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**From:** Barbara Byrne - NOAA Federal <barbara.byrne@noaa.gov>  
**Sent:** Friday, August 3, 2018 4:32 PM  
**To:** Garwin Yip - NOAA Federal  
**Subject:** Fwd: Science Request

Garwin -- FYI. Note that Katrina's followup e-mail to me added a request to submit the science in a very specific format. In a followup conversation, she also provided clarification on the Stanislaus and American River operations for which Reclamation was requesting feedback -- see red text below

- New Melones RPO - does NMFS have any issues with this, if so please provide scientific support for why; I asked Katrina to send over the Revised Plan of Operations (RPO) they are referring to -- I have a Dec 2013 Draft RPO from an effort led by Kristin White but not sure if that is what Reclamation is proposing. I provided feedback on that plan at the time; can brush that off if appropriate.

- American River FMS (without carryover storage targets) - does NMFS have any issues with this, if so please provide scientific support for why; Katrina's understanding is that Reclamation is proposing to implement the 2015 "The Lower American River Modified Flow Management Standard", but without the carryover storage targets. The 2015 Modified FMS is available at: <http://www.waterforum.org/the-river/flow-management-standard/>

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

From: **Harrison, Katrina** <[kharrison@usbr.gov](mailto:kharrison@usbr.gov)>  
Date: Tue, Jul 31, 2018 at 12:33 PM  
Subject: Fwd: Science Request  
To: Barbara Byrne - NOAA Federal <[Barbara.byrne@noaa.gov](mailto:Barbara.byrne@noaa.gov)>

Hi Barb -

Is this something you can get folks working on in Garwin's absence? We have been instructed to start working on the long-term ROC on LTO project description and have a draft in the next month or two. It appears that strong scientific support will help actions for fish be included in the project description. We would really appreciate any articles / science you can provide, and if you provide your key take-aways from the studies that is even better. We are thinking:

- Citation
- Topic
- Key Take-aways / Inference (which Reclamation will update to ours)
- Quote / page-number of key takeaway
- Qualifiers / Caveats / Limitations of the study

This is what we are currently trying to pull together for initial actions, but also need to do it for long-term actions concurrently.

Thank you,

Katrina

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

From: **Harrison, Katrina** <[kharrison@usbr.gov](mailto:kharrison@usbr.gov)>

Date: Tue, Jul 31, 2018 at 12:17 PM

Subject: Science Request

To: Garwin Yip - NOAA Federal <[garwin.yip@noaa.gov](mailto:garwin.yip@noaa.gov)>

Hello Garwin -

Can you please send us any and all relevant science to support possible changes to operations for the long-term ROC on LTO? In the long-term ROC on LTO, we are hoping to address operational changes overall as well as build structured decision making (life-cycle) models for all the species so we can direct resources to the limiting factors. In particular, for science, I am thinking of:

- Shasta temp management - papers on temp strategies - holding water cold until you run out versus hot, cold, hot; other strategies; why is 7DADM more relevant than daily averages, do other operators operate to 7DADM in other systems;
- Trinity Requirements - what is NMFS's balance between coho / Winter-run; is more water from the Trinity system needed;
- New Melones RPO - does NMFS have any issues with this, if so please provide scientific support for why;
- American River FMS (without carryover storage targets) - does NMFS have any issues with this, if so please provide scientific support for why;
- Habitat Restoration - what habitat restoration is actually needed for each of the salmonid species at this point, where should we focus our efforts?
- Green Sturgeon: What existing modeling tools are there for the life-cycle of this species? What are their key limitations? How would we go about analyzing factors for them?

Anything else you can provide would be great too.

Thanks,

Katrina Harrison  
Bay-Delta Office  
Bureau of Reclamation  
Office: (916) 414-2425  
Cell: (916) 606-8793

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Bay-Delta Office  
Bureau of Reclamation  
Office: (916) 414-2425  
Cell: (916) 606-8793

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**Barb Byrne**

*NOAA Fisheries West Coast Region*

*U.S. Department of Commerce*

Office: 916-930-5612

Mobile (no reception at my desk): 916-761-9952

[barbara.byrne@noaa.gov](mailto:barbara.byrne@noaa.gov)

*California Central Valley Office*

*650 Capitol Mall, Suite 5-100*

*Sacramento, CA 95814*



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