest	Mortality from Targeted Fishery	Adults	Adults	Adults	Adults			
	Poaching	Adults	Adults	Adults	Aduts		Adults	Adults
Predation/ Competition/ Disease	Predation by or competition with non-native species	Juveniles	Juveniles	Juveniles	Juveniles	Juveniles	Parr, juveniles, adults	Parr, juveniles, adults
	Predation by birds or marine mammals	Juveniles	Juveniles	Juveniles				

BPA FY 2008 Habitat Project Accomplishments in the Entiat Subbasin[1]			
Habitat Zone	**Project-type**	**Planned Value**	**FY 2008 Accomplishment (Actual Value)**
Instream	Install well	Not available	5.8 miles of primary stream reach improved
	Install well	Not available	5.8 miles of total stream reach improved
	Install well	Not available	2 cfs water flow conserved
	Install well	Not available	1,466 acre-feet water conserved

Columbia Cascade

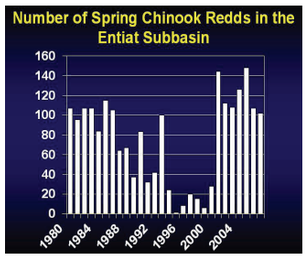
Steelhead

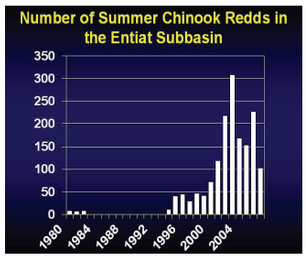


Summer

ESA Listing Status: Endangered
ESU: Upper Columbia
MPG: Wenatchee-Methow
Population: Entiat
Recovery Plan Criteria: 500 natural adults
Status: 111 natural adults (2007)
Wild Juvenile Production:

Chinook





Spring

ESA Listing Status: Endangered
ESU: Upper Columbia
MPG: Wenatchee-Methow
Population: Entiat
Recovery Plan Criteria: 500 natural adults
Status: 102 redds (2007)
Wild Juvenile Production:

Summer/Fall (Late –run)

ESA Listing Status: None (Did not historically spawn in the Entiat River)
ESU: Upper Columbia
Biological Objective: None
Status: 102 redds (2007)
Wild Juvenile Production:

Pacific Lamprey

Federal Designation: Species of Concern
Biological Objective: None
Status: Unknown
Wild Juvenile Production: Unknown

Coho

Federal Designation: None
ESU: None
Biological Objective: None
Status: Unknown
Wild Juvenile Production: Unknown

Recovery Status of ESA-Listed Steelhead and Chinook Salmon in the Entiat Subbasin[1,3]

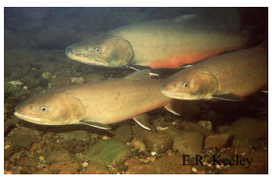
Population	Abundance Threshold	Mean Abundance	Major Spawning Areas Occupied	Growth Rate	Recruits/Spawner	Current Viability
Summer Steelhead						
Entiat	500	92 (1992-2003)	1 of 2	Unknown	0.25-0.81 (1985-96)	Low
Spring Chinook Salmon						
Entiat	500	63 (1995-2004)	1 of 1	0.99	0.72 (1979-98)	Low

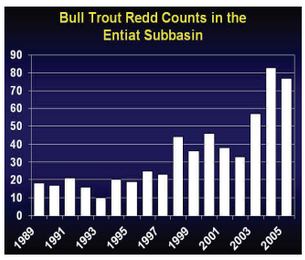
2007 Hatchery Releases and Returns to Hatcheries in the Entiat Subbasin

Hatchery/ Acclimation Pond	Species	Release Goal/ Released	Return Goal/Actual Return
Entiat	Spring Chinook	400,000/	300/1,642
Total			

Subbasin: Entiat

Bull Trout





ESA Listing Status: Threatened
Core Area: Entiat (Within the Upper Columbia River Recovery Unit)
Local Populations: Mainstem Entiat River and Mad River
Draft Recovery Plan Criteria: 836-1,364 fish
Status: 77 redds (2005)
Abundance, Trend, Threat, and Risk Ranks (Entiat Core):[6]
Abundance = 50-250
Short-term Trend = Stable
Threat = Moderate, imminent
Risk = At risk

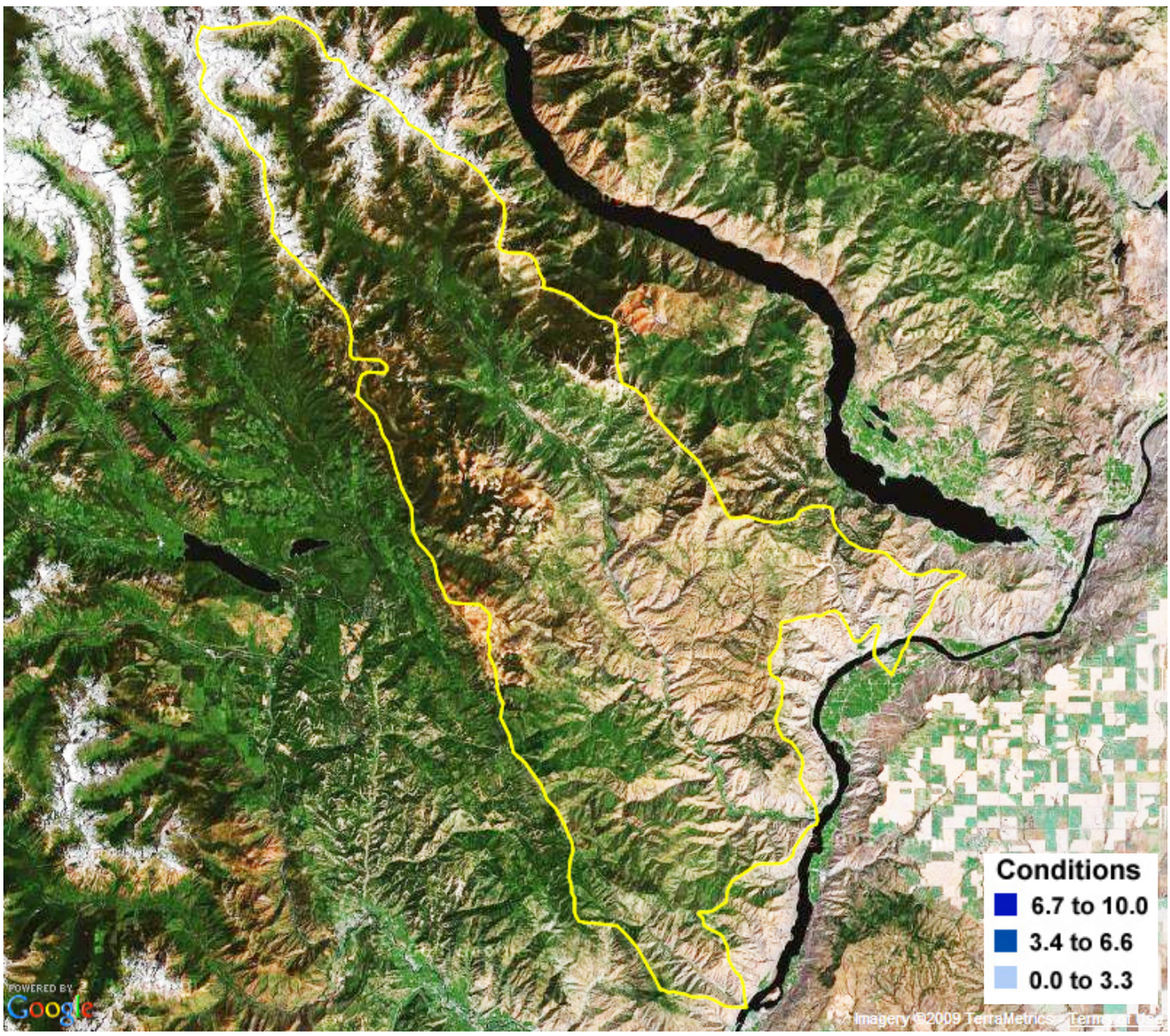
Westslope Cutthroat Trout

ESA Listing Status: Species of Concern
Biological Objective: None
Status: Unknown
Wild Juvenile Production: Unknown

BPA-Funded Wildlife Projects in the Entiat Subbasin
There are no wildlife projects in this subbasin.

Columbia Cascade

Watershed Conditions for National Forest and Bureau of Land Management Lands in the Entiat Subbasin[7]



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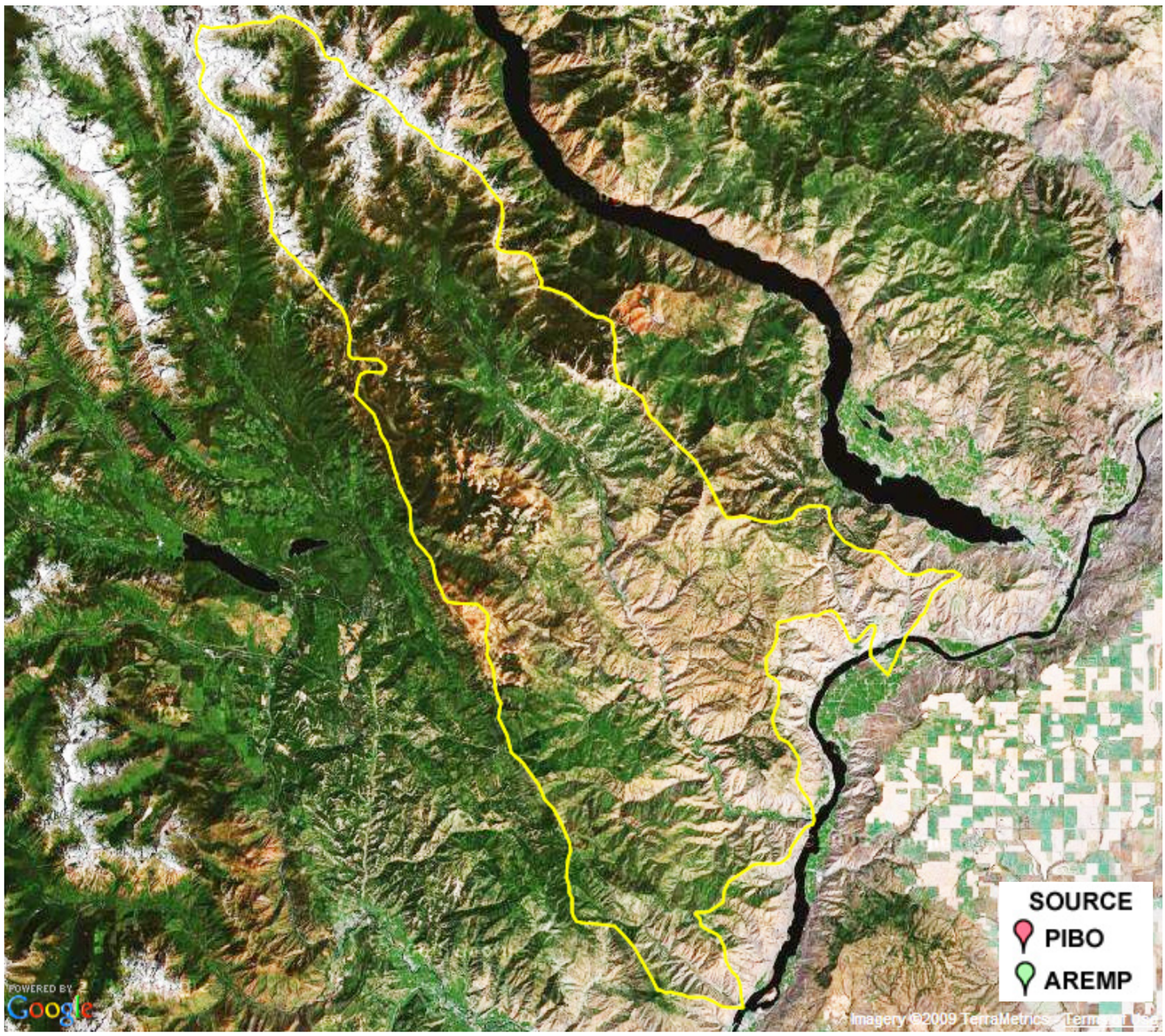
Subbasin: Entiat

Stream Inventory Sites on National Forest and Bureau of Land Management Lands in the Entiat Subbasin[8]



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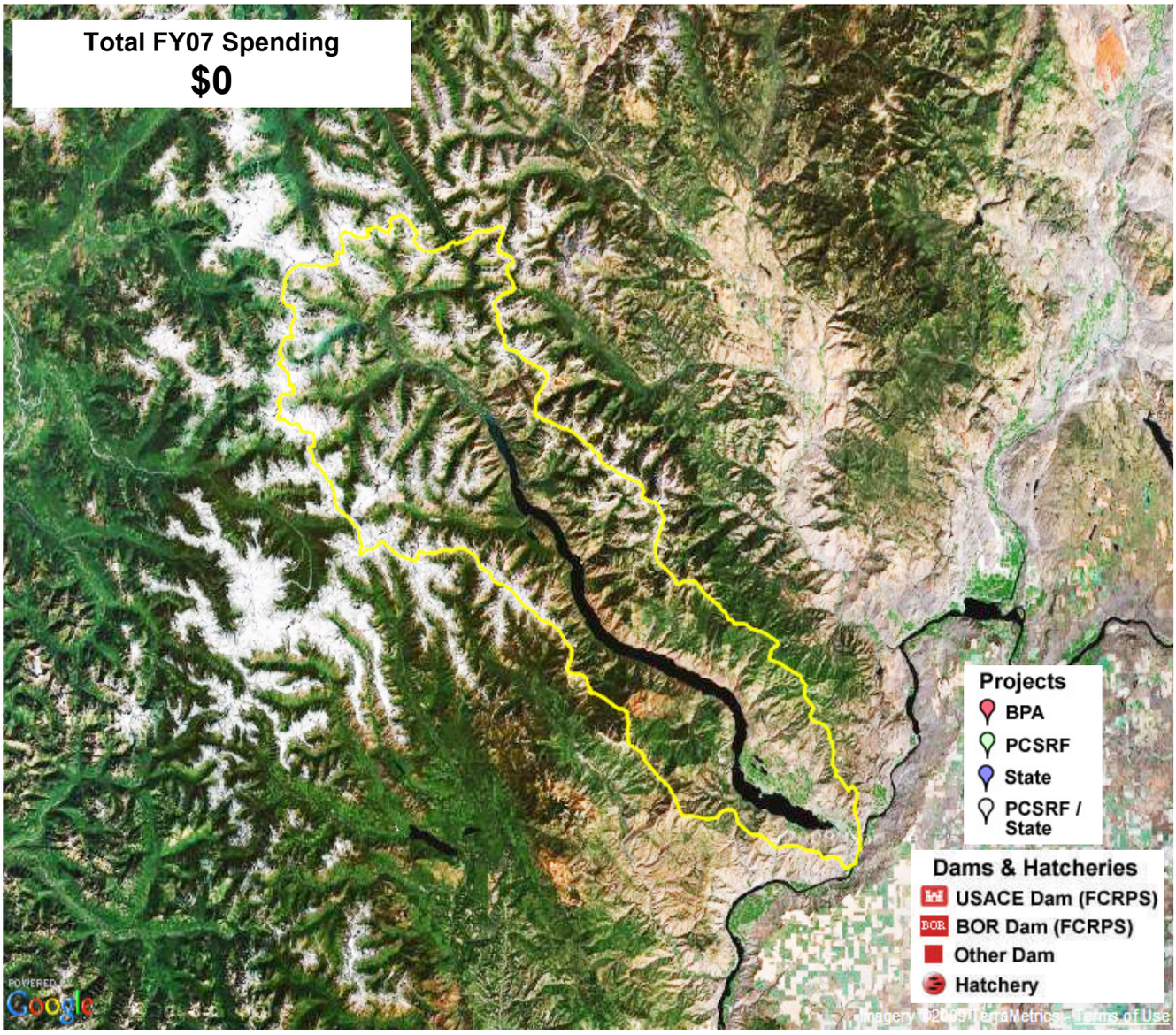
Columbia Cascade



In the Lake Chelan Subbasin, bull trout, westslope cutthroat, and kokanee have been identified as focal species. Of the three focal species, only bull trout is listed as threatened under the federal Endangered Species Act. Although westslope cutthroat trout are found throughout the Chelan Basin, the exact status has not been identified; however, they are most abundant in the Lucerne Basin. Unlike westslope cutthroat trout, bull trout have not been document within the Chelan Basin since the 1950s. Kokanee were introduced in 1917 and with spawning habitat not being limited, the species has provided a recreation fishery since being introduced.

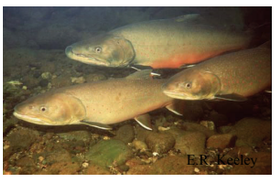
Subbasin: Lake Chelan

Key Factors Limiting Lake Chelan Focal Species				
Factors for Decline/Limiting Factors/Threats		**Species/Race, and Life-Stage Most Affected**		
		Bull Trout	**Westslope Cut-throat Trout**	**Kokanee**
Habitat	Channel Structure and Complexity	Juveniles, adults	Juveniles, adults	
	Riparian Areas and LWD	Juveniles, adults	Juveniles, adults	
	Water Quality	All	All	Juvenile
	Fish Passage	Adults	Adults	
Harvest	Regulations	Adults	Adults	
Predation/ Competition/ Disease	Predation by or competition with non-native species	Juveniles, adults	Juveniles, adults	All

BPA FY 2008 Habitat Project Accomplishments in the Lake Chelan Subbasin
There are no BPA-funded habitat improvement efforts in this subbasin.

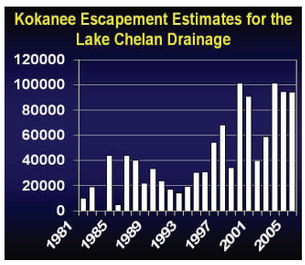
Columbia Cascade

Bull Trout



ESA Listing Status: Threatened
Core Area: None (Within the Upper Columbia Recovery Unit)
Local Populations: Unknown
Draft Recovery Plan Criteria: None
Status: Unknown, further investigation needed
Abundance, Trend, Threat, and Risk Ranks (Entiat Core):
Abundance = Unknown
Short-term Trend = Unknown
Threat = Unknown
Risk = Unknown
Wild Juvenile Production: Unknown

Kokanee



ESA Listing Status: None
Biological Objective: None
Status:
Wild Juvenile Production: Unknown

Westslope Cutthroat Trout

ESA Listing Status: Species of Concern
Biological Objective: None
Status: Unknown[1]
Wild Juvenile Production: Unknown

Recovery Status of ESA-Listed Steelhead and Chinook Salmon in the Lake Chelan Subbasin[6,7]
Steelhead and Chinook are not focal species in this subbasin.

2007 Hatchery Releases and Returns to Hatcheries in the Lake Chelan Subbasin
There are no hatcheries in this subbasin.

BPA-Funded Wildlife Projects in the Lake Chelan Subbasin
There are no wildlife projects in this subbasin.

Subbasin: Lake Chelan

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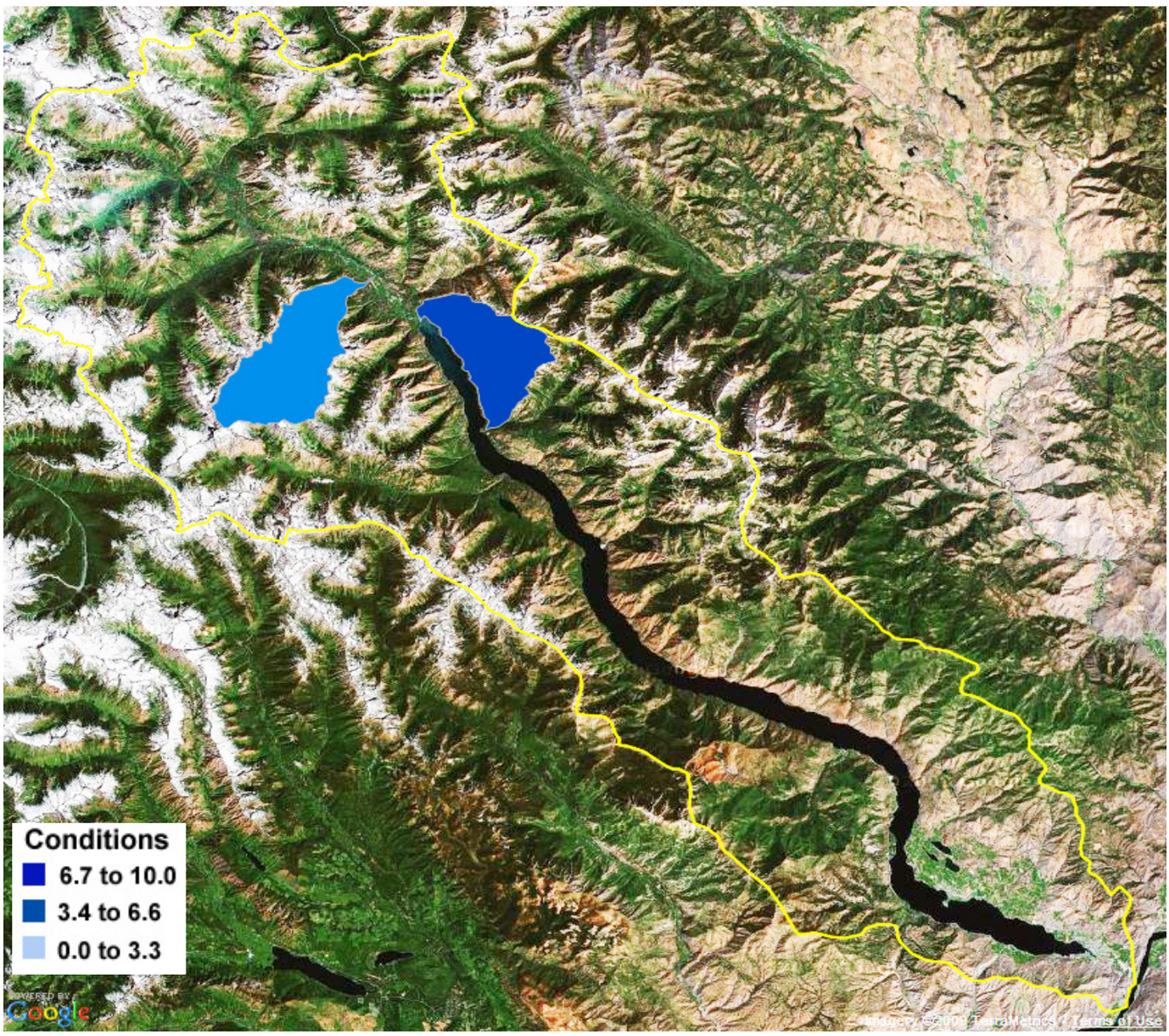
Columbia Cascade

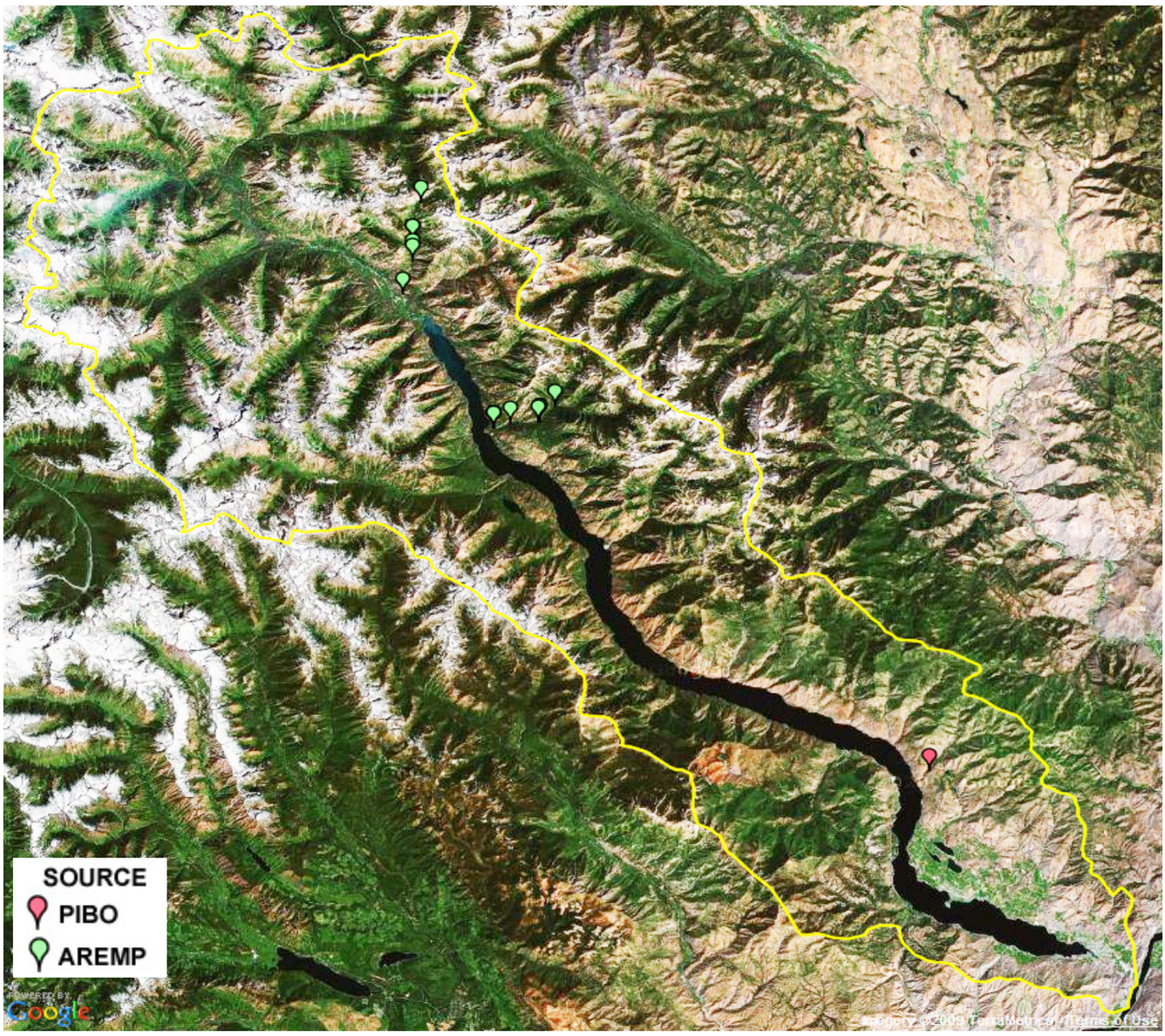
Watershed Conditions for National Forest and Bureau of Land Management Lands in the Lake Chelan Subbasin



Watershed condition is based upon work completed by the USDA Forest Service (FS) and USDI Bureau of Land Management (BLM) Aquatic and Riparian Effectiveness Monitoring Program (AREMP). AREMP personnel evaluate the status and trend of watershed condition on FS, BLM, and National Park Service administered lands within the range of the Northern Spotted Owl. Watershed condition scores are determined for all watersheds that contain a minimum of 25 percent federal ownership. AREMP applies a decision support model to evaluate the premise that watersheds are in good condition. Watersheds are judged to be in good condition where the physical processes, such as wood and sediment delivery, and habitat attributes are adequate to maintain or improve the diversity and abundance of native or desired non-native aquatic species.[7] A score of 10 indicates full support for the premise that a watershed is in good condition and a score of 0 indicates no support for the premise. A fifteen-year assessment of watersheds is being done in 2009, with an expected publication date of early 2010.

Subbasin: Lake Chelan

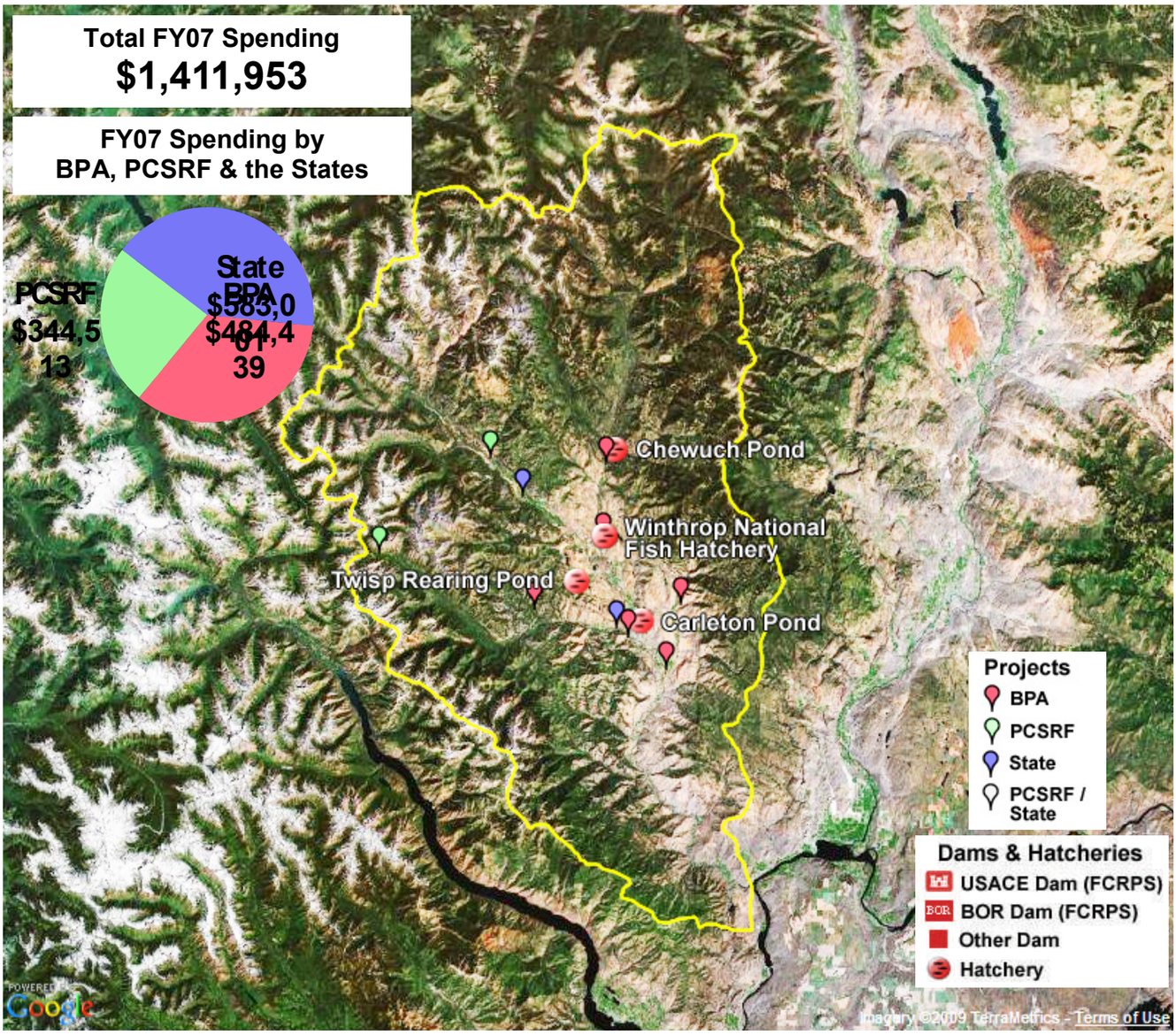
Stream Inventory Sites on National Forest and Bureau of Land Management Lands in the Lake Chelan Subbasin



Green Symbol—Indicates locations where stream information is collected by the USDA Forest Service and USDI Bureau and Land Management through the Aquatic and Riparian Effectiveness Monitoring Program (AREMP).

Red Symbol—Indicates locations where stream inventory information is collected by the USDA Forest Service and USDI Bureau and Land Management through the PacFish/InFish Biological Opinion Monitoring Program (PIBO). The locations and information reported are for the sentinel and integrator sites used to track habitat status and trend within the PIBO area over time.[8]

Columbia Cascade



In the Methow River Subbasin, summer steelhead, spring Chinook salmon, summer Chinook salmon, Coho salmon, bull trout, and westslope cutthroat trout have been identified as focal species. Spring Chinook salmon are listed as endangered, and summer steelhead and bull trout are listed as threatened under the federal Endangered Species Act. Steelhead in the subbasin are part of the Upper Columbia River Distinct Population Segment (DPS), Chinook salmon are part of the Upper Columbia River Evolutionarily Significant Unit (ESU), and bull trout are within the Upper Columbia River Recovery Unit. Recovery criteria for a steelhead DPS or a salmon ESU do not necessarily require that all populations achieve viability (extinction risk = low) prior to delisting. However, recovery plans for Upper Columbia River steelhead and Chinook salmon have recommended that all populations become viable. Recovery criteria for bull trout vary among recovery units.

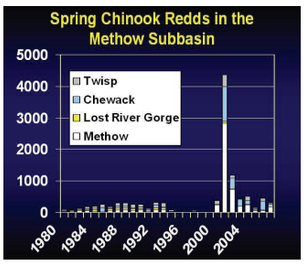
Subbasin: Methow

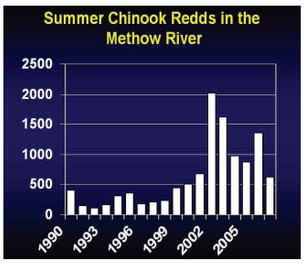
Key Factors Limiting Methow River Subbasin Focal Species[1,4]							
Factors for Decline/Limiting Factors/ Threats		**Species/Race, and Life-Stage Most Affected**					
		Spring Chinook	**Summer Chinook**	**Coho**	**Summer Steelhead**	**Bull Trout**	**Cutthroat Trout**
Habitat	Estuary and Nearshore Marine Habitat Degradation	Smolts	Smolts	Smolts	Smolts		
	Channel Structure and Complexity	Juveniles	Juveniles	Juveniles	Fry, summer parr, winter parr	Juveniles, adults	Juveniles, adults
	Riparian Areas and LWD Recruitment	Juveniles	Juveniles	Juveniles	Fry, summer parr, winter parr	Juveniles, adults	Juveniles, adults
	Stream Flow					Juveniles, adults	Juveniles, adults
	Water Quality	Juveniles	Juveniles	Juveniles	Fry, summer parr, winter parr	All	All
	Fish Passage	Juveniles, adults	Juveniles, adults		Juveniles, adults	Juveniles, adults	Juveniles, adults
Hydro	Mainstem Columbia River Hydropower-related Adverse Effects	Smolts	Smolts	Smolts	Smolts		
Hatchery	Competition with hatchery fish of all species	Juveniles	Juveniles		Juveniles		
Harvest	Mortality from Targeted Fishery	Adults	Adults	Adults			
Predation/ Competition/Disease	Predation by or competition with non-native species	Juveniles	Juveniles		Juveniles	Juveniles	
	Predation by birds or marine mammals	Juveniles	Juveniles		Juveniles		

BPA FY 2008 Habitat Project Accomplishments in the Methow Subbasin[1]			
Habitat Zone	**Project-type**	**Planned Value**	**FY 2008 Accomplishment (Actual Value)**
Instream	Realign, connect, and/or create channel	0.5 miles	0.5 stream miles after treatment
	Realign, connect, and/or create channel	0.5 miles	0.5 stream miles before treatment
	Acquire water instream	20.4 cfs	24.3 cfs water protected
	Acquire water instream	2,305.3 acre-feet	2,305.3 acre-feet water protected
	Install fish passage structure	0.5 miles	0.5 habitat miles accessed
	Install pipeline, acquire water instream	9.2 miles	10.2 miles of primary stream improved
	Install pipeline, acquire water instream	54.7 miles	18.1 miles of total stream reach improved
Wetland	Realign, connect, and/or create channel	0.2 acres	0.2 acres affected
Riparian-Upland	Install fence	2.03 miles	2.03 miles of fence installed
	Land purchase	93 acres	93 acres protected
Riparian	Plant vegetation, remove vegetation	2.78 miles	2.78 miles planted
	Land purchased	0.47 miles	0.47 miles protected

Columbia Cascade

Chinook





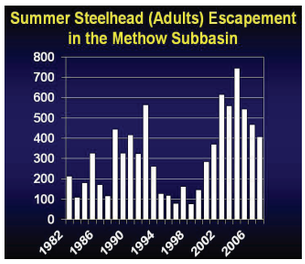
Spring

ESA Listing Status: Endangered
ESU: Upper Columbia
MPG: Wenatchee-Methow
Population:Methow
Recovery Plan Criteria: 2,000 natural adults
Status: 294 redds (2007)
Wild Juvenile Production:

Summer/Fall

ESA Listing Status: None
ESU: Upper Columbia
MPG: None
Population:
Biological : 3,500 adults past Wells Dam
Status: 620 (2007)
Wild Juvenile Production:

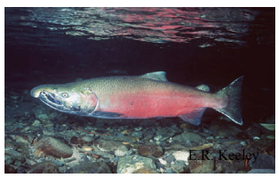
Steelhead

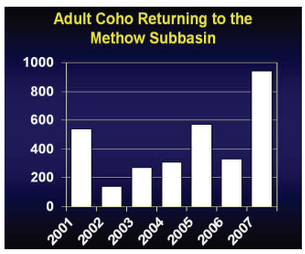


Summer

ESA Listing Status: Endangered
ESU: Upper Columbia
MPG:Wenatchee-Methow
Population: Methow
Recovery Plan Criteria: 1,000 natural adults
Status: 409 adults (2007)
Wild Juvenile Production:

Coho





ESA Listing Status: None (native population extirpated)
ESU: None
MPG: None
Population:
Biological Objective: None
Status: 942 hatchery adults returned (2007)
Wild Juvenile Production:

Recovery Status of ESA-Listed Steelhead and Chinook Salmon in the Methow Subbasin[1,3]

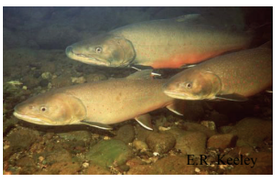
Population	Abundance Threshold	Mean Abundance	Major Spawning Areas Occupied	Growth Rate	Recruits/Spawner	Current Viability
Summer Steelhead						
Methow	1,500	202 (1991-2002)	4 of 4	Unknown	0.09-0.84 (1985-96)	Low
Spring Chinook Salmon						
Methow	2,000	205 (1995-2004)	3 of 4	1.10	0.88 (1979-98)	Low

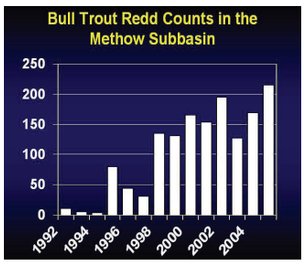
2007 Hatchery Releases and Returns to Hatcheries in the Methow Subbasin

Hatchery/Acclimation Pond	Species	Release Goal/Released	Return Goal/Actual Return
Methow	Spring Chinook		/372
Winthrop	Spring Chinook		/708
	Coho		/942
Chewuch			
Twisp			
Carleton			
Total			

Subbasin: Methow

Bull Trout





ESA Listing Status: Threatened
Core Area: Methow (Within the Upper Columbia River Recovery Unit)
Local Populations: Gold Creek, Twisp River, Chewuch River, Wolf Creek, Early Winters Creek, Upper Methow River, Lost River, and Goat Creek
Draft Recovery Plan Criteria: 3,610-5,886 fish
Status: 215 redds (2005)
Abundance, Trend, Threat, and Risk Ranks (Methow Core):
Abundance = 50-250
Short-term Trend = Declining
Threat = Moderate, imminent
Risk = High risk
Wild Juvenile Production: Unknown

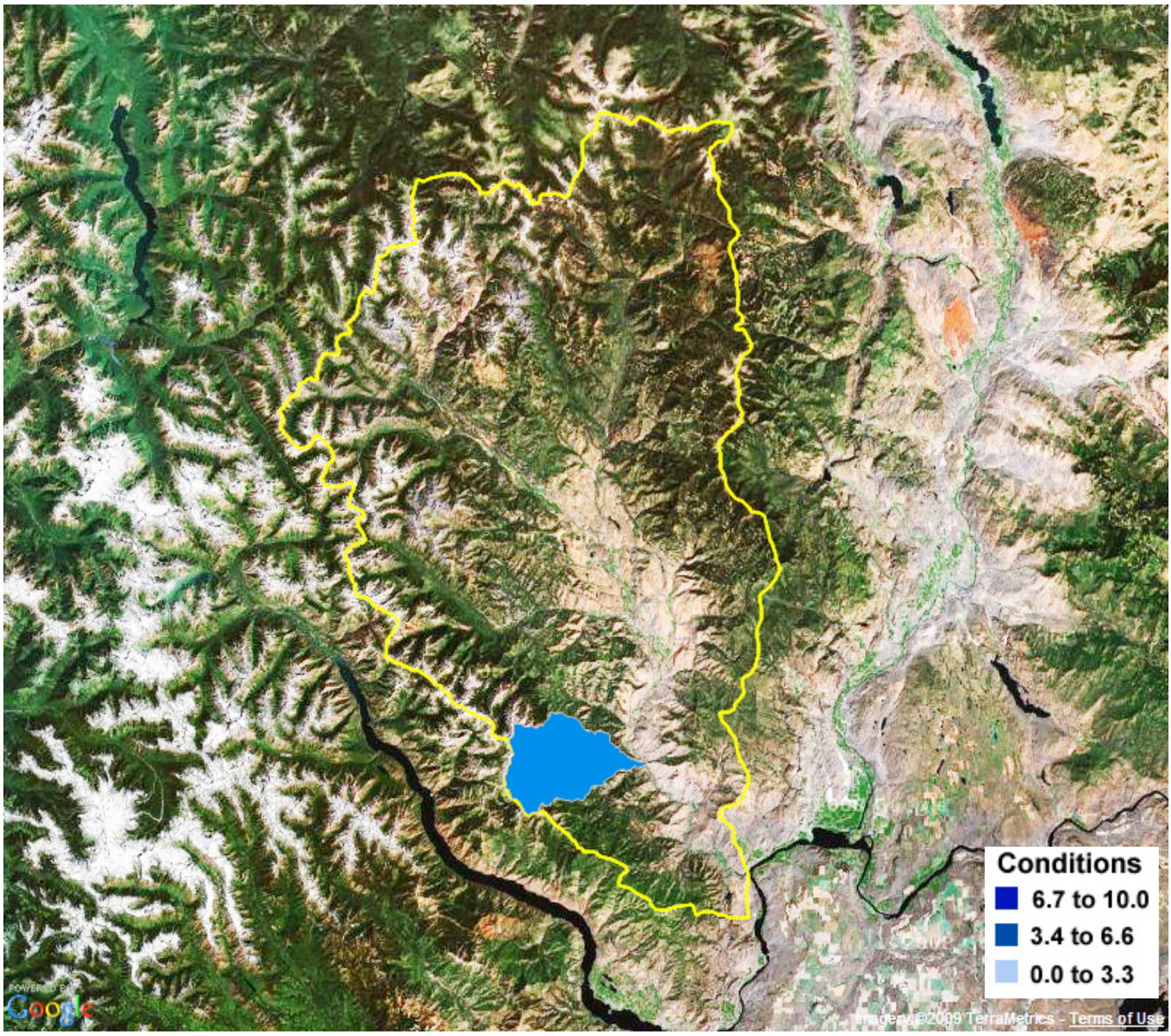
Westslope Cutthroat Trout

ESA Listing Status: Species of Concern
Biological Objective: None
Status: Unknown
Wild Juvenile Production: Unknown

BPA-Funded Wildlife Projects in the Methow Subbasin
There are no wildlife projects in this subbasin.

Columbia Cascade

Watershed Conditions for National Forest and Bureau of Land Management Lands in the Methow Subbasin[2]



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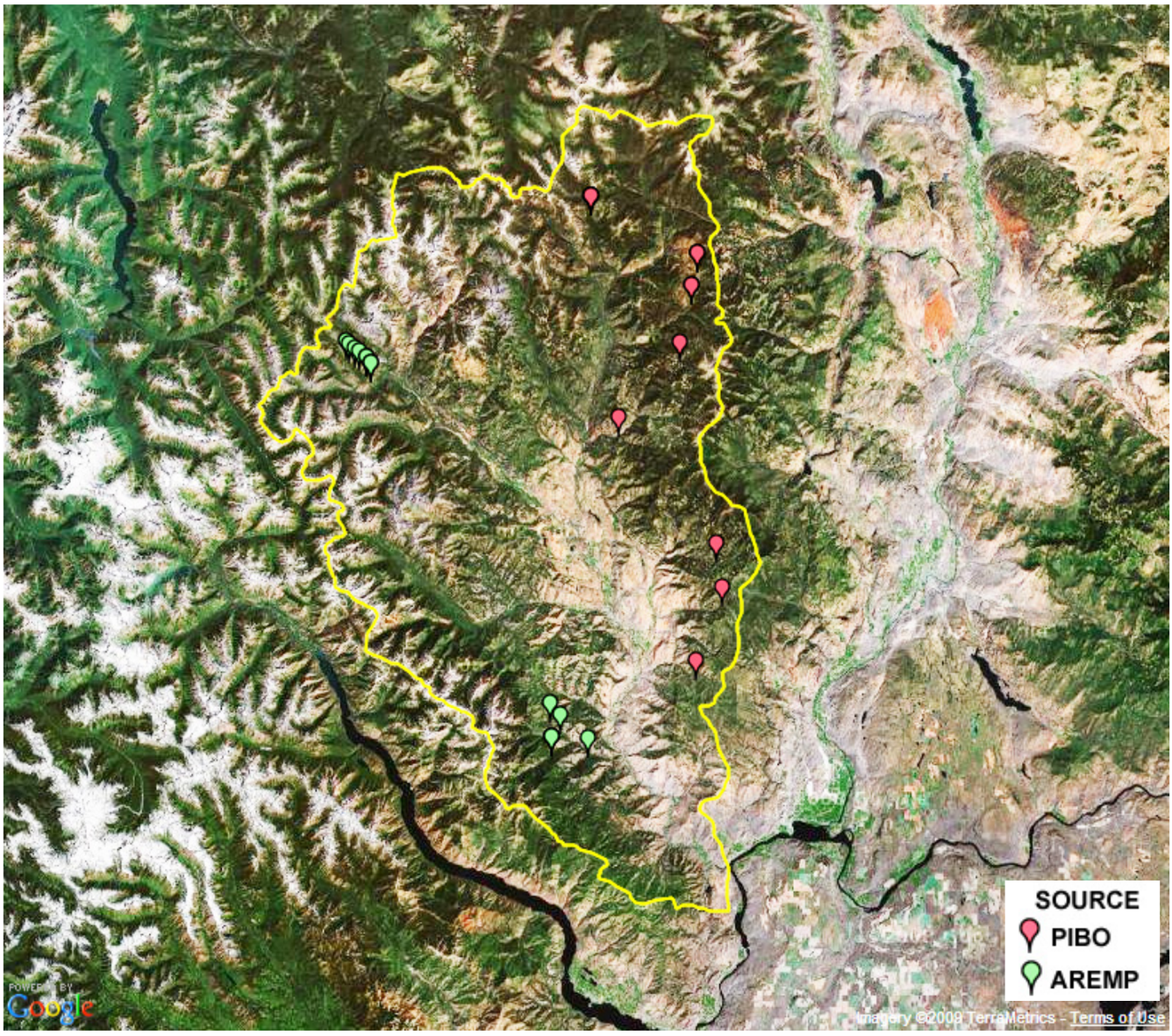
Subbasin: Methow

Stream Inventory Sites on National Forest and Bureau of Land Management Lands in the Methow Subbasin[8]



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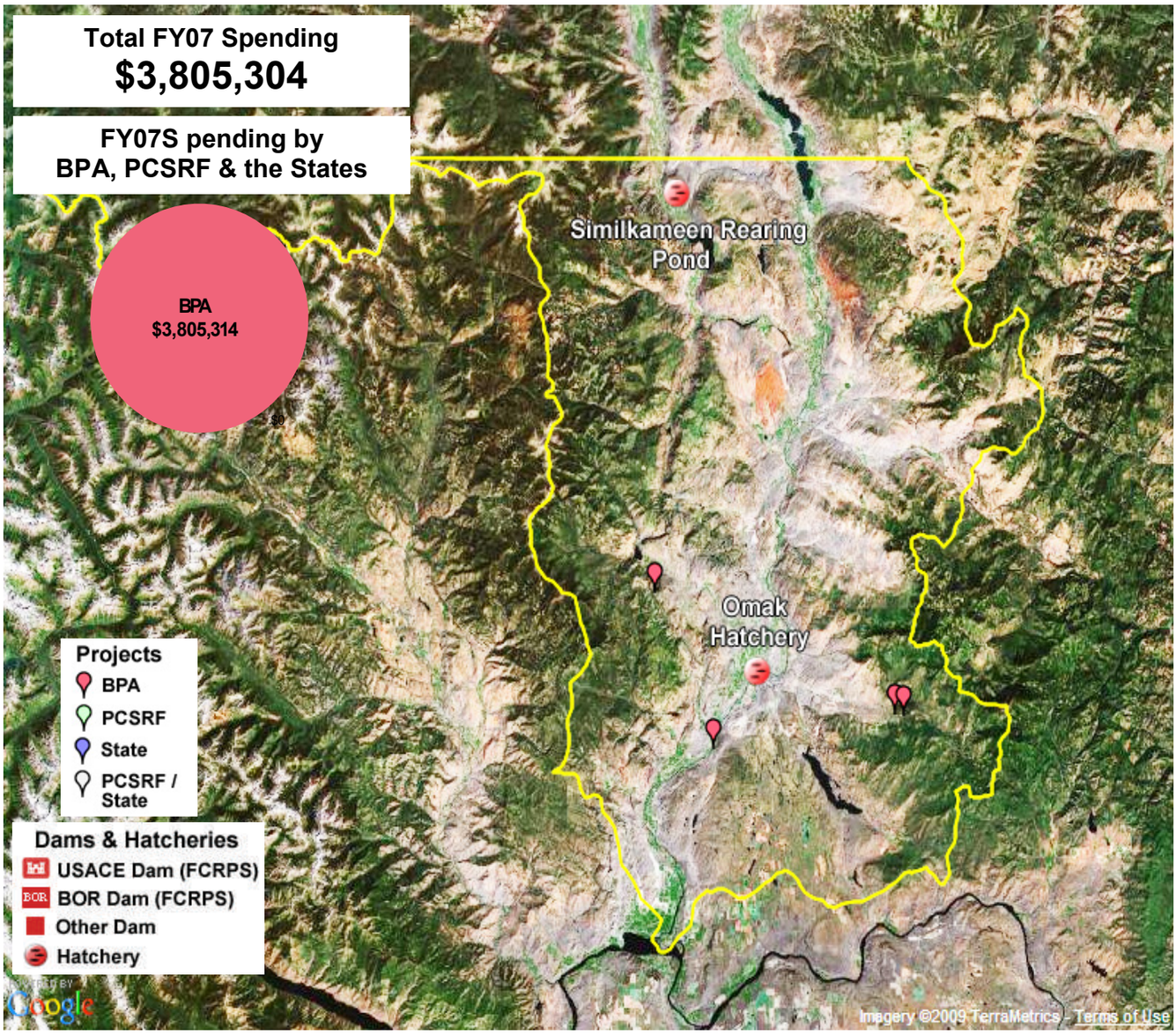
Red Symbol—Indicates locations where stream inventory information is collected by the USDA Forest Service and USDI Bureau and Land Management through the PacFish/InFish Biological Opinion Monitoring Program (PIBO). The locations and information reported are for the sentinel and integrator sites used to track habitat status and trend within the PIBO area over time.[8]

Columbia Cascade



In the Okanogan River Subbasin, summer steelhead, spring Chinook salmon, summer Chinook salmon, sockeye salmon, bull trout, and rainbow trout have been identified as focal species. Spring Chinook salmon in the Upper Columbia River Basin are listed as endangered under the federal Endangered Species Act (ESA), but are considered extirpated from the Okanogan subbasin. Summer steelhead and bull trout are listed as threatened under the ESA. Steelhead in the subbasin are part of the Upper Columbia River Distinct Population Segment (DPS) and bull trout are within the Upper Columbia River Recovery Unit. Recovery criteria for a steelhead DPS do not necessarily require that all populations achieve viability (extinction risk = low) prior to de-listing. However, the recovery plan for Upper Columbia River steelhead has recommended that all populations become viable. Recovery criteria for bull trout vary among recovery units.

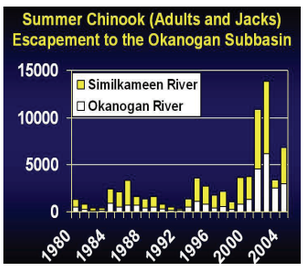
Subbasin: Okanogan

Key Factors Limiting Okanogan River Subbasin Focal Species[1,5]							
Factors for Decline/Limiting Factors/ Threats		**Species/Race, and Life-Stage Most Affected**					
		Spring Chinook	**Summer Chinook**	**Sockeye**	**Summer Steelhead**	**Bull Trout**	**Rainbow-Trout**
Habitat	Estuary and Nearshore Marine Habitat Degradation	Smolts	Smolts	Smolts	Smolts		
	Channel Structure and Complexity	Juveniles	Juveniles	Juveniles	Fry, summer parr, winter parr	Juveniles, adults	Juveniles, adults
	Riparian Areas and LWD Recruitment	Juveniles	Juveniles	Juveniles	Fry, summer parr, winter parr	Juveniles, adults	Juveniles, adults
	Stream Flow					Juveniles, adults	Juveniles, adults
	Water Quality	Juveniles	Juveniles	Juveniles	Fry, summer parr, winter parr	All	All
	Fish Passage	Juveniles, adults	Juveniles, adults	Juveniles, adults	Juveniles, adults	Juveniles, adults	Juveniles, adults
Hydro	Mainstem Columbia River Hydropower-related Adverse Effects	Smolts	Smolts	Smolts	Smolts		
Hatchery	Competition with hatchery fish of all species	Juveniles	Juveniles		Juveniles		
Harvest	Mortality from Targeted Fishery	Adults	Adults				
Predation/ Competition/Disease	Predation by or competition with non-native species	Juveniles	Juveniles		Juveniles	Juveniles	
	Predation by birds or marine mammals	Juveniles	Juveniles		Juveniles		

BPA FY 2008 Habitat Project Accomplishments in the Okanogan Subbasin[8]			
Habitat Zone	**Project-type**	**Planned Value**	**FY 2008 Accomplishment (Actual Value)**
Instream	Remove vegetation	0.1 miles	0.3 stream miles treated
	Acquire water instream	25 cfs	25 cfs water protected
	Acquire water instream	700 acre-feet	693 acre-feet water protected
	Acquire water instream	14 miles	14 miles of primary stream improved
	Acquire water instream	14 miles	14 miles of total stream reach improved
Riparian-Upland	Install fence	1 mile	1.11 miles of fence installed
	Land purchase	Unknown	200 acres protected
	Plant vegetation, remove vegetation	234 acres	214 acres treated
	Improve road	2.1 miles	2.1 road miles treated
Riparian	Plant vegetation, remove vegetation	1.2 miles	1.4 miles planted
	Land purchased	1 miles	0.5 miles protected

Columbia Cascade

Chinook



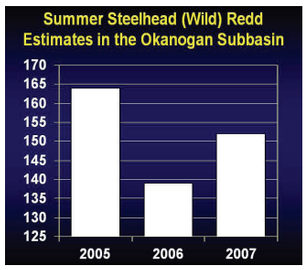
Spring

ESA Listing Status: Endangered (extirpated in the Okanogan River)
ESU: Upper Columbia
MPG: Wenatchee-Methow
Population: Okanogan
Biological Objective: 300 hatchery-origin adults
Status: Unknown
Wild Juvenile Production:

Summer/Fall

ESA Listing Status: None
ESU: Upper Columbia
MPG:
Population:
Biological Objective: 3,500 adults
Status:
Okanogan River
1,301 redds (ground counts) (2007)
1,265 redds (aerial counts) (2007)
Similkameen River
702 redds (ground counts) (2007)
523 redds (aerial counts) (2007)
Wild Juvenile Production:

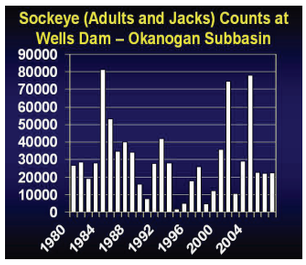
Steelhead



Summer

ESA Listing Status: Endangered
ESU: Upper Columbia
MPG: Wenatchee-Methow
Population: Okanogan
Recovery Plan Criteria: 500 natural adults
Status: 152 redds (natural origin) (2007)
Wild Juvenile Production:

Sockeye



ESA Listing Status: Threatened
ESU: Upper Columbia
MPG:
Population:
Biological Objective: 58,730 adults past Wells Dam
Status: 22,273 (2007)
Wild Juvenile Production:

Recovery Status of ESA-Listed Steelhead and Chinook Salmon in the Okanogan Subbasin[1,3]

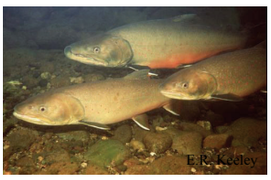
Population	Abundance Threshold	Mean Abundance	Major Spawning Areas Occupied	Growth Rate	Recruits/Spawner	Current Viability
Summer Steelhead						
Okanogan	1,000	53 (1991-2002)	2 of 2 (U.S. only)	Unknown	0.09-0.84 (1985-96)	Low
Spring Chinook Salmon						
Okanogan	750 (U.S. only)	—	0 of 1	—	—	Extirpated

2007 Hatchery Releases and Returns to Hatcheries in the Okanogan Subbasin

Hatchery/Acclimation Pond	Species	Release Goal/Released	Return Goal/Actual Return
Omak	Lahontan Cutthroat Trout		/899
	Kokanee		/1,011
Similkameen			
Total			

Subbasin: Okanogan

Bull Trout



ESA Listing Status: Threatened
Core Area: None (Within the Upper Columbia River Recovery Unit)
Local Populations: Unknown
Draft Recovery Plan Criteria:
Status:Unknown
***Abundance, Trend, Threat, and Risk Ranks*:**
Abundance = Unknown
Short-term Trend = Unknown
Threat = Unknown
Risk = Unknown

Rainbow Trout

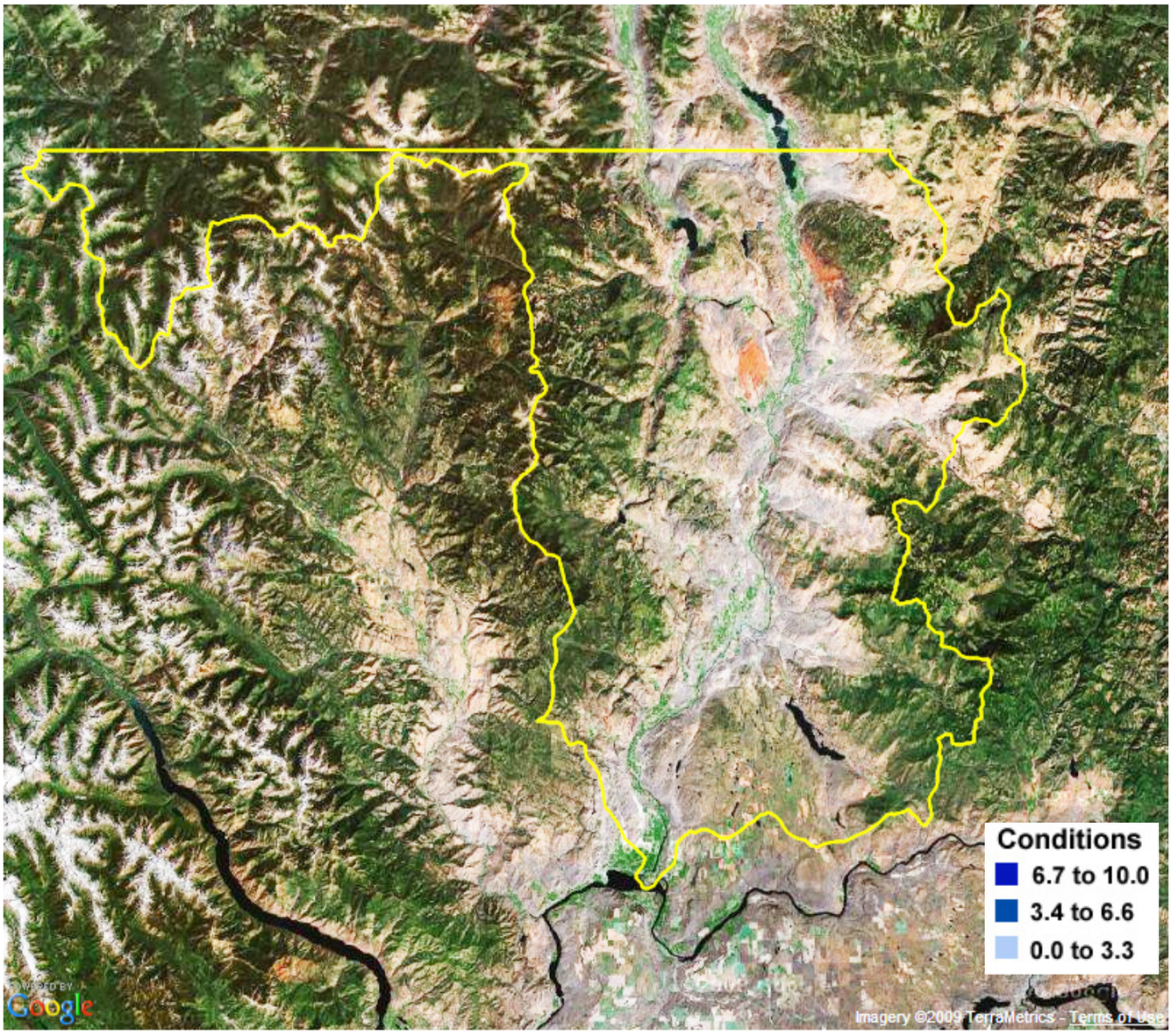
ESA Listing Status: None
Biological Objectives: None
Status: Unknown

BPA-Funded Wildlife Projects in the Okanogan Subbasin

Project	Sponsor	Acres	HU	Habitat Type
Scotch Creek Wildlife Area	Washington Department of Fish and Wildlife	15,465	6,919	Shrub-steppe, riparian

Columbia Cascade

Watershed Conditions for National Forest and Bureau of Land Management Lands in the Okanogan Subbasin[7]



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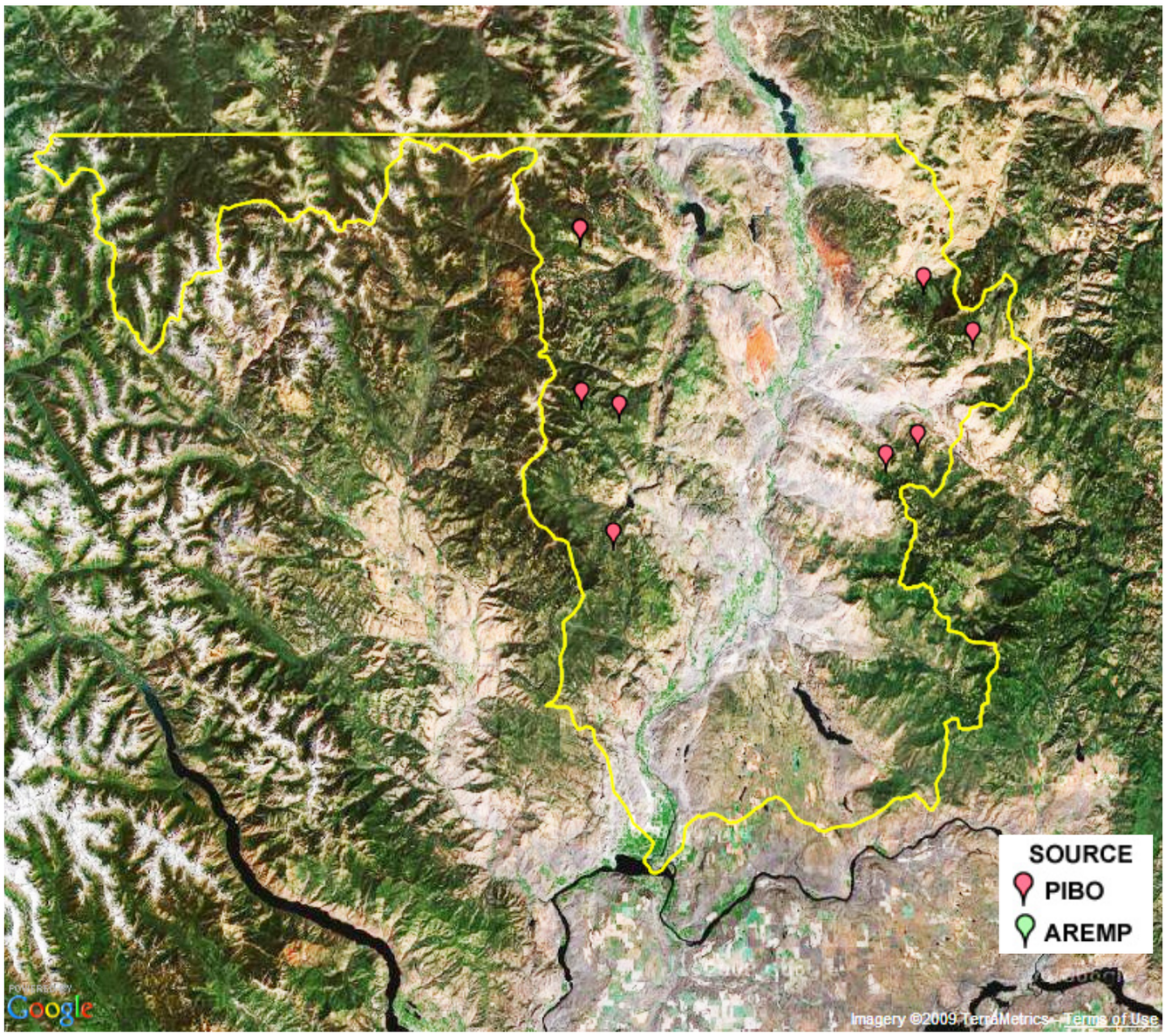
Subbasin: Okanogan

Stream Inventory Sites on National Forest and Bureau of Land Management Lands in the Okanogan Subbasin[8]



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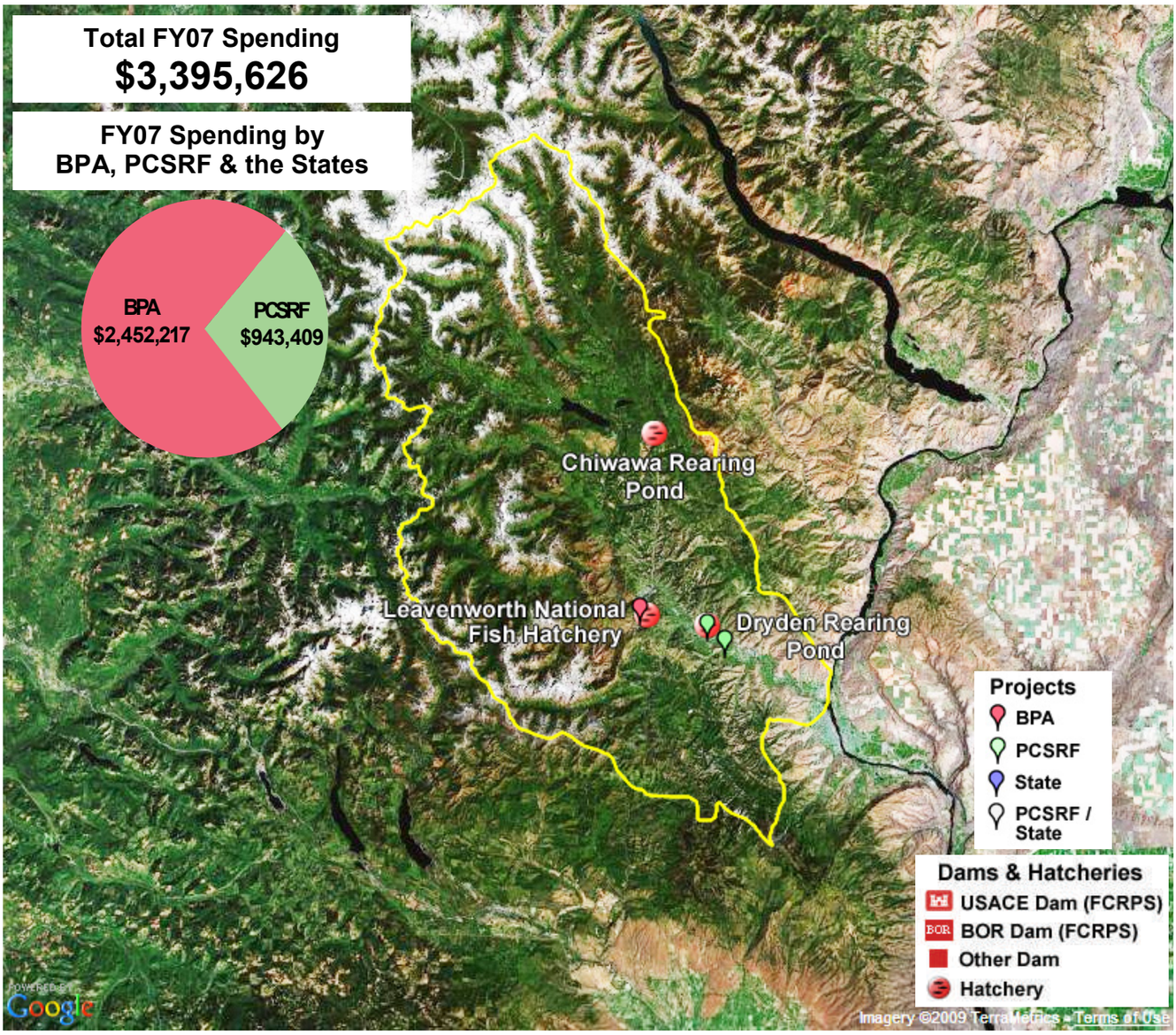
Columbia Cascade



In the Wenatchee River Subbasin, summer steelhead, spring Chinook salmon, summer Chinook salmon, Coho salmon, sockeye salmon, Pacific lamprey, bull trout, and westslope cutthroat trout have been identified as focal species. Spring Chinook salmon are listed as endangered, and summer steelhead and bull trout are listed as threatened under the federal Endangered Species Act. Steelhead in the subbasin are part of the Upper Columbia River Distinct Population Segment (DPS), Chinook salmon are part of the Upper Columbia River Evolutionarily Significant Unit (ESU), and bull trout are within the Upper Columbia River Recovery Unit. Recovery criteria for a steelhead DPS or a salmon ESU do not necessarily require that all populations achieve viability (extinction risk = low) prior to de-listing. However, recovery plans for Upper Columbia River steelhead and Chinook salmon have recommended that all populations become viable. Recovery criteria for bull trout vary among recovery units.

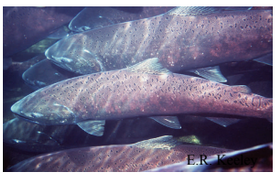
Subbasin: Wenatchee

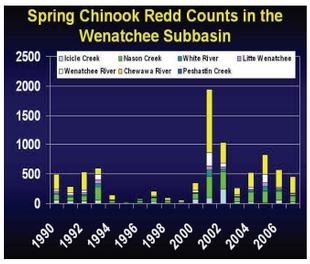
Key Factors Limiting Wenatchee River Subbasin Focal Species[1,6]									
Factors for Decline/Limiting Factors/Threats		**Species/Race, and Life-Stage Most Affected**							
		Spring Chinook	**Summer Chinook**	**Coho**	**Sockeye**	**Summer Steelhead**	**Pacific Lamprey**	**Bull Trout**	**Cutthroat Trout**
Habitat	Estuary and Nearshore Marine Habitat Degradation	Smolts	Smolts	Smolts	Smolts	Smolts			
	Channel Structure and Complexity	Juveniles	Juveniles	Juveniles	Juveniles	Fry, summer parr, winter parr		Juveniles, adults	Juveniles, adults
	Riparian Areas and LWD Recruitment	Juveniles	Juveniles	Juveniles	Juveniles	Fry, summer parr, winter parr		Juveniles, adults	Juveniles, adults
	Stream Flow						Juveniles, adults	Juveniles, adults	Juveniles, adults
	Water Quality	Juveniles	Juveniles	Juveniles	Juveniles	Fry, summer parr, winter parr	All	All	All
	Fish Passage	Juveniles, adults	Juveniles, adults		Juveniles, adults	Juveniles, adults	Juveniles, adults	Juveniles, adults	Juveniles, adults
Hydro	Mainstem Columbia River Hydropower-related Adverse Effects	Smolts	Smolts	Smolts	Smolts	Smolts	Juveniles, adults		
Hatchery	Competition with hatchery fish of all species	Juveniles	Juveniles			Juveniles			
Harvest	Mortality from Targeted Fishery	Adults	Adults	Adults					
Predation/ Competition/Disease	Predation by or competition with non-native species	Juveniles	Juveniles			Juveniles		Juveniles	
	Predation by birds or marine mammals	Juveniles	Juveniles			Juveniles			

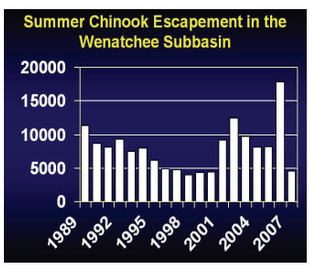
BPA FY 2008 Habitat Project Accomplishments in the Wenatchee Subbasin[8]			
Habitat Zone	**Project-type**	**Planned Value**	**FY 2008 Accomplishment (Actual Value)**
Instream	Increase instream habitat complexity	0.1 miles	0.1 stream miles treated
	Acquire water instream	.1 miles	.1 stream miles after treatment
Riparian-Upland	Plant vegetation	0.1 acres	0.1 acres treated
Riparian	Plant vegetation	.09 miles	.26 miles planted

Columbia Cascade

Chinook







Spring

ESA Listing Status: Endangered
ESU: Upper Columbia
MPG: Wenatchee-Methow
Population: Wenatchee
Recovery Plan Criteria: 2,000 adults
Status: 466 total redds (2007)
Icicle Creek = 17 redds (2007)
Nason Creek = 101 redds (2007)
White River = 20 redds (2007)
Little Wenatchee River = 22 redds (2007)
Chiwawa River = 283 redds (2007)
Wenatchee River = 12 redds (2007)
Peshastin Creek = 11 redds (2007)
Wild Juvenile Production:

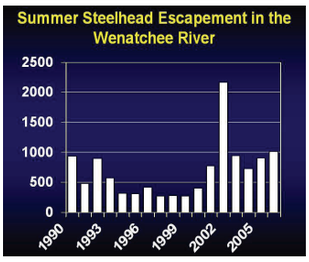
Summer/Fall

ESA Listing Status: None
ESU: Upper Columbia
MPG: Wenatchee-Methow
Population: Wenatchee
Biological Objective: None
Status: 4,590 adults and jacks (2007)
Wild Juvenile Production:

Pacific Lamprey

ESA Listing Status: Species of Concern
Biological Objectives: None
Status: Unknown
Wild Juvenile Production: Unknown

Steelhead



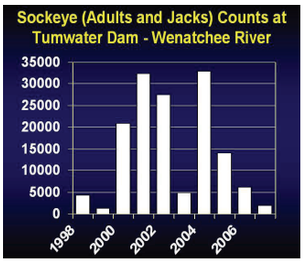
Summer

ESA Listing Status: Endangered
ESU: Upper Columbia
MPG: Wenatchee-Methow
Population: Wenatchee
Recovery Plan Criteria: 1,000 natural adults
Status: 779 adults (2007)
Wild Juvenile Production:

Coho

ESA Listing Status: None
ESU: None
MPG: None
Population: Wenatchee
Biological Objective: None
Status:
Wild Juvenile Production:

Sockeye



ESA Listing Status: None
ESU: None
MPG:
Population:
Biological Objective: None
Status: 1,870 adults and jacks (2007)
Wild Juvenile Production:

Recovery Status of ESA-Listed Steelhead and Chinook Salmon in the Wenatchee Subbasin[1,3]

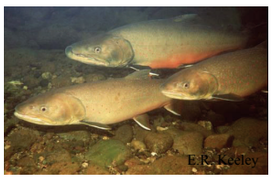
Population	Abundance Threshold	Mean Abundance	Major Spawning Areas Occupied	Growth Rate	Recruits/Spawner)	Current Viability
Summer Steelhead						
Wenatchee	1,500	716 (1992-2003)	5 of 5	Unknown	0.25-0.81 (1985-96)	Low
Spring Chinook Salmon						
Wenatchee	2,000	226 (1995-2004)	5 of 5	1.01	0.74 (1979-98)	Low

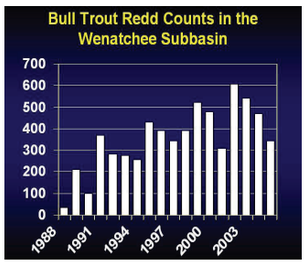
2007 Hatchery Releases and Returns to Hatcheries in the Wenatchee Subbasin

Hatchery/ Acclimation Pond	Species	Release Goal/Released	Return Goal/Actual Return
Leavenworth	Spring Chinook		/1,708
Chiwawa	Spring Chinook		/406
	Sockeye		262 (mixed)
Total			

Subbasin: Wenatchee

Bull Trout





ESA Listing Status: Threatened
Core Area: Wenatchee (Within the Upper Columbia River Recovery Unit)
Local Populations: Chiwawa River, White River, Little Wenatchee River, Nason Creek, Chiwaukum Creek, and Peshastin Creek
Draft Recovery Plan Criteria: 1,876—3,176 fish
Status: 342 redds (2005)
Abundance, Trend, Threat, and Risk Ranks (Wenatchee Core):
Abundance = 250-1,000
Short-term Trend = Stable
Threat = Widespread, low severity
Risk = Potential risk
Wild Juvenile Production: Unknown

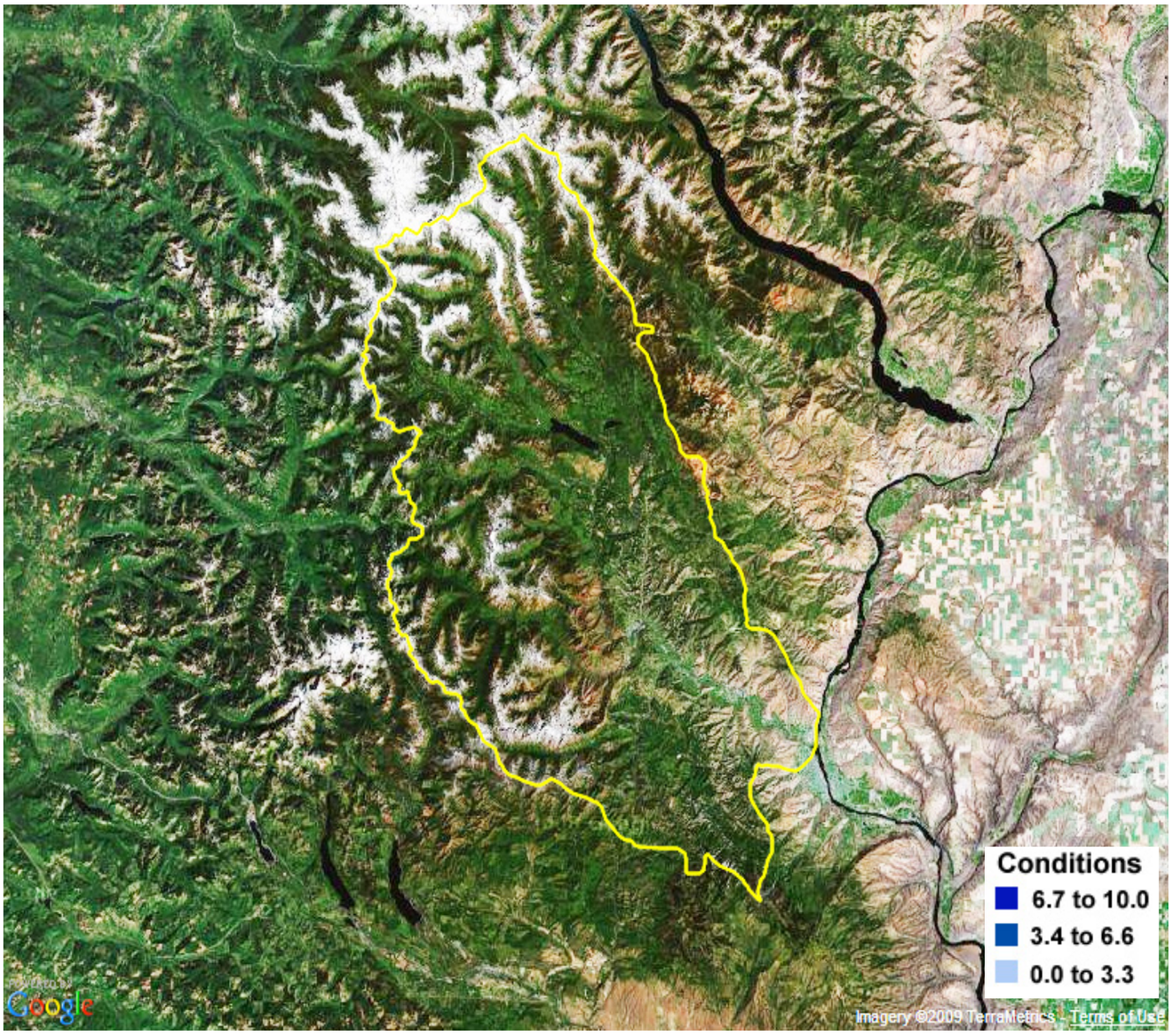
Westslope Cutthroat Trout

ESA Listing Status: Species of Concern
Biological Objectives: None
Status: Unknown
Wild Juvenile Production: Unknown

BPA-Funded Wildlife Projects in the Wenatchee Subbasin
There are no wildlife projects in this subbasin

Columbia Cascade

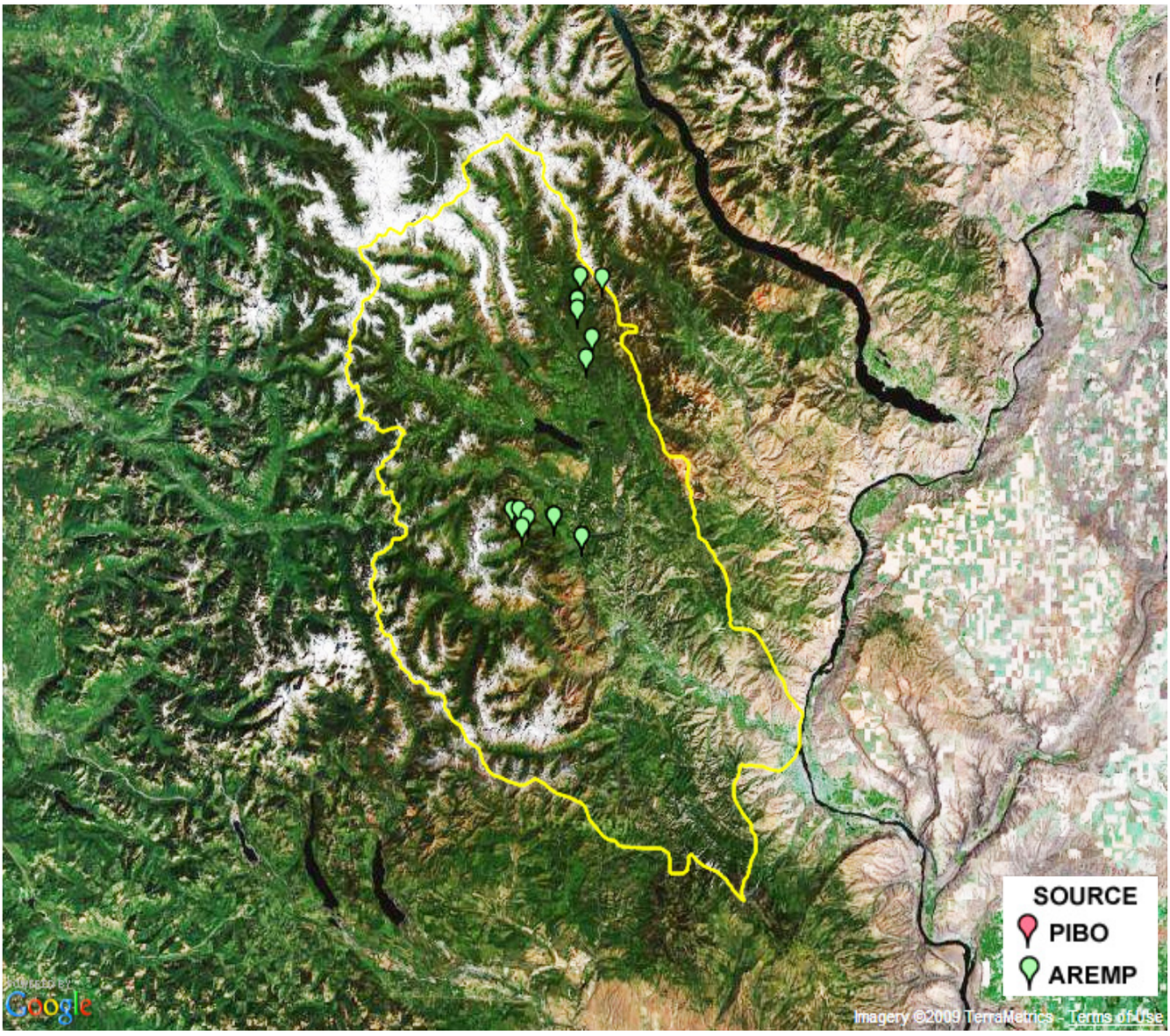
Watershed Conditions for National Forest and Bureau of Land Management Lands in the Wenatchee Subbasin[7]



Watershed condition is based upon work completed by the USDA Forest Service (FS) and USDI Bureau of Land Management (BLM) Aquatic and Riparian Effectiveness Monitoring Program (AREMP). AREMP personnel evaluate the status and trend of watershed condition on FS, BLM, and National Park Service administered lands within the range of the Northern Spotted Owl. Watershed condition scores are determined for all watersheds that contain a minimum of 25 percent federal ownership. AREMP applies a decision support model to evaluate the premise that watersheds are in good condition. Watersheds are judged to be in good condition where the physical processes, such as wood and sediment delivery, and habitat attributes are adequate to maintain or improve the diversity and abundance of native or desired non-native aquatic species.[7] A score of 10 indicates full support for the premise that a watershed is in good condition and a score of 0 indicates no support for the premise. A fifteen-year assessment of watersheds is being done in 2009, with an expected publication date of early 2010.

Subbasin: Wenatchee

Stream Inventory Sites on National Forest and Bureau of Land Management Lands in the Wenatchee Subbasin[8]



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