

Yankee Fork Chinook Salmon Supplementation Program - Update

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Shoshone-Bannock Tribes

Fish and Wildlife Department

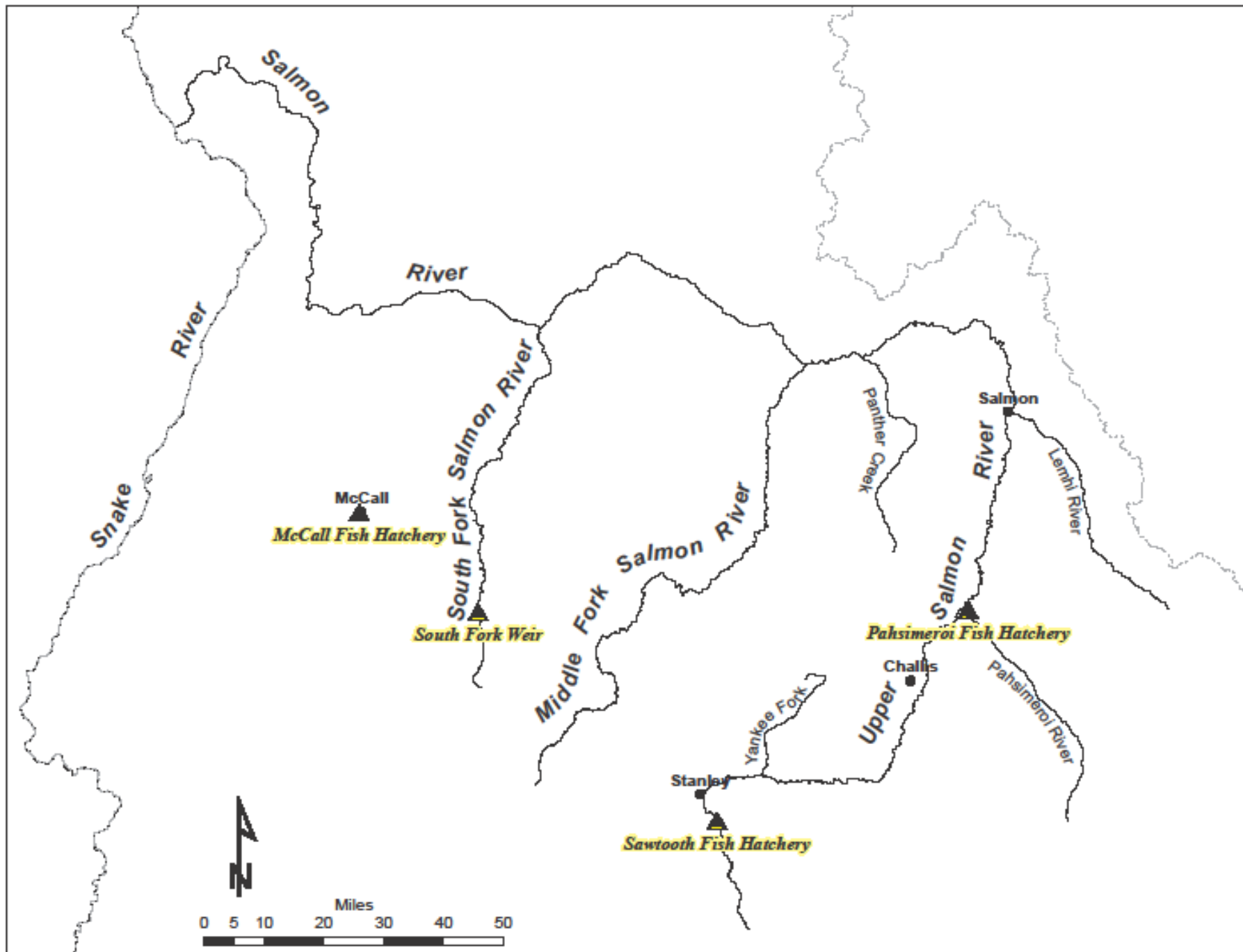


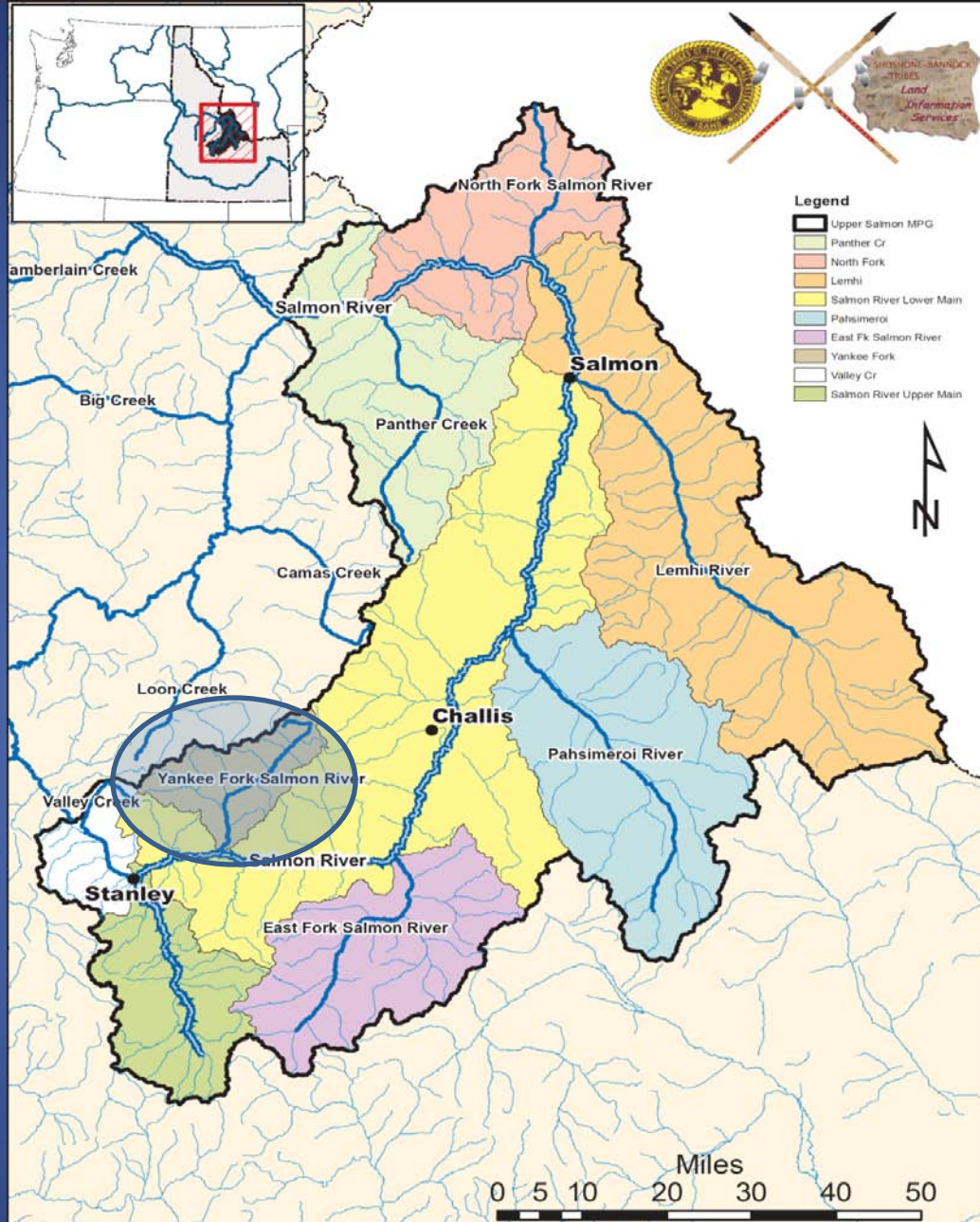
LSRCP Program Review
November 30, 2010



Overview

- Introduction
- Goals & Objectives
- Methods
- Results
- Moving Forward
- Acknowledgments



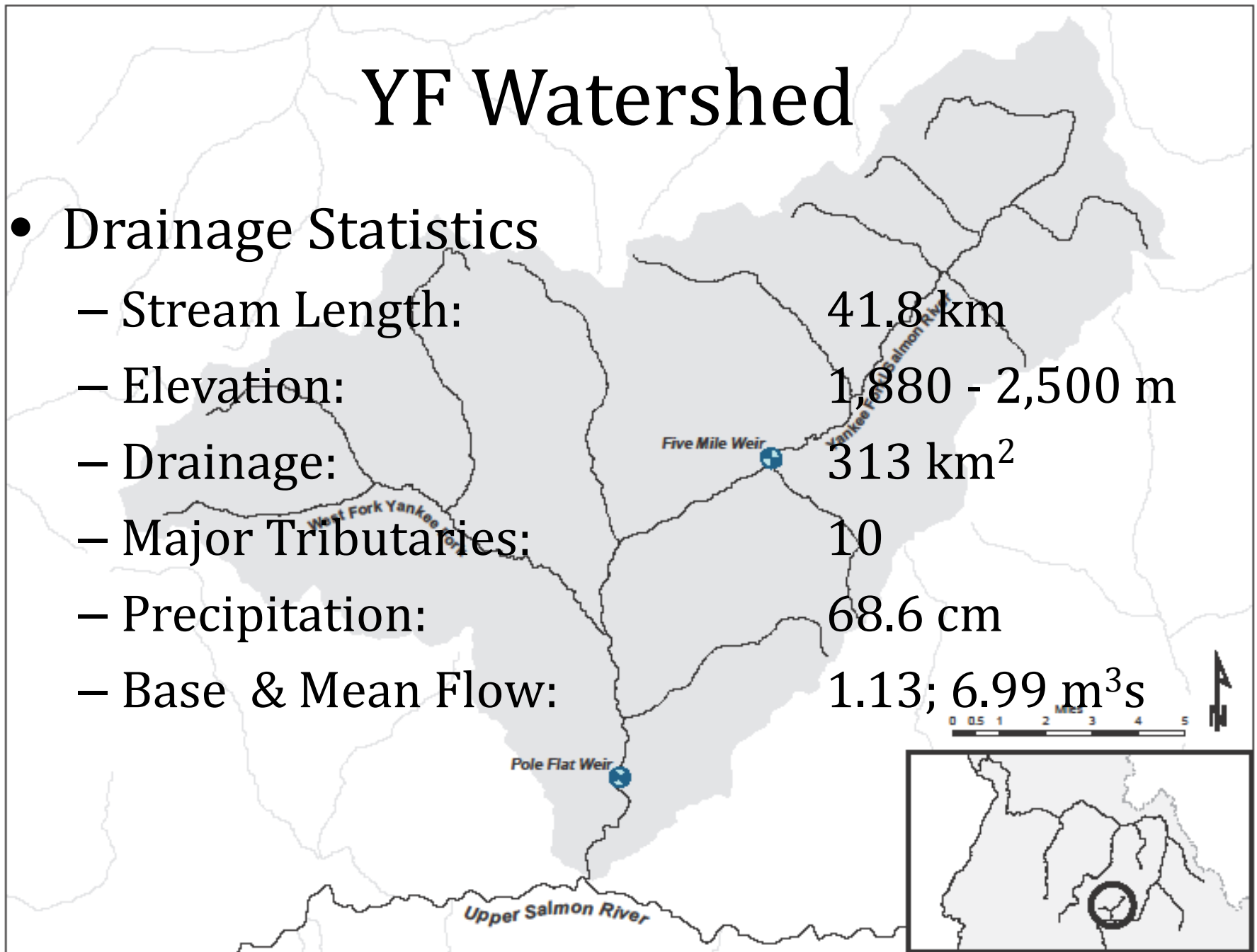


Yankee Fork is a major tributary to the upper Salmon River and is considered one of the nine populations of Snake River spring/summer Chinook salmon within this MPG.

YF Watershed

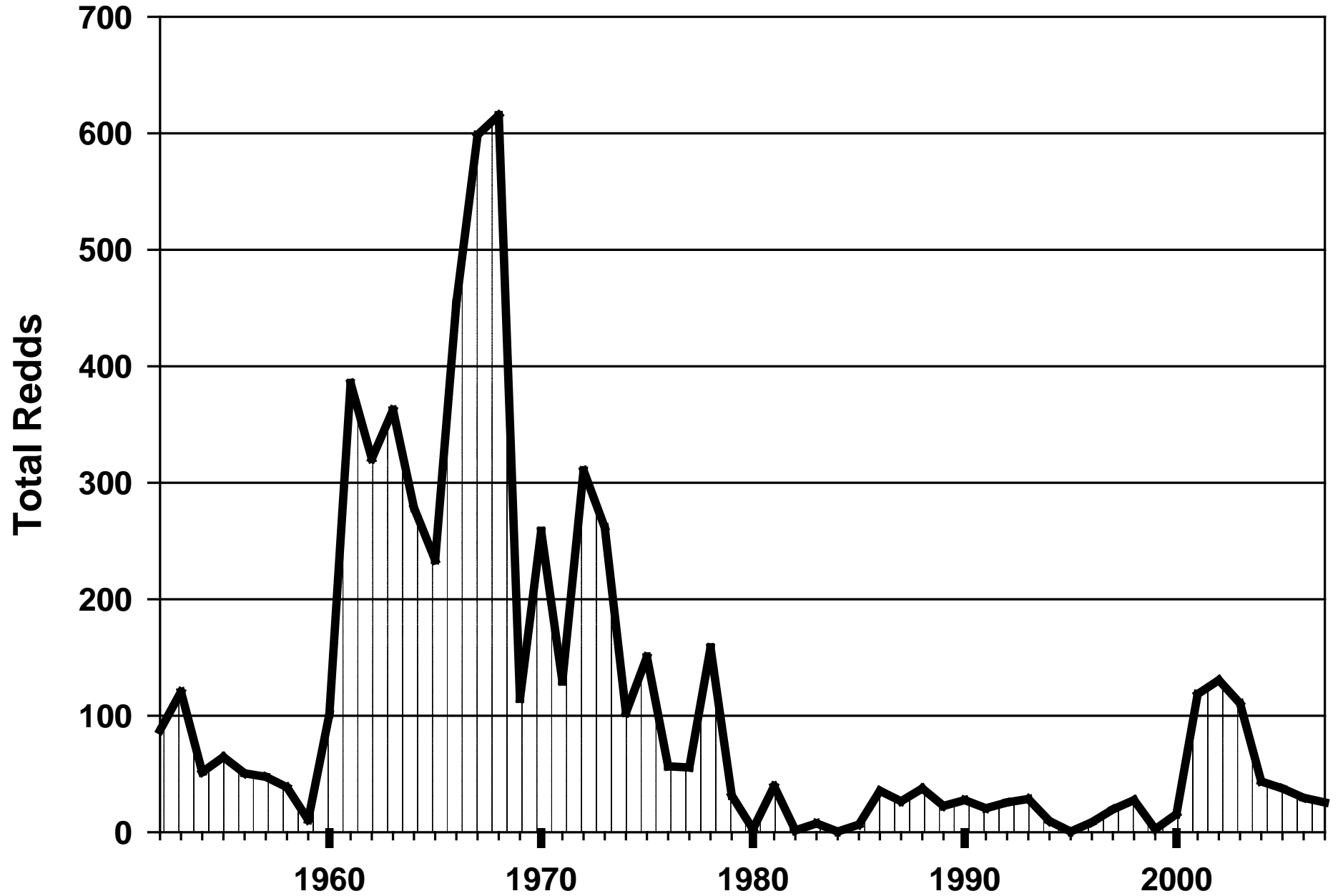
- Drainage Statistics

- Stream Length: 41.8 km
- Elevation: 1,880 - 2,500 m
- Drainage: 313 km²
- Major Tributaries: 10
- Precipitation: 68.6 cm
- Base & Mean Flow: 1.13; 6.99 m³s

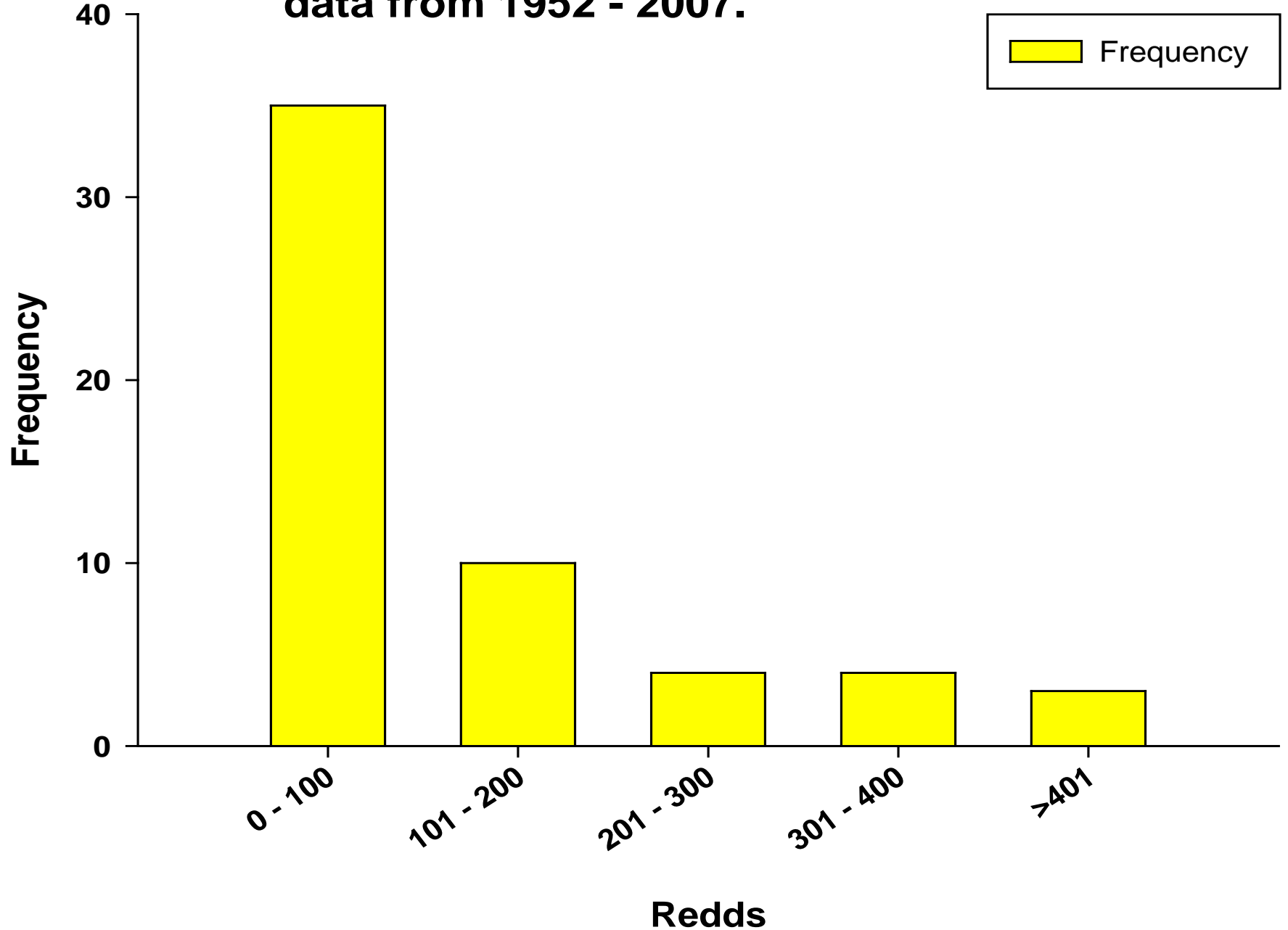


BY	RY	Number	Location	Stock	Size	fish/lb	Hatchery
	1977	56,700	WFYK		fry-fingerling		Mackay
	1978	75,036	Yankee Fork		fry-fingerling		Mackay
	1985	61	Yankee Fork	Sawtooth	adult		Sawtooth
	1985	659	Yankee Fork		adult		Pahsimeroi
	1986	61	Yankee Fork	Sawtooth	adult		Sawtooth
	1986	1,505	Yankee Fork		adult		Pahsimeroi
	1986	386,348	Yankee Fork		fry-fingerling		Pahsimeroi
	1987	157,877	Yankee Fork		fry-fingerling		Sawtooth
	1987	600	Yankee Fork		adult		Pahsimeroi
1986	1987	158,000	Yankee Fork Ponds	Salmon R.	pre-smolt	250	Sawtooth
1986	1988	725,500	Yankee Fork Ponds	Pahsimeroi	smolt	20	Sawtooth
1987	1988	50,100	Yankee Fork Ponds		fry-fingerling	120	Sawtooth
1987	1989	198,200	Yankee Fork Ponds	Salmon R.	smolt	24	Sawtooth
1988	1989	125,000	Yankee Fork Ponds	Salmon R.	fry-fingerling	100	Sawtooth
1988	1990	200,800	Yankee Fork Ponds	Salmon R.	smolt	21	Sawtooth
1989	1990	50,000	Yankee Fork Ponds		fry-fingerling	100	
1989	1990	491,300	Yankee Fork	Salmon R.	smolt	45	Sawtooth
1989	1990	50,000	Yankee Fork Ponds	Salmon R.	fry-fingerling	111	Sawtooth
1990	1991	50,000	Yankee Fork Ponds		fry-fingerling	120	Sawtooth

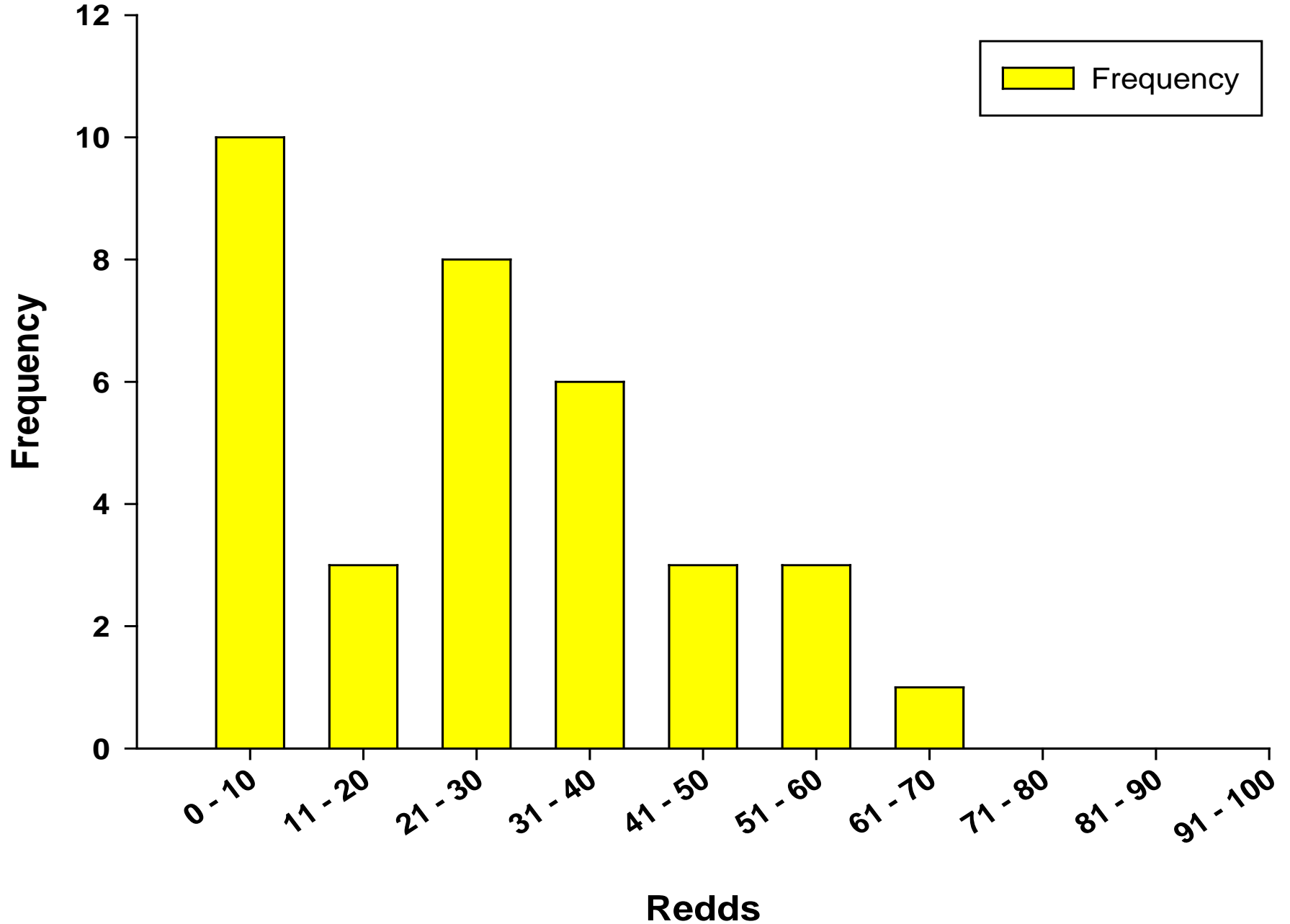
Annual redd count from 1952 - 2007.



**Yankee Fork redd frequency histogram;
data from 1952 - 2007.**



Redd frequency histogram; <100 redds observed.



Goal

- Goal
 - Return 2,000 adult Chinook salmon to YF
 - Develop a locally-adapted Chinook salmon run



Objectives

- Conservation Objective
 - 750 adults
- Harvest Objective
 - 1,000 adults
- Cultural Objective
 - Traditional hunting methods
- Broodstock and Production Objectives
 - Collect 250 adults
 - Release 400,000 smolts
 - Release 1,500 pre-spawn adults

Study Design

- Treatment vs Control Design
 - Yankee Fork, South Fork, Johnson Creek, Upper Salmon, & Pahsimeroi.
 - Use ISS control streams and data collection
- Investigate and evaluate interactions between natural and hatchery-origin fish
- Detect changes within multiple groups of fish (i.e., Yankee) and between streams (i.e., control vs. treatment)

Methods

- Rotary Screw Trap
- Smolt Release
- Weirs
- Adult Trapping
- Harvest Monitoring
- Adult Outplanting
- Spawning Ground Surveys

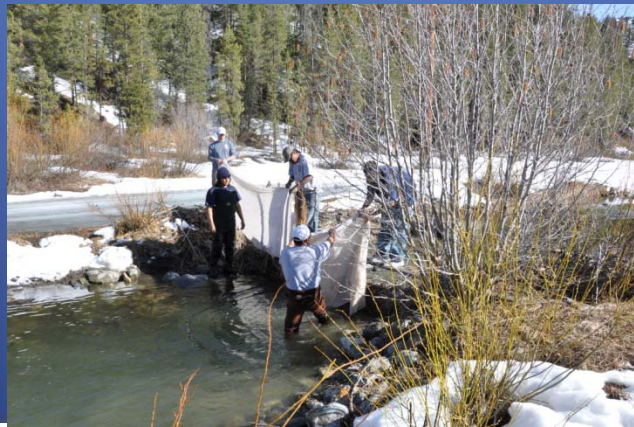
Methods - Rotary Screw Trap

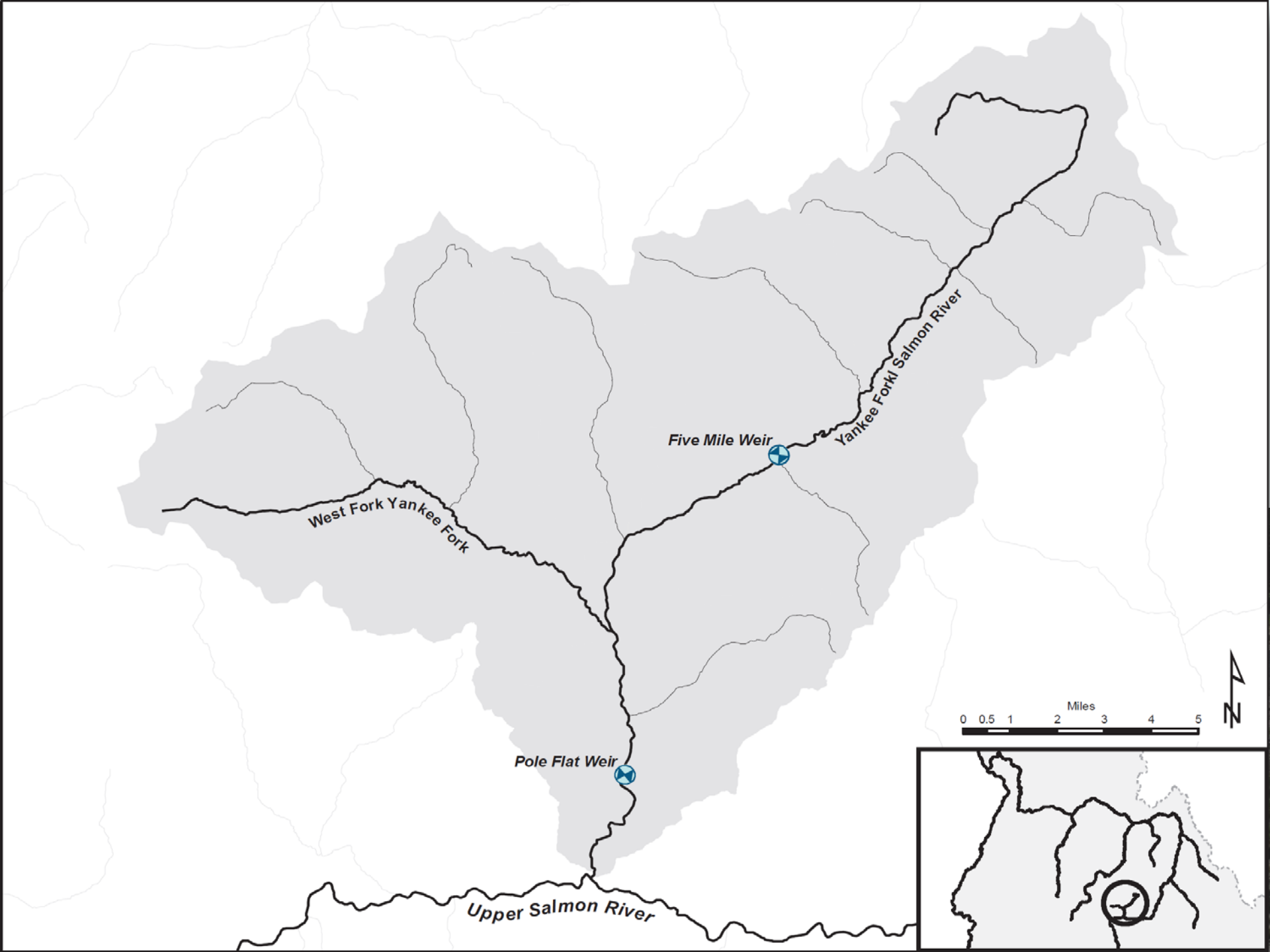
- Located in lower Yankee Fork
- Operated from April – November
- Species are enumerated
- Juvenile Chinook salmon PIT tagged
- Collect tissue samples
- Collect beavers, ospreys, sockeye salmon



Methods – Smolt Release

- 400,000 juveniles reared at Sawtooth FH
 - 200,000 ad-clipped; 2,200 PIT
 - 200,000 ad-intact; 2,200 PIT; 100% CWT
- Transported to YF during mid-April
- Paired Releases (River vs. Acclimated)





Methods – Adult Trapping

- Pole Flat Weir
 - Species enumerated
 - Broodstock collected
 - Tissue samples collected
 - Run-timing
 - Age structure
 - Gender
 - Origin
 - Mark-recapture
- Five Mile Weir
 - All of the above
 - Spawning segregation



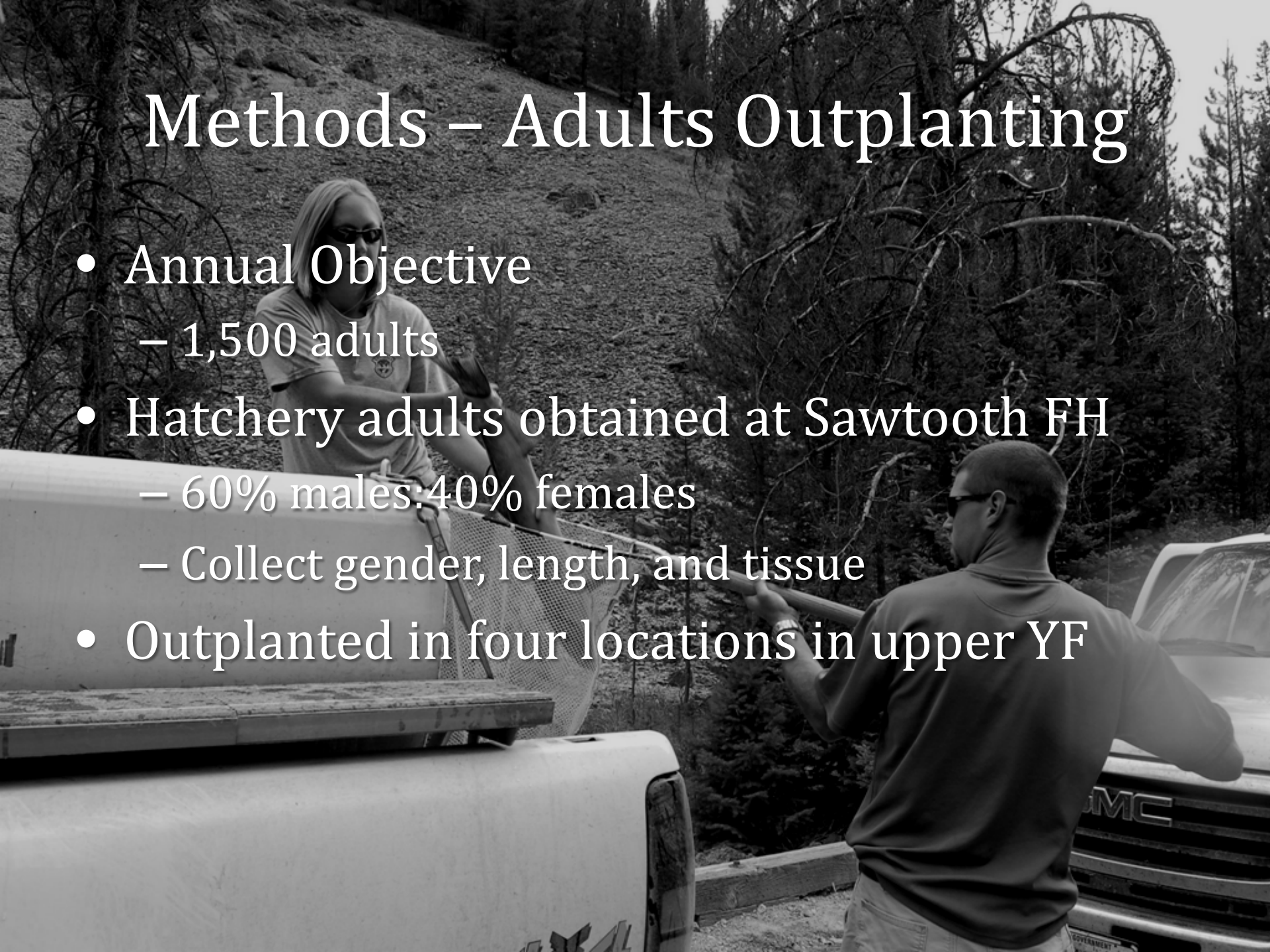
Methods – Harvest Monitoring

- Intensive monitoring
 - Conducted daily
- June 25 – August 11
- All Tribal members are surveyed



Methods – Adults Outplanting

- Annual Objective
 - 1,500 adults
- Hatchery adults obtained at Sawtooth FH
 - 60% males:40% females
 - Collect gender, length, and tissue
- Outplanted in four locations in upper YF



Methods – Spawning Ground Surveys

- Seven strata identified
- Four total passes conducted
- Data collection includes:
 - Redd: spawn timing, enumeration, distribution
 - Carcass: origin, gender, length, age, tissue, percent spawned, operculum punch

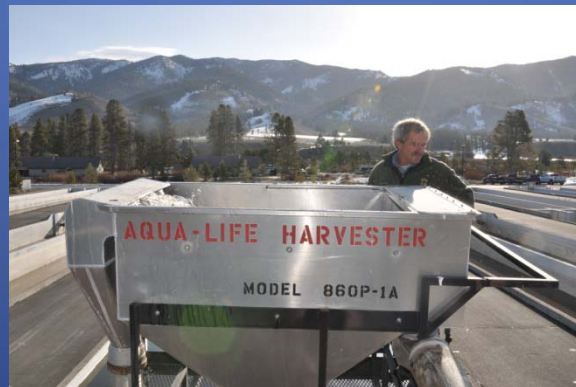
Results – Rotary Screw Trap



- BY 08 Production
 - 534,024 (SE 17,348) juveniles produced
 - Fry - no screw trap
 - Parr - 305,722 (SE 8,546)
 - Pre-smolt - 228,252 (SE 20,670)
 - Smolt – Insufficient mark-recapture data to estimate smolt production
- BY 09 Production
 - 129,661 (SE 5,619) juveniles produced
 - Fry – 46 (SE 10)
 - Parr – 15,114 (SE 3,369)
 - Pre-smolt – 114,501 (SE 7,627)

Results – Smolt Release

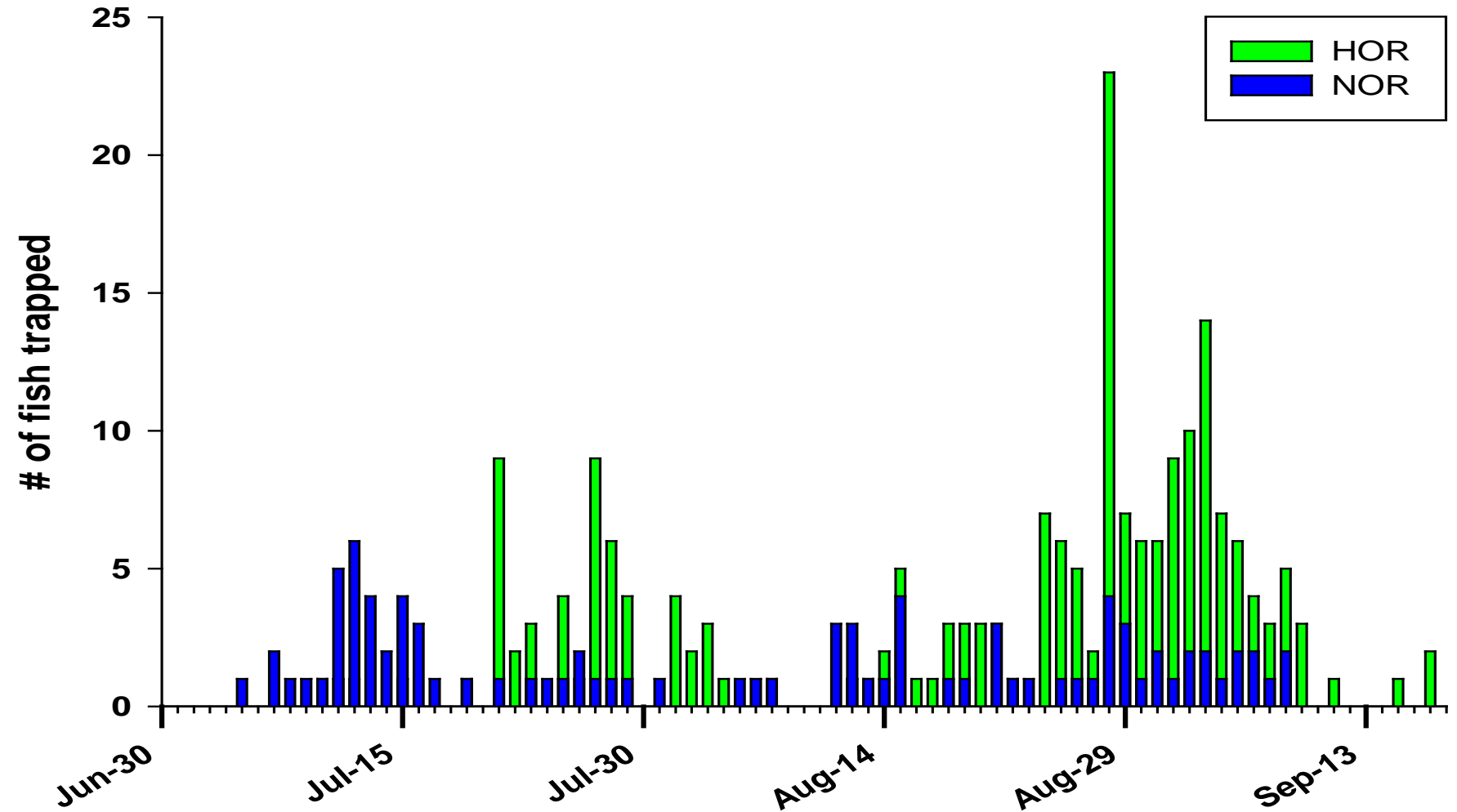
Brood Year	Number Released	Year Released	Return Age From BY			Total	SAR (%)
			1-ocean	2-ocean	3-ocean		
2004	135,934	2006	NA	357	24	> 381	> 0.280
2008	398,444	2010					



Results – Adult Trapping, Outplants, & Redds

Year	Adult Outplants	Trapped at Lower Weir		Passed Weir Undetected	Spawned Below Lower Weir	Spawning Escapement	Redds
		Hatchery Origin	Natural Origin				
2008	1,438	185	43	125	144	1,935	660
2009	1,517	20	29	2	72	1,640	414
2010	0	0	17	36	12	65	28

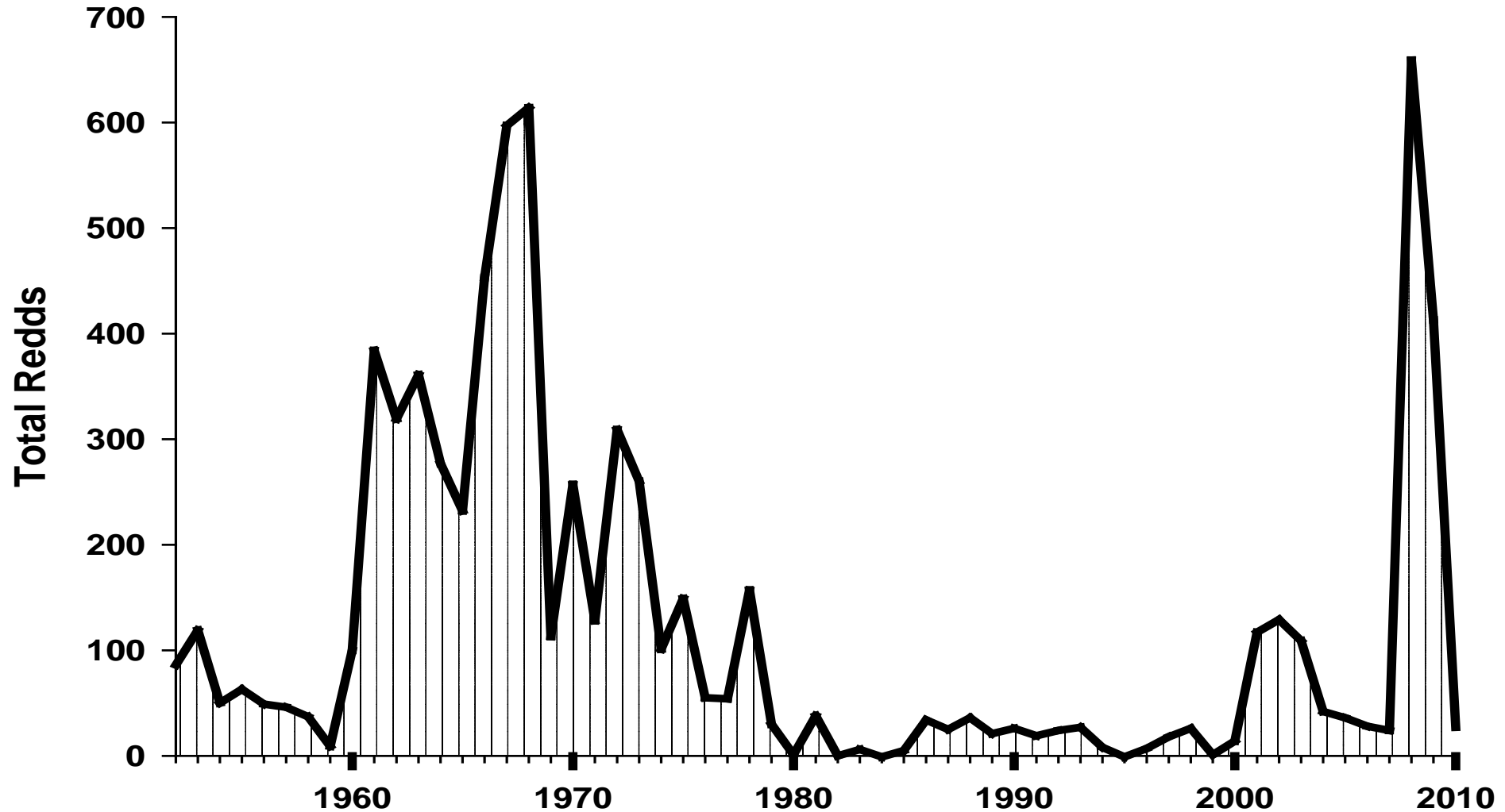
Results – Run Timing



Results – Harvest Monitoring

- No significant harvest
 - 2008 – 1 adult
 - 2009 – 2 adults
 - 2010 – 1 adult
 - 2011 – TBD

Results – Spawning Ground Surveys

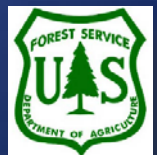


Moving Forward

- LSRCF funding for O&M
 - Help meet LSRCF adult return goals for upper Salmon
- BPA proposal for expanded M&E
 - Conduct Parentage Analysis for Relative Reproductive Success
 - On-site field station
 - Control Streams
- BPA proposal for Crystal Spring FH
 - Expanded smolt rearing space
 - 400,000 – 600,000 smolts
 - Satellite Facility
 - Adult Holding
 - Improve Weir Design and Construction
- Hatchery Genetics Management Plan
- Tribal Resource Management Plan
- Publications
- Recognizing Limitations

Acknowledgments

- Shoshone-Bannock Tribes
 - Fort Hall Business Council
 - Program Staff
- Lower Snake River Compensation Plan – Office
- Idaho Department of Fish and Game
 - Headquarters
 - Sawtooth Fish Hatchery
- NOAA-Fisheries
- Forest Service – Salmon-Challis Nat'l Forest
- Bonneville Power Administration??



Questions

