



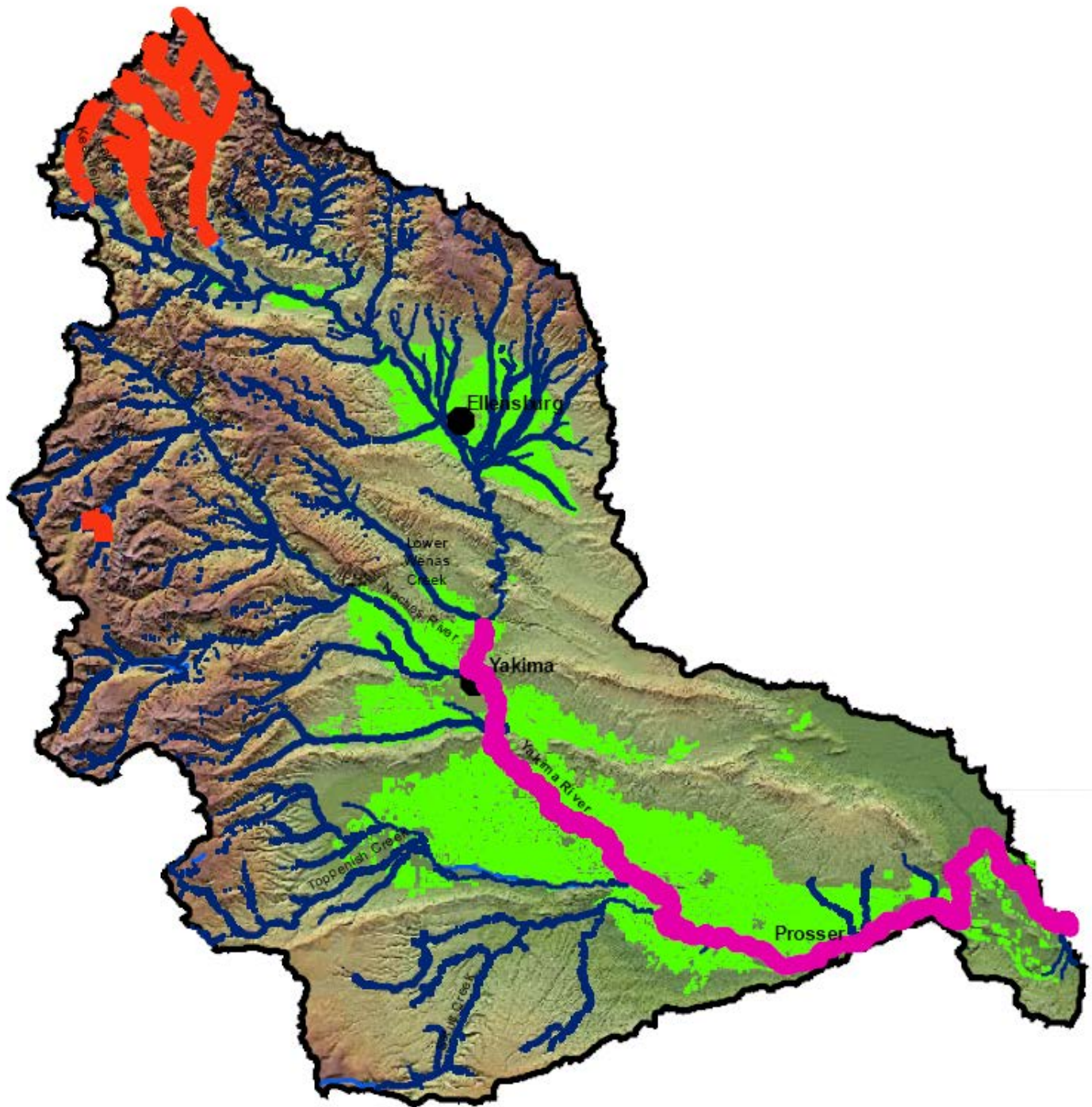
Image © 2009 DigitalGlobe

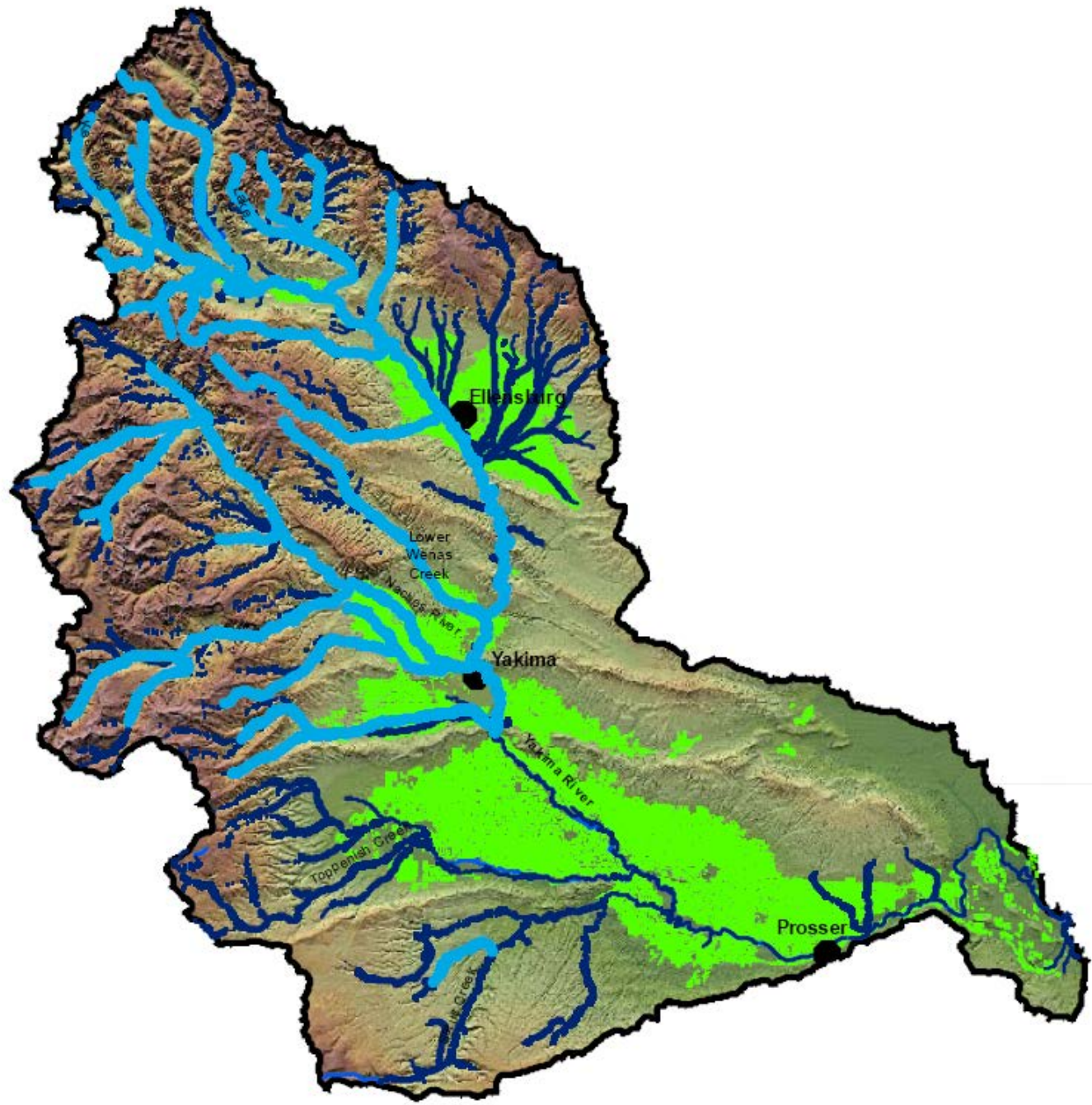


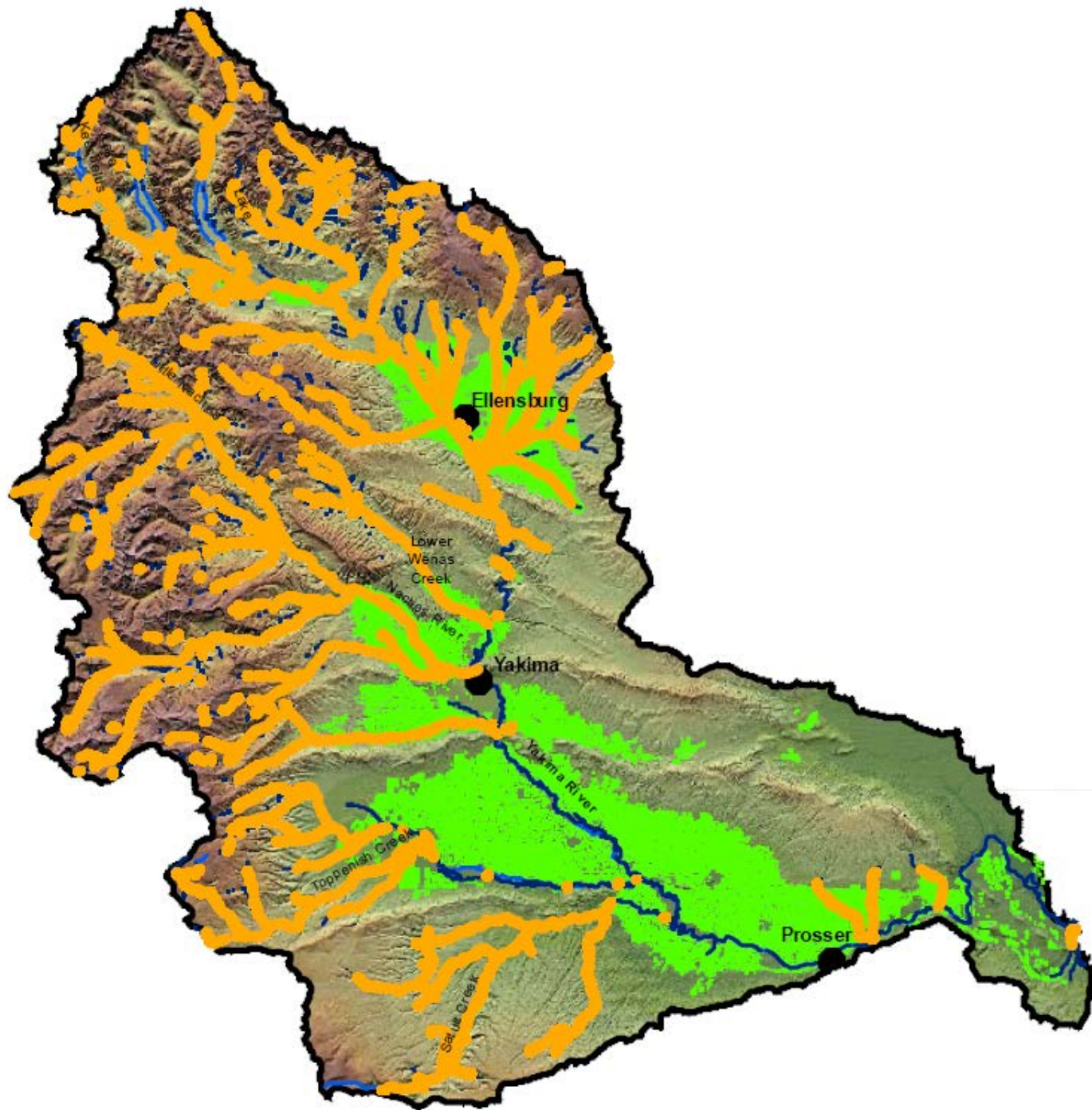












Historic Salmon Runs

| Species/Run | Low Estimate | High Estimate | Current Status | Low | Year | High | Year |
|----------------|----------------|------------------|-----------------------------|--------------|---------|---------------------|------|
| Spring Chinook | 200,000 | 500,000 | Supplemented Population | 666 | 1995 | 21,472 | 2001 |
| Fall Chinook | 38,000 | 100,000 | Supplemented Population | 523 | 1988 | 13,000 | 2002 |
| Summer Chinook | ?? | ?? | Extirpated | - | | - | |
| Coho | 40,000 | 150,000 | Extirpated and reintroduced | - | till 93 | 4,978 | 2001 |
| Sockeye | 100,000 | 200,000 | Extirpated | - | | - | |
| Steelhead | 30,000 | 100,000 | Wild Population | 721 | 1990 | 4,525 | 2001 |
| Total | 408,000 | 1,050,000 | | 1,910 | | 43,975 | |
| | | | | | | | |
| Bull Trout | ?? | ?? | Wild Population | | | 2500 to 3000 adults | |
| Lamprey | ?? | ?? | Wild Population | | | 0 to 87 adults | |

Planning for Recovery

- 2004 Yakima Subbasin Plan for BPA
- Species-specific Master Plans
- 2005 Yakima Salmon Recovery Plan
 - 2008 Yakima Steelhead Recovery Plan
 - Yakima Bull Trout Action Plan (in progress)

Key Strategies for Recovery

- Protection of Existing Habitats
- Restoration of Key Habitats:
 - Tributary passage and habitat
 - Mainstem flow and passage conditions
 - Floodplain function
- Improvements in Out-of-Subbasin Survival
- Hatchery Supplementation of some runs

Increased Protections/Mitigation

- NOAA/USFWS consultations
- WDFW, DOE & local permitting processes
- Changes to BOR Yakima Project Operations
- Changes in public & private forest lands management
- Incorporation of habitat goals into land use programs
- Incorporation of habitat goals into infrastructure projects (*Weds 1 to 3 pm panel on WSDOT I-90 project*)

Directed Funding for Recovery

The Big Three:

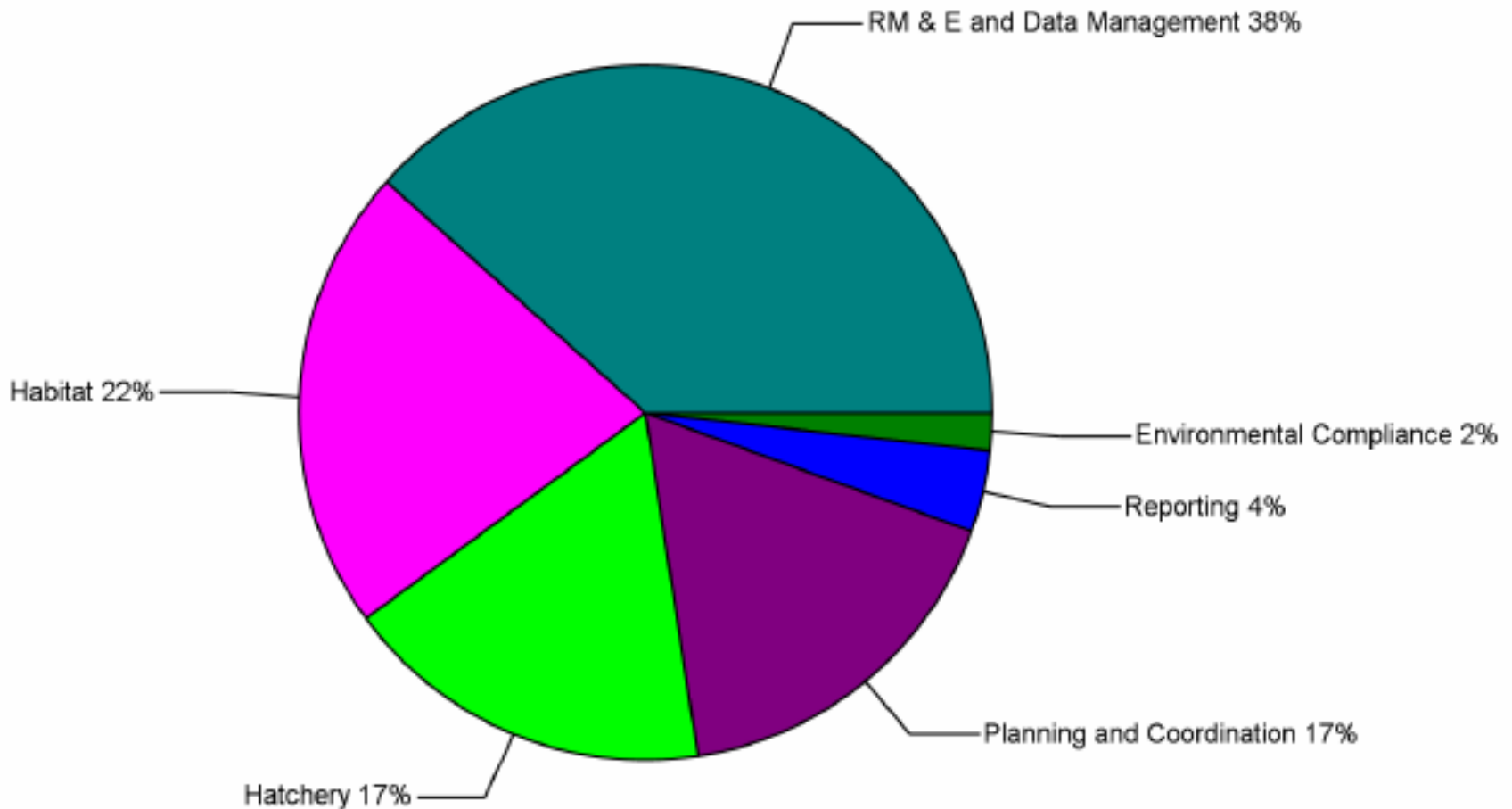
- BPA Fish & Wildlife Program
- Reclamation's YRBWEP Program
- SRFB (NOAA PCSRF & State)

Additional Sources:

- USFWS, National Fish & Wildlife Foundation, Private Foundations, USDA, and many more

BPA Fish & Wildlife Program

- Average of \$13 million/yr, Fy 2005-2009

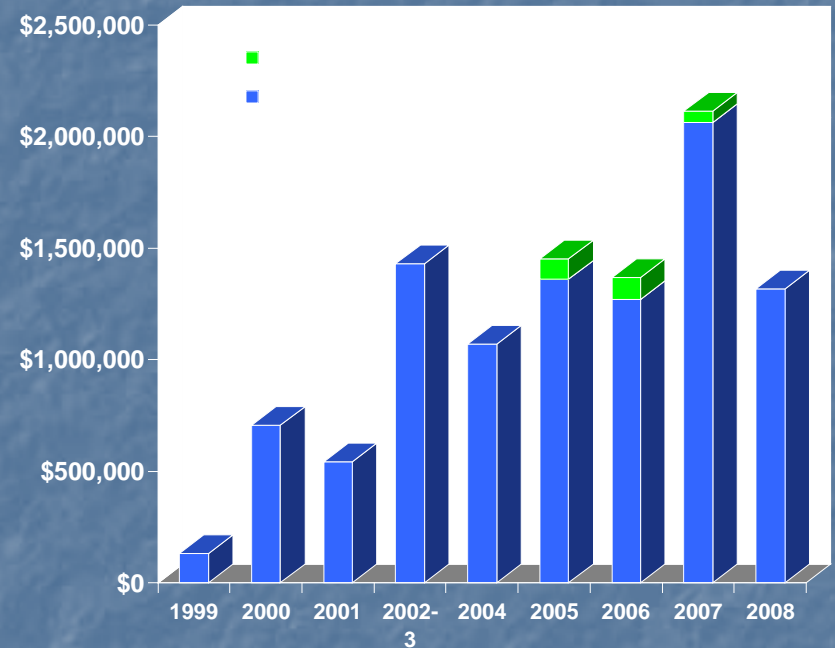


YRBWEP

- Bureau of Reclamation program to fund:
 - Floodplain land acquisition & restoration
(almost 2000 acres to date)
 - Irrigation system improvements & water rights purchases that free up water for instream use
(25 kaf & Wapatox right to date; another 50+ kaf in progress)
 - Support of key tributary efforts
(Toppenish, Coiwche, Taneum Creeks, Cle Elum passage)
- ~8.5 million annual budget

Salmon Recovery Funding Board

- \$s from PCSRF & State
- ~1.4 million/yr
- 54 projects, 1999-2008:
 - 20 Trib passage/screen
 - 14 Property acquisition
 - 20 Riparian/instream



Habitat Funding Summary

| <u>Program</u> | <u>Amount</u> |
|-------------------------|----------------------|
| BPA (Habitat only) | \$ 4,000,000 |
| YRBWEP | \$ 8,500,000 |
| SRFB | \$ 1,500,000 |
| Other (at 20% of total) | \$ 2,800,000 |
| | |
| ANNUAL TOTAL | \$ 16,800,000 |

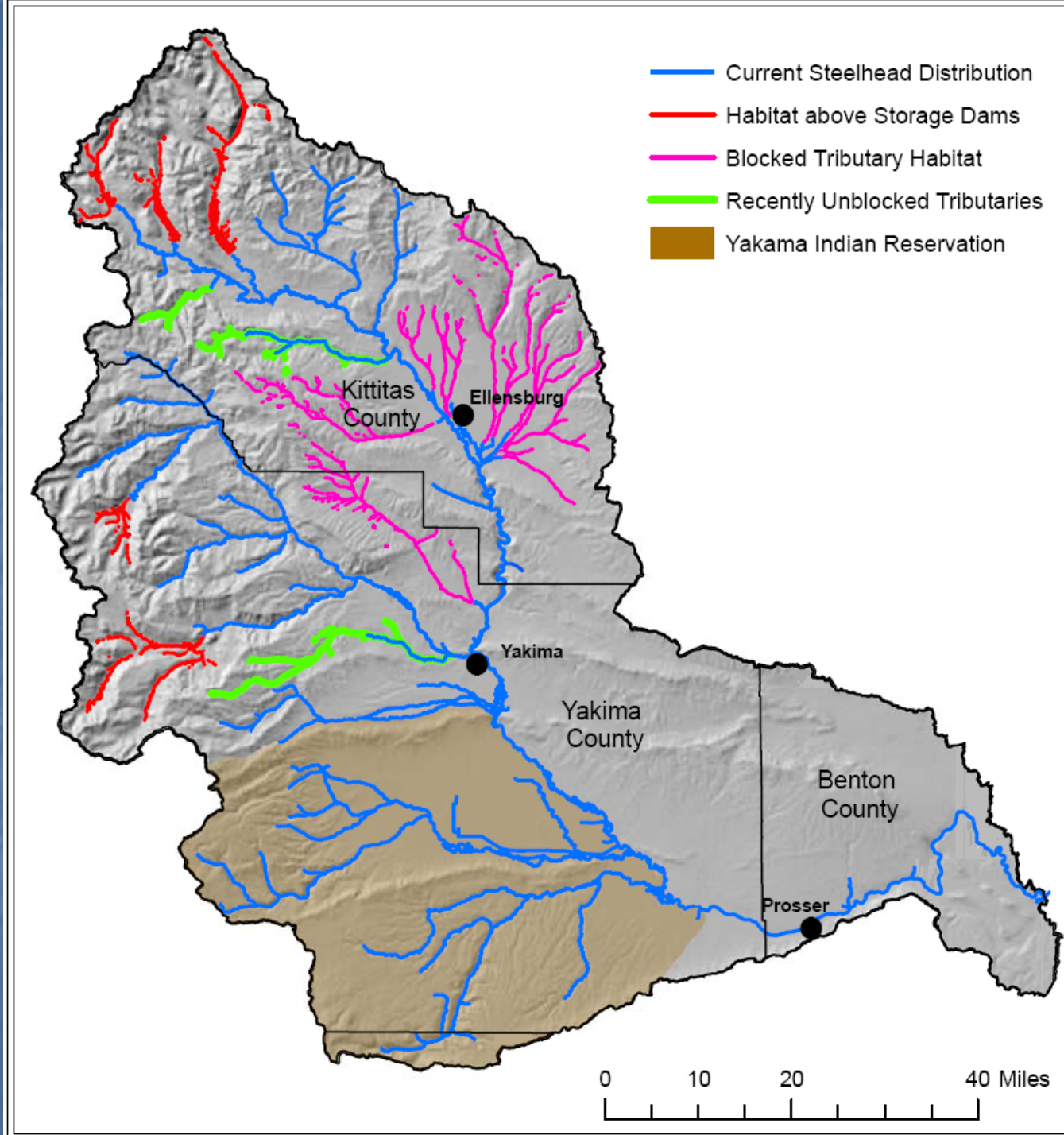
Compare \$17 million to:

| | |
|---------------------------------------|------------|
| | |
| New West Valley High School | 38 million |
| 10 new wind turbines | 29 million |
| 1.5 miles of I-90 improvement | 40 million |
| Yakima County Road Dept annual budget | 33 million |
| Powerhouse Bridge across Naches | 7 million |

Where do the \$s go?

Tributaries work as our
Bread & Butter

Tributary Passage & Screening







Yakima Trib Access & Habitat Project

- Consortium of CDs, YN, WDFW, Nonprofits
- Administered by the RC & D
- Accomplishments, 2003 to 2008
 - Screened 87 cfs of irrigation water
 - Put 4.5 cfs to instream use
 - Opened up 45 miles of blocked habitat
 - Planted over 8,000 riparian plants
 - Installed 26 rock wiers and 66 wood structures

YTAHP panel, 1 to 2:20 pm Thurs





Image U.S. Geological Survey

©2009 Google

Date: Jun 30, 2006

46°59'40.78" N 120°34'13.25" W elev 1518 ft

Eye alt 678

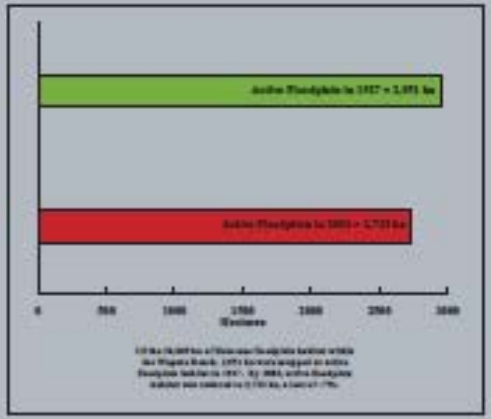
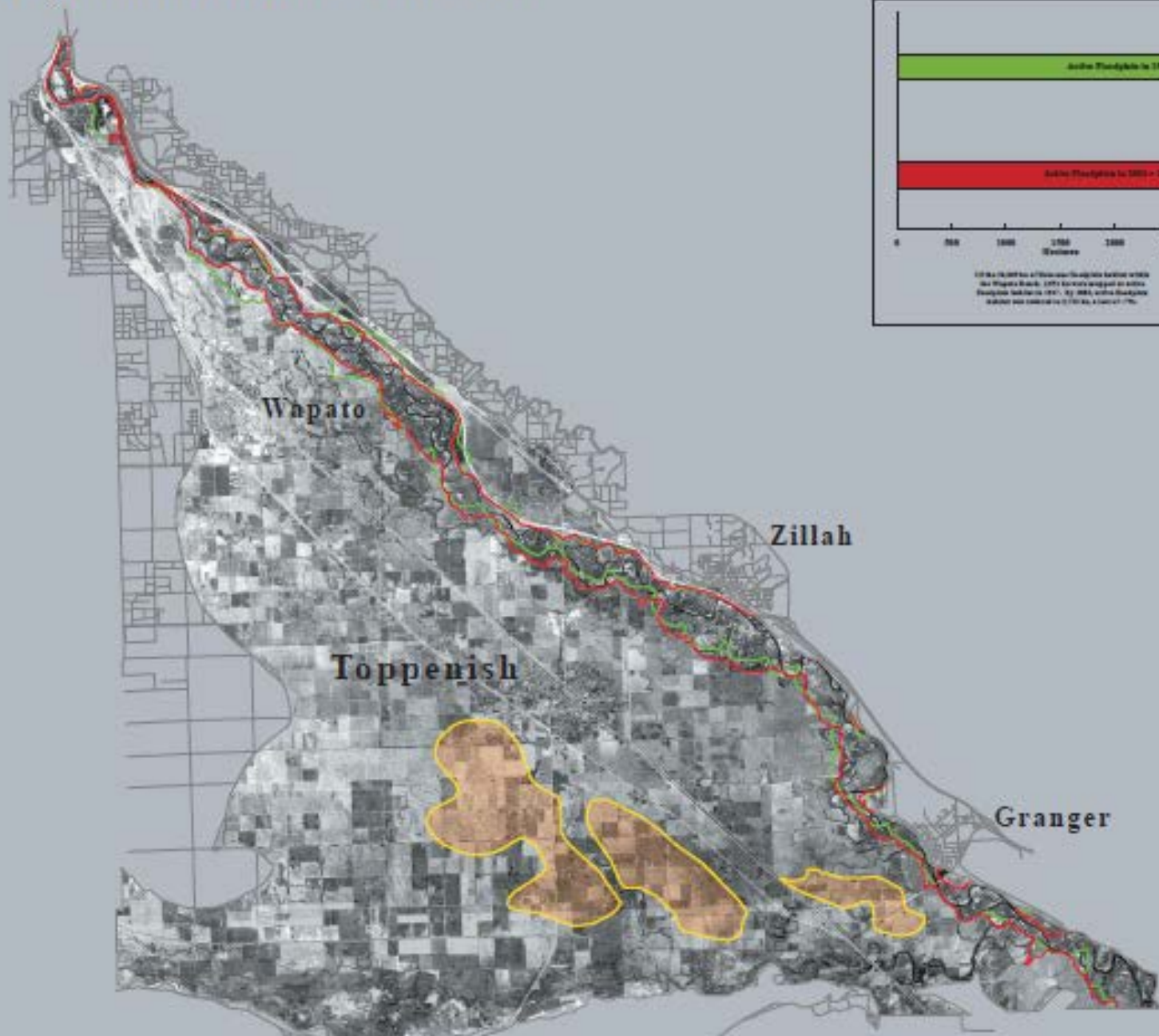


Manu Esteve 2000

Floodplains as our Cheese & Salami



Loss Of Active Floodplain Within The Wapato Reach From 1947 To 2002



- Active Floodplain 1947
- Active Floodplain 2002
- Missoula Flood Deposits

Cle Elum River Restoration Phase I Roslyn, WA

Lake Cle Elum

Primary Project Reach. main channel length = 1832 m
 Primary Project side channel restoration = 7382 m

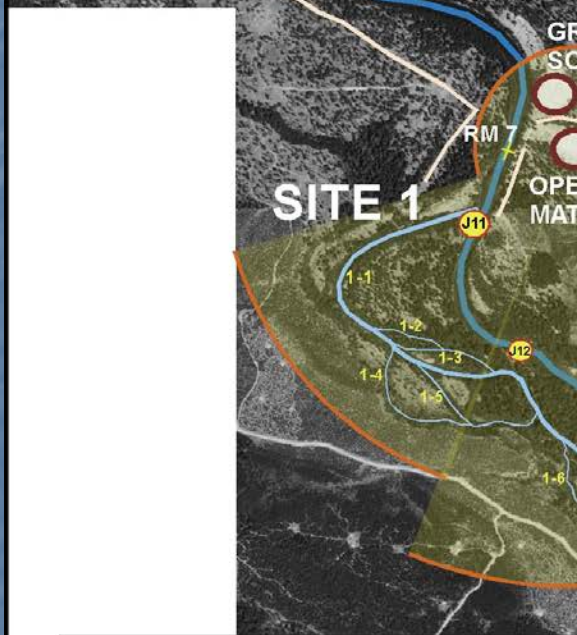
| PRIMARY PROJECT AREA | | | |
|----------------------|-------------|--------------|--------|
| Side Channel | meters | Side Channel | meters |
| 1-1 | 2125 | 2-1 | 620 |
| 1-2 | 254 | 2-2 | 988 |
| 1-3 | 373 | 2-3 | 467 |
| 1-4 | 473 | 2-4 | 137 |
| 1-5 | 517 | 2-5 | 100 |
| 1-6 | 509 | 2-6 | 473 |
| 1-7 | 375 | 2-7 | 488 |
| 1-8 | 96 | Total | 2643 |
| Total | 4739 | | |

TOTAL RESTORATION = 7382

Secondary Project Reach. main channel length = 442 m
 Secondary Project side channel restoration = 1942 m

| SECONDARY PROJECT AREA | | | |
|------------------------|-------------|--------------|------------|
| Side Channel | meters | Side Channel | meters |
| 3-1 | 409 | 4-1 | 603 |
| 3-2 | 649 | Total | 603 |
| 3-3 | 146 | | |
| 3-4 | 135 | | |
| Total | 1339 | | |

TOTAL RESTORATION = 1942



GRAVEL SOURCE
 OPERATIONS & MATERIAL STAGING



0 500 meters

- J41 Primary engineered logjam location
- J01 Secondary engineered logjam location
- Approximate helicopter flight radius from staging area to primary project work areas
- Ground access roads

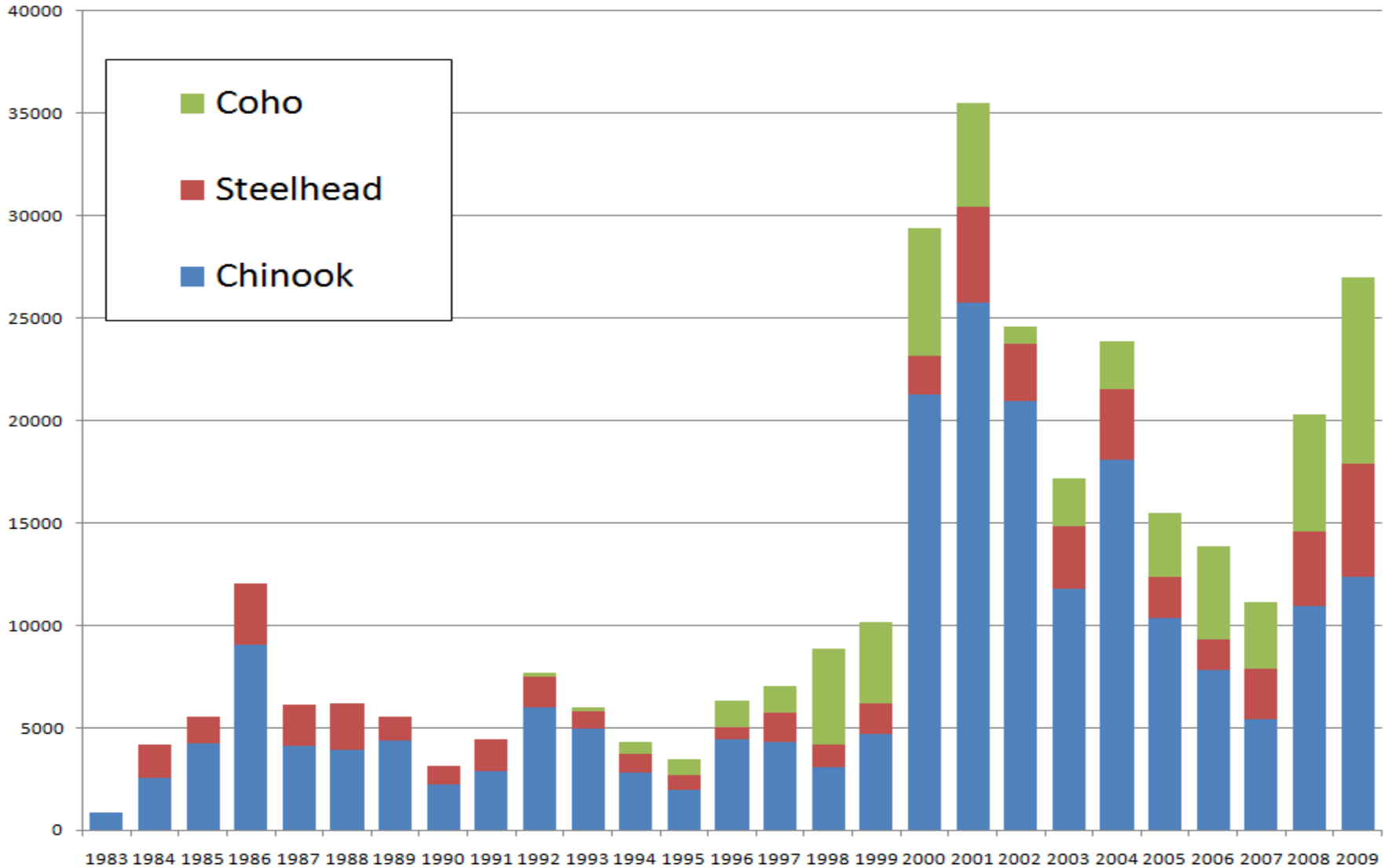
USGS orthophotos: July 25, 1998

Tim Abbe
 Herrera Environmental Consultants
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 David Gerth
 Kittitas Conservation Trust
 kct@inlandnet.com
 FILE: Cle Elum 2.CNV



Where is it all getting us?

Prosser Adult Counts



YRBWEP III

THE BIG ASK

What is not on the agenda?

Flow/fish interactions

- High summer flows/rapid ramping on juvenile growth and survival
- Smolt survival/flows/temp/entrainment
- Specific flow/survival relationships below Roza Dam

- Nutrient/fish production relationships
- Habitat ecology and geomorphology
- Floodplain hydrology
- Limnology and ecology of the lakes we hope to open up

Life history/habitat interactions

- Fish use of floodplain habitats across seasons
- Role of tributary habitats in chinook juvenile rearing
- Habitat impacts on steelhead/rainbow interactions

- BULL TROUT

- Research/modeling of population level limiting factors



Fish Restoration Biological Goals

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graph LR; A[Fish Restoration Biological Goals] --- B[Allow unimpeded Adult Passage +]; A --- C[Provide adequate spawning habitat]; A --- D[Protect incubating eggs +]; A --- E[Protect and enhance juvenile rearing in tributaries +]; A --- F[Protect and enhance juvenile rearing in mainstem reaches +]; A --- G[Protect and enhance juvenile rearing in lakes +]; A --- H[Maximize Survival of Outmigrating Smolts +];
```

Allow unimpeded Adult Passage +

Provide adequate spawning habitat

Protect incubating eggs +

Protect and enhance juvenile rearing in tributaries +

Protect and enhance juvenile rearing in mainstem reaches +

Protect and enhance juvenile rearing in lakes +

Maximize Survival of Outmigrating Smolts +

Allow unimpeded Adult Passage

presumed non issue for spring Chinook

Steelhead

Mainstem

Possible delay of earliest migrants at Yakima mouth

Tributaries

defined issues in specific tribs

Coho

non issue in mainstem

some issues in specific tribs

presumed non issue for fall Chinook

Sockeye/summers

Summer conditions in lower Yak are a major constraint

- Improving holding hab near mouth?
- extending tail end of spring runoff?
- late summer pulse flows?

Protect incubating eggs

1) improve trib flows to benefit steelhead
(not a major issue except few known
areas of dewatering)

Address trib flow issues

2) Upper watershed flow targets for springers

fall/winter targets below reservoirs

Flip flop

3) coho/steelhead in margins/off channel
habitat in mainstems

habitat rx (wood, gravel, flow energy
across floodplain)

3) Avoid bed scour for falls/summers?

timing/frequency of flood flows?

habitat rx (wood, gravel, flow energy
across floodplain)

Maximize Survival of Outmigrating Smolts

