From: J. Stuart - NOAA Federal <j.stuart@noaa.gov>

Sent: Thursday, March 14, 2019 11:07 AM

To: Brian Ellrott - NOAA Federal

Subject: Re: Most recent estimates of salmon mortality/survival through the Delta

Hi Brian,

I'd look to Perry et al 2016 paper (see attached). Overall survival through the Delta for LFR CS releases near Sac (2006-2010) had survivals ranging from 0.17 to 0.54. Survival was highest in the Sacramento and Sutter/Steamboat Slough routes, lowest through the interior Delta routes (Georgiana Slough and DCC). Caveats- large LFR hatchery fish, typically released in Dec - Feb time frame. May not represent other "size" migrants or seasons.

For the SJ river side, the 6-year study (had 2011-2014 studies) the survival rate for steelhead ranged from 0.15 (2013 - drought year) to 0.54 (2011 very wet year in the SJR basin) from Durham Ferry release to Chipps Island.. Chinook salmon (FR CS hatchery fish) had very low survival, typically < 5% for through Delta survival from Durham Ferry to Chipps Island. Perry et al (2016) states that SJR survival for CS from 2003 to 2012 ranged from 0 to 011 and has been <5% for 15 of 22 releases.

Hope this helps.

Jeff

On Thu, Mar 14, 2019 at 10:05 AM Brian Ellrott - NOAA Federal < brian.ellrott@noaa.gov > wrote: Jeff,

Can you point me to recent literature I could use to complete the paragraph below? It doesn't have to be specific to winter-run.

Operating the CVP/SWP and the resultant conditions that are created reduce survival of juvenile salmonids outmigrating through the Delta. Prior to the protections established by the 2009 biological opinion, mortality of winter-run juveniles entering the interior of the Delta (through DCC or Georgiana Slough), was estimated to be approximately 66%, with a range of 35-90% mortality(NMFS 2009[BEI]). More recently, juvenile salmon mortality through the Delta has been estimated at...X%

Brian Ellrott

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