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**Sent:** Monday, March 4, 2019 5:38 AM  
**To:** Barbara Byrne  
**Cc:** Howard Brown; Garwin Yip  
**Subject:** ROC LTO Stressors -- CWF Head Start

Barb --

I went through the I&S tables for CWF to pull out the stressors as a head start for this afternoon. I hope it's helpful. The last bundle for the species may not apply -- they were specifically included in the CWF PA to not get "lost". In the case of ROC, they may be more generally included in the PA (I need to look). For CH, I pulled the ones I thought were relevant (that is, no construction actions).

Cathy

**Species stressors**

Increased upstream temperature  
Redd dewatering  
Redd scour  
Stranding  
Screen impingement and entrainment  
Increased predation (due to structures)  
Travel time  
Outmigration routing  
Altered south Delta hydrodynamics due to exports and HORB  
Entrainment and loss at facilities  
Contaminant exposure  
SMSCG (was explicitly in CWF PA)  
Roaring River Distribution System (was explicitly in CWF PA)  
Morrow Island Distribution System (was explicitly in CWF PA)  
Goodyear Slough (was explicitly in CWF PA)  
North Bay Aquaduct (was explicitly in CWF PA)  
Contra Costa Rock Slough (was explicitly in CWF PA)

**Critical habitat actions**

Increased upstream temperature  
Redd dewatering  
Redd scour  
Contaminant exposure  
Reduced in-delta flows