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**From:** Hilts, Derek <derek\_hilts@fws.gov>  
**Sent:** Monday, March 4, 2019 9:00 AM  
**To:** Kristin Begun - NOAA Affiliate  
**Cc:** Barbara Byrne - NOAA Federal  
**Subject:** Re: [EXTERNAL] Re: ROC on LTO Stanislaus info by yeartype

Kristin,  
Nice to e-meet you, too. :)

I'll be at a workshop the rest of today. In case we want to chat, tomorrow, I'll be meeting with NOAA folks on the 5th floor from 10am-12pm and 2pm-4pm on mostly Shasta-related stuff, but otherwise am available.

Derek

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On Mon, Mar 4, 2019 at 8:47 AM Kristin Begun - NOAA Affiliate <[kristin.begun@noaa.gov](mailto:kristin.begun@noaa.gov)> wrote:  
Got it, thank you. Derek, I don't think we have met in person but I have heard your name. It is nice to e-meet you.

Kristin Begun, Natural Resource Specialist  
Contractor with Ocean Associates, Inc.  
NOAA Fisheries West Coast Region  
[kristin.begun@noaa.gov](mailto:kristin.begun@noaa.gov)

On Fri, Mar 1, 2019 at 4:42 PM Barbara Byrne - NOAA Federal <[barbara.byrne@noaa.gov](mailto:barbara.byrne@noaa.gov)> wrote:  
**Kristin** -- Am forwarding some additional Stan River info that Derek pulled from the CALSIM output, FYI. Know we haven't had a chance to talk yet about Stan analysis, but wanted to share this FYI. I'll put a meeting on our calendar next week to discuss ideas on what info we want to pull together on the Stan and discuss how to divide and conquer our effects analysis. This data summary from Derek will help us (I think) isolate the effects of the different yeartype methods in the COS vs PA from the different flow schedules (in AN and Wet years) in the COS vs. PA.

**Derek** -- You're so fast! Thanks; this will help me and Kristin (my co-lead on the Stanislaus effects section) mull over what is useful...or not. Have you met Kristin before? She sat in our office for several years (as Kristin McCleery) and has helped with DOSS and cranks out a lot of consultations in the Delta; she more recently has been working remotely from OR and now CO (and got married so is now Kristin Begun).

Talk with you both next week,  
Barb

----- Forwarded message -----

From: **Hilts, Derek** <[derek\\_hilts@fws.gov](mailto:derek_hilts@fws.gov)>

Date: Fri, Mar 1, 2019 at 4:06 PM

Subject: Re: [EXTERNAL] Re: ROC on LTO Stanislaus info by yeartype

To: Barbara Byrne - NOAA Federal <[barbara.byrne@noaa.gov](mailto:barbara.byrne@noaa.gov)>

Just in case storage isn't enough to mull over, I've added Goodwin flows to the workbook. See attached - AFTER the weekend! :)

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On Fri, Mar 1, 2019 at 1:31 PM Barbara Byrne - NOAA Federal <[barbara.byrne@noaa.gov](mailto:barbara.byrne@noaa.gov)> wrote:  
Responses embedded below, in blue.

On Fri, Mar 1, 2019 at 12:48 PM Hilts, Derek <[derek\\_hilts@fws.gov](mailto:derek_hilts@fws.gov)> wrote:

Hi Barb,

As you may know, the results in Appendix D Atch 3-1 Tables 7.1, 7.2 & 7.3, although arrayed as Jan - Dec, actually are displaying Oct, Nov, & Dec values based on the previous water year type (which I think is good). For example, the value for NM storage in Oct 1976 is used in the calculation of Wet Yeartype average because WY75 was a wet year. (WY76 winds up being a critically dry year). **I thought this was the case, but wasn't sure -- meant to ask you so thanks for flagging this!**

I will use this same approach to tabulate NM storages on a NMI-based yeartype basis. The problem of course with tabulating water year type-based averages using NMI bins is that each run may have its own set of W, AN, BN, DRY, CRT years. Below is a table of the three runs' NMI yeartypes (WET=5, ..., CRT=1)

COS PA w/o Ops

NMI NMI NMI

YRT YRT YRT

1922 4 4 1

1923 4 4 1

1924 2 2 1

1925 3 3 1

1926 2 2 1

1927 2 3 1

1928 2 3 1

1929 1 2 1

1930 1 2 1

1931 1 1 1

1932 1 2 1

1933 1 1 1

1934 1 1 1

1935 1 1 1

1936 2 2 1

1937	2	2	1
1938	5	4	2
1939	3	2	1
1940	3	3	1
1941	4	4	1
1942	5	4	1
1943	5	5	1
1944	3	3	1
1945	3	3	1
1946	3	4	1
1947	2	3	1
1948	2	3	1
1949	2	2	1
1950	2	2	1
1951	3	4	1
1952	5	5	2
1953	4	4	1
1954	3	3	1
1955	2	2	1
1956	4	4	1
1957	3	3	1
1958	4	4	1
1959	3	3	1
1960	2	2	1
1961	1	2	1
1962	1	2	1
1963	2	2	1
1964	1	2	1
1965	3	3	1
1966	2	2	1
1967	4	4	2
1968	3	3	1
1969	5	5	2
1970	4	4	1
1971	3	4	1
1972	3	3	1
1973	3	4	1
1974	3	4	1
1975	3	4	1
1976	2	3	1
1977	1	2	1
1978	2	3	1
1979	3	3	1
1980	4	4	1
1981	2	3	1
1982	5	5	2
1983	5	5	3
1984	4	4	1
1985	3	3	1
1986	5	5	2
1987	3	3	1

1988	1	2	1
1989	1	2	1
1990	1	1	1
1991	1	1	1
1992	1	1	1
1993	1	1	1
1994	1	1	1
1995	3	3	2
1996	4	4	1
1997	4	4	2
1998	5	5	2
1999	4	4	1
2000	4	4	1
2001	2	3	1
2002	2	3	1
2003	2	3	1

Do you want me to tabulate each run's NM storage averages based on its own NMI yeartypes? I need to think about this -- don't want to ask for everything and not use it. Will check in Mon or Tuesday!

The above all applies to tabulating Stan flows below Goodwin (Appendix D Attach 3-2 Tables 37.1, 37.2 & 37.3) as well. I need to think about this -- don't want to ask for everything and not use it. Will check in Mon or Tuesday!

For Appendix D Attach 3-4, do you want me to re-do all five sets of temperature tables or is there a particular location of interest? I need to think about this -- don't want to ask for everything and not use it. Will check in Mon or Tuesday!

Derek

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