

LYONS FERRY STOCK SUMMER STEELHEAD PROGRAM REVIEW

SNAKE, TUCANNON, WALLA WALLA,
AND TOUCHET RIVER BASINS

Mark Schuck

Joe Bumgarner

Washington Department of Fish and Wildlife



Program Goals

Location	Original Smolt Goals	Current Smolt Goals	Adult Goal to Project Area	Total Adult Goal
Snake River	126,000	160,000	630	1,890
Tucannon	175,000	0	876	2,628
Walla Walla	180,000	100,000	900	2,700
Touchet	150,000	85,000	750	2,250
Grande Ronde	300,000	200,000	1500	4,500
TOTALS	931,000	545,000	4,656	13,968

SAR = 0.5%, SAS = 1.5%

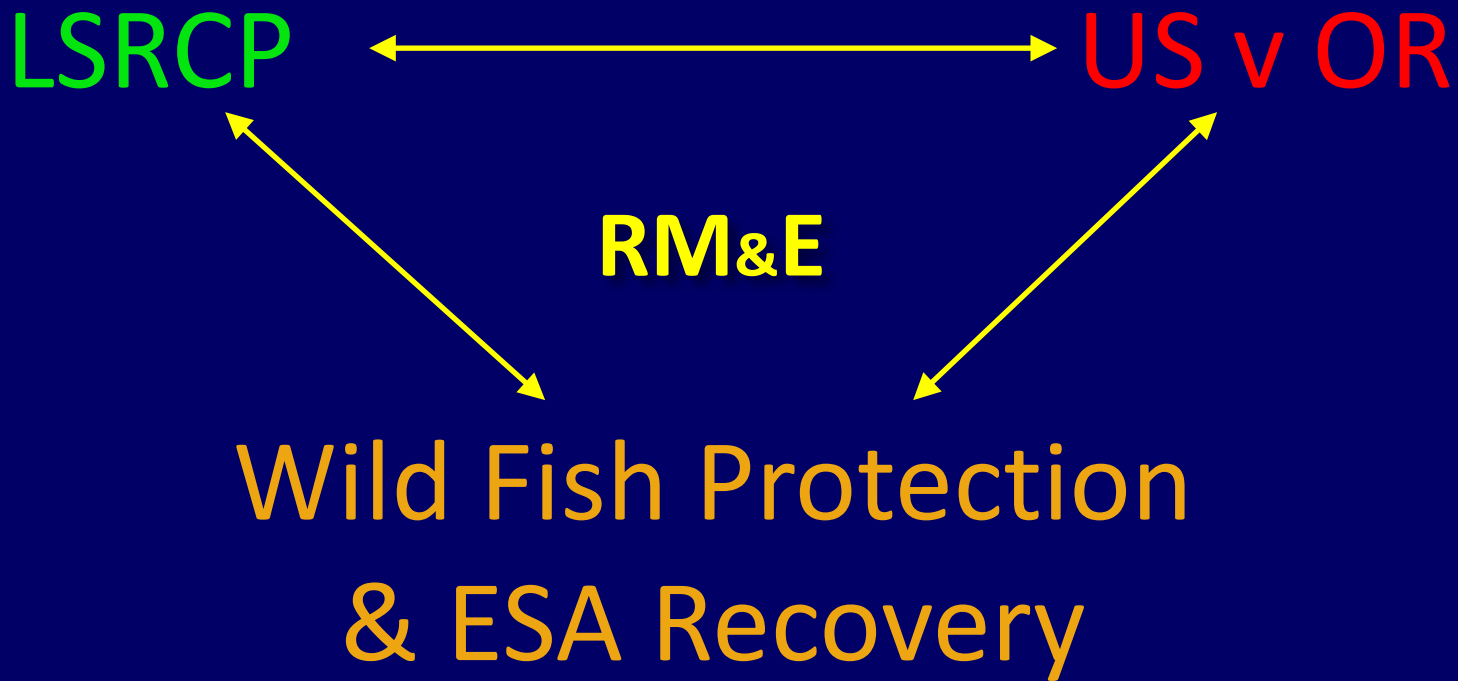
Management Objectives

- Establish steelhead broodstock(s) to meet egg needs
- Return adult steelhead to the Columbia, Snake, and tributary rivers which meets LSRCF goals
- Improve or re-establish sport fisheries
- Maintain and enhance natural populations of steelhead and other native salmonids
- Coordinate actions with other basin managers

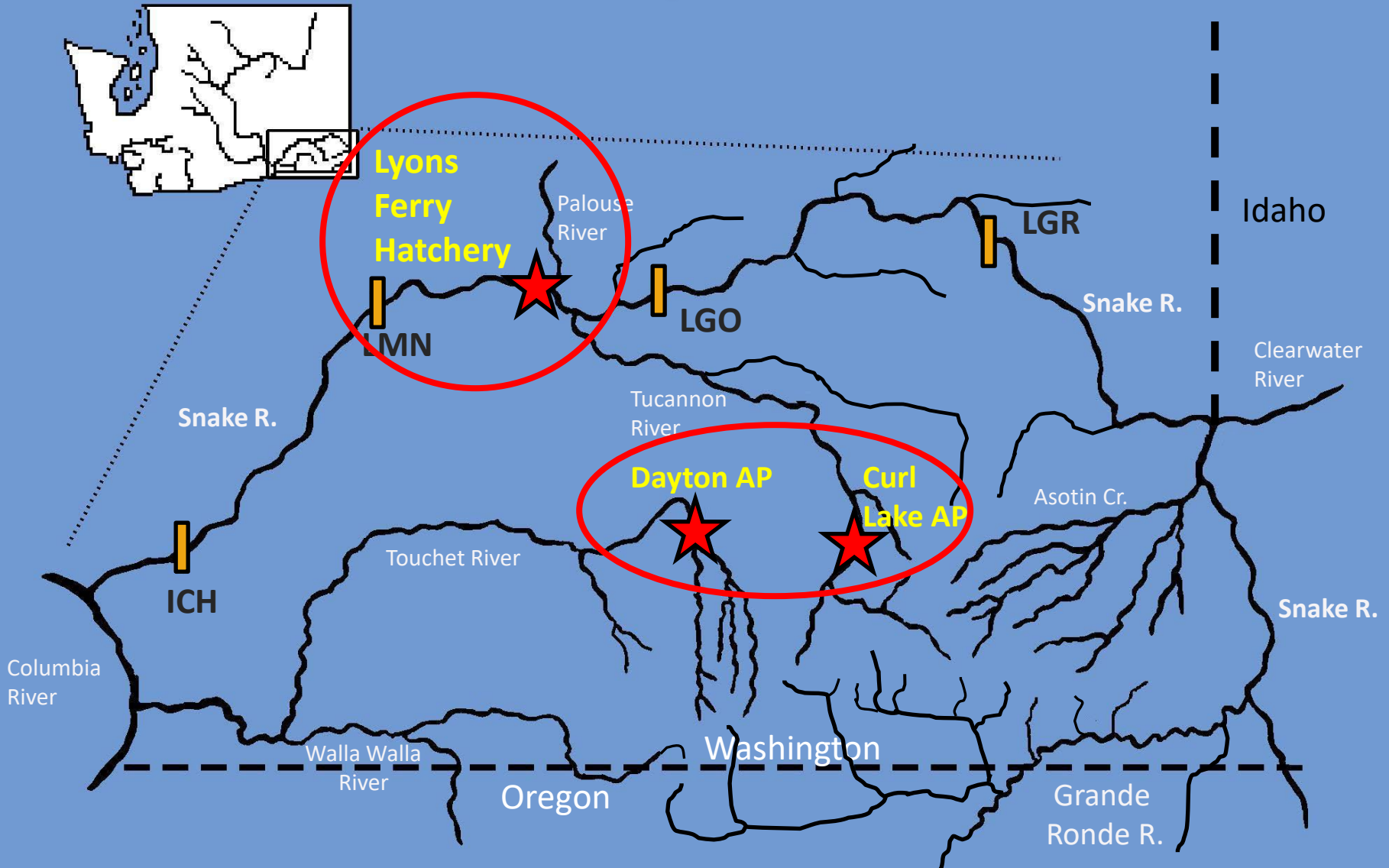
Management Objectives (additional or amended)

- Monitor the status and trends of natural steelhead populations where LSRCF fish might have affects
- Program is compliant with ESA (HGMP's, FMEP's)
- Program is compliant with WDFW Hatchery Policies to protect and recover wild stocks

Steelhead Management Drivers in Southeast Washington



WDFW Lyons Ferry Stock Hatchery Facilities



Trapping and Spawning



Lyons Ferry Fish Hatchery



Broodstock Origin and History

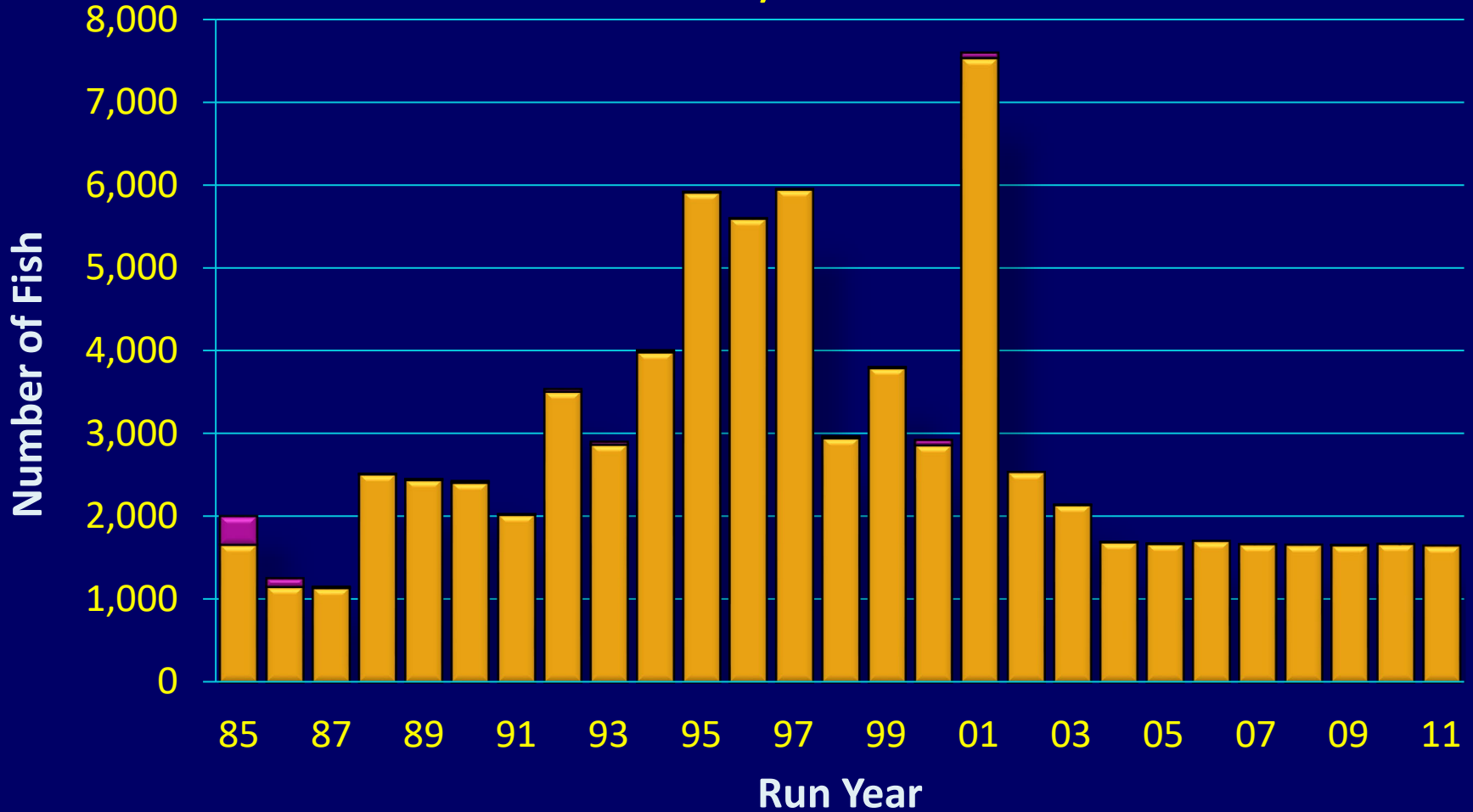
Smolts released into the Snake, Tucannon, Walla Walla and Touchet Rivers

Brood Year	Wallowa Stock (ODFW)	Wells Stock (WDFW)	Lyons Ferry Stock (WDFW)
1981	28,000		
1982	51,000	432,000	
1983	214,000	428,000	
1984	222,000	389,000	
1985	81,000	638,000	
1986	51,000	317,000	380,000

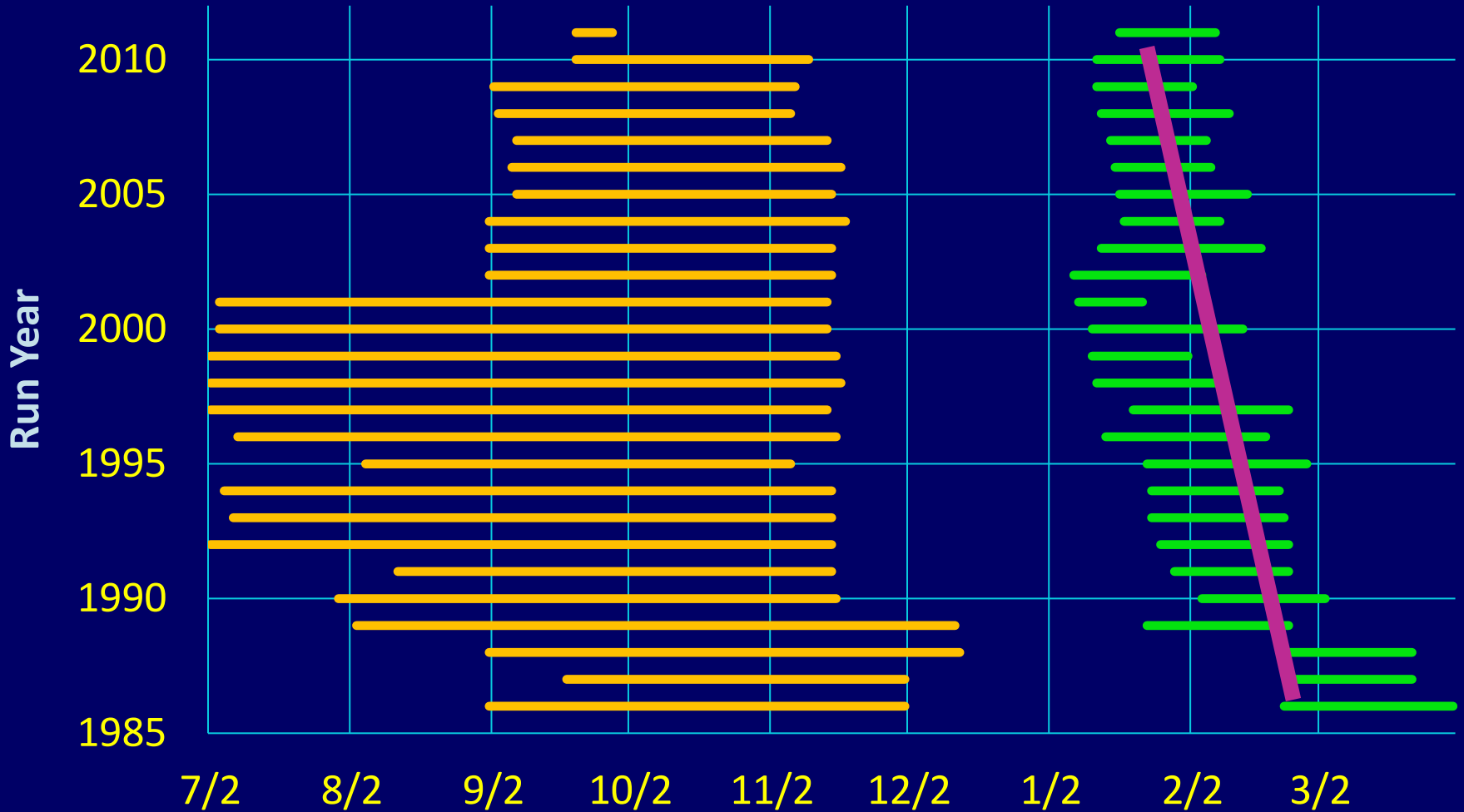
*Based on releases by stock and returns to Lyons Ferry, we estimate that the LFH stock is 80-85% Wells stock origin

Adult Trapping @ Lyons Ferry

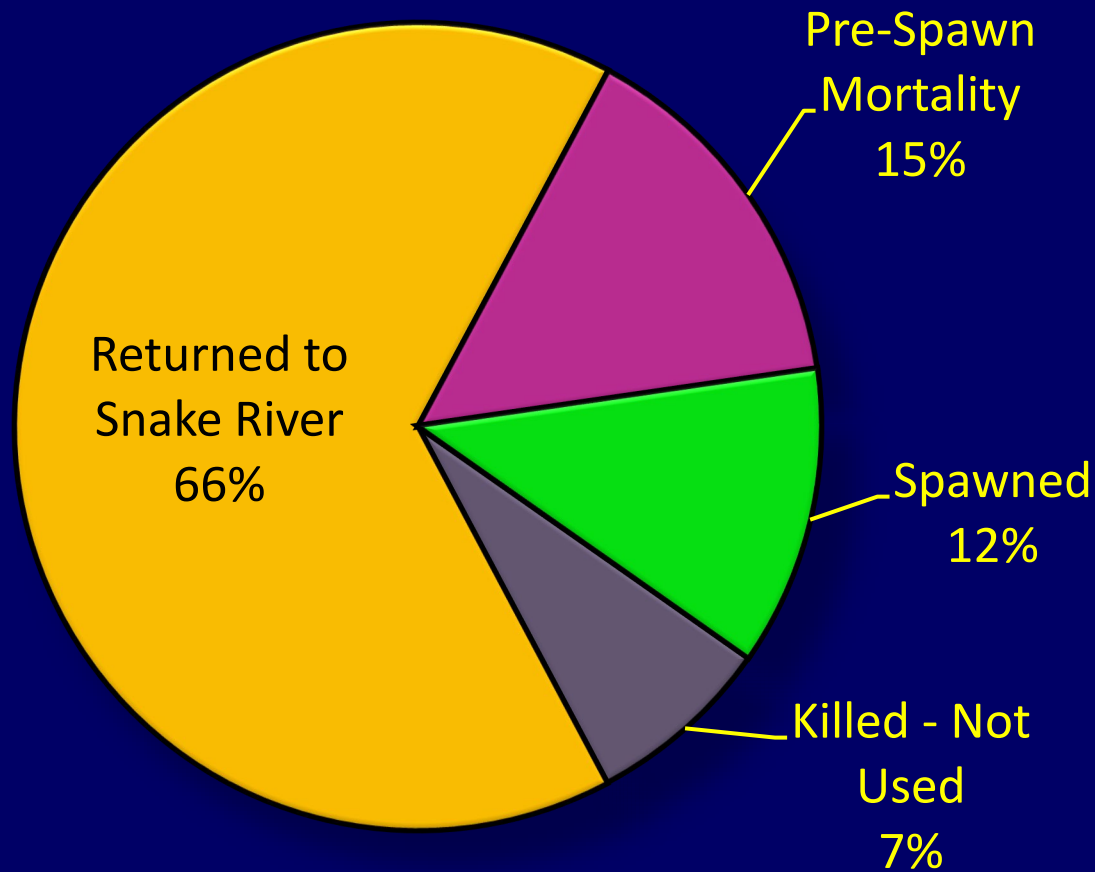
■ Hatchery ■ Wild



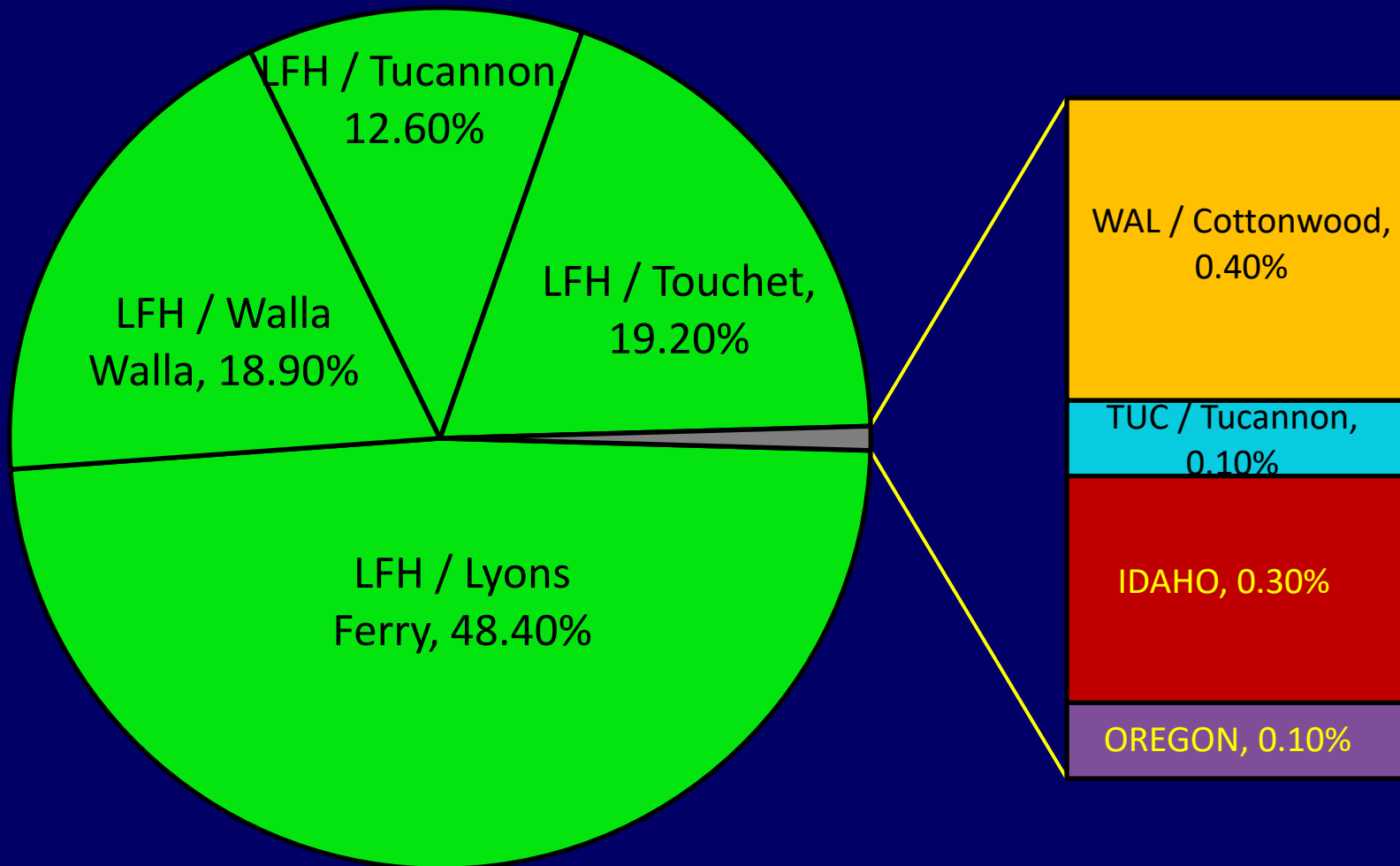
LFH Broodstock Trapping and Spawning



Disposition of Trapped Adults at LFH (1996-2012 BY)

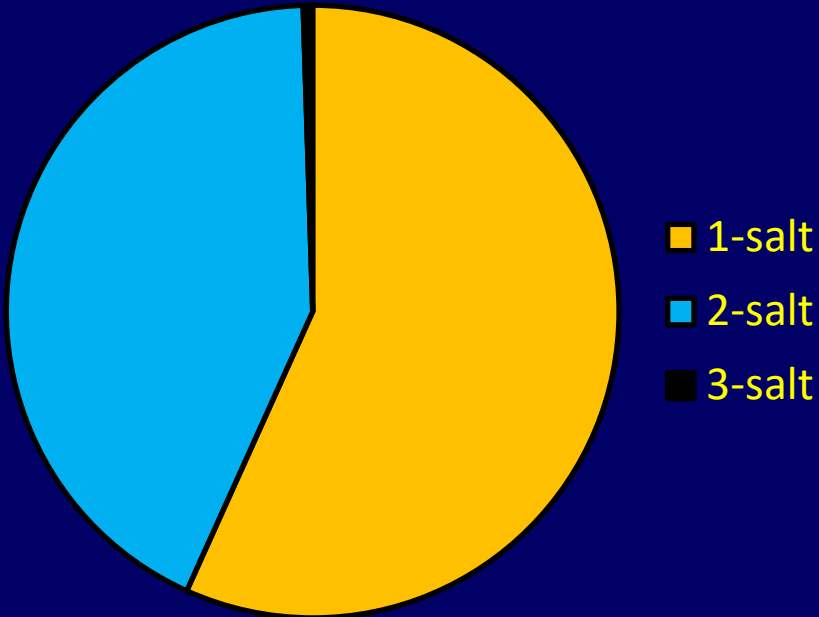


Coded-Wire Tag Recoveries at LFH (1999-2012 BY)

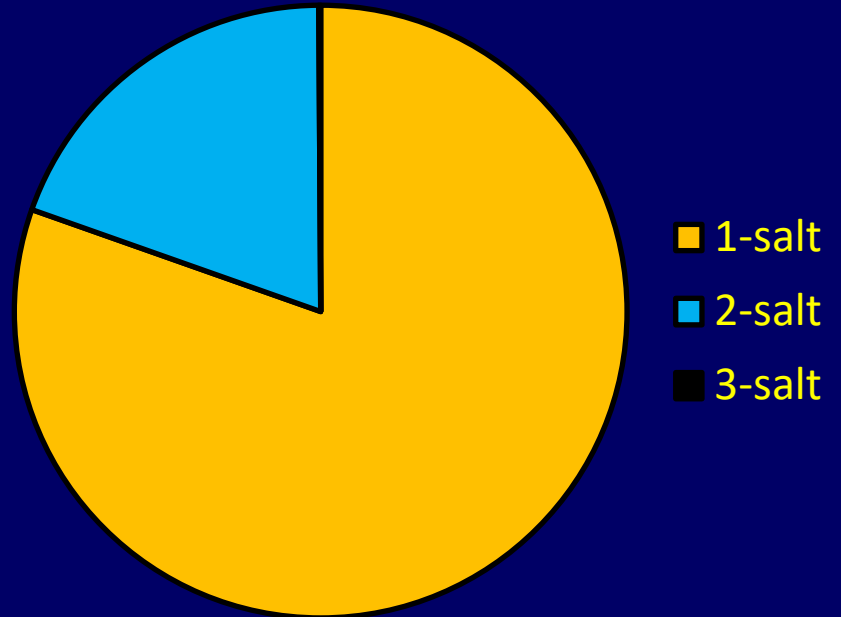


Lyons Ferry Stock Age Composition

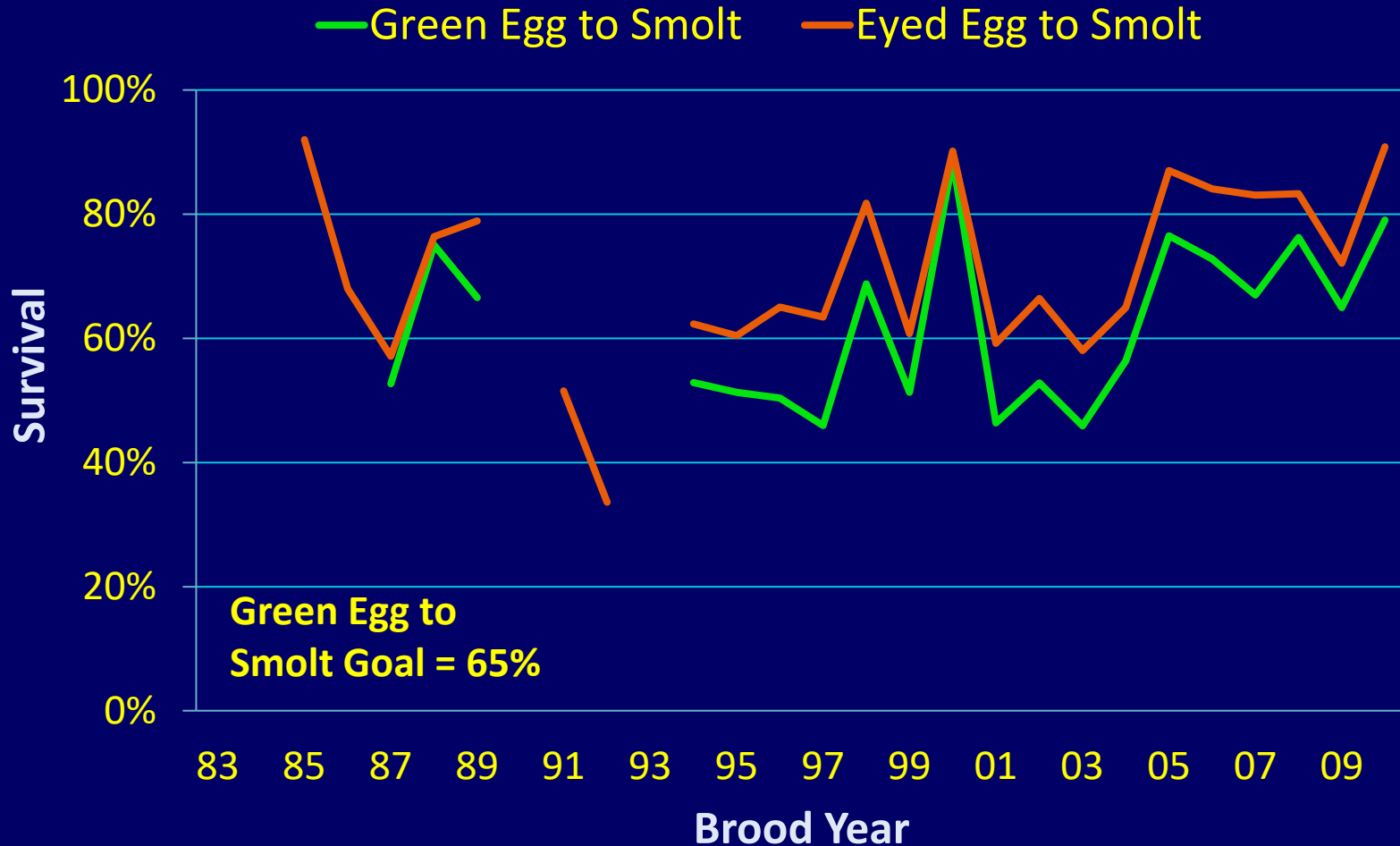
BY 1986-1993



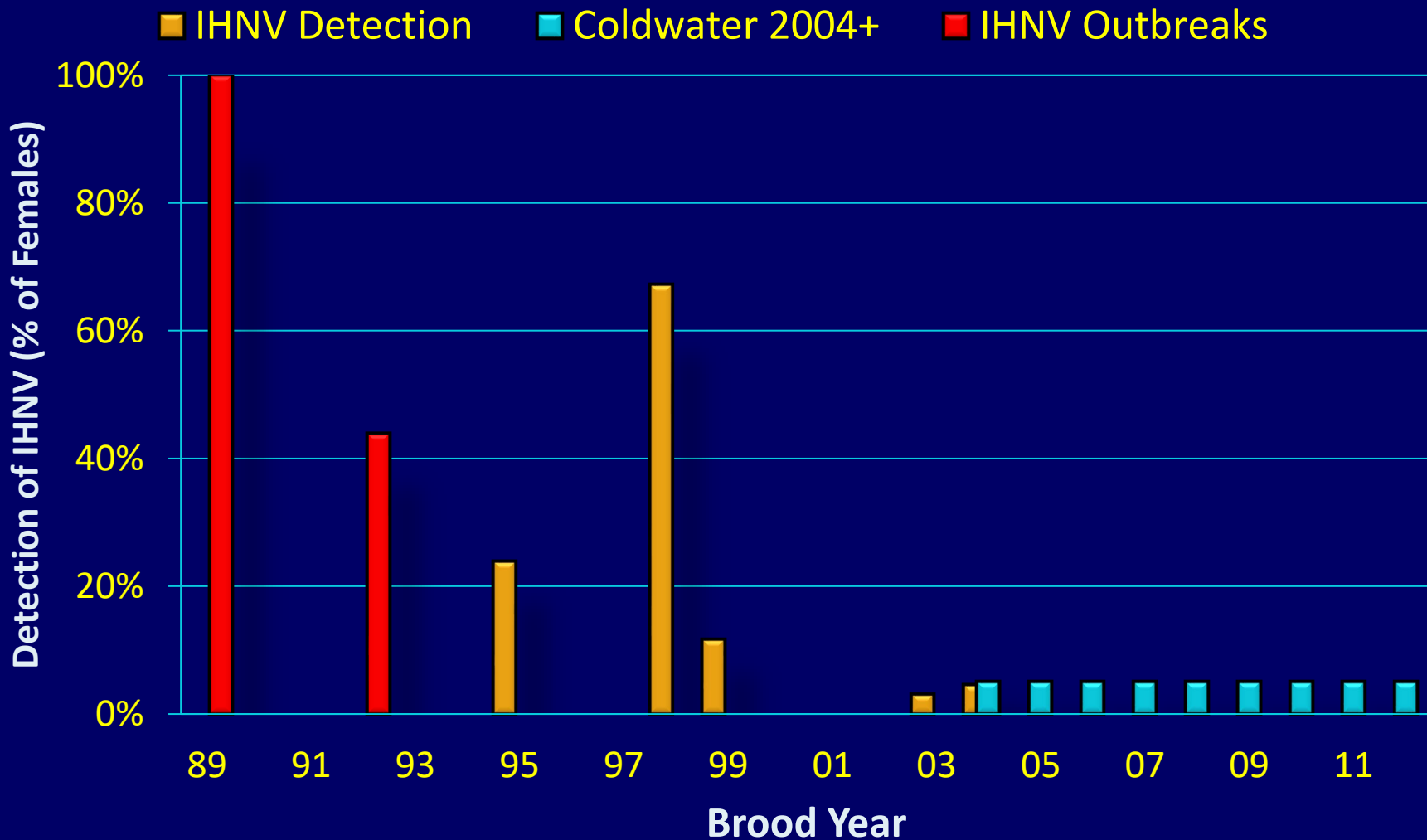
BY 1994-2006



WDFW Lyons Ferry Stock Egg to Release Survival



Disease/Pathology



Marking/Tagging

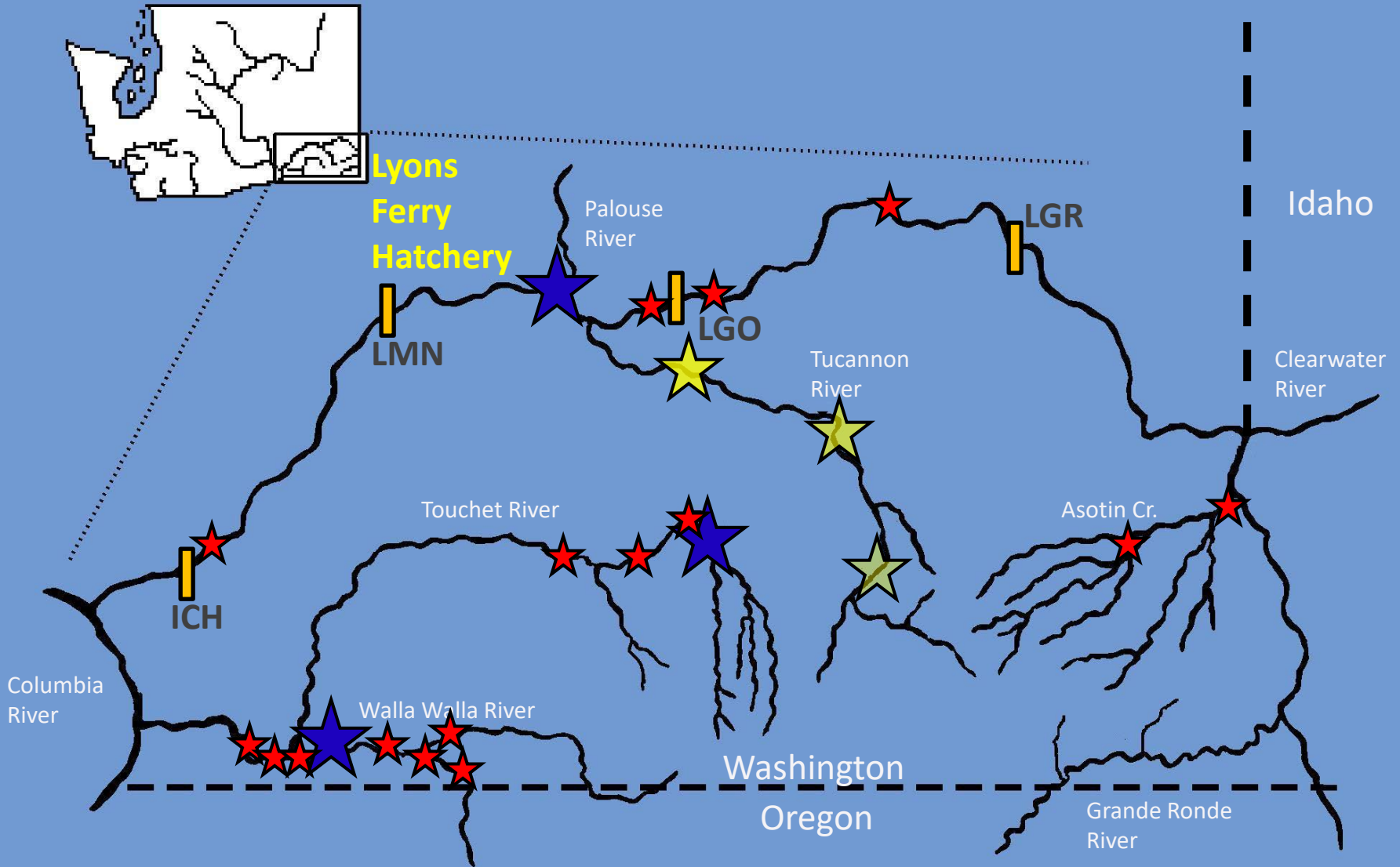
- 100% AD Fin Clip
- Portion LV Fin Clip + CWT
 - Minimum 20,000 Tags

■ PIT Tagged	N	Purpose
BY 1994-2000	350-1,000	Juvenile Migration
BY 2005-Present	9,000-15,000	Adult Returns

Smolt Releases



Wells/Lyons Ferry Stock Releases



Release Strategies



Lyons Ferry



Curl Lake AP

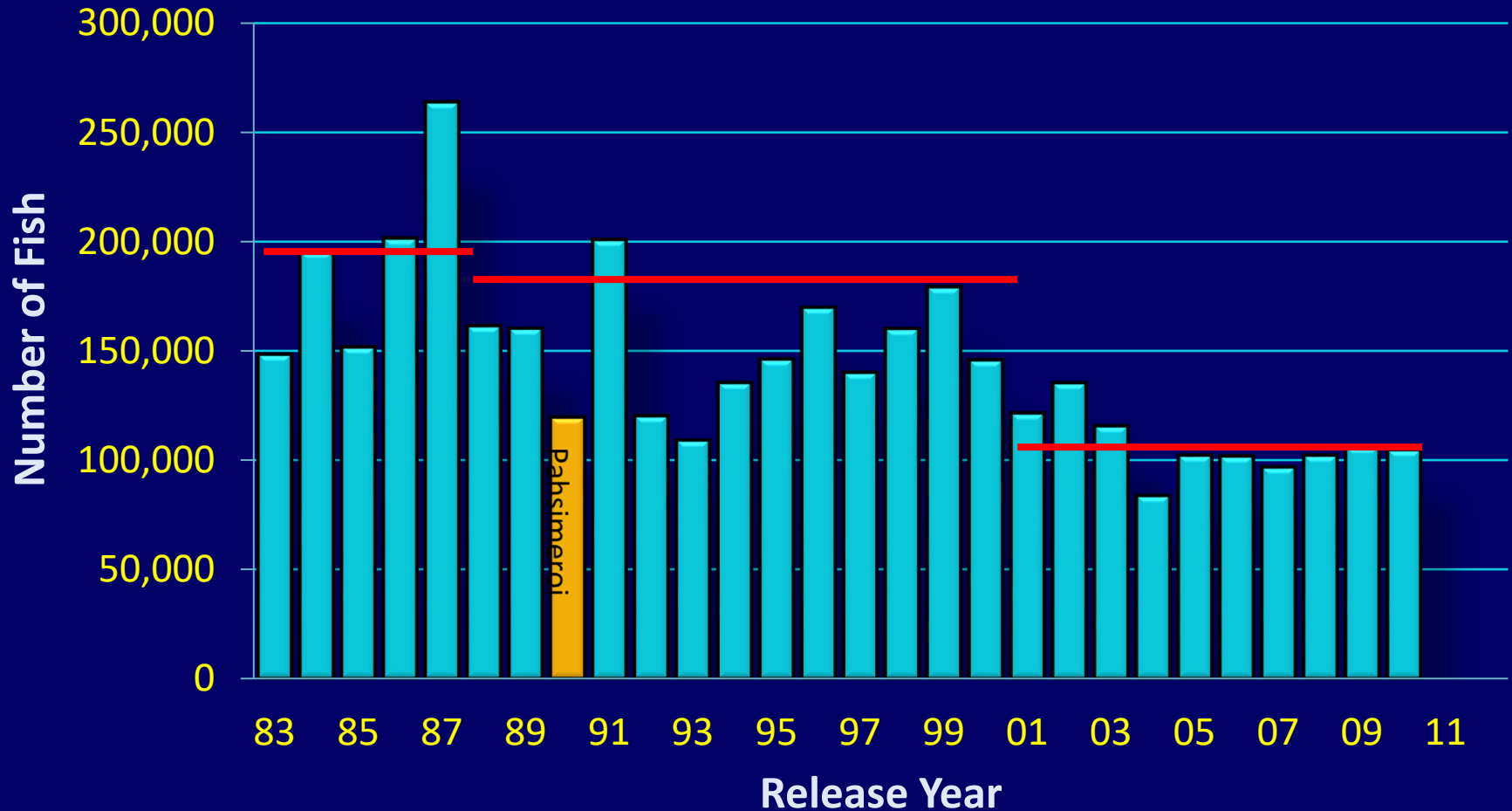


Dayton AP

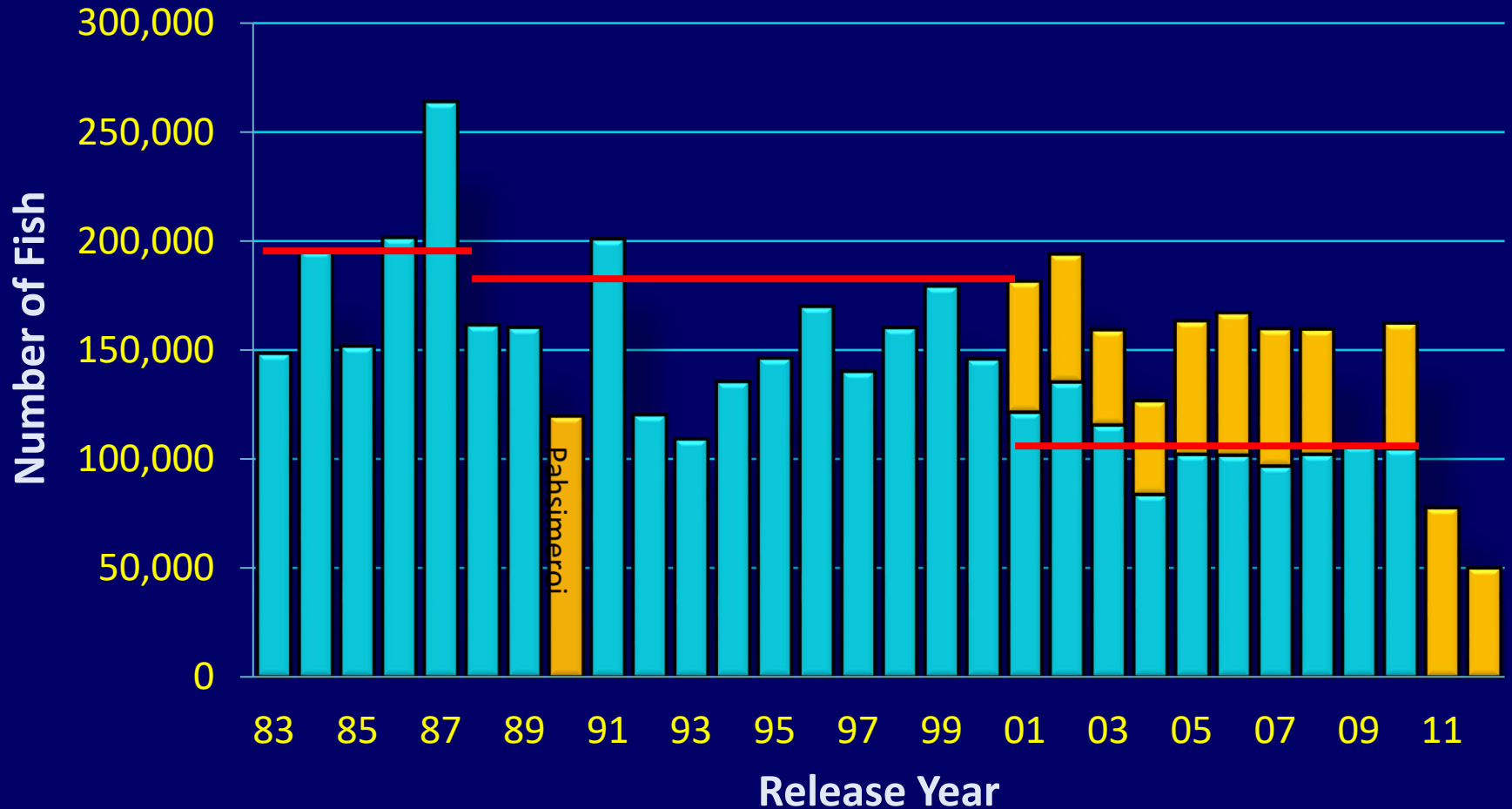


U.S. FISH & WILDLIFE SERVICE
venture

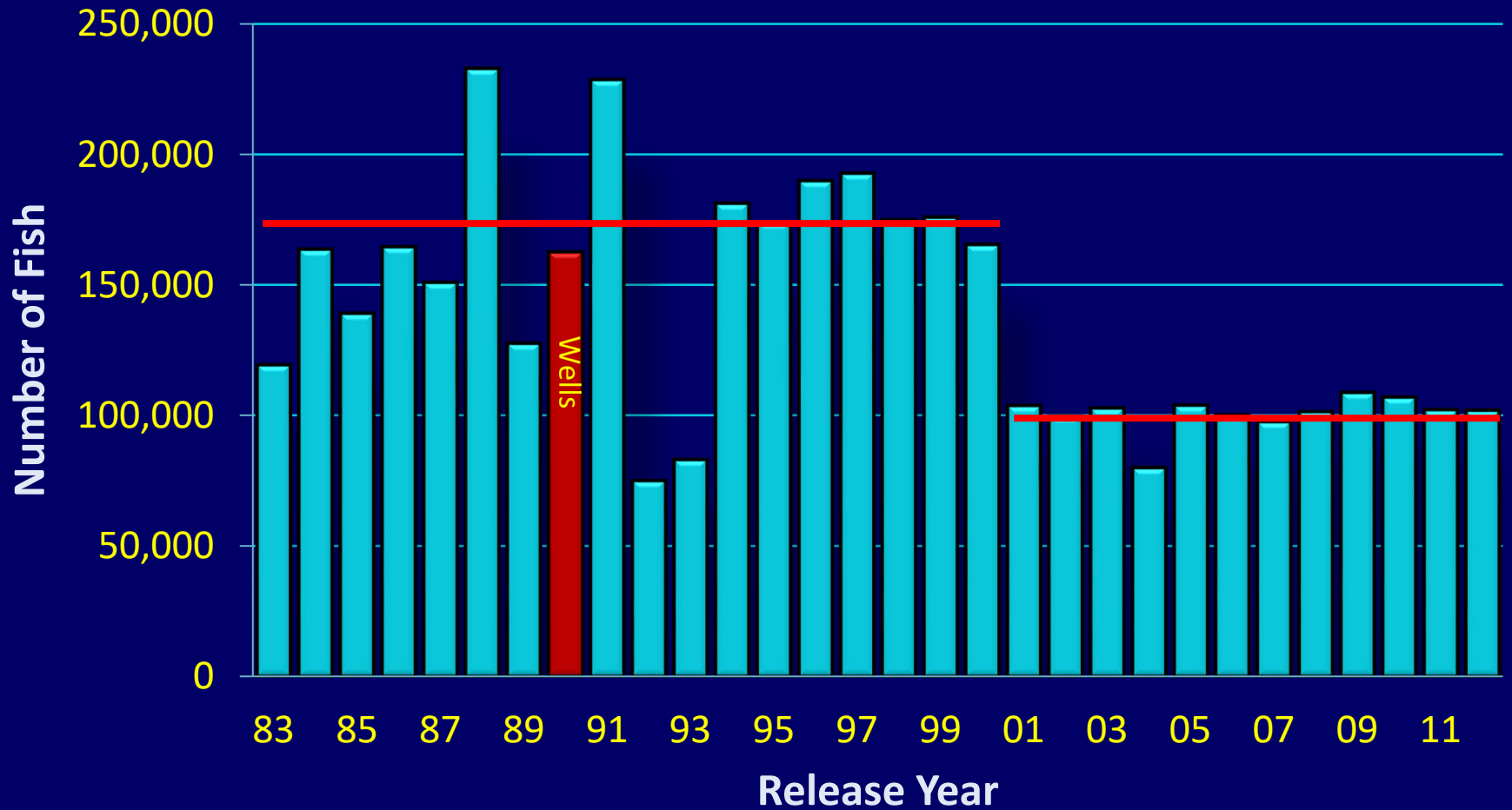
Wells/LFH Stock Steelhead Tucannon River Releases



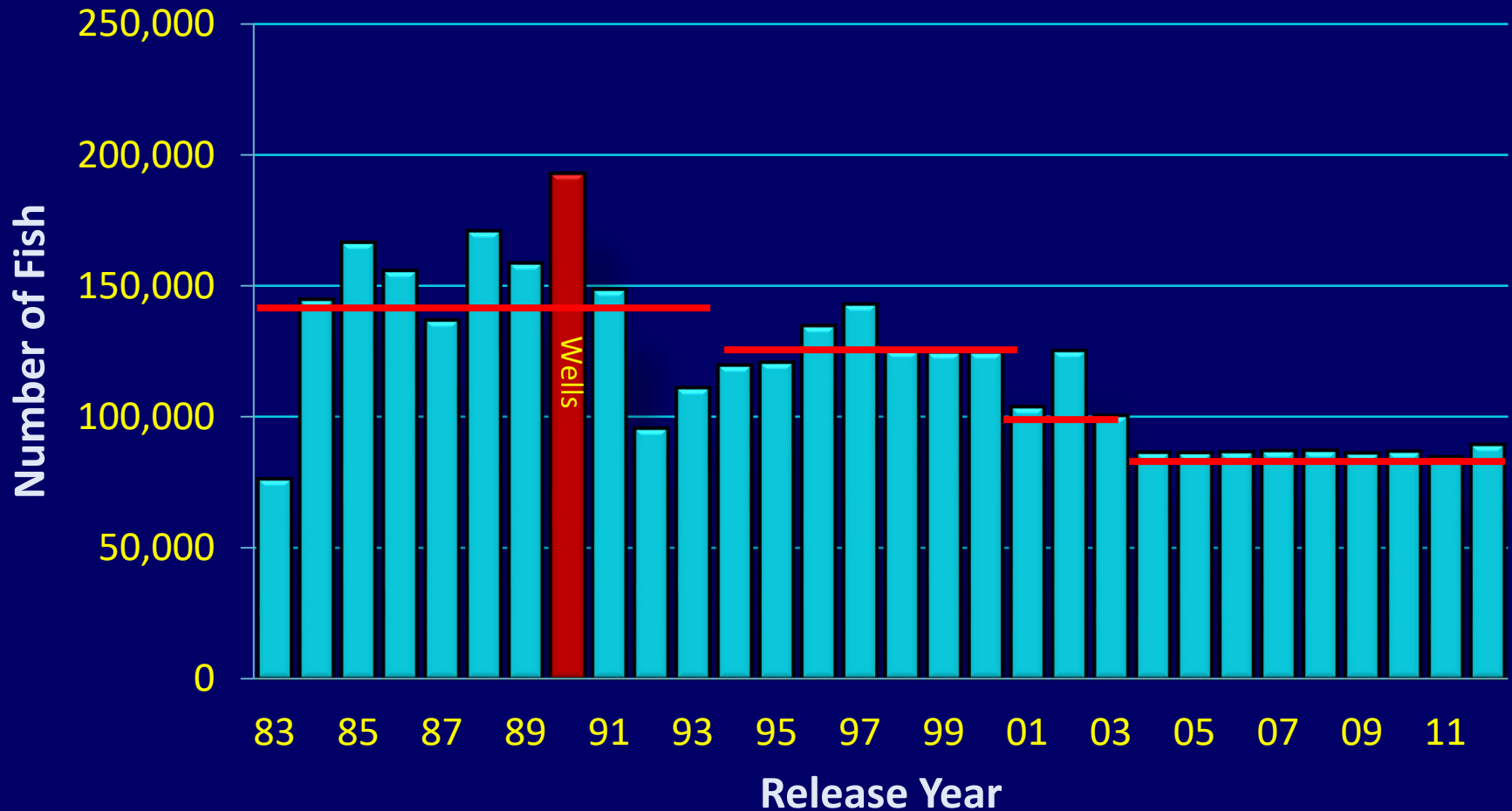
Wells/LFH Stock Steelhead Tucannon River Releases



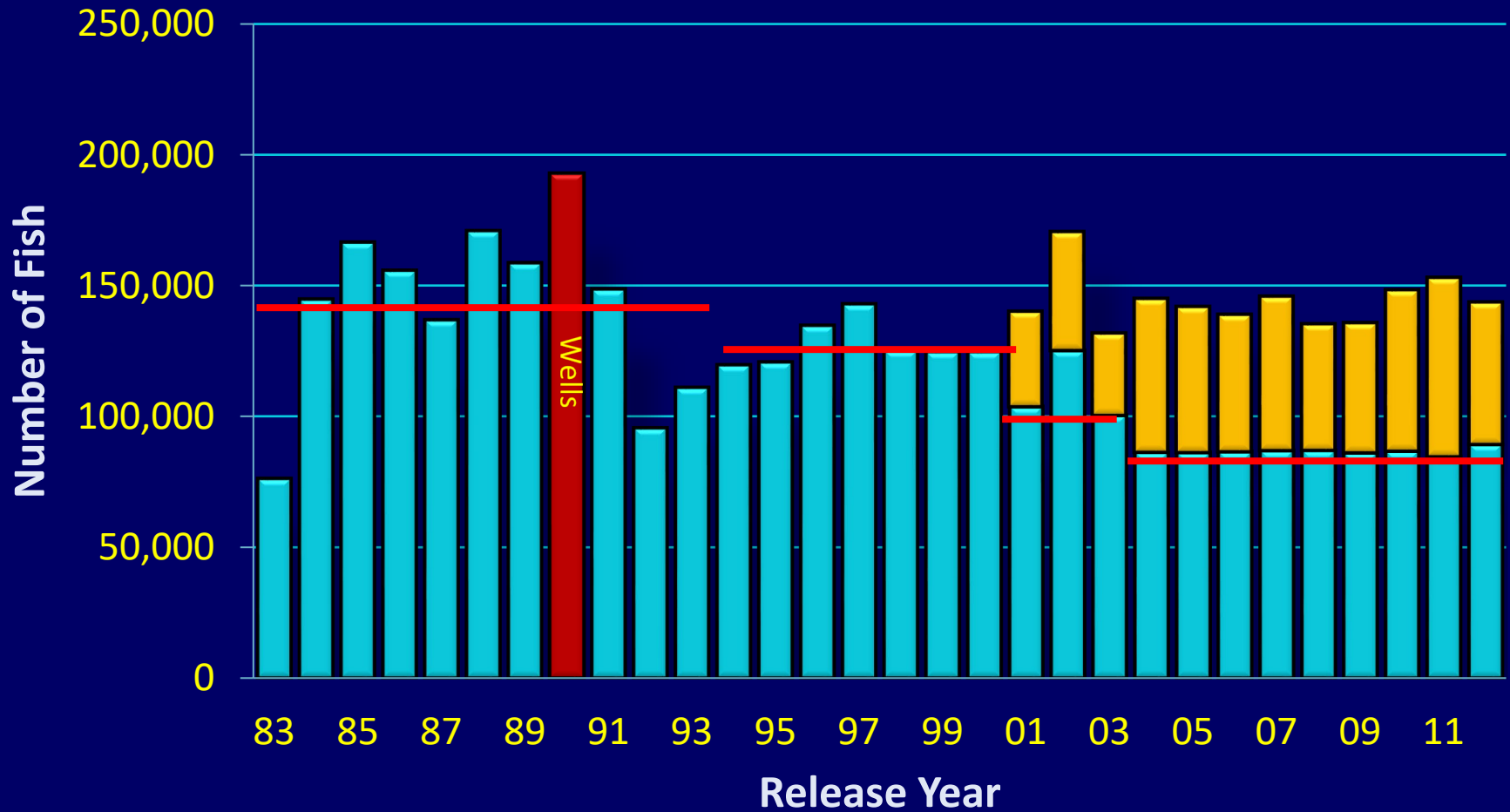
Wells/LFH Stock Steelhead Walla Walla River Releases



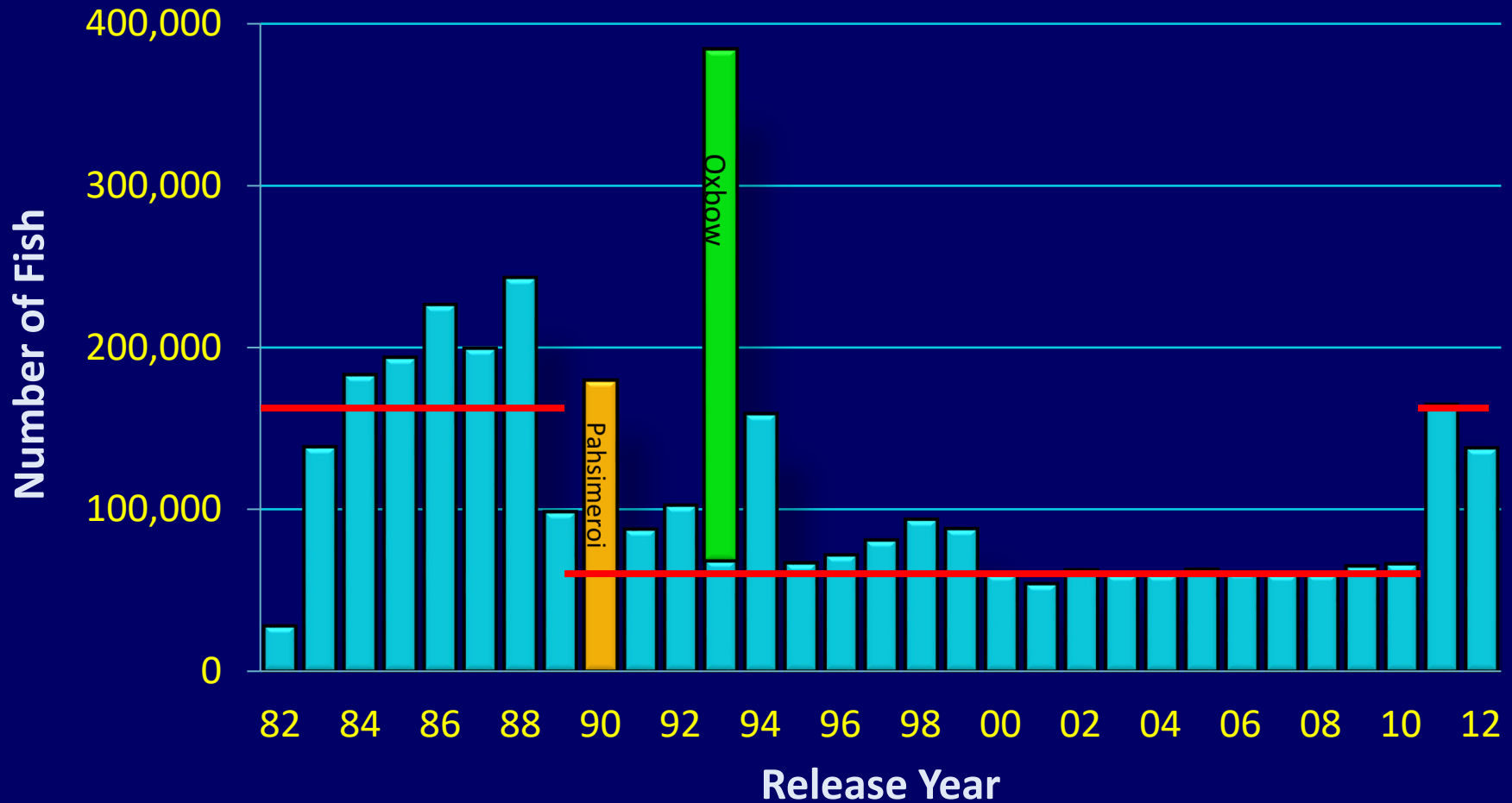
Wells/LFH Stock Steelhead Touchet River Releases



Wells/LFH Stock Steelhead Touchet River Releases



Wells/LFH Stock Steelhead Snake River Releases



Adult Returns



Lyons Ferry Stock Steelhead Adult Return Goals

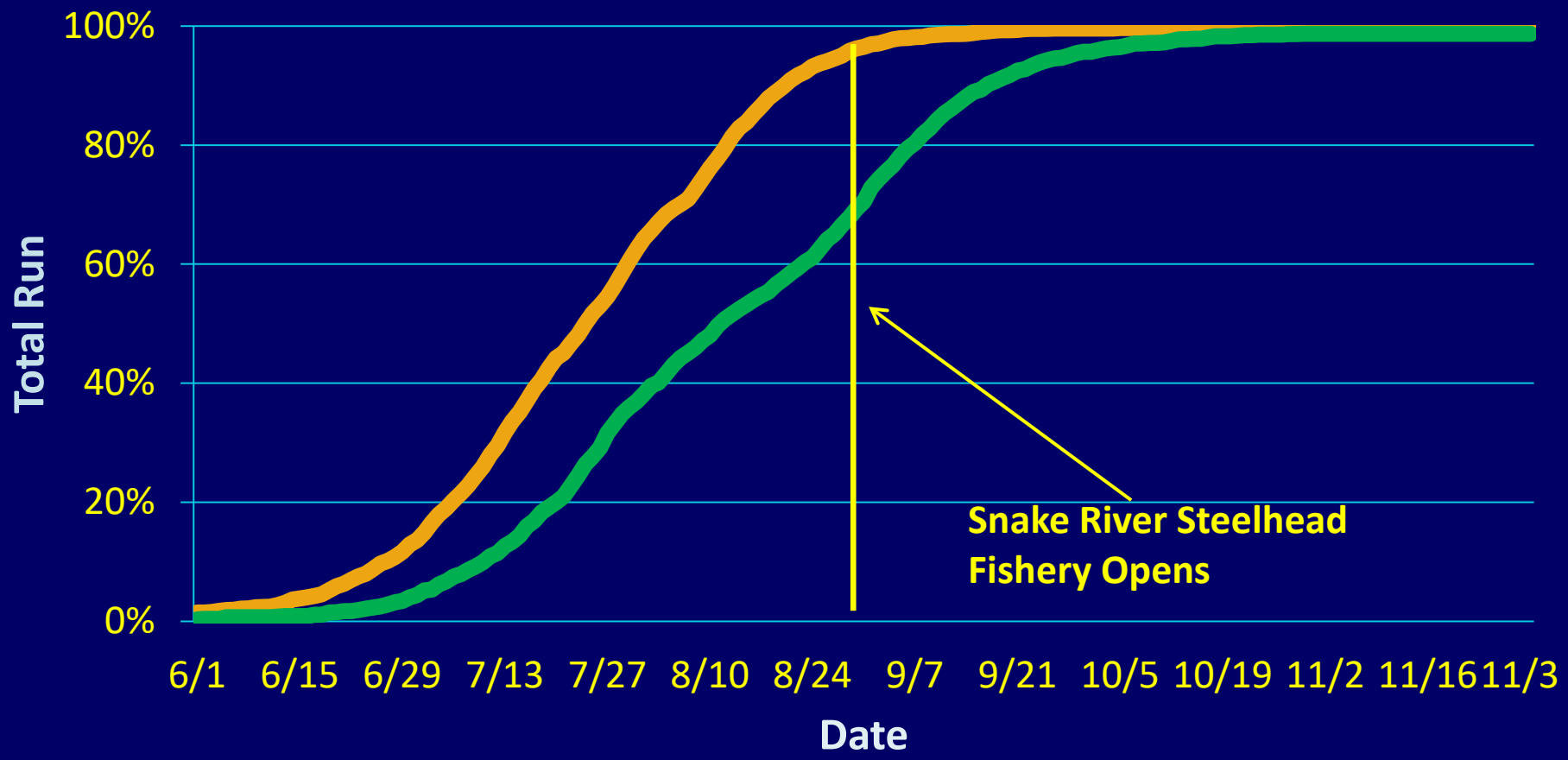
Location	Adult Goal to Project Area	Total Adult Goal
Snake River	630	1,890
Tucannon River	876	2,628
Walla Walla River	900	2,700
Touchet River	750	2,250
<u>TOTALS</u>	<u>3,156</u>	<u>9,468</u>

Project Area (Snake/Tucannon) = All Areas within the Snake River Basin

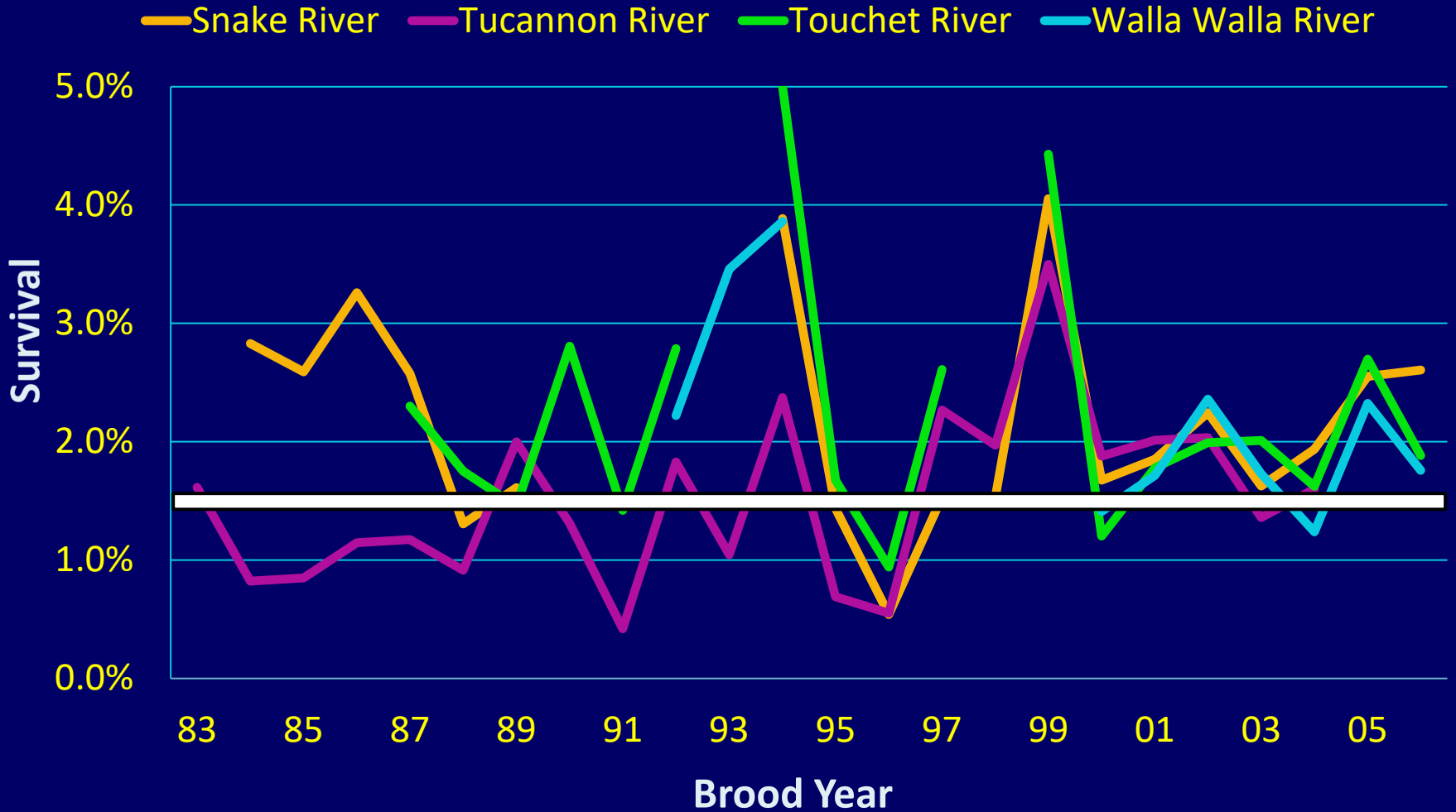
Project Area (Walla/Touchet) = All Areas within the Snake River + Walla Walla River Basin in Washington

LFH Stock Run Timing at Mainstem Dams

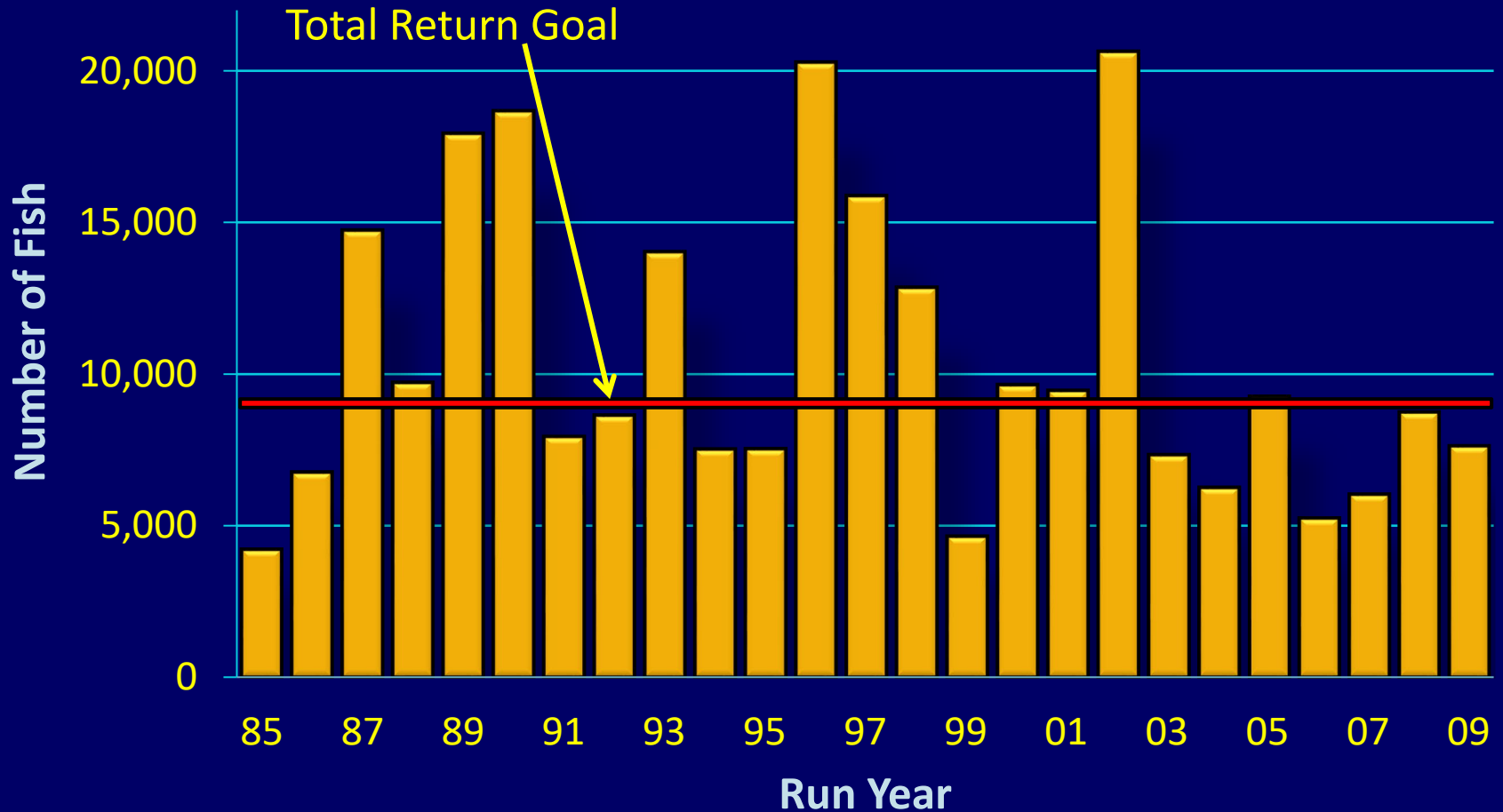
Bonneville Ice Harbor



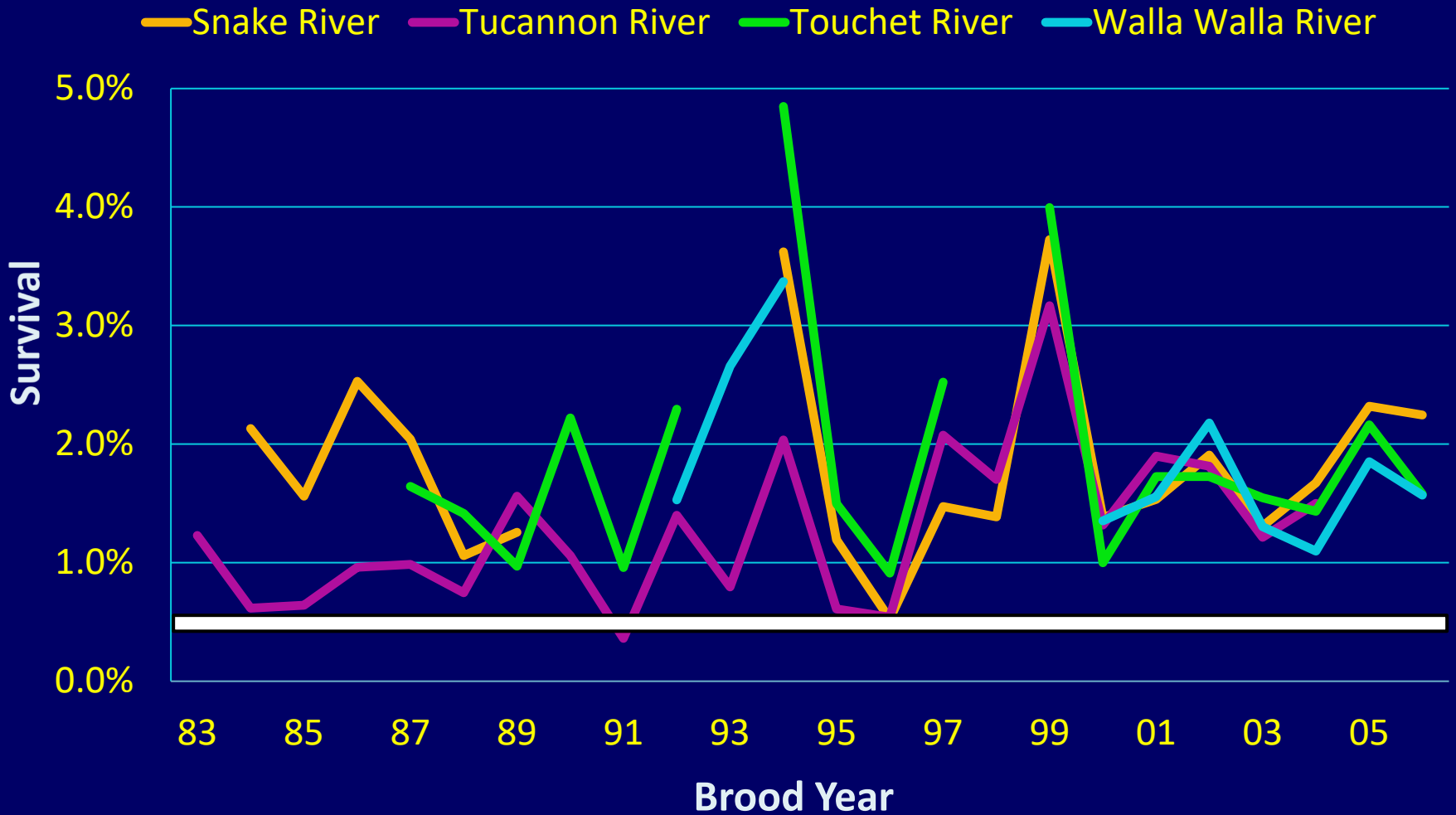
Smolt-to-Adult Survival (SAS) Wells/LFH Stock Releases



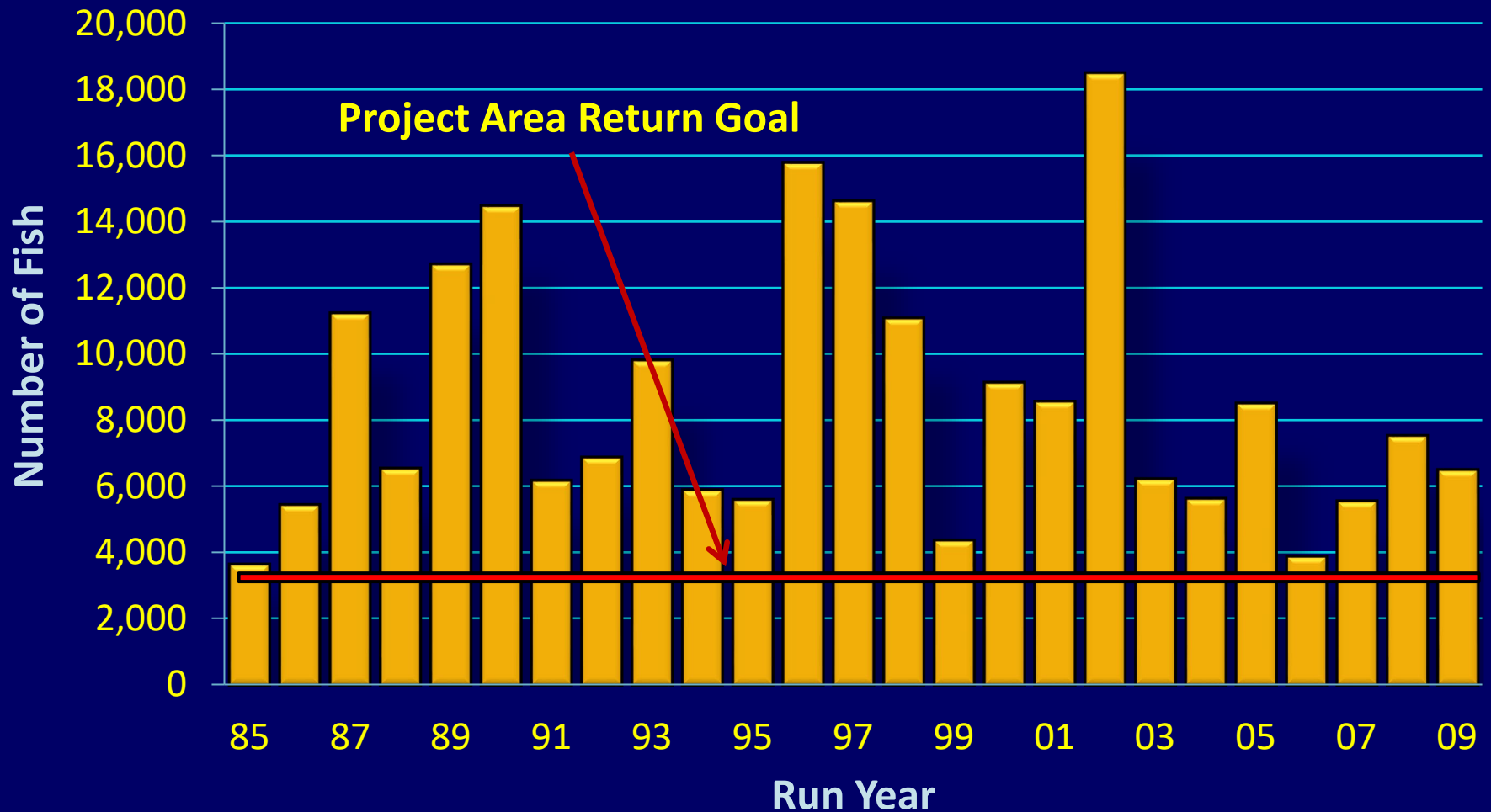
Wells/Lyons Ferry Stock Total Adult Returns (SAS)



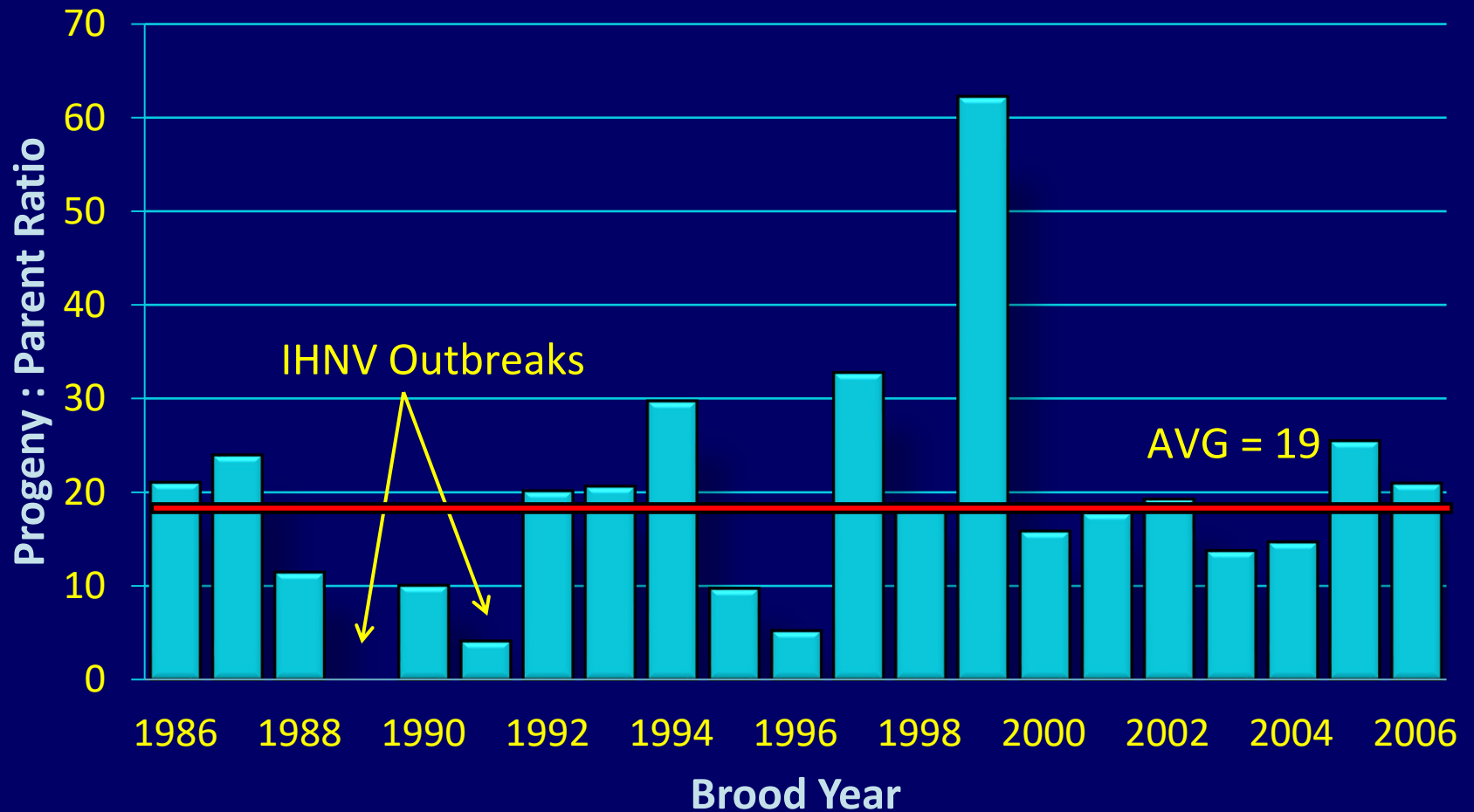
Smolt-to-Adult Return (SAR) Wells/LFH Stock Releases



Wells/Lyons Ferry Stock Adult Returns to Project Area (SAR)



Lyons Ferry Stock Progeny:Parent Ratio



Adult Harvest and Accounting

LFH Stock Releases (2000-2006 BY's)

Location	Sub-Area	Release Groups				Mean Stray
		Lyons Ferry	Tucannon	Touchet	Walla Walla	
Ocean		0.0	0.1	0.0	0.0	
Columbia River	Sport	9.5	4.0	10.5	12.2	
	Tribal	4.4	0.9	3.5	1.4	
	Stray Harvest	0.6	2.5	0.2	0.1	0.9
	Stray Rack	0.1	1.3	0.2	0.1	0.4
		14.6%	8.7%	14.4%	13.8%	1.3%
Snake River	Sport (Below LGD)	19.7	4.5	0.0	0.0	
	Sport (Above LGD)	0.0	0.0	0.0	0.0	
	Tribal	0.0	0.0	0.0	0.0	
	Stray Harvest (Below LGD)	6.9	2.0	22.3	24.9	14.0
	Stray Harvest (Above LGD)	14.7	35.0	11.7	16.3	19.4
	Stray Rack (Below LGD)	0.0	12.4	19.8	22.8	13.8
	Stray Rack (Above LGD)	0.3	1.2	0.4	0.2	0.5
			41.6%	55.0%	54.2%	64.2%
Tributary	Sport Harvest	N/A	31.0%	28.7%	22.0%	
	Weir Enumeration	43.7%	5.2%	2.6%	N/A	

Adult Harvest and Accounting

LFH Stock Releases (2000-2006 BY's)

Location	Sub-Area	Release Groups				Mean Stray
		Lyons Ferry	Tucannon	Touchet	Walla Walla	
Ocean		0.0	0.1	0.0	0.0	
Columbia River	Sport	9.5	4.0	10.5	12.2	
	Tribal	4.4	0.9	3.5	1.4	
	Stray Harvest	0.6	2.5	0.2	0.1	0.9
	Stray Rack	0.1	1.3	0.2	0.1	0.4
		14.6%	8.7%	14.4%	13.8%	1.3%
Snake River	Sport (Below LGD)	19.7	4.5	0.0	0.0	
	Sport (Above LGD)	0.0	0.0	0.0	0.0	
	Tribal	0.0	0.0	0.0	0.0	
	Stray Harvest (Below LGD)	6.9	2.0	22.3	24.9	14.0
	Stray Harvest (Above LGD)	14.7	35.0	11.7	16.3	19.4
	Stray Rack (Below LGD)	0.0	12.4	19.8	22.8	13.8
	Stray Rack (Above LGD)	0.3	1.2	0.4	0.2	0.5
		41.6%	55.0%	54.2%	64.2%	47.7%
Tributary	Sport Harvest	N/A	31.0%	28.7%	22.0%	
	Weir Enumeration	43.7%	5.2%	2.6%	N/A	

Adult Harvest and Accounting

LFH Stock Releases (2000-2006 BY's)

Location	Sub-Area	Release Groups				Mean Stray
		Lyons Ferry	Tucannon	Touchet	Walla Walla	
Ocean		0.0	0.1	0.0	0.0	
Columbia River	Sport	9.5	4.0	10.5	12.2	
	Tribal	4.4	0.9	3.5	1.4	
	Stray Harvest	0.6	2.5	0.2	0.1	0.9
	Stray Rack	0.1	1.3	0.2	0.1	0.4
		14.6%	8.7%	14.4%	13.8%	1.3%
Snake River	Sport (Below LGD)	19.7	4.5	0.0	0.0	
	Sport (Above LGD)	0.0	0.0	0.0	0.0	
	Tribal	0.0	0.0	0.0	0.0	
	Stray Harvest (Below LGD)	6.9	2.0	22.3	24.9	14.0
	Stray Harvest (Above LGD)	14.7	35.0	11.7	16.3	19.4
	Stray Rack (Below LGD)	0.0	12.4	19.8	22.8	13.8
	Stray Rack (Above LGD)	0.3	1.2	0.4	0.2	0.5
		41.6%	55.0%	54.2%	64.2%	47.7%
Tributary	Sport Harvest	N/A	31.0%	28.7%	22.0%	
	Weir Enumeration	43.7%	5.2%	2.6%	N/A	

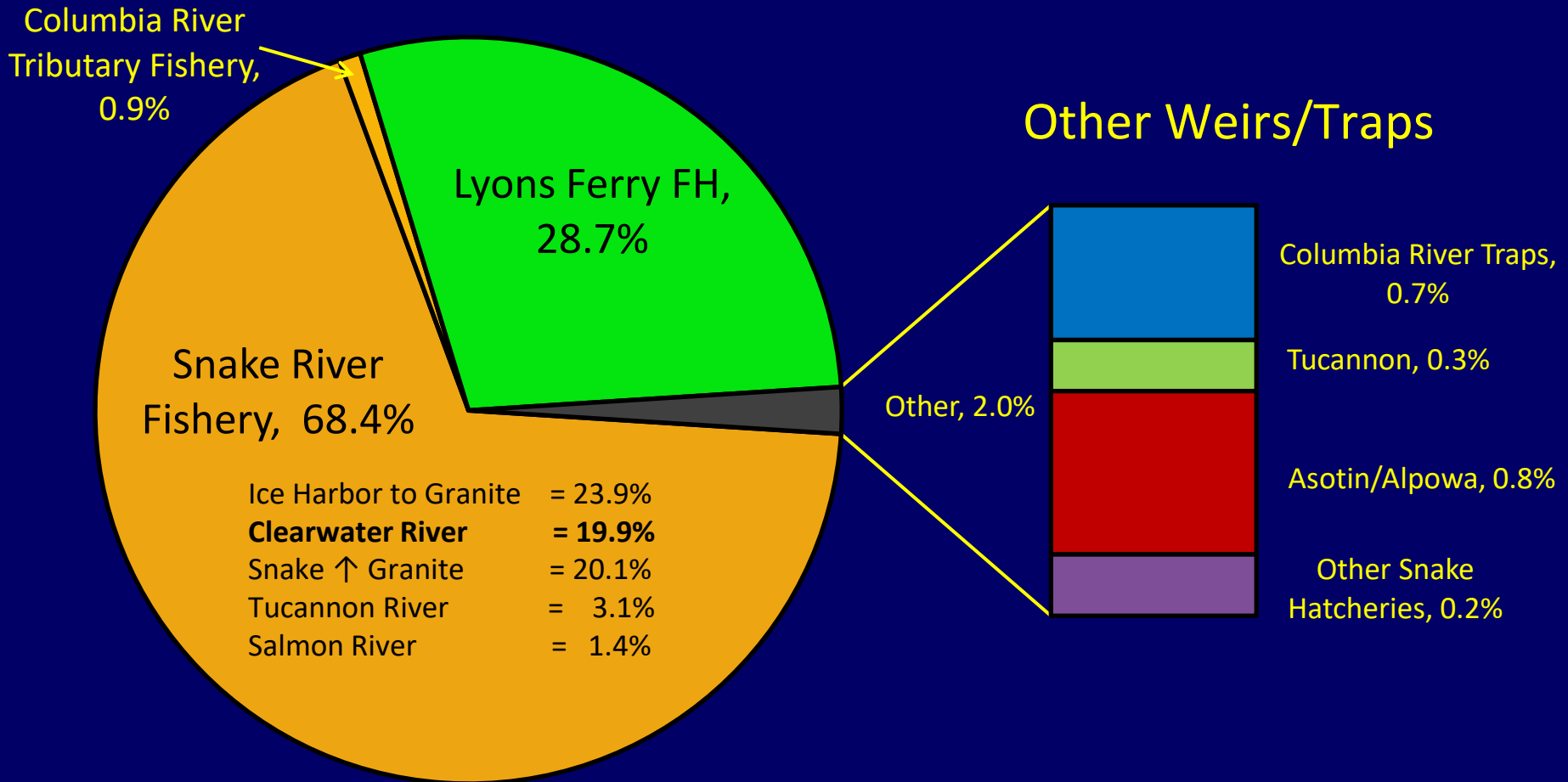
Adult Harvest and Accounting

LFH Stock Releases (2000-2006 BY's)

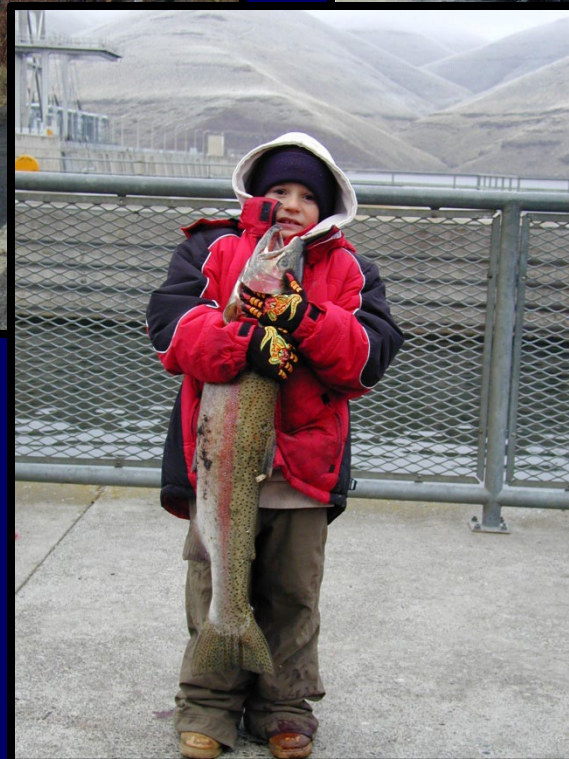
Location	Sub-Area	Release Groups				Mean Stray
		Lyons Ferry	Tucannon	Touchet	Walla Walla	
Ocean		0.0	0.1	0.0	0.0	
Columbia River	Sport	9.5	4.0	10.5	12.2	
	Tribal	4.4	0.9	3.5	1.4	
	Stray Harvest	0.6	2.5	0.2	0.1	0.9
	Stray Rack	0.1	1.3	0.2	0.1	0.4
		14.6%	8.7%	14.4%	13.8%	1.3%
Snake River	Sport (Below LGD)	19.7	4.5	0.0	0.0	
	Sport (Above LGD)	0.0	0.0	0.0	0.0	
	Tribal	0.0	0.0	0.0	0.0	
	Stray Harvest (Below LGD)	6.9	2.0	22.3	24.9	14.0
	Stray Harvest (Above LGD)	14.7	35.0	11.7	16.3	19.4
	Stray Rack (Below LGD)	0.0	12.4	19.8	22.8	13.8
	Stray Rack (Above LGD)	0.3	1.2	0.4	0.2	0.5
		41.6%	55.0%	54.2%	64.2%	47.7%
Tributary	Sport Harvest	N/A	31.0%	28.7%	22.0%	
	Weir Enumeration	43.7%	5.2%	2.6%	N/A	

Overall Stray = 49%

LFH Stock Stray Distribution 2001-06 Brood Years



Fisheries



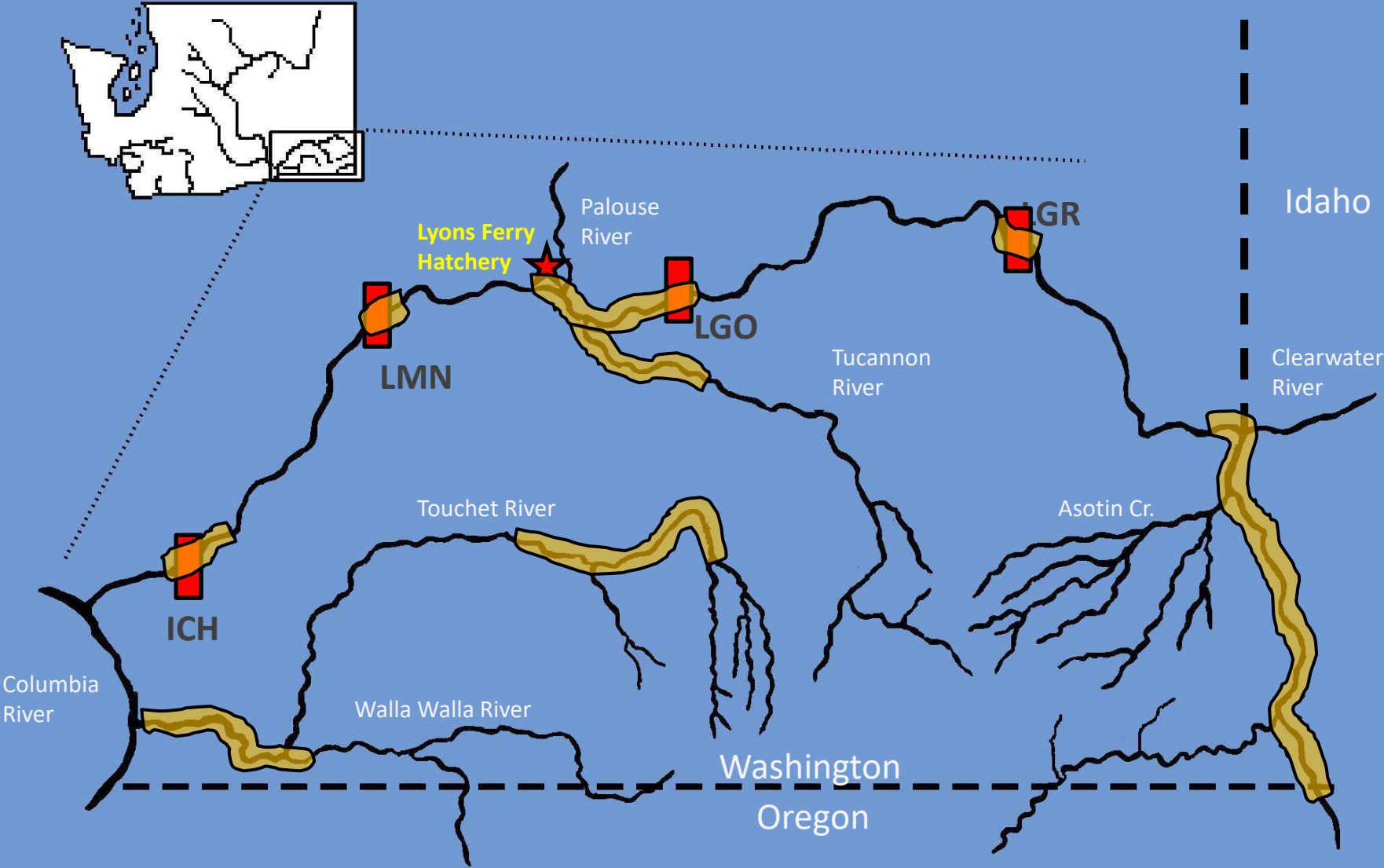
Fishery Details

2000-2010 Run Years

Location	Snake River	Tucannon River	Walla Walla River	Touchet River	Totals
River Miles	179	34	51	55	319
Days Open	212	304	304	304	212-304
\$\$	\$12-25 Million	\$0.5-1.2 Million	\$0.4-2.0 Million	\$0.1-0.9 Million	\$13-29 Million

Assumes value of \$1,000/harvested fish

Mainstem Snake River and Tributary Fishery Locations



Fishing Area!



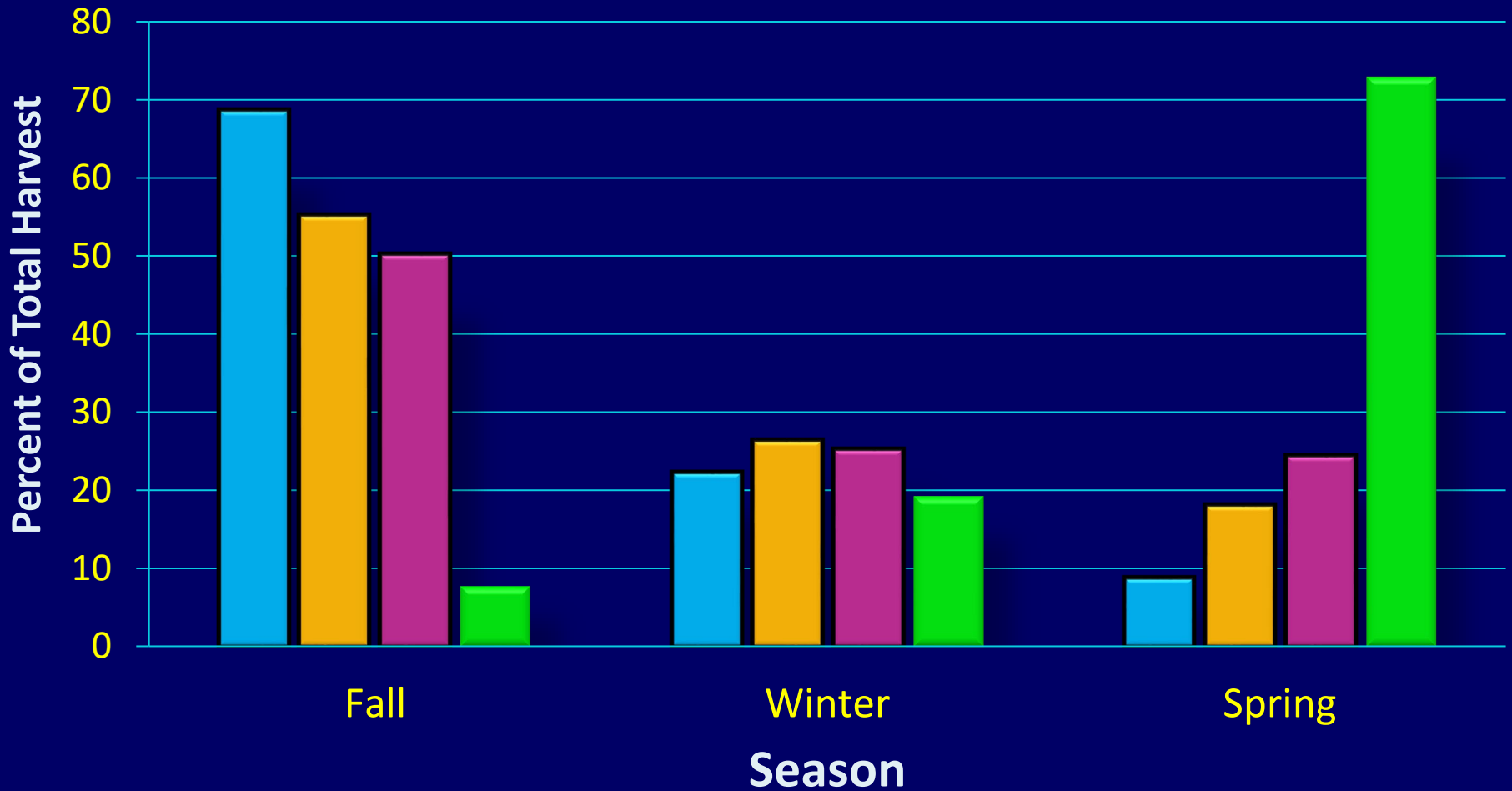
Fishing Area?



Little Goose Dam

Fishery Harvest – Snake and Tributaries 1985-2009 Run Years

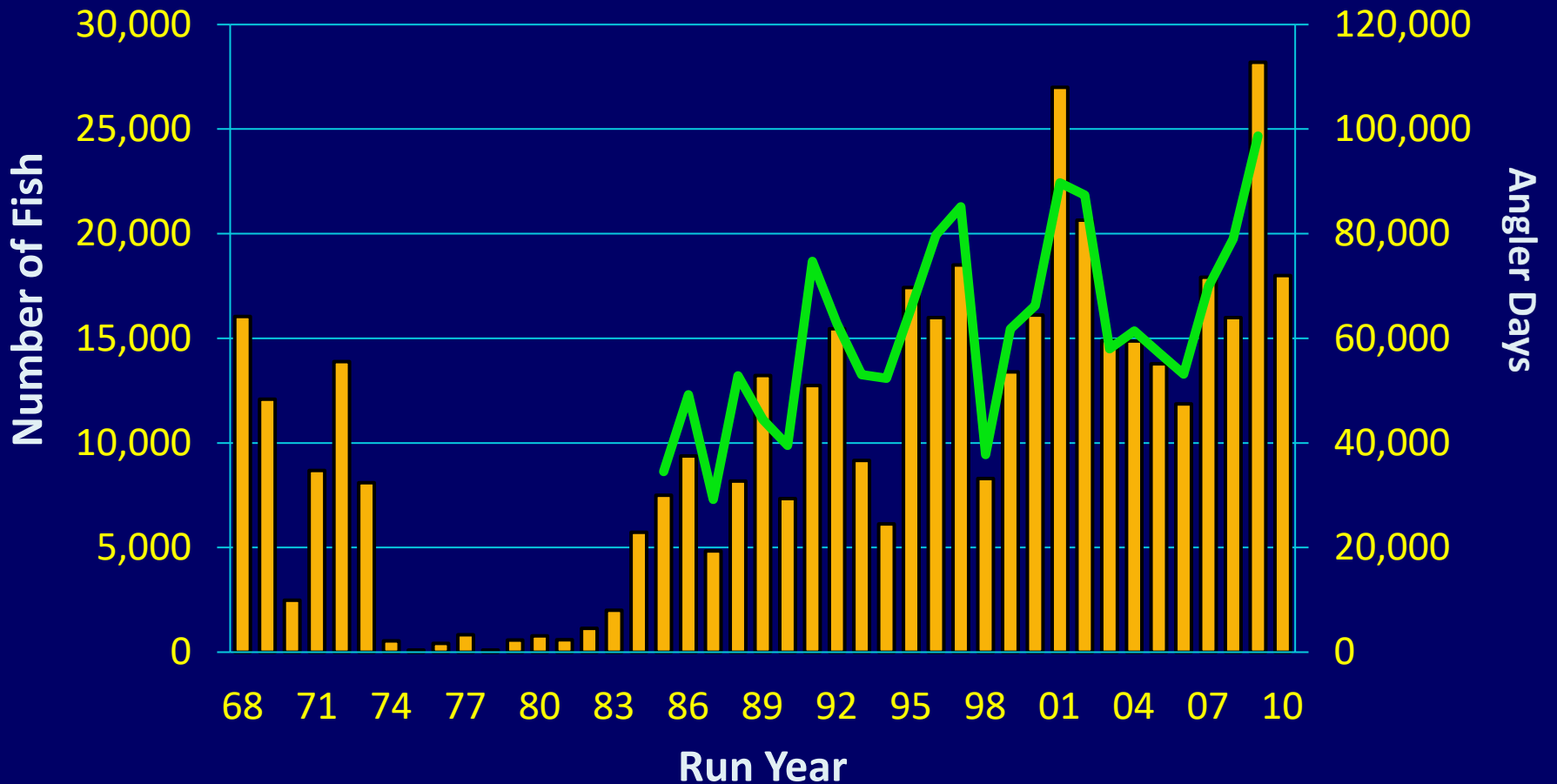
Snake Tucannon Walla Walla Touchet



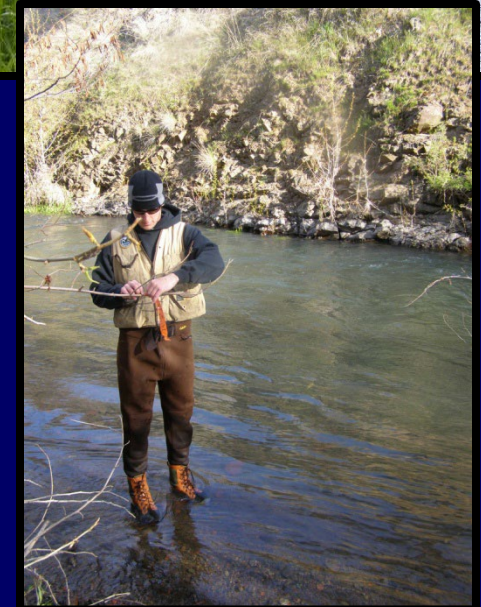
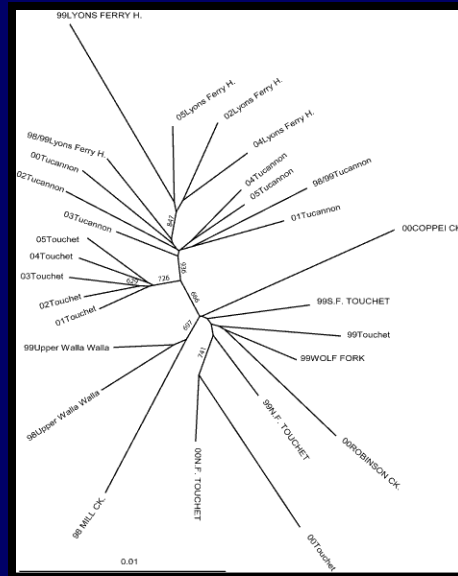
Steelhead Harvest and Angler Days

Snake, Tucannon, Walla Walla, Touchet

Harvest Angler Days



Natural Stock Monitoring

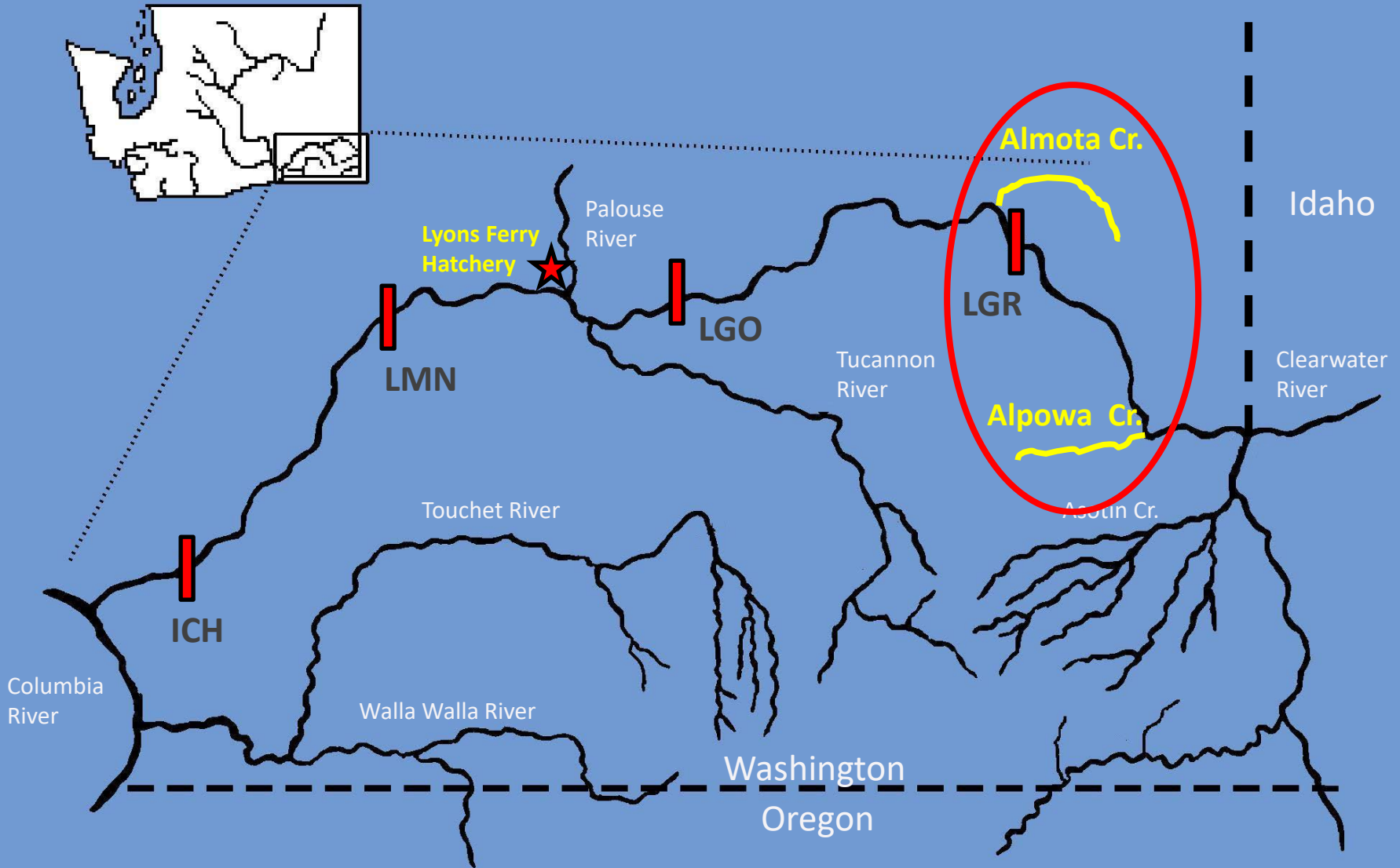


Data Gaps

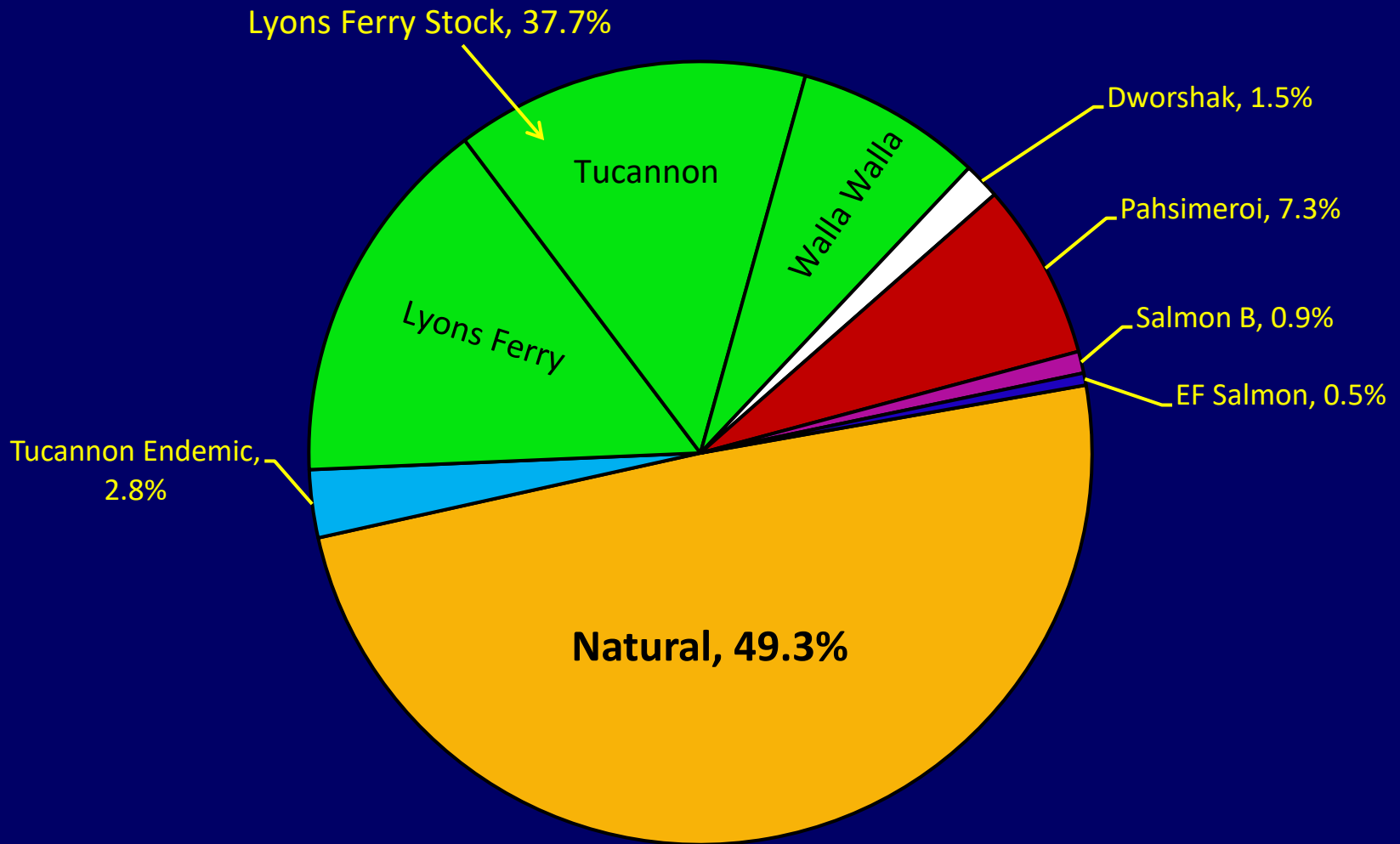
Natural Production Monitoring

- Tucannon River
 - (H:W composition?? – PIT Tags to answer)
 - Genetic Introgression??
- Asotin Creek (Asotin Project Monitoring - BPA)
- Touchet River (Dayton downstream??)
- Walla Walla River (Nursery Br downstream??)
- Incomplete understanding of the extent of natural populations on these groups and straying
 - Small Snake Tributaries, maybe 100-300 adults/year
 - High % of hatchery strays (e.g. Almota, Alpowa)

Small Tributary CWT Recoveries

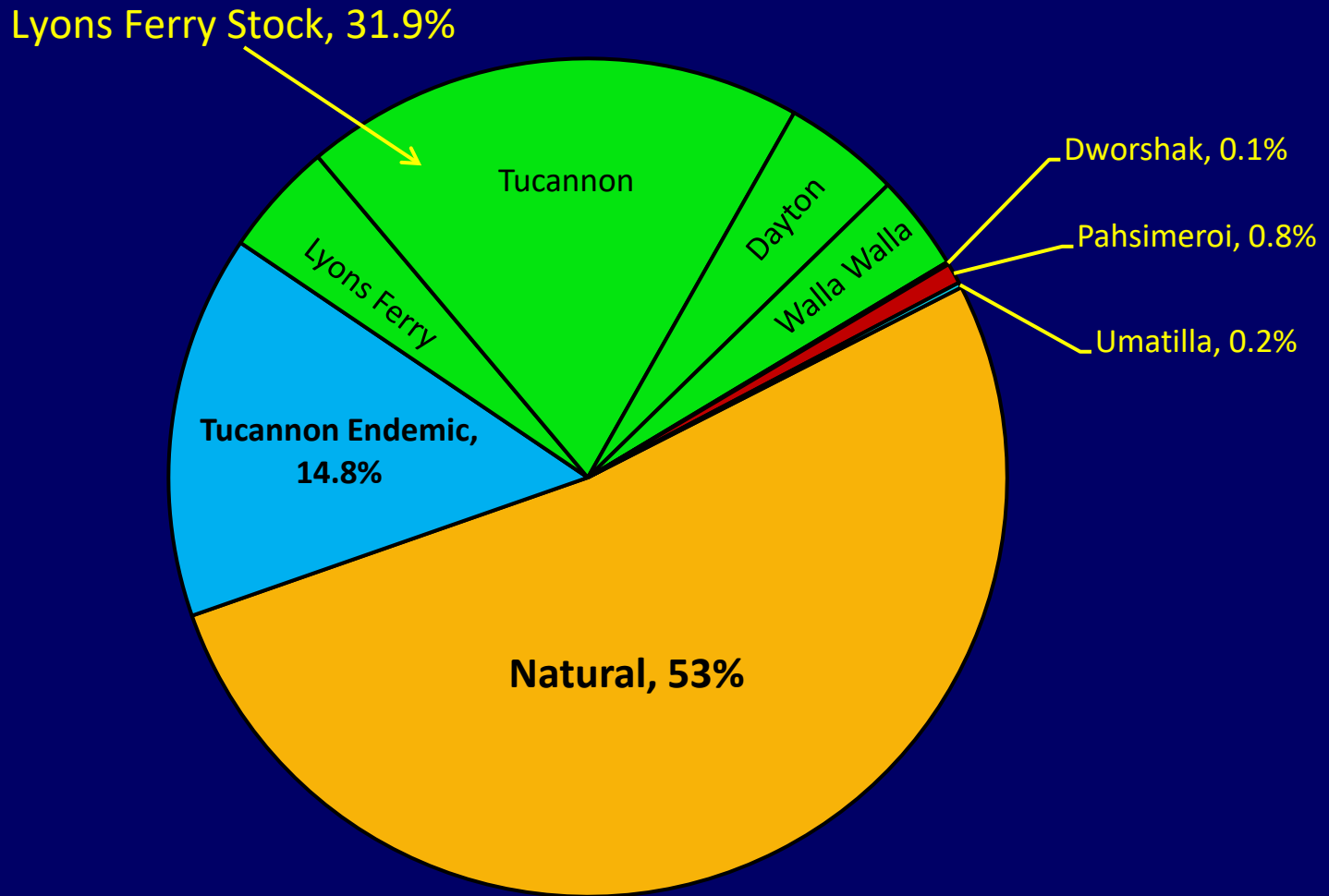


Almota Creek (2011-2012)



Mean N = 151 fish/year

Alpowa Creek (2008-2012)



Mean N = 302 fish/year

Wild Stock Protections

- Wild SH refuge areas
 - Joseph Creek, Wenaha River Basin, Asotin Creek
 - Most headwater areas + selective gear/size regulations
- No Wild SH harvest – selective fisheries since 1984
- Barbless hooks required to aid wild release
- ↑ Daily Bag Limit to 3 (2002) (5 SH in 2009)
- Removal of hatchery steelhead at weirs/traps
 - (Cottonwood, Asotin, Almota, Tucannon, Dayton, etc.....)

Program Summary

Management Objectives – Lyons Ferry Stock

- Establish broodstock – YES
- Achieve LSRCP goals (SAR, SAS, Adults) – Partial
- Improve or re-establish sport fisheries – YES
- Coordinate actions with other basin managers – YES
- Compliant with ESA (HGMP's, FMEP's) – YES

Program Summary

Management Objectives – Lyons Ferry Stock

- Compliant with WDFW Policies to protect and recover wild steelhead stocks – **Partially and in progress**
- Maintain and/or enhance natural steelhead populations – **NO**
- Monitor the status/trends of natural populations where LSRCF fish might have affects – **YES, but limited in area**

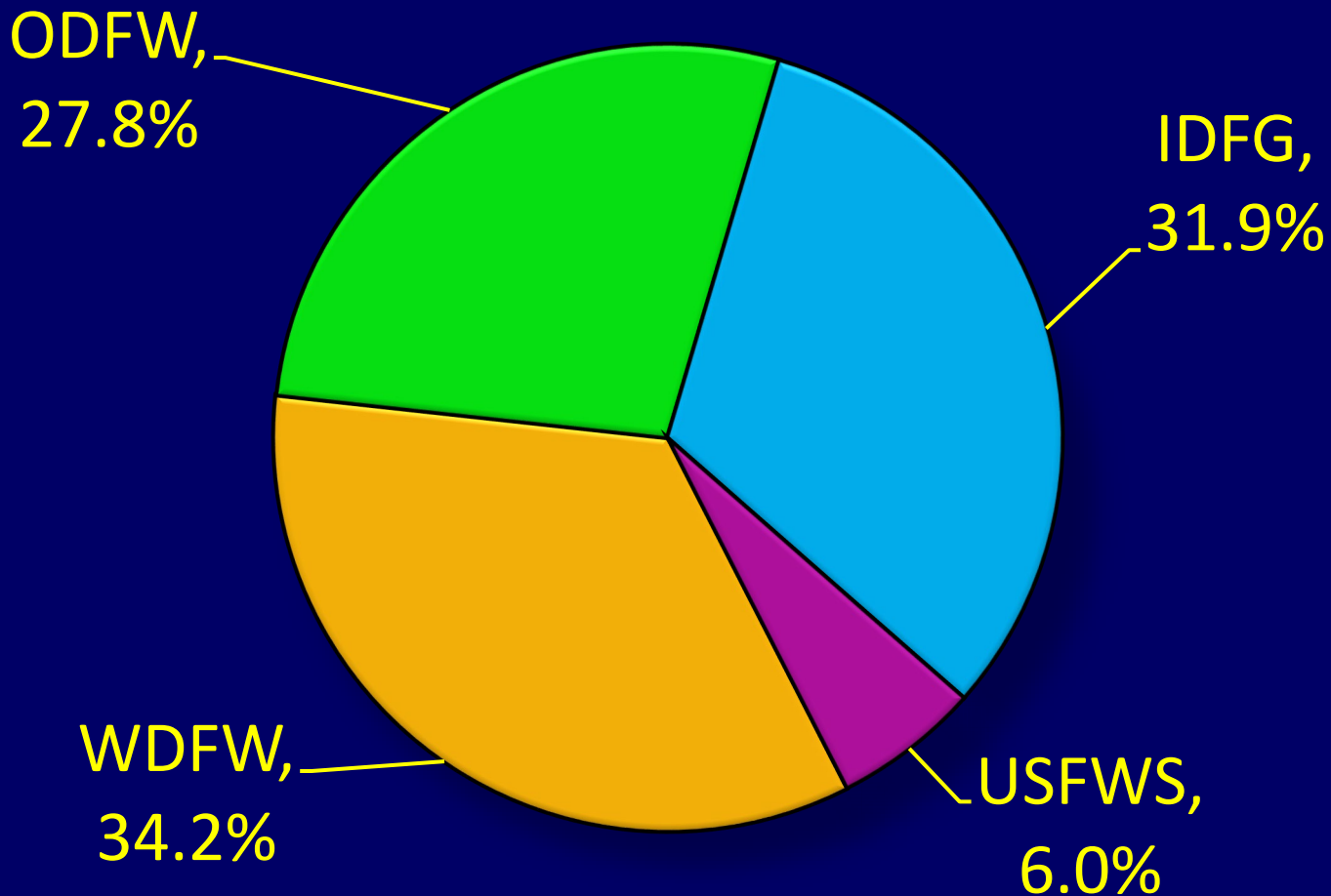
Hatchery Reform Actions

- ↓ Smolt numbers and release locations
- ↑ Smolt size
 - ↑ survival and emigration success
 - reduce residualism
- Removal of hatchery origin adults
 - ↓ spawning in other locations
- Annually CWT and PIT Tag
 - SAR's, Adult Returns, Straying
- New Broodstock Development (Endemics)

Questions

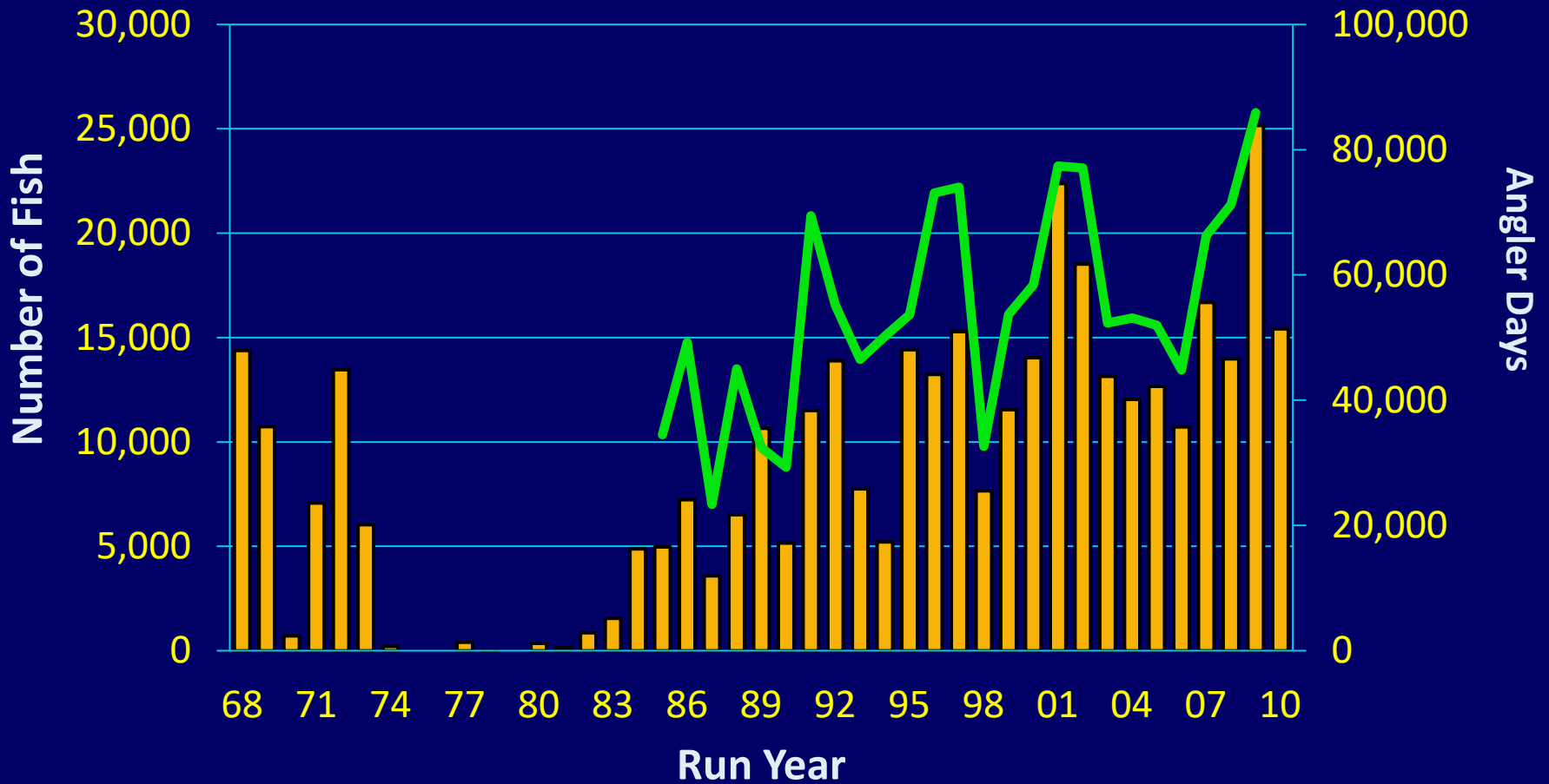


Mainstem Snake River Fisheries Program Contribution (RY 2006-2009)



Mainstem Snake River Steelhead Harvest and Angler Days

Harvest Angler Days



Tucannon/Touchet/Walla Walla Rivers Steelhead Harvest and Angler Days

Harvest Angler Days

