UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
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DATE: March 19, 2015
TO: Bob Turner
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SUBJECT: Potential Sacramento winter Chinook impact rates in 2016 fisheries

There has been a desire to explore what the Sacramento River winter Chinook (SRWC) allowable age-3 impact rate might be in 2016 if the current control rule were applied, given the recent escapement history and an assumed level of 2015 escapement.

The estimated SRWC escapement from 2001 to 2014, sourced from Table II-2 in PFMC Preseason Report I, is reproduced in the table below.

Year	Escapement
2001	8,224
2002	7,464
2003	8,218
2004	7,869
2005	15,839
2006	17,149
2007	2,533
2008	2,725
2009	4,416
2010	1,596
2011	824
2012	2,671
2013	6,085
2014	3,015

The 2016 allowable age-3 impact rate, as determined by the current control rule, will depend on the geometric mean of escapement from 2013, 2014, and 2015. I constructed 5 scenarios for 2015 escapement intended to bookend the potential 2016 impact rate. The 5 scenarios and their results are described below.

1. Near total collapse in 2015. 100 SRWC return to spawn (less than the lowest observed). **Allowable age-3 impact rate = 12.1 percent**.

2. Low 2015 escapement. Run size in 2015 was assumed to be equal to the lowest observation between 2001 and 2014 (824 fish). **Allowable age-3 impact rate = 15.6 percent**.

3. Average 2015 escapement, case 1. Run size in 2015 was assumed to be equal to the mean escapement between 2001 and 2014 (6331 fish). **Allowable age-3 impact rate = 20.0 percent**.

4. Average 2015 escapement, case 2. Run size in 2015 was assumed to be equal to the mean escapement from the most recent 5 years (2838 fish). **Allowable age-3 impact rate = 19.2 percent**.

5. High 2015 escapement. Run size in 2015 was assumed to be equal to the maximum observation between 2001 and 2014 (17,149 fish). **Allowable age-3 impact rate is undefined (i.e., the geometric mean exceeds 5000 and thus the control rule does not specify a maximum allowable impact rate)**.

Based on these simple assumptions for 2015 escapement, it appears likely that the 2016 allowable impact rate would exceed 15 percent and perhaps be as high as 20 percent given the current control rule. It should be noted that the escapement in 2015 will largely be made up of fish from the 2012 brood. While a thorough analysis of the potential abundance of this brood has not been conducted, I am currently unaware of any preliminary indicators that would suggest an abnormally small or large run size in 2015.