

Science, Service, Stewardship

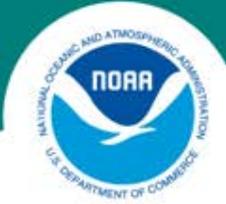


Factors Influencing High Sockeye Descaling Rates at McNary Dam 2014

December 2, 2014

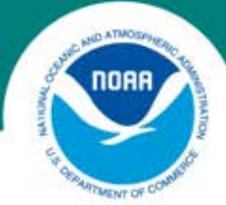
**NOAA
FISHERIES
SERVICE**

NOAA

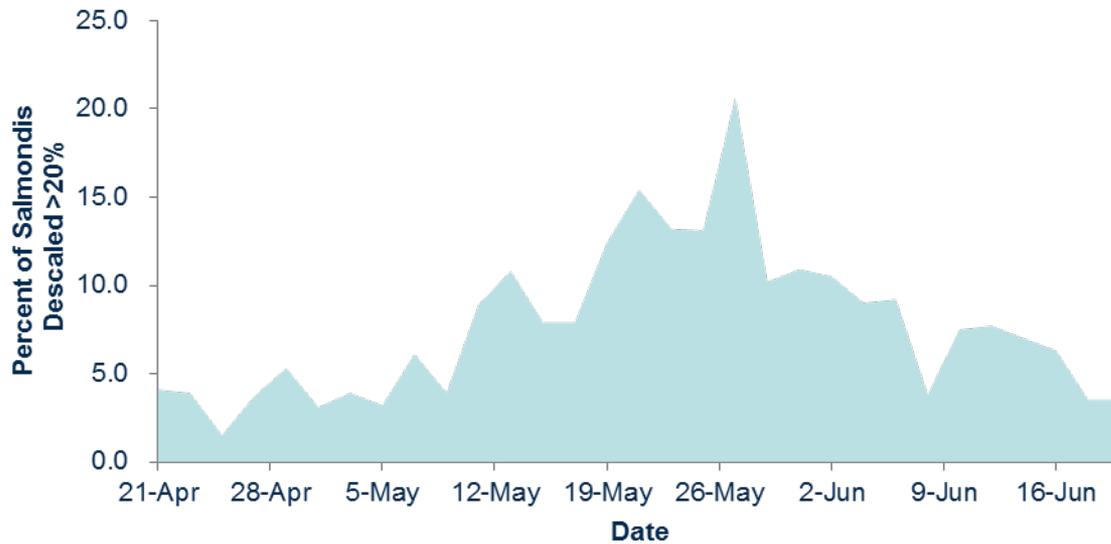


Key Questions

- Was sockeye descaling in 2014 relatively high?
- Is there evidence of low survival and/or descaling upstream of McNary?
- Is there evidence of a debris problem at McNary?
- What is being done to address any problems?



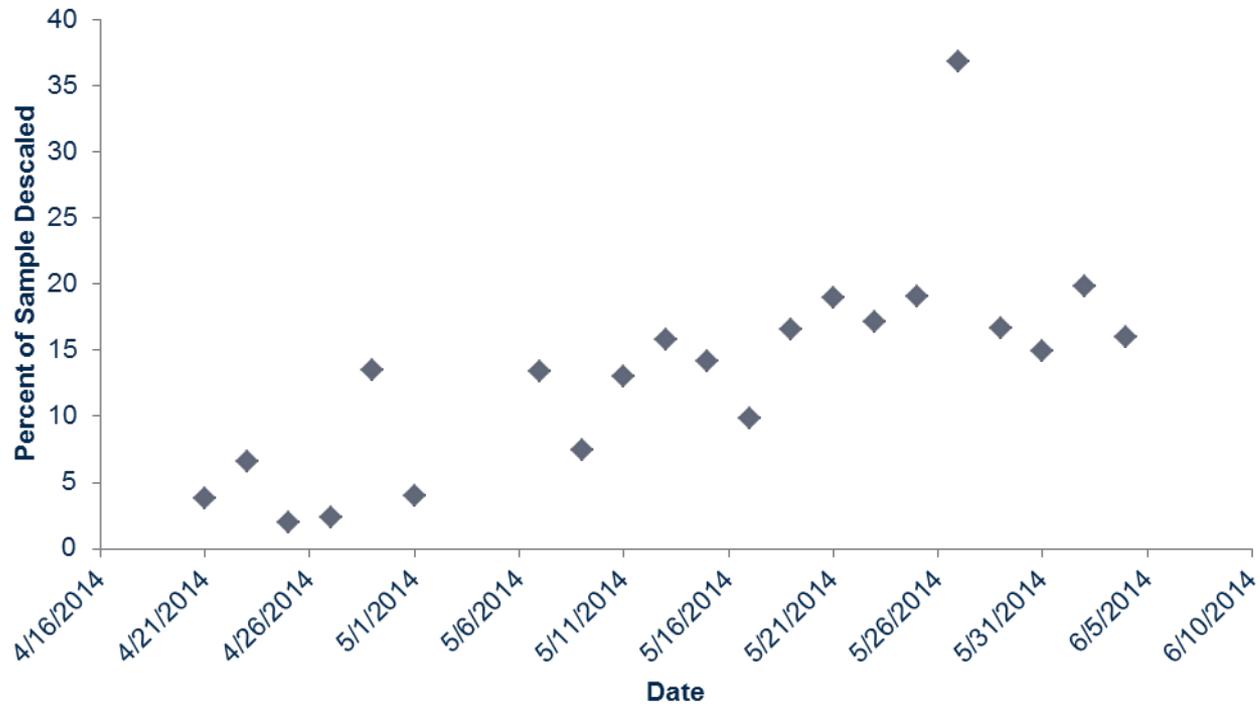
MCN Salmonid Descaling 2014





Sockeye Descaling 2014

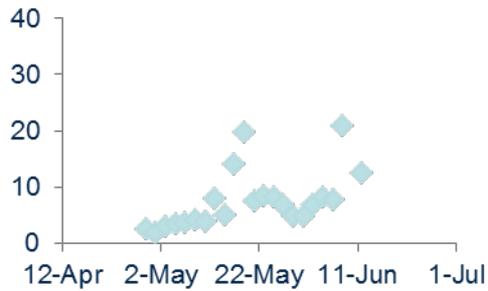
MCN 2014 SO



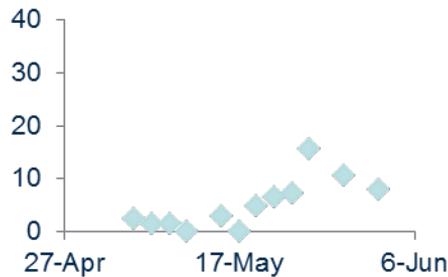


5 Yrs of Sockeye Descaling Percentage at McNary Dam (>50 fish sampled/day)

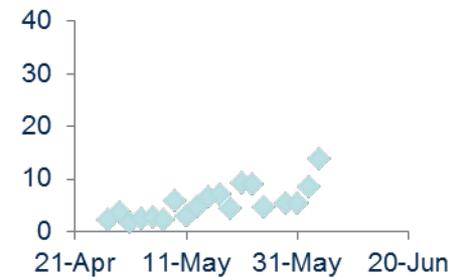
2010 SO



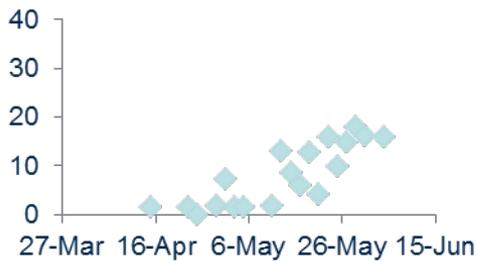
2011 SO



2012 SO

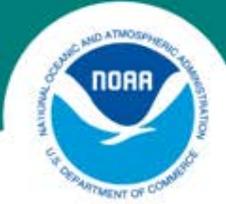


2013 SO



2014 SO





Evidence of Descaling and Reduced Survival Upstream

- Reduced forebay and surface bypass depth at Wanapum Dam
- In early June it was noted by researchers that Priest Rapids sockeye descaling was high
- Preliminary reach survival estimates indicate sockeye survival from RIS to MCN was lowest to date

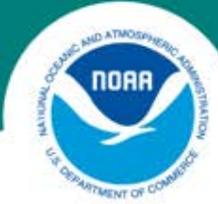


Table 7. Estimated survival and standard error (s.e.) for sockeye salmon (hatchery and wild combined) from Lower Granite Dam tailrace to Bonneville Dam tailrace for fish originating in the Snake River, and from Rock Island Dam tailrace to Bonneville Dam tailrace for fish originating in the upper Columbia River, 1996–2014. Note that this table represents all available data on sockeye; estimates are provided regardless of the precision, which in some years was very poor. Abbreviations: LGR–Lower Granite Dam; MCN–McNary Dam; BON–Bonneville Dam; RIS–Rock Island Dam.

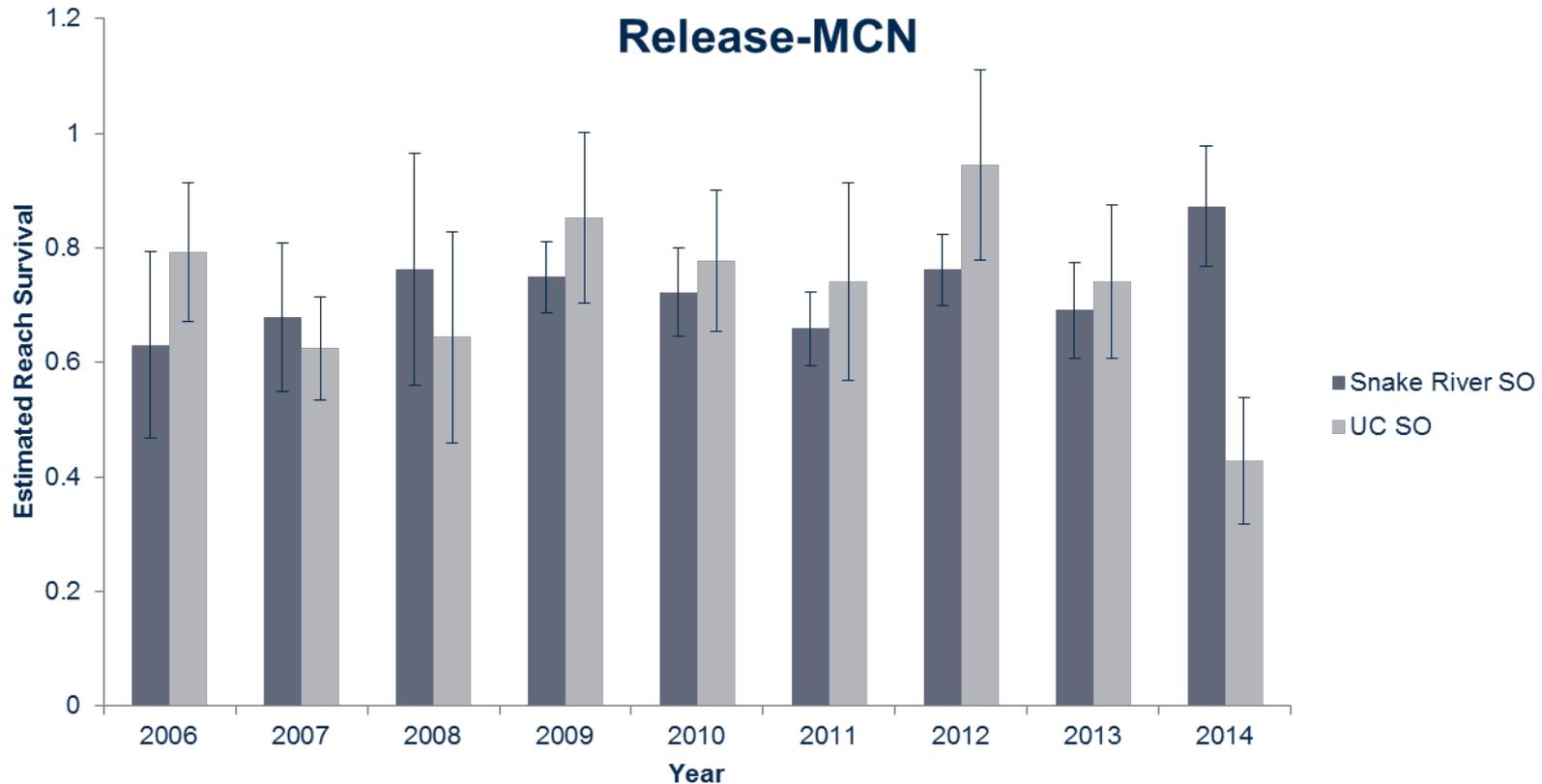
Year	Snake River Sockeye			Upper Columbia River Sockeye		
	LGR-MCN	MCN-BON	LGR-BON	RIS-MCN	MCN-BON	RIS-BON
1996	0.283 (0.184)	NA	NA	NA	NA	NA
1997	NA	NA	NA	0.397 (0.119)	NA	NA
1998	0.689 (0.157)	0.142 (0.099)	0.177 (0.090)	0.624 (0.058)	1.655 (1.617)	1.033 (1.003)
1999	0.655 (0.083)	0.841 (0.584)	0.548 (0.363)	0.559 (0.029)	0.683 (0.177)	0.382 (0.097)
2000	0.679 (0.110)	0.206 (0.110)	0.161 (0.080)	0.487 (0.114)	0.894 (0.867)	0.435 (0.410)
2001	0.205 (0.063)	0.105 (0.050)	0.022 (0.005)	0.657 (0.117)	NA	NA
2002	0.524 (0.062)	0.684 (0.432)	0.342 (0.212)	0.531 (0.044)	0.286 (0.110)	0.152 (0.057)
2003	0.669 (0.054)	0.551 (0.144)	0.405 (0.098)	NA	NA	NA
2004	0.741 (0.254)	NA	NA	0.648 (0.114)	1.246 (1.218)	0.808 (0.777)
2005	0.388 (0.078)	NA	NA	0.720 (0.140)	0.226 (0.209)	0.163 (0.147)
2006	0.630 (0.083)	1.113 (0.652)	0.820 (0.454)	0.793 (0.062)	0.767 (0.243)	0.608 (0.187)
2007	0.679 (0.066)	0.259 (0.084)	0.272 (0.073)	0.625 (0.046)	0.642 (0.296)	0.401 (0.183)
2008	0.763 (0.103)	0.544 (0.262)	0.404 (0.179)	0.644 (0.094)	0.679 (0.363)	0.437 (0.225)
2009	0.749 (0.032)	0.765 (0.101)	0.573 (0.073)	0.853 (0.076)	0.958 (0.405)	0.817 (0.338)
2010	0.723 (0.039)	0.752 (0.098)	0.544 (0.077)	0.778 (0.063)	0.627 (0.152)	0.488 (0.111)
2011	0.659 (0.033)	NA	NA	0.742 (0.088)	0.691 (0.676)	0.513 (0.498)
2012	0.762 (0.032)	0.619 (0.084)	0.472 (0.062)	0.945 (0.085)	0.840 (0.405)	0.794 (0.376)
2013	0.691 (0.043)	0.776 (0.106)	0.536 (0.066)	0.741 (0.068)	0.658 (0.217)	0.487 (0.155)
2014 ^a	0.873 (0.054)	0.817 (0.115)	0.713 (0.110)	0.428 (0.056)	0.565 (0.269)	0.242 (0.111)
Mean^b	0.631 (0.041)	0.584 (0.081)	0.428 (0.059)	0.657 (0.036)	0.761 (0.090)	0.517 (0.066)

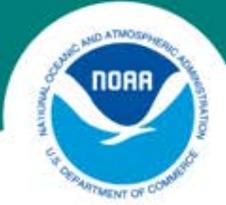
a. Estimates are preliminary and subject to change.

b. For each river segment, simple arithmetic mean is across all years for which estimates are available for that segment.

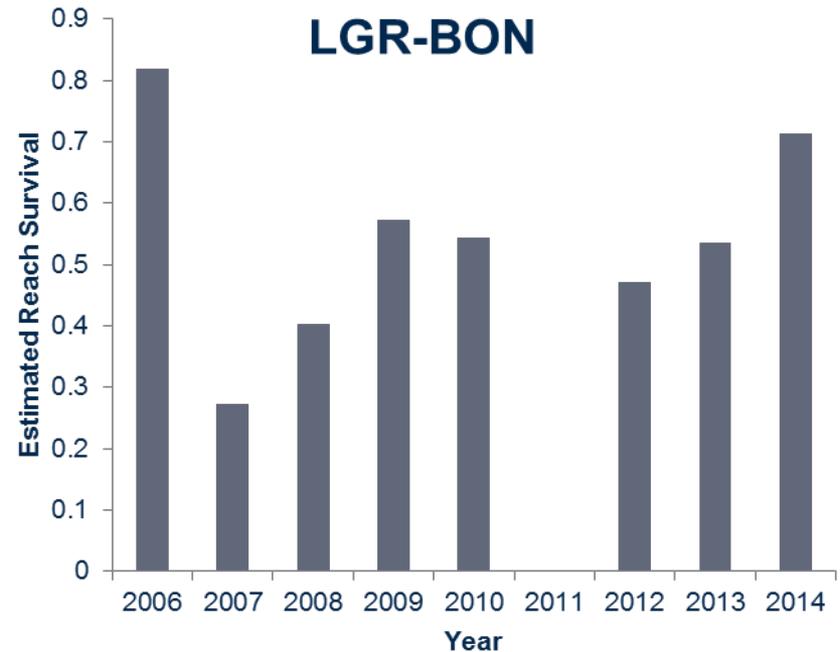
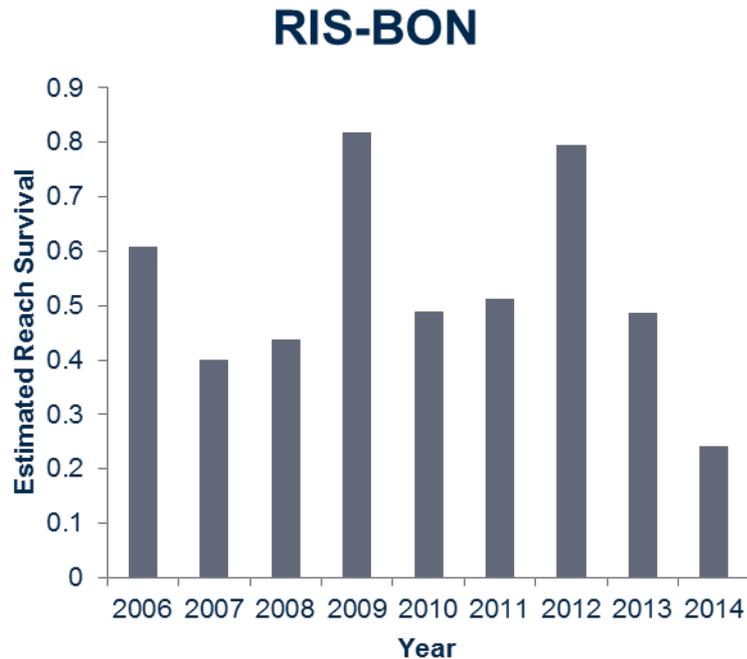


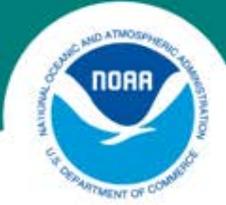
Reach Survival Relatively Low for Sockeye Migrating from RIS to MCN (Error Bars 95% C.I.)





Survival Estimate to BON Relatively Low for UC Sockeye; High for SR Sockeye

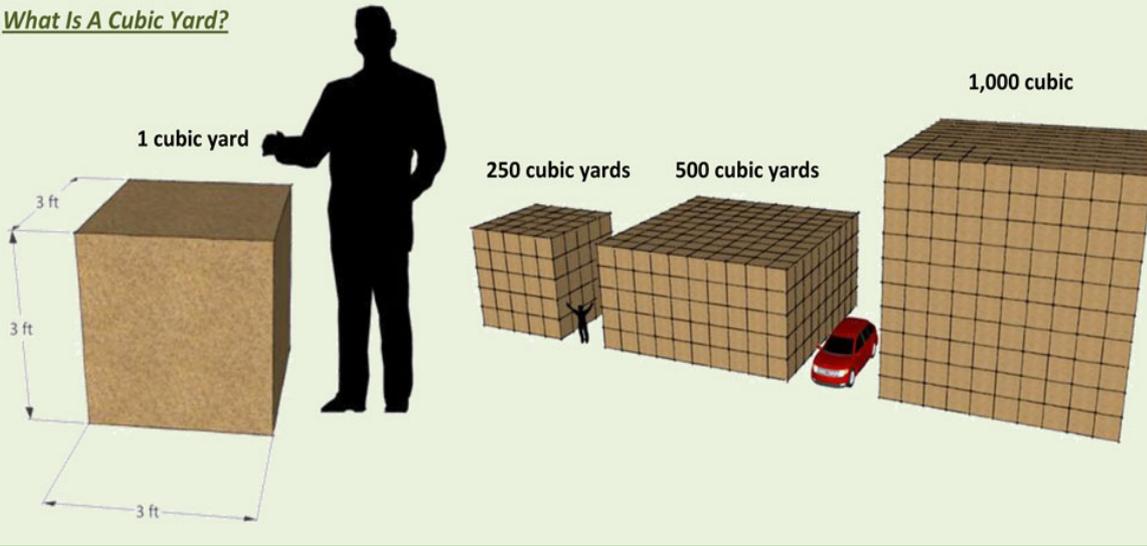




>1000 Yards of Debris Removed at McNary Dam in 2014



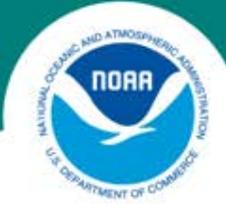
What Is A Cubic Yard?





MCN Trashrack Debris Removal

Week ending	# Units Cleaned per Week	Yards Removed	Yards per Unit
4/4/2014	13	320	24.6
5/1/2014	4	43	10.8
5/8/2014	2.33	50	21.5
5/15/2014	11	440	40.0
5/22/2014	8	152.5	19.1
5/29/2014	0.66	20	30.3
6/5/2014	3	40	13.3
6/12/2014	7	75	10.7
6/19/2014	0	0	0.0
6/26/2014	0	0	0.0
7/3/2014	3	123	41.0
Total		1264	



Conclusions

- Was sockeye descaling in 2014 relatively high? **Yes**
- Is there evidence of low survival and/or descaling upstream of McNary? **Yes, but still preliminary or anecdotal**
- Is there evidence of a debris issue at McNary? **Yes**
- What is being done to address these issues?
 1. Dam Repair Wanapum in process (MOP restored)
 2. Log Bronc McNary (USACE update)
 3. Addressing McNary debris removal at FPOM



Questions?

