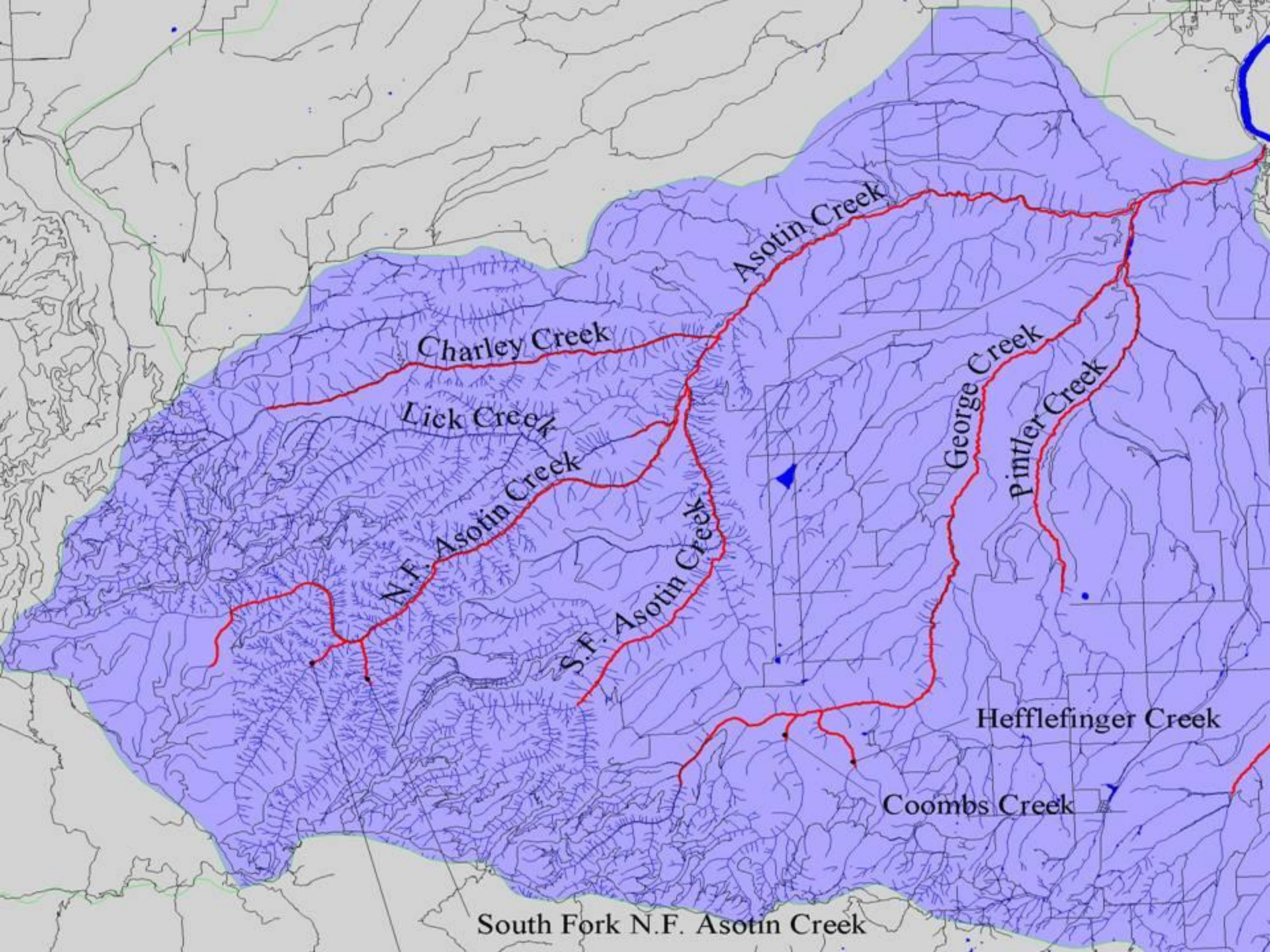
Monitor and Evaluate Salmonid Production in the Asotin Creek Subbasin - LSRCP

(ID #200116)

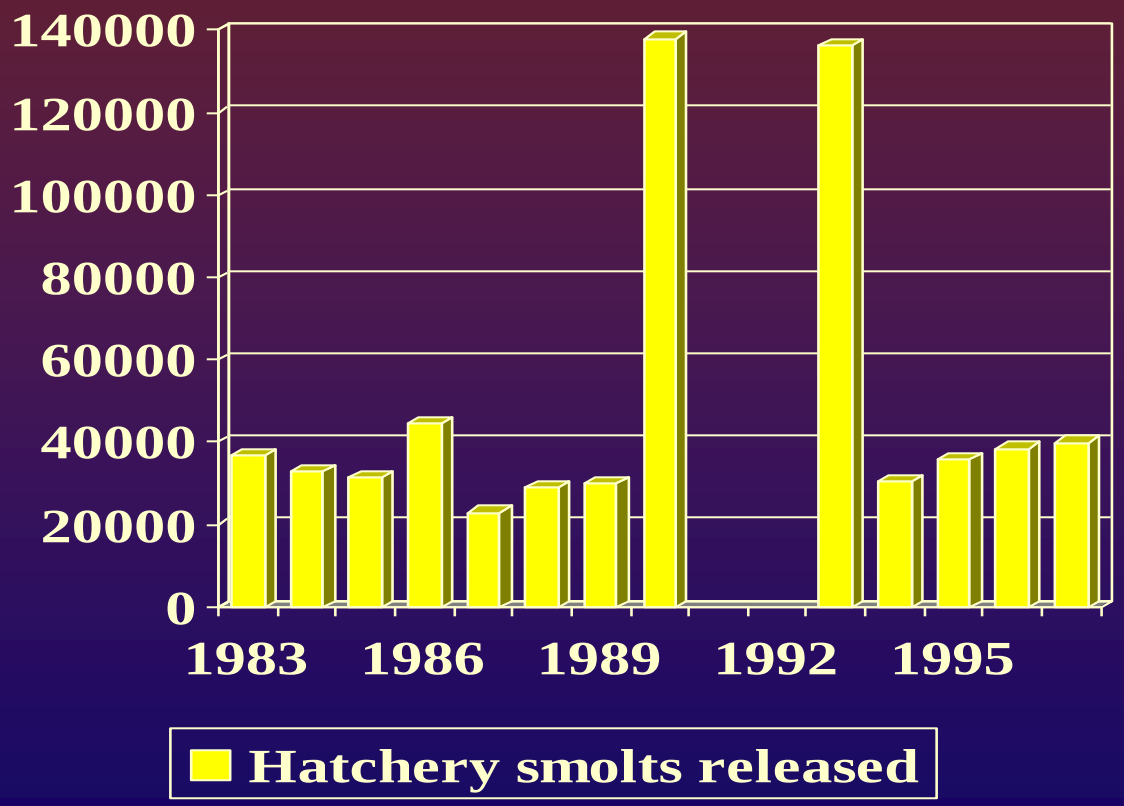
Washington Department of FISH AND WILDLIFE

LOWER SNAKE RIVER COMPENSATION PLAN
Hatchery Program


Asotin Creek
Charley Creek
Lick Creek
N.F. Asotin Creek
S.F. Asotin Creek
George Creek
Pintler Creek
Hefflefinger Creek
Coombs Creek
South Fork N.F. Asotin Creek

LSRCP funded M&E Accomplishments in the Asotin Creek Subbasin (What have we done?)

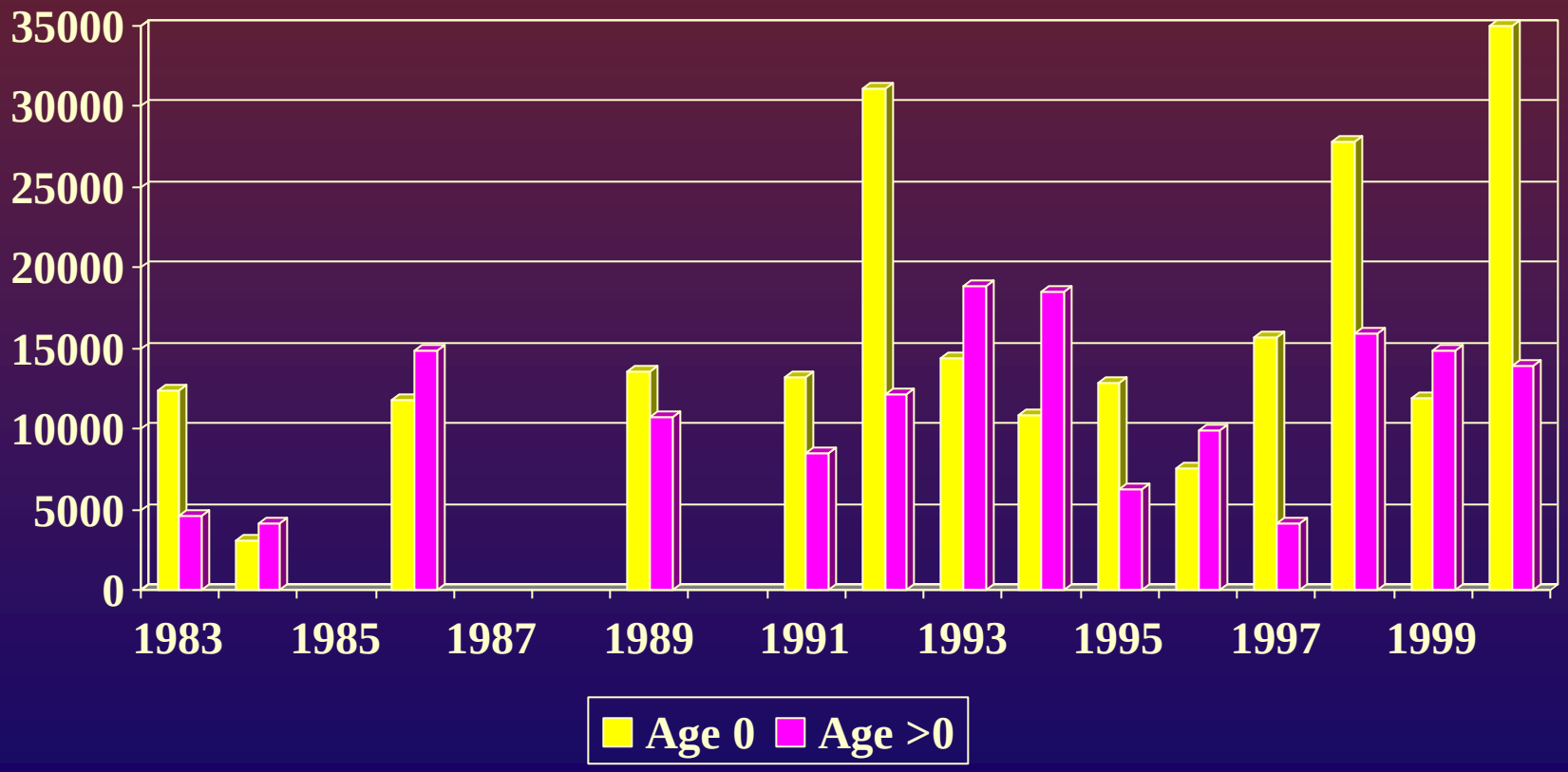
- Documented releases of hatchery steelhead into Asotin Cr. (1983-1997) to create fishery in Snake River. Recommended its discontinuation.



What have we done? (con't)

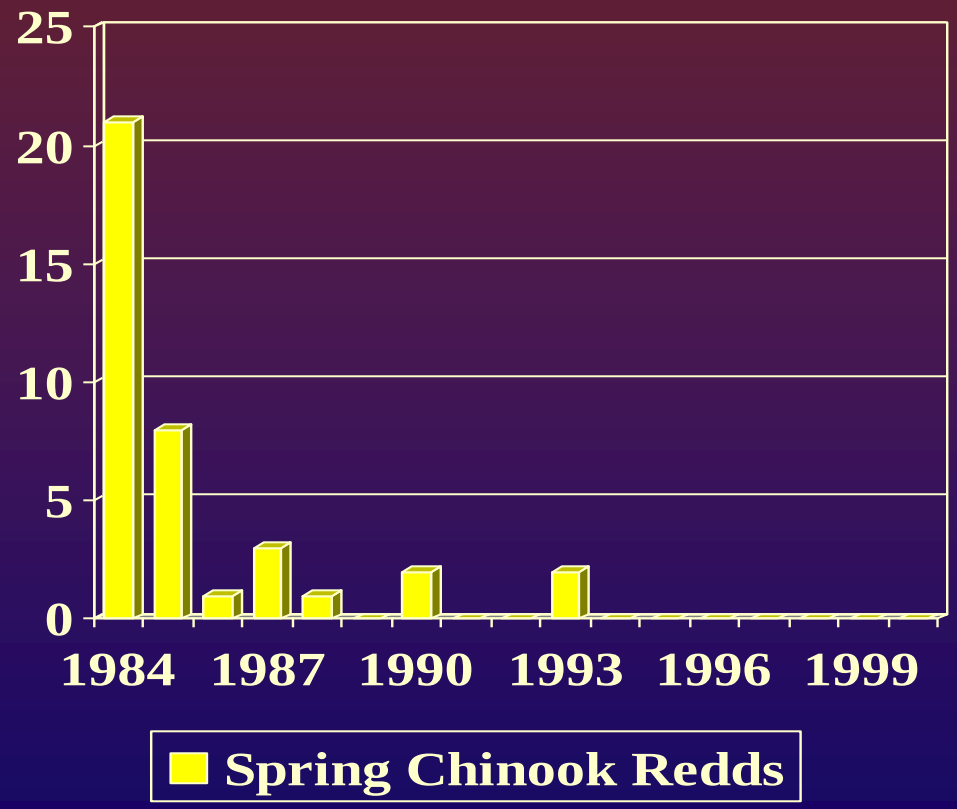
- Long Term Data Collection
  - Estimated juvenile steelhead densities and populations in index areas of the subbasin. Data used to monitor population status under hatchery supplementation (1983-1997), and after supplementation was stopped.

Juvenile Steelhead Populations by Age Class in North Fork Asotin Creek



What have we done? (con't)

- Conducted annual spawning ground surveys of steelhead in the basin, and spring chinook in the North Fork of Asotin Creek.

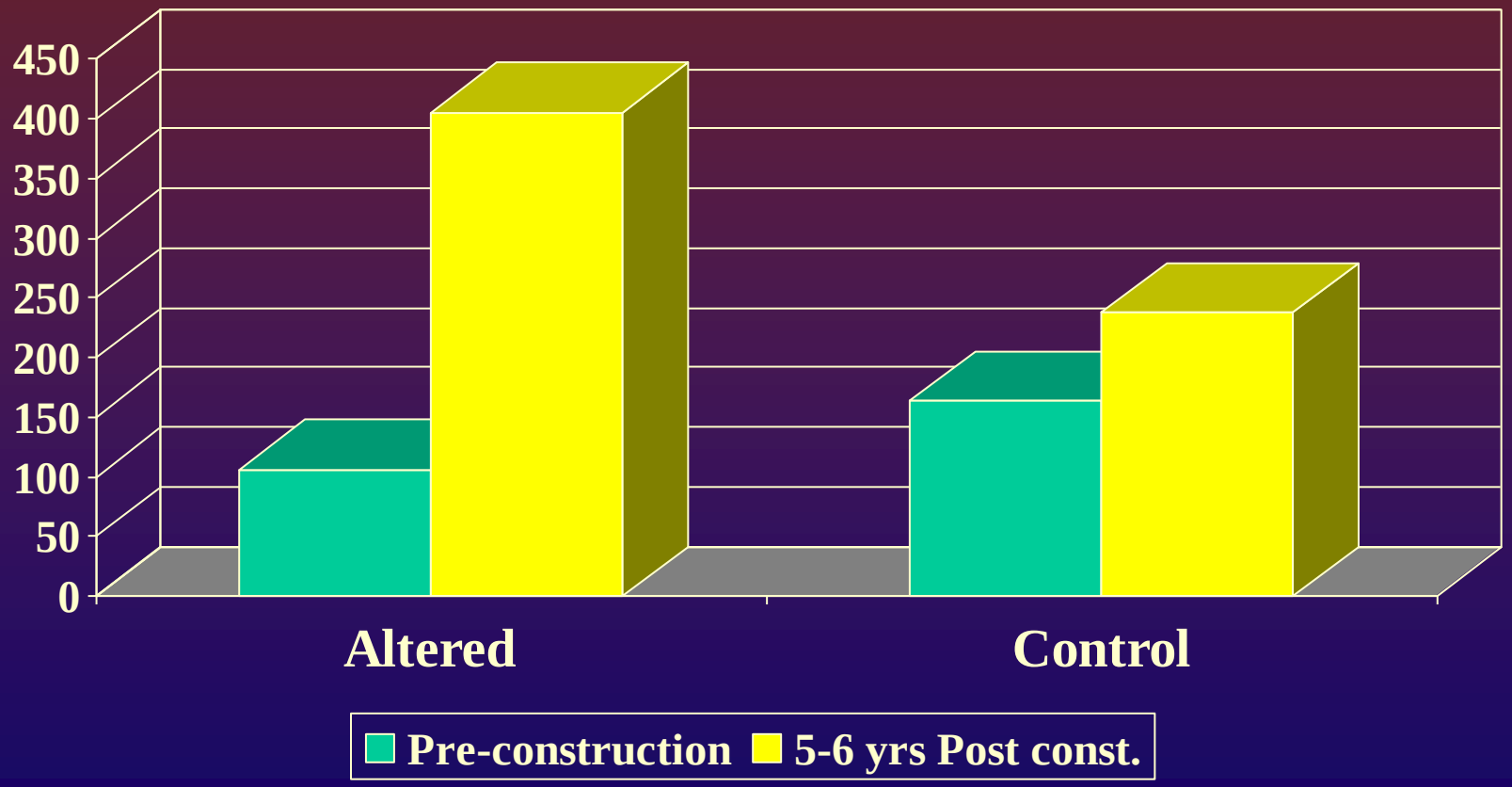


What have we done? (con't)

- Habitat Assessment
  - Completed assessment of effects of artificial instream pool structures built with LSRCP funds in increasing abundance of salmonids after 5 years.
  - Conducted a post 1996 flood assessment of structure durability.

Mean biomass (g/100 m^2) of wild *O.mykiss* Age >0 for altered vs control sites, NF Asotin Creek

(Viola et al 1991)



What have we done? (con't)

- Other short term projects
  - Conducted assessment of potential interactions among chinook, steelhead and bull trout in Asotin Cr. (partial BPA funds) (Martin, Scholz and Schuck 1992)
  - Temperature Data (intermittent years)
  - Assisted with Development of Model Watershed Plan and Subbasin Summary by providing most of the biological data.

What Are We Going to Do?

- Continue spawning surveys (SSH & SpCh)
- Continue juvenile density sampling of index areas to calculate populations.
  - electrofishing (LSRCP funds only)
  - night snorkeling (ACCD funds) to assess fish use in habitat structures.
- Continue providing annual data summaries and coordination with basin managers. Determine whether LSRCP supplementation in basin is needed

Assess Salmonids in the Asotin Creek Watershed

(Project ID #27002)

Washington Department of FISH AND WILDLIFE

Background

- Despite its small size – significant historical populations of spring chinook and steelhead (Parkhurst 1950) existed, (and bull trout present also).
- Habitat degradation from human activities (in and out-of-basin) and catastrophic floods in 1964 and 1996-97 greatly affected habitat quality.
- Population monitoring was limited to LSRCP juvenile and adult yearly samples.

Background (continued)

- Habitat restoration projects began in the 1980's by WDFW to increase pools, showed benefits to steelhead population (Viola et al. 1991).
- Salmon ESA listings and completion of the Asotin Model Watershed plan set stage to help recover habitat quality and eventually the populations.
- A suite of activities undertaken in the 1990's by ACCD, with BPA and Washington SRFB funds, used a broader approach (instream, riparian, upland, geomorphic reconstruction) to habitat recovery.

Background (continued)

- Much of the biological data for management was derived from basic LSRCP monitoring and evaluation work.
- Because of the loss of chinook and extensive habitat activity in the basin, it is timely to take the next step toward validation monitoring, and chinook reintroduction/recovery in Asotin Ck.

The Proposal (What Do We Want to Do?)

- Expand monitoring and evaluation of steelhead, chinook and bull trout populations to understand the response to habitat alterations, and help guide future actions.
  - Address data gaps (needs).
  - Document life stage survivals (e.g. egg-to-smolt).
  - Estimate spawner recruit ratios.
  - Direct recovery efforts to limiting factors.
  - Document population response to habitat improvements.

The Proposal (con't)

- Develop a habitat quality linked spring chinook reintroduction plan.
  - Coordinate with managers in the sub-basin
  - Define chinook goals for the sub-basin
  - Write a plan to reintroduce spring chinook
  - Get approval for the plan through the ESA and other legal processes.

How are we going to do it?

- Adult Life Stage
  - Design and install adult migrant trap near Headgate Park.

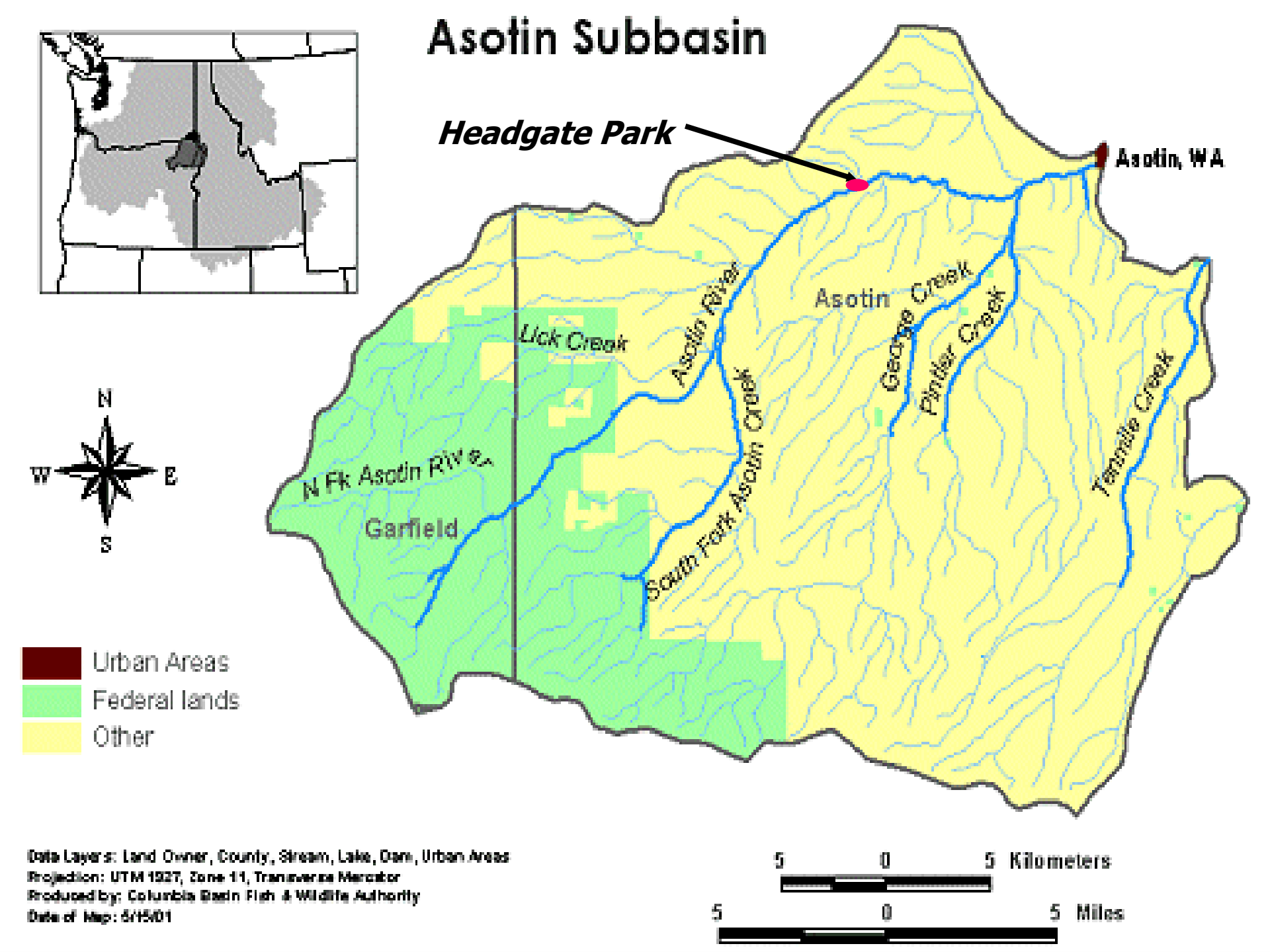
    -Population demographics (structure, straying)

    -Bull trout escapement (numbers, age structure, frequency of spawning, genetics).

    -Other species (lamprey, whitefish, redband)
  - Resistivity counter

    -Sample escapement into George Creek.

    -Use to track tributary contributions & yearly var.


Asotin Subbasin
Headgate Park
Asotin, WA
Lick Creek
Asotin River
Asotin Creek
George Creek
Pintler Creek
Tenmile Creek
N Fk Asotin River
Garfield
South Fork Asotin Creek
N
W
E
S
Urban Areas
Federal lands
Other
Data Layers: Land Owner, County, Stream, Lake, Dam, Urban Areas
Projection: UTM 1927, Zone 11, Transverse Mercator
Produced by: Columbia Basin Fish & Wildlife Authority
Date of Map: 5/15/01
5 0 5 Kilometers
5 0 5 Miles


Headgate Dam


George Creek at RK 1.6

How are we going to do it?

- Juvenile Life Stage – looks at life history pattern of salmonids in an currently un-supplemented basin.
  - Document limiting life stage

    -Snorkeling, electrofishing, PIT tagging and smolt trapping.
  - Track survival over time in response to habitat change

    -Work with basin managers to relate quantitative habitat changes to population levels (ACCD)

How are we going to do it?

- Document bull trout presence and condition more completely.
- Evaluate smolt to adult survivals for anadromous pop.

  -PIT tag outmigrants, monitor PIT detections at dams and at adult trap.
- Expand genetic characterization of populations.

  -Expand DNA sampling of steelhead and bull trout populations within Asotin. Use existing LSRCP data collected from other basins to compare stock structure and possible hatchery introgression that occurred prior to 1997.

How are we going to do it?

- Create Spring Chinook Reintroduction Plan.
  - Convene co-managers and define sub-basin goals (desired future condition)
  - Assess present sub-basin condition and determine when, or if, chinook reintroduction should occur, and how it should occur (natural colonization or a form of hatchery supplementation).
  - Codify the plan into a written document.
  - Complete any additional documents needed prior to reintroduction (e.g. HGMP)

How will we Report it?

- Brief monthly & quarterly report to interested parties.
- Annual reports to BPA (electronically available throughout the basin & Streamnet).
- Direct project personnel interaction within the basin to provide data summaries, and interpretation and applicability of results to management and recovery decisions.

How will it be used?

- Help direct recovery actions.
  - Continue present habitat activities? Has there been a population response?
  - Are supplementation actions needed to promote population response? Most valuable as a control?
  - Are conditions appropriate to implement Spring Chinook reintroduction plan?
- Report subbasin recovery/reintroduction success
  - Journal article(s).

Washington
Department of
FISH AND
WILDLIFE

Questions?