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**From:** Eric Danner - NOAA Federal <eric.danner@noaa.gov>  
**Sent:** Tuesday, March 5, 2019 3:12 PM  
**To:** Cathy Marcinkevage - NOAA Federal  
**Subject:** Fwd: ROC\_AR\_Releasable (CCR and Shasta/Keswick Temperature Relationships)  
**Attachments:** Shasta\_CCR\_Relationship\_ROC\_DOC1.pdf; Keswick\_CCR\_Relationship\_ROC\_DOC2.pdf; Data\_ROC\_DOC1.xls; Data\_ROC\_DOC2.xls

Cathy,

Please see the attached documents from Miles Daniels relevant to the "Shasta seasonal storage management and allocations logic" call this morning.

Eric

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

**From:** Miles Daniels - NOAA Affiliate <[miles.daniels@noaa.gov](mailto:miles.daniels@noaa.gov)>  
**Date:** Tue, Mar 5, 2019 at 3:02 PM  
**Subject:** ROC\_AR\_Releasable (CCR and Shasta/Keswick Temperature Relationships)  
**To:** Eric Danner - NOAA Federal <[eric.danner@noaa.gov](mailto:eric.danner@noaa.gov)>

Hi Eric,

Attached are two documents which describe some of the relationships between Shasta storage, Keswick releases, and temperature at CCR.

The file ending in 'ROC\_DOC1', is an attempt to re-create the 'rule of thumb' figure on page A-45 of appendix A of the BA. Using the methods outlined in the attached document, I was unable to generate the same plot USBR produced. However, I was not able to find any documentation describing how USBR generated this plot so it may be a difference in methods.

The file ending in 'ROC\_DOC2' is analysis looking at the statistical relationship between Keswick release temperature and volume and temperature at the CCR gauge.

Data required to generate plots in both documents are attached as well.

Please let me know if there are any questions,  
Miles

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Miles Daniels, Ph.D.  
Assistant Project Scientist  
University of California, Santa Cruz  
Phone: 831-420-3946

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Eric Danner, Ph.D.  
Supervisory Research Ecologist  
Fisheries Ecology Division, Southwest Fisheries Science Center  
110 McAllister Way  
Santa Cruz, CA 95060  
831-420-3917  
<http://swfsc.noaa.gov/>