

# Snake River Chinook and Steelhead Transport Studies



**National Marine  
Fisheries Service**

# 2008 Research Objectives

Transportation vs. in-river migration study – yearling and subyearling Chinook salmon and steelhead

- 2008 juvenile tagging
- adult returns from yearling Chinook salmon and steelhead tagging in 2005-2007 and fall Chinook salmon tagging in 2003-2007

# Wild Yearling Chinook Salmon Studies

# 2005 Wild S/S Chinook Salmon

## Juvenile tagging

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- Total release numbers

LWG Transport	12,729
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Released to LWG tailrace	6,833
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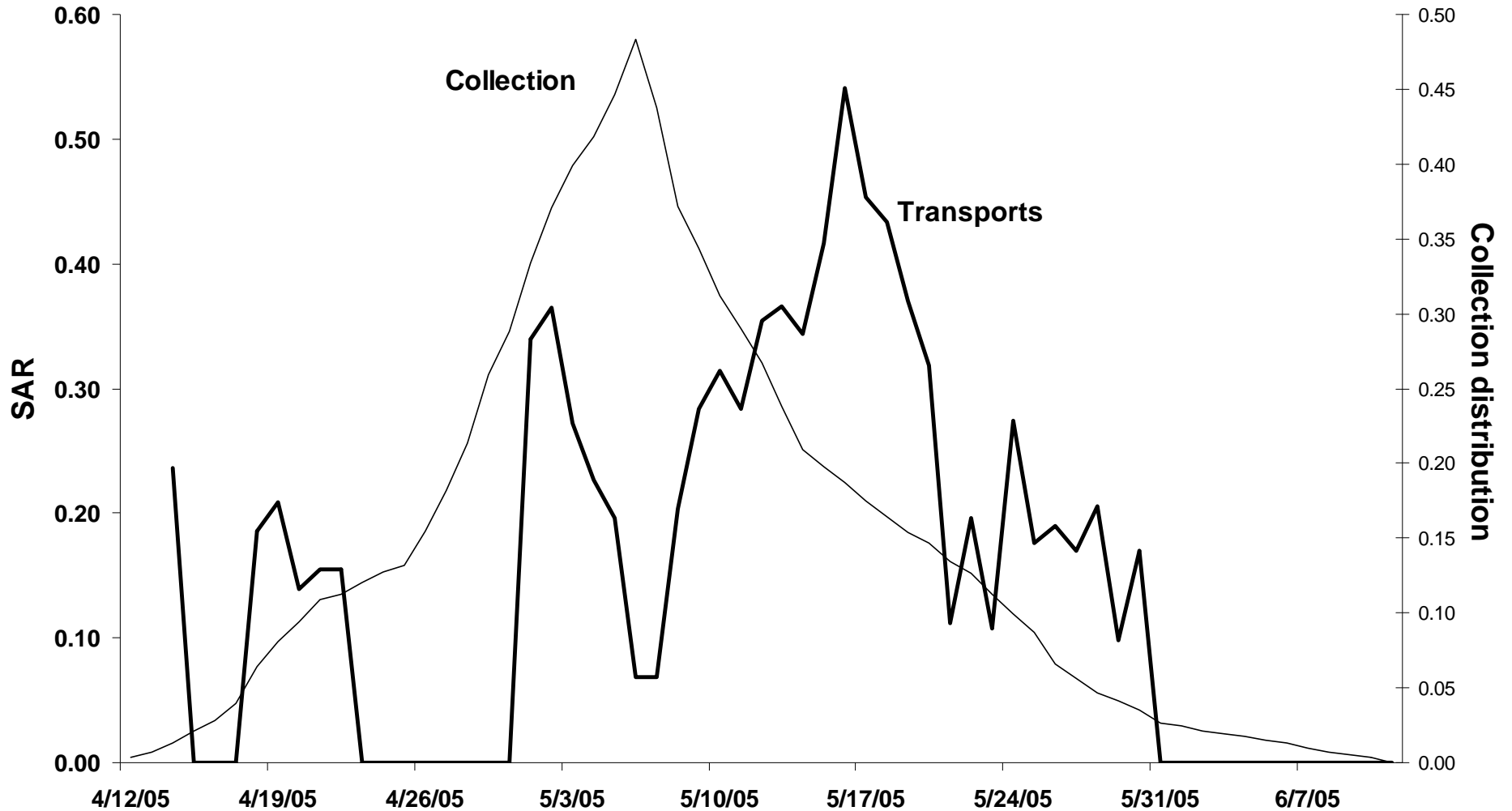
Non-detected (Migrant)	748
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Bypassed	5,829
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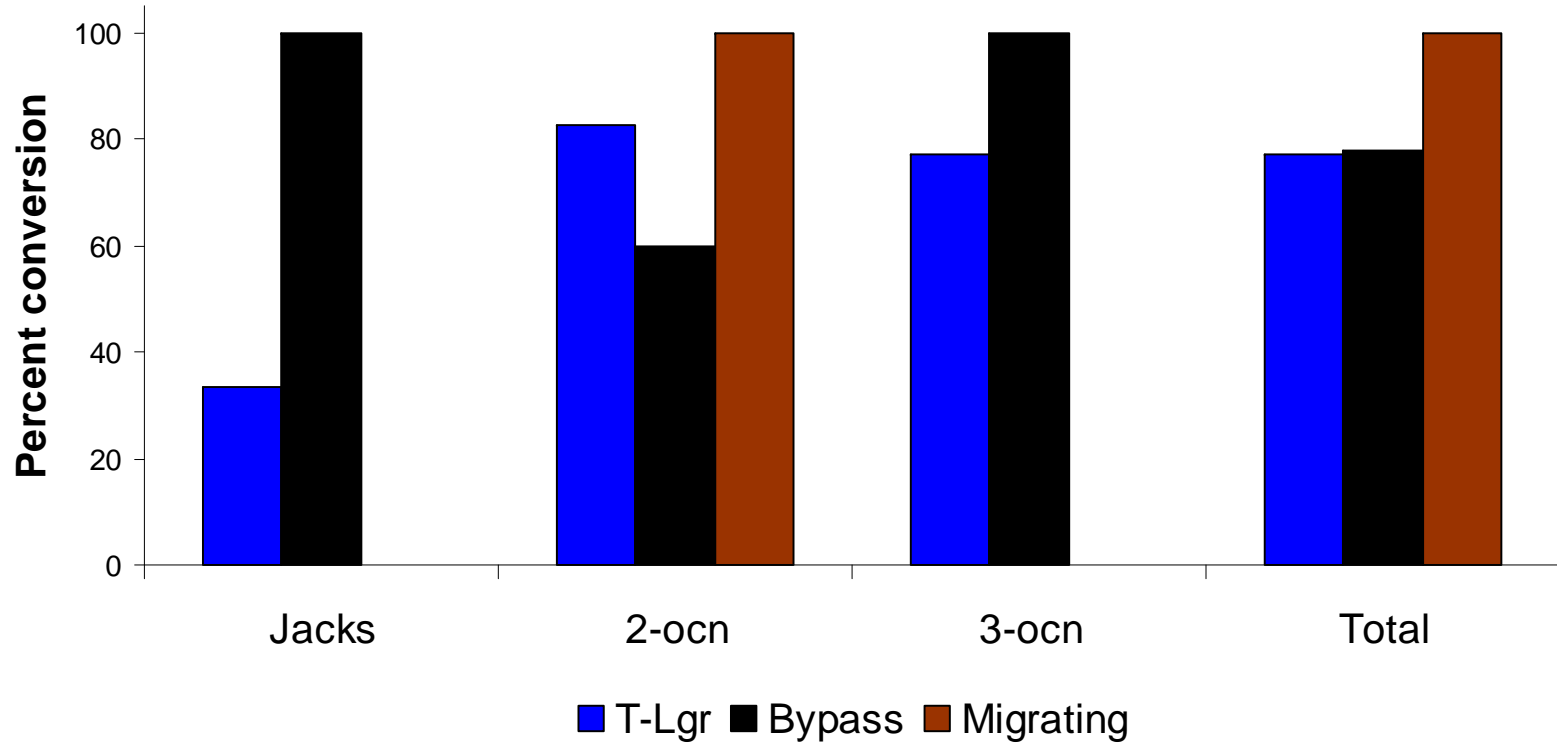
# 2005 Wild S/S Chinook Salmon

	Juvenile numbers	<u>Returns by Age-class</u>			SAR	95% CI
		Jack	2-ocn	3-ocn		
Transport	12,707	0	18	10	0.22	(0.14, 0.30)
Migrant	748	0	3	0	0.40	(0.00, 0.93)
Bypassed	5,829	1	3	3	0.12	(0.05, 0.22)

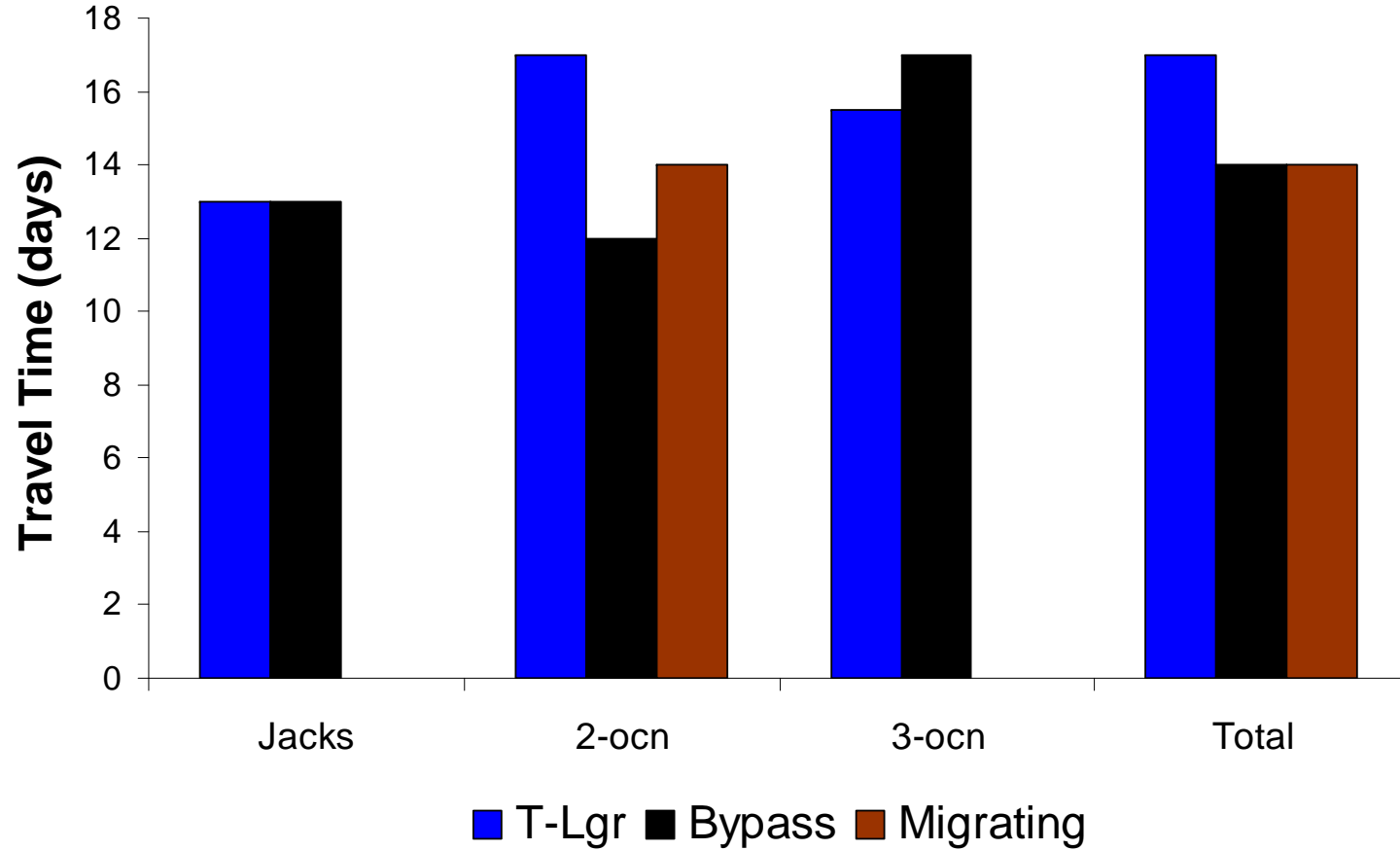
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- Overall adult conversion rates from BON to LWG were lower for transported fish
- Overall adult median travel times from BON to LWG were longer for transported fish; varied by age class

# Wild Steelhead Studies

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- Total release numbers

LWG Transport	10,412
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Released to LWG tailrace	5,303
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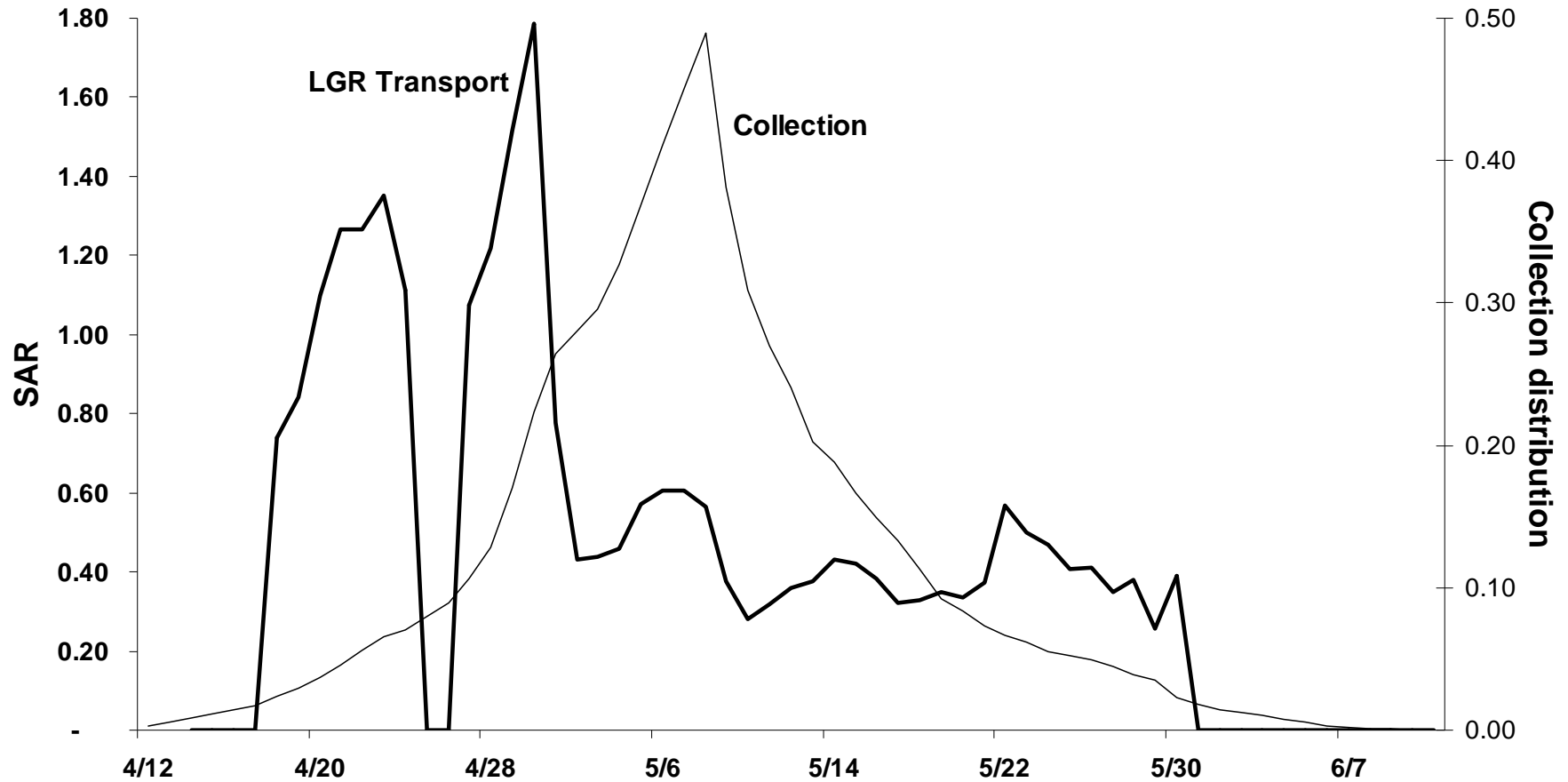
Non-detected (Migrant)	216
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Bypassed	4,708
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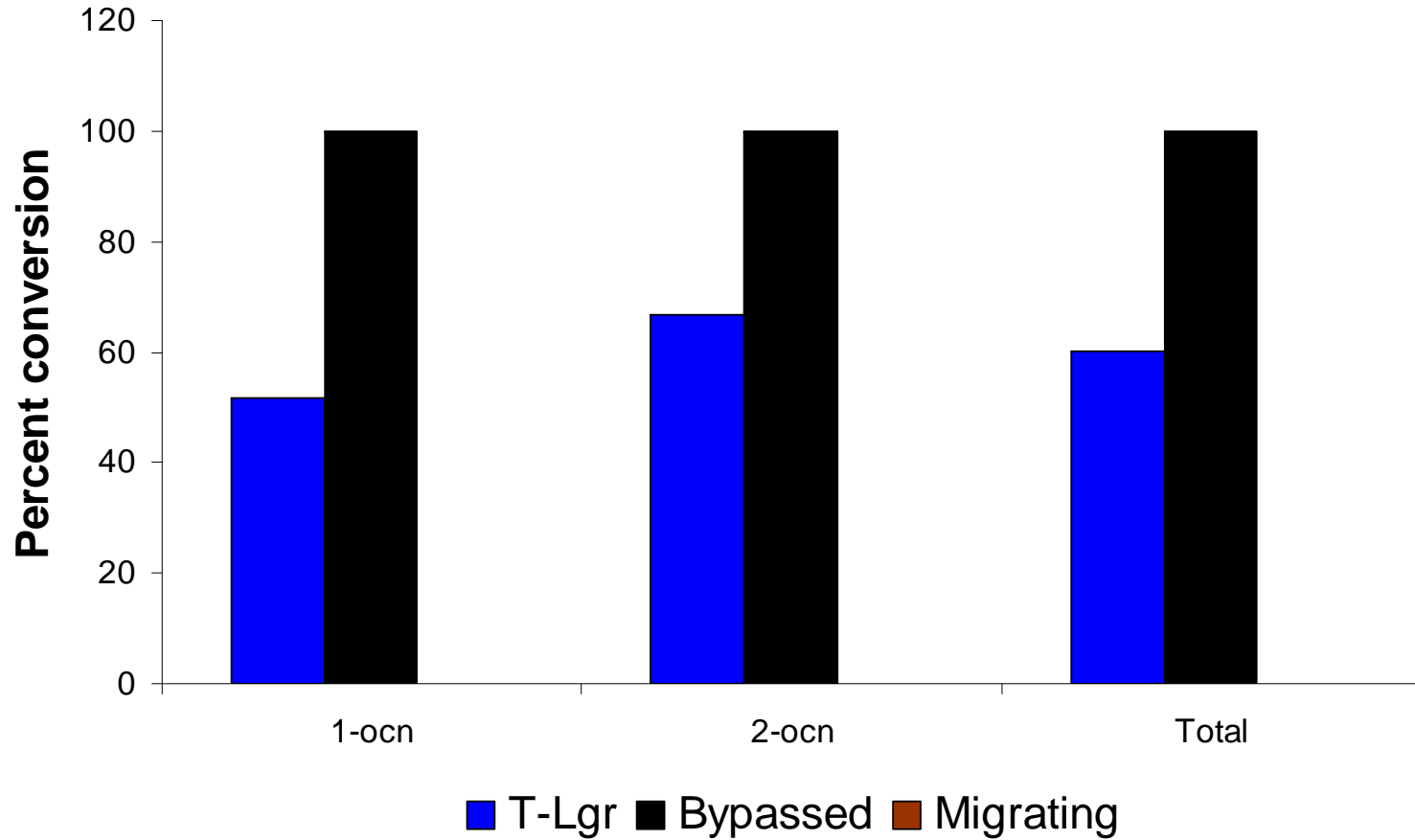
# 2005 Wild Steelhead - SARs

	Juvenile numbers	<u>Returns by Age-class</u>			SAR	95% CI
		1-ocn	2-ocn	3-ocn		
Transport	10,412	14	26	-	0.38	(0.27, 0.52)
Migrant	216	0	0	-	--	(--)
Bypassed	4,708	2	3	-	0.11	(0.02, 0.21)

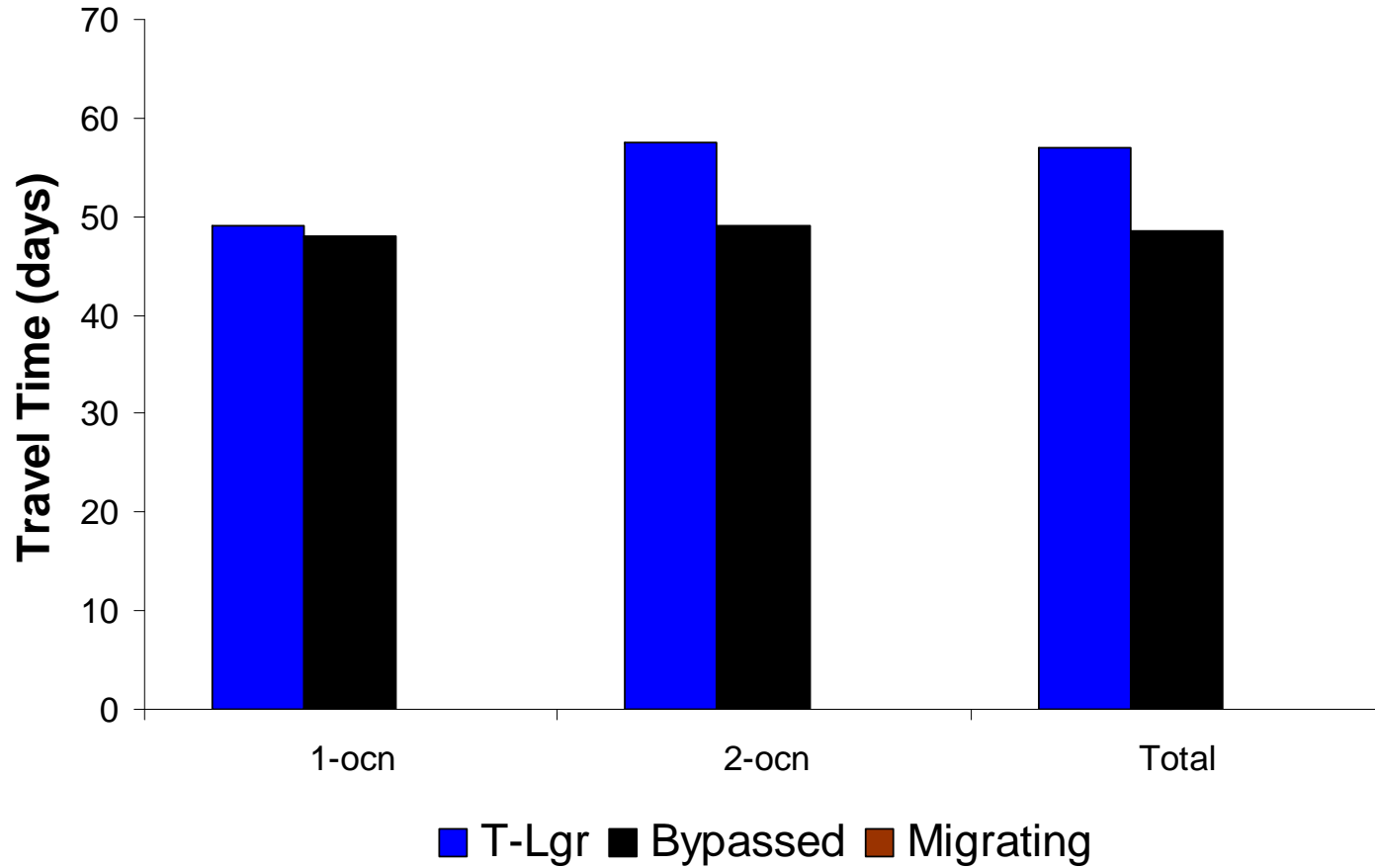
# 2005 Wild Steelhead



# 2005 Wild Steelhead – Adult Conversion



# 2005 Wild Steelhead – Adult travel time



# 2005 Wild Steelhead – Spring passage

<b>Age- Class</b>	<b>Group</b>	<b>Total LWG adult numbers</b>	<b>Percent detected in Spring</b>
1-ocn	Transport	14	0.0
	Migrant	0	0.0
	Bypassed	2	0.0
2-ocn	Transport	26	7.7
	Migrant	0	0.0
	Bypassed	3	0.0

# 2005 Wild Steelhead – Adult staying

Tag code	McNary	Priest Rapids	Rock Island	Wells	Ice Harbor	Lower Granite
3D9.1BF1BECED4	8/7/07	8/16/07	--	8/26/07	--	--
	--	4/23/08	--	--	--	--

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## Conclusions:

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- Adult conversion rates from BON to LWG were lower for transport adults
- Adult median travel times from BON to LWG were slower for transported fish

# Fall Chinook Salmon Studies

# 2003 Fall Chinook Salmon Study

## Juvenile tagging

- Study design

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    - unknown wintering location for majority of yearling ocean entrants

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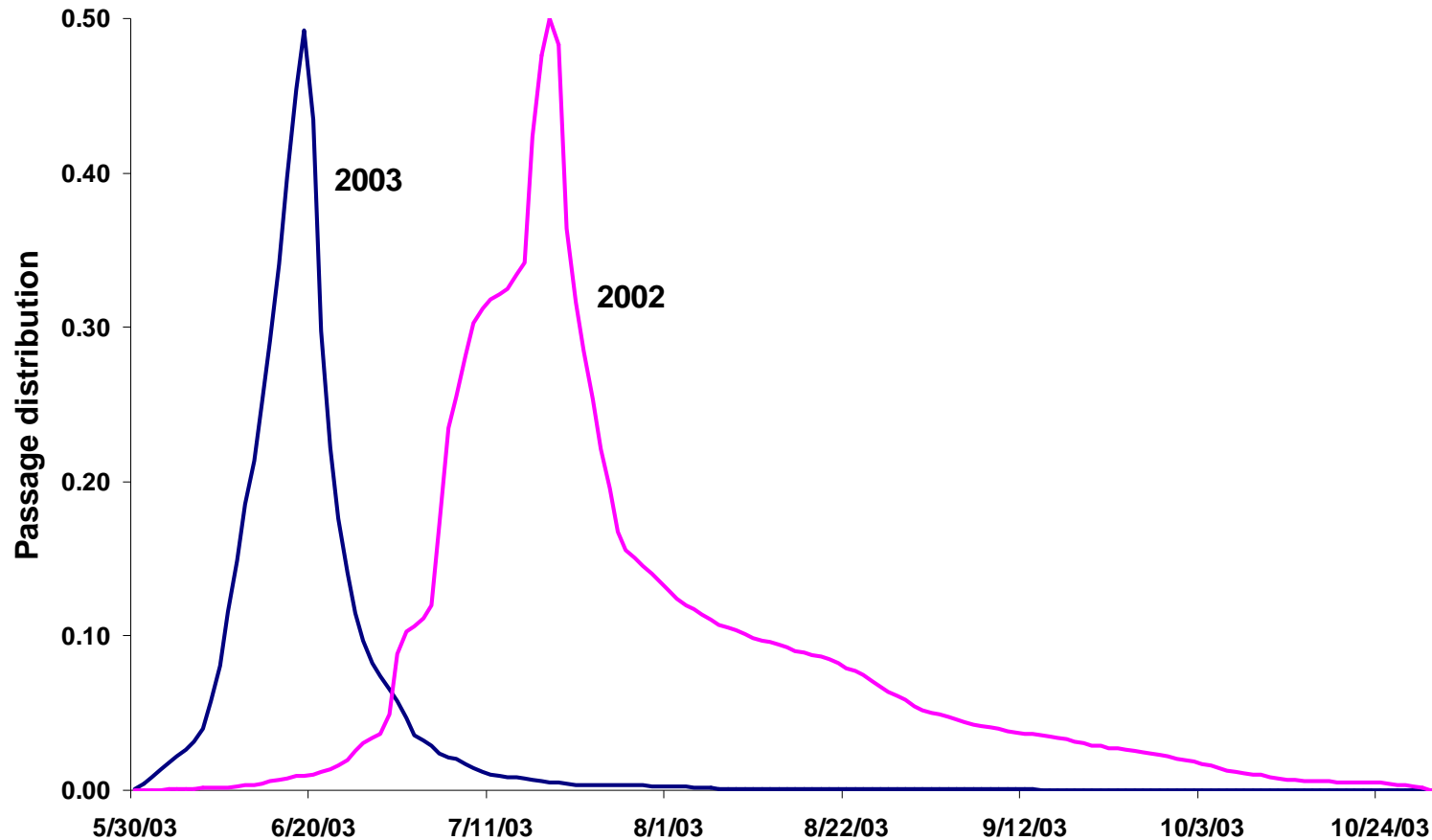
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- Number of juveniles tagged at LWG in fall
  - Transport (from LWG) 2,552

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- Study design
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  - Transport (from LWG) 16,085
  - Not-detected (not adjusted) 19,034
- Number of juveniles tagged at LWG in fall
  - Transport (from LWG) 2,552
- Production size; no surrogate-sized fish available

# 2003 Fall Chinook Salmon Study - Juvenile passage distribution

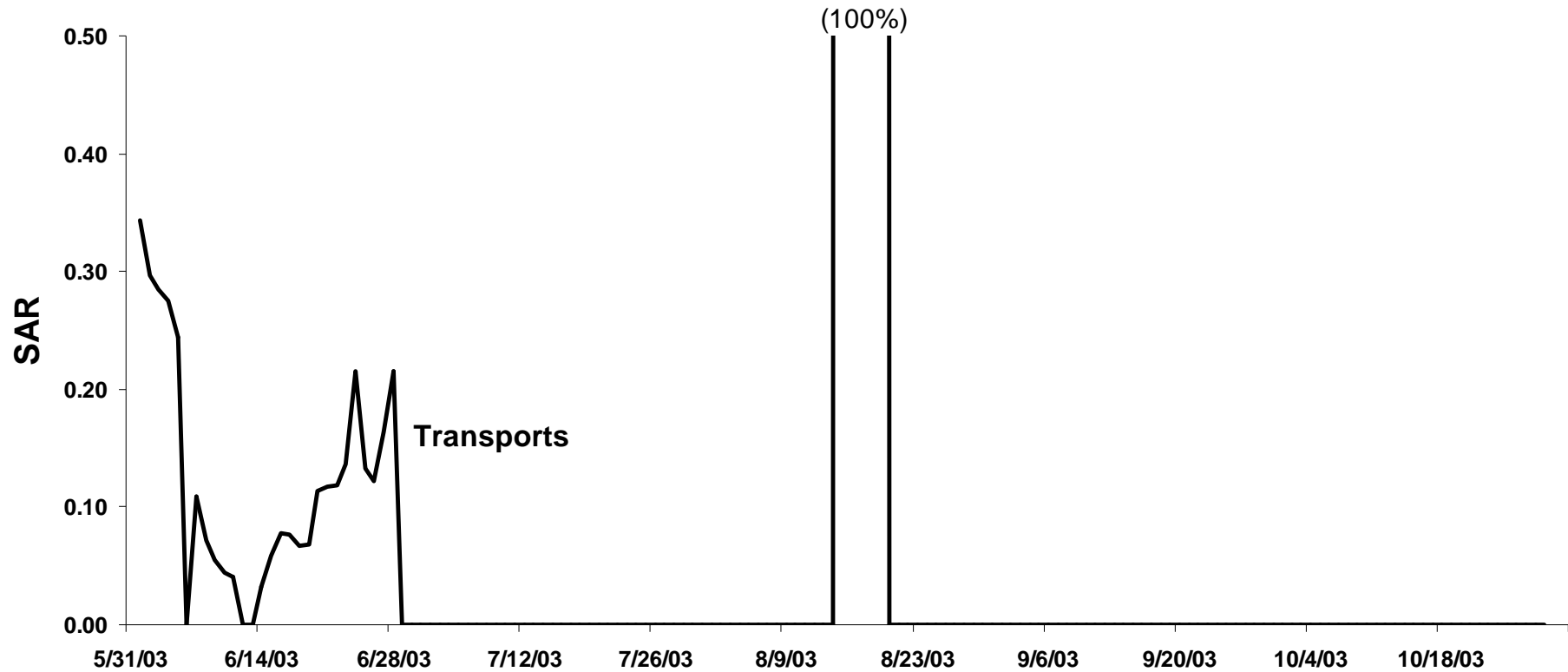


# 2003 Fall Chinook Salmon Study

	Juvenile numbers	Jacks	<u>Returns by Age-class</u>				SAR	T/I
			2-ocn	3-ocn	4-ocn	5-ocn		
Transport	16,085	6	9	-	-	-	0.09	xxx
Not-detected	19,034	3	1	1	-	-	xxx	
Bypassed	3,962	3	2	-	-	-	0.13	
Transport (Fall)	2,552	34	28	29	7	-	3.84	

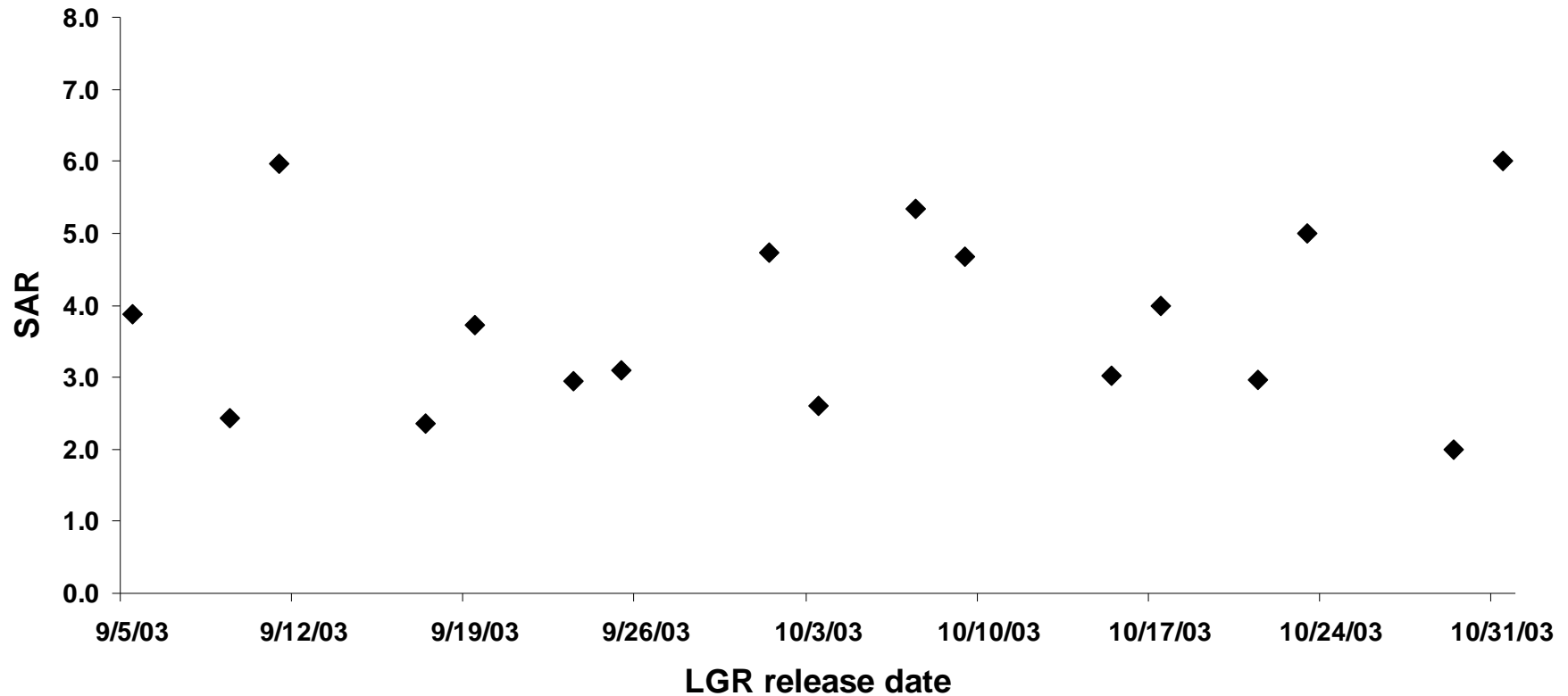
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## - Lyons Ferry Hatchery fish

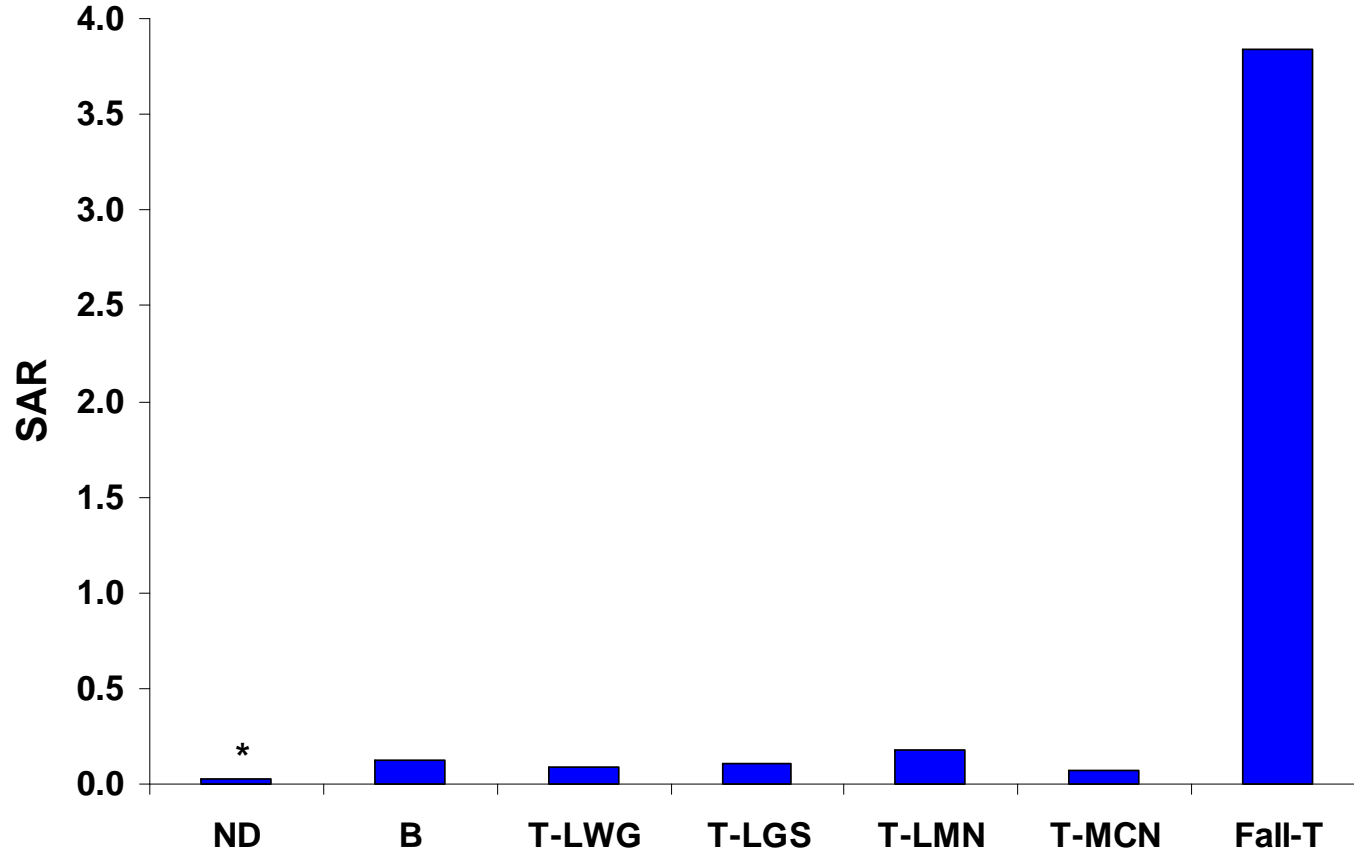


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## – Tagged at LWG in fall

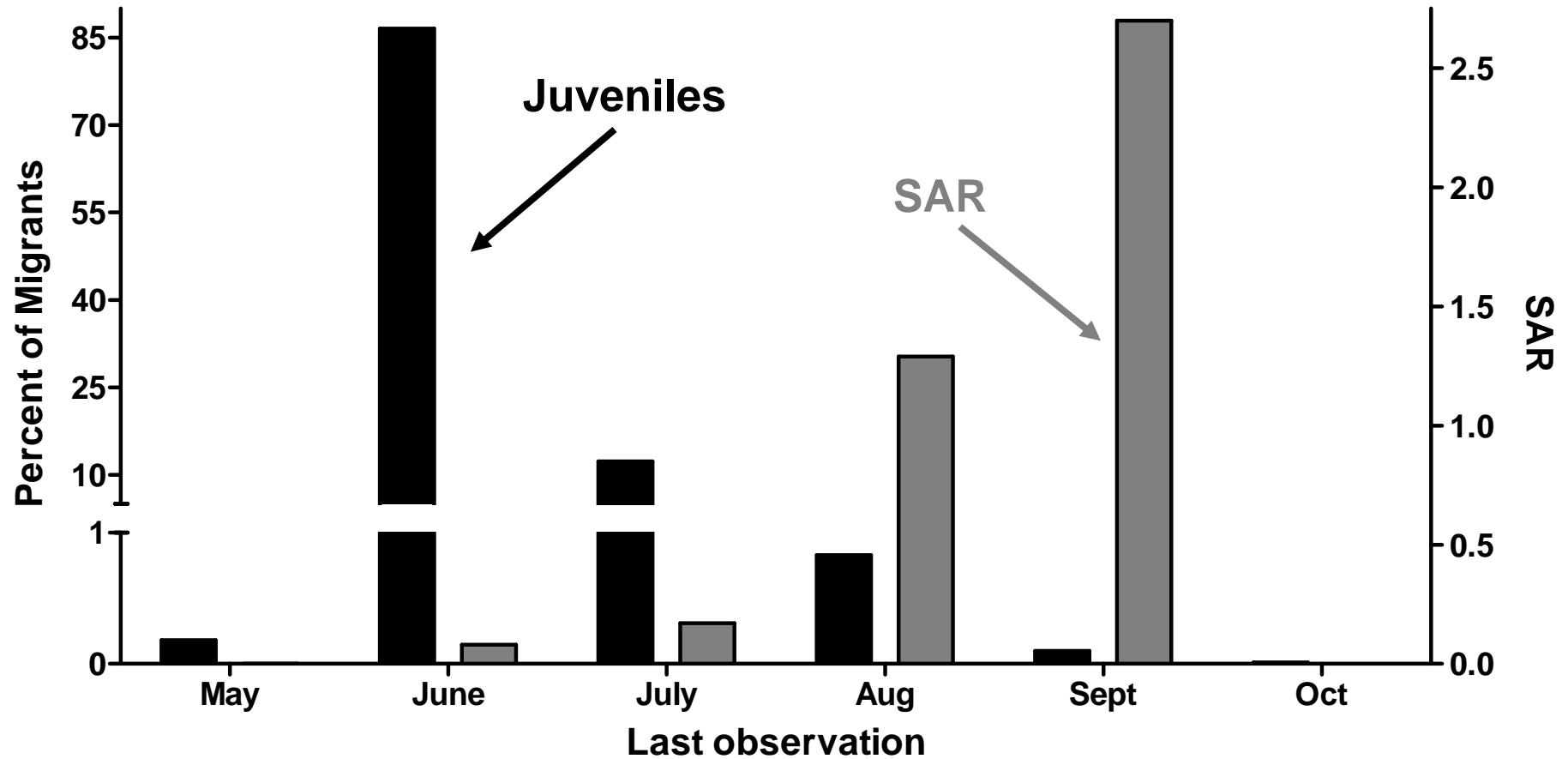


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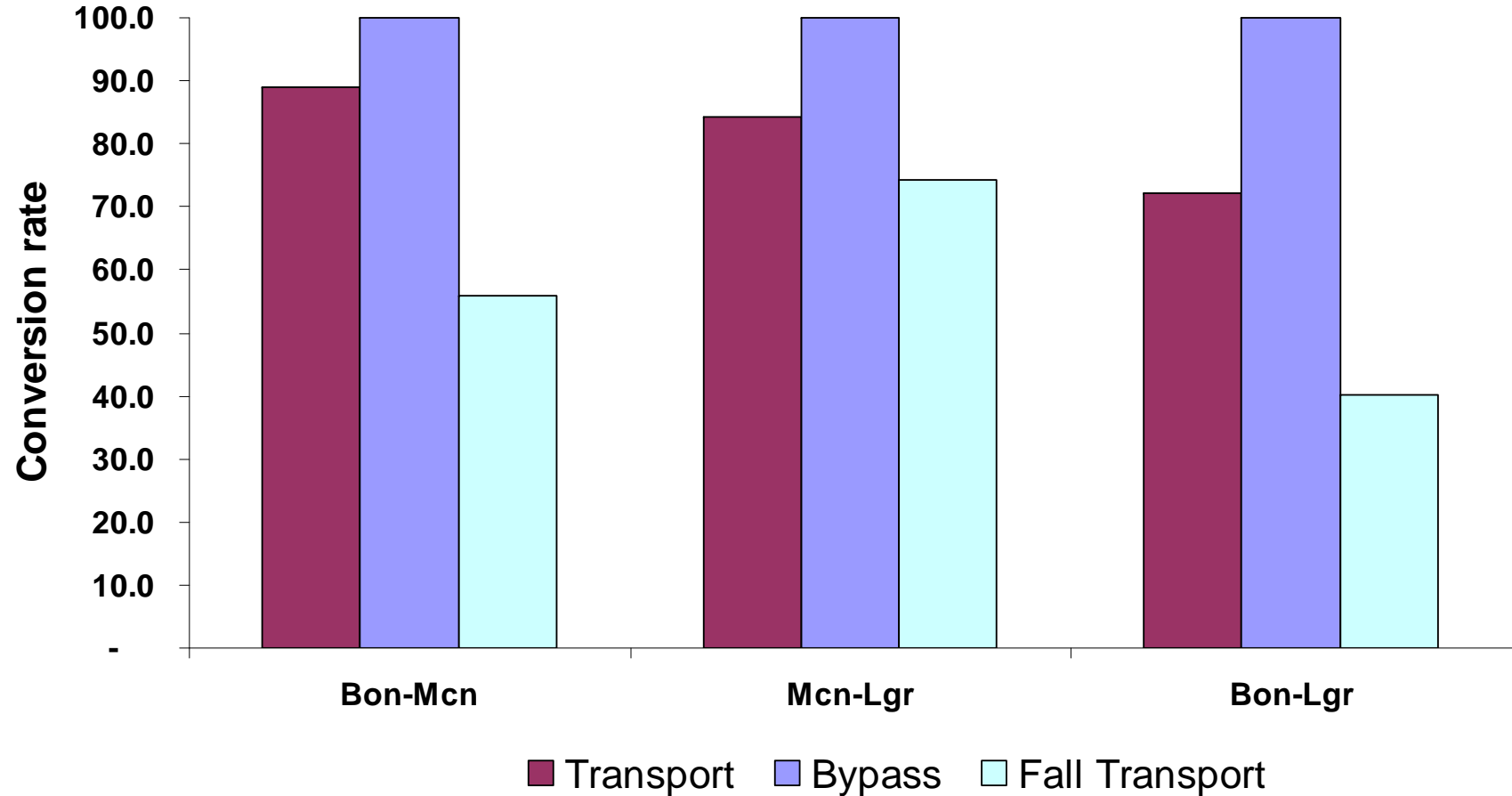


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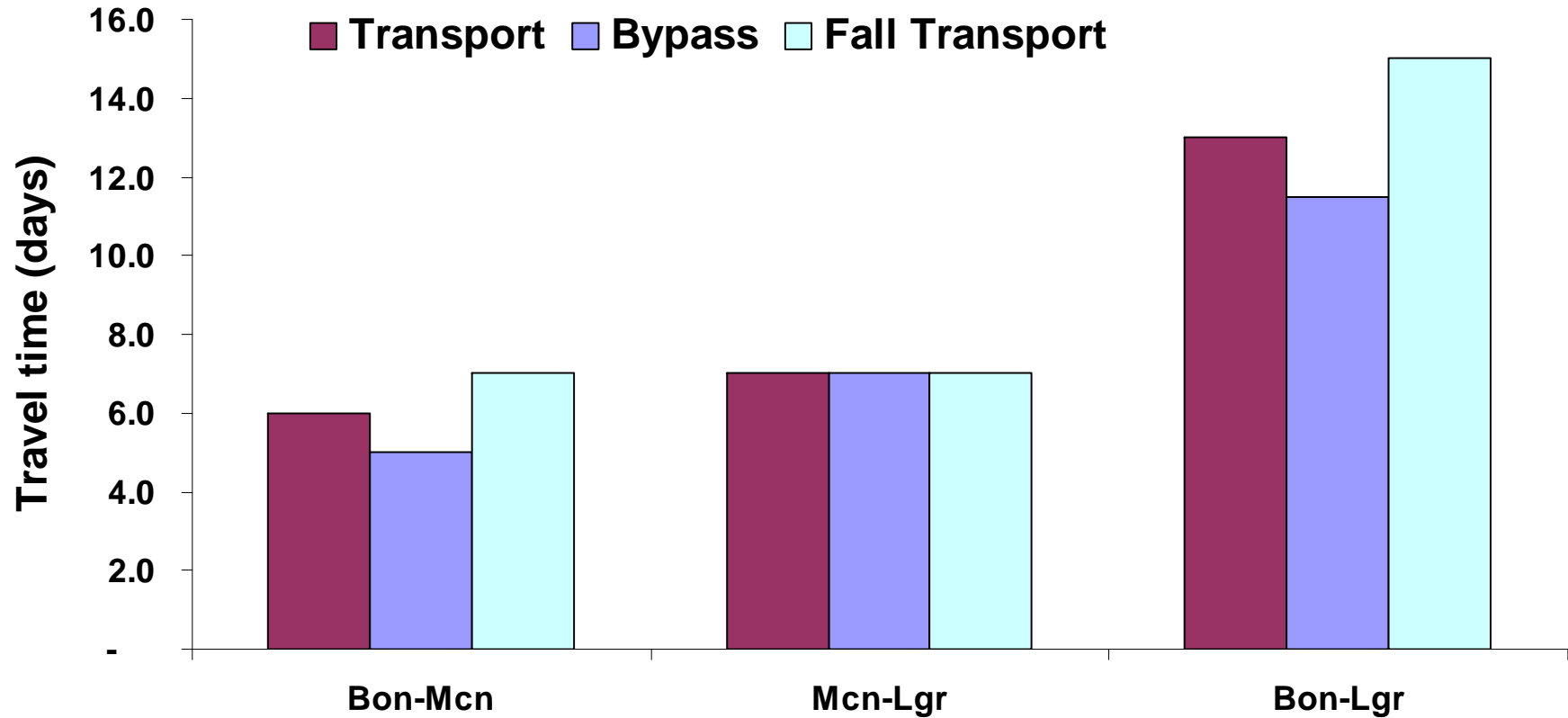
## -Lyons Ferry Hatchery fish



# 2003 Fall Chinook Salmon Study



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## Conclusions:

- ???????



2006 5 7

# 2008 Juvenile tagging operations

	Number tagged		
	Transports		
	LWG	LGS	Migrants
- Lower Granite Dam Spring studies			
- Wild spring/summer Chinook salmon	11,499	--	--
- Wild steelhead	12,535	--	--

# 2008 Juvenile tagging operations

	Number tagged		
	Transports		Migrants
	LWG	LGS	
- Lower Granite Dam Spring studies			
- Wild spring/summer Chinook salmon	11,499	--	--
- Wild steelhead	12,535	--	--
- BPA Survival studies			
- Wild spring/summer Chinook salmon	--	--	9,714
- Wild steelhead	--	--	15,991
- Hatchery steelhead	--	--	18,565



# Snake River Transport studies in-progress

Tagging year	Juvenile numbers			Returns by age-class		
	Transports LWG	LGS	Migrants	Jacks	2-ocn	3-ocn
<b><u>LWG Spring/summer Chinook salmon</u></b>						
2007	11,993	–	7,009	18	–	–
2006	13,575	–	2,529	9	85	–
<b><u>LWG Steelhead</u></b>						
2007	9,433	–	6,535	123	–	–
2006	18,710	–	3,316	161	132	–

# Snake River Transport studies in-progress

Tagging year	Number tagged	Returns by age-class				
		Jacks	2-ocn	3-ocn	4-ocn	5-ocn
<b><u>Fall Chinook salmon</u></b>						
2008*	634,233	—	—	—	—	—
2007**	8,718	123	—	—	—	—
2006*	496,595	506	661	—	—	—
2005*	172,784	80	110	63	—	—
2004	51,832	27	27	37	20	—

\* Co-op NMFS/USFWS(DWOR) or NMFS/USFWS/NPT study

\*\* The only fish tagged in 2007 were tagged at LWG in Sept. and Oct.