

A study to understand the early life history of Snake River Fall Chinook salmon



**National Marine
Fisheries Service**



Research Objectives

- Collect scale samples from returning adult fall Chinook salmon that had been PIT-tagged as juveniles

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- Read scales to determine age-at-ocean-entry
- Compare age-at-ocean-entry with juvenile detection history

Collect scale samples from
previously PIT-tagged fish

NOAA, USFWS, NPT

2005 – 170,239

2006 – 494,172

2008 – 625,451

Lower Granite Dam

2004 – 49,287

Fall 2004-06 – 7,398

Fall 2007-08 – 20,466

Idaho

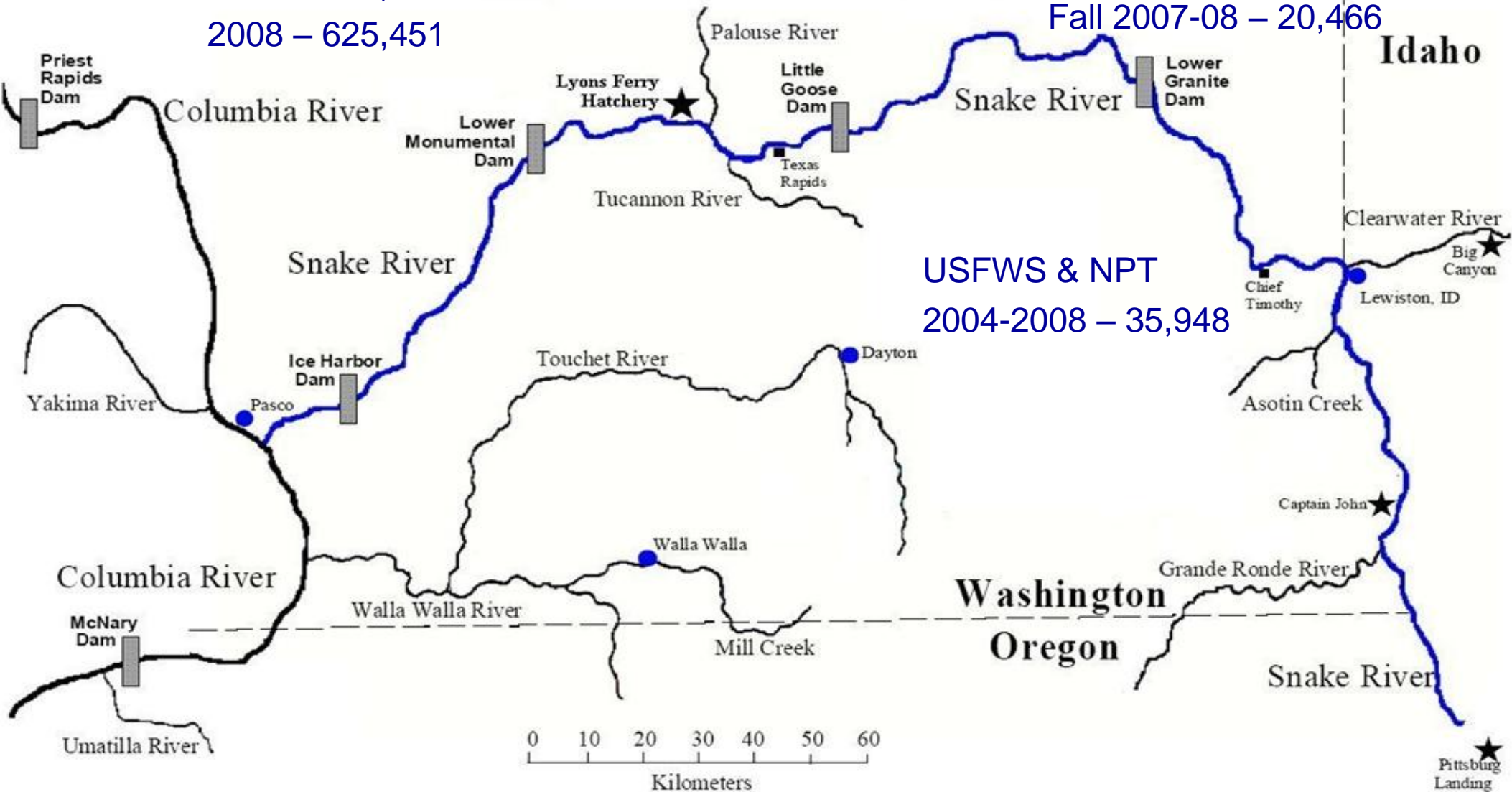
USFWS & NPT

2004-2008 – 35,948

Washington

Oregon

Snake River



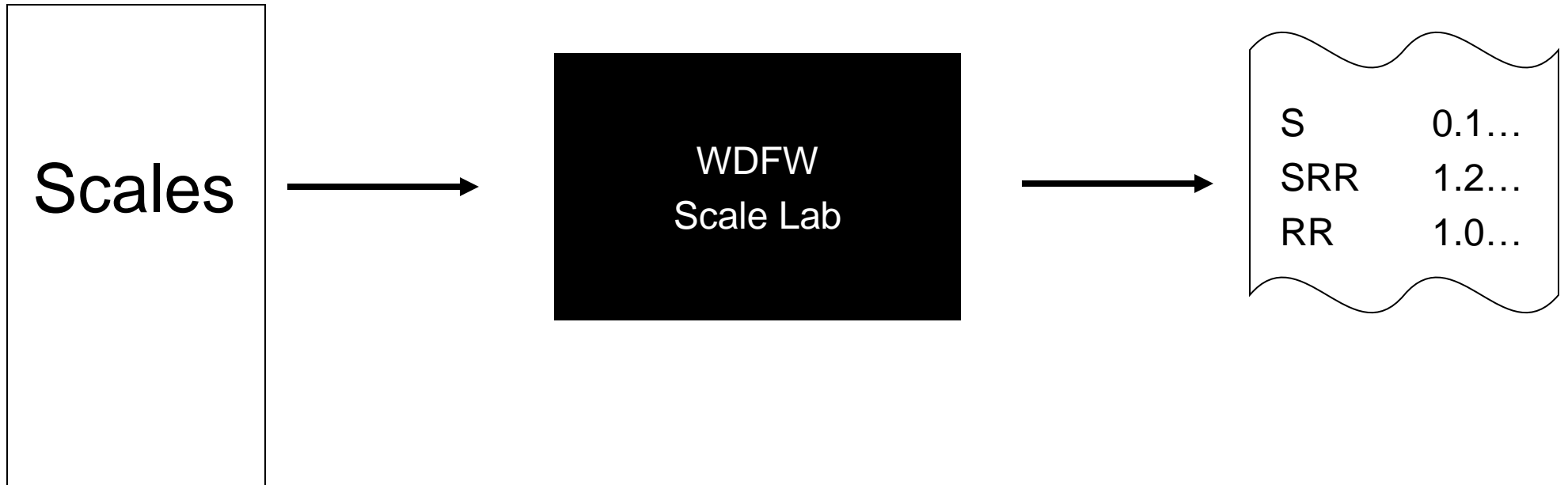
2009 – Targeted 1,416,344 NOAA, USFWS, & NPT



2007 3 28

Determine age-at-ocean-entry

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Compare age-at-ocean-entry
with juvenile detection history

How to group scale results?

Outmigration year		Release river/location		Life history		Migration history	
2004	1	Snake	1,797	Yearling	426	Transport	
2005	18	Grande		Production	1,278	Summer	454
2006	228	Ronde	48	Surrogate	666	Fall	38
2007	134	Clearwater	627	Natural	110	Spring	1
2008	2,258	Lyons Ferry	8	LGR-fall	159	Migrants	
		LGR-fall	159			Summer	513
						Fall	10
						Winter	17
						Spring	40
						Unknown	1,403
						Unknown	4
						LGR-fall	159

Scale Sampling by Return Year

Return year	Subyearling	Yearling	Unknown	Errors	Totals
1998	2	9	-	-	11
1999	6	23	-	-	29
2000	9	21	-	-	30
2001	1	2	-	-	3
2002	-	1	-	-	1
2003	-	6	-	-	6
2004	1	8	-	-	9
2005	36	53	14	-	103
2006	69	71	3	-	143
2007	434	118	75	5	632
2008	484	246	66	7	803

*Excluded 1999 migration year

Migration Pathway and time of year

	Subyearling	Yearling	Unknown	Errors	Totals
Transport					
Summer	276	11	36	1	324
Fall	9	35	3	-	47
Spring	-	1	-	-	1
Late season	47	170	15	1	233
Migrant					
Summer	294	18	31	2	345
Fall	2	27	2	-	31
Winter	-	38	6	-	44
Spring	-	103	11	3	117
Not detected	408	155	54	5	622

Migration Pathway and time of year - Snake and Clearwater Rivers

	Snake River		Clearwater River	
	Subyearling	Yearling	Subyearling	Yearling
Transport				
Summer	173	10	103	1
Fall	2	8	7	27
Spring	-	-	-	1
Migrant				
Summer	183	14	111	4
Fall	1	13	1	14
Winter	-	4	-	34
Spring	-	30	-	56
Not detected	248	54	160	80

Migration Pathway and time of year - Pre-spill and With spill

	1998-2004		2005-2008*	
	Subyearling	Yearling	Subyearling	Yearling
Transport				
Summer	36	8	240	3
Fall	2	7	7	28
Spring	-	-	-	1
Migrant				
Summer	24	13	270	5
Fall	2	13	-	14
Winter	-	5	-	33
Spring	-	34	-	69
Not detected	7	45	401	110

Age of Ocean entry

- Adult age class distributions

	Mini-jack	Jack	2-ocean	3-ocean	4-ocean	5-ocean
Number of adults						
Age-0	-	451	515	70	18	1
Age-1	176	232	103	54	1	-
Adult length						
Age-0	-	479	663	793	885	830
Age-1	440	616	752	849	740	-

Age of Ocean entry

- Adult age class distributions

	Mini-jack	Jack	2-ocean	3-ocean	4-ocean	5-ocean
Age-0						
Females	-	-	150	39	11	1
Males	-	448	340	26	6	-
Age-1						
Females	-	26	59	31	-	-
Males	174	197	35	15	1	-