Black=Stressors from CWF BiOp
Blue=Stressors from stressor tables in Integration and Synthesis (Chapter 9) of 2009 CVP/SWP BiOp

Species stressors (check out recovery plan stressor matrices and threats assessment)
From recovery plan threats assessment:
1. Passage Impediments/Barriers
2. Harvest/Angling Impacts
3. Water Temperature
4. Water Quality
5. Flow Conditions
6. Loss of Riparian Habitat and Instream Cover
7. Loss of Natural River Morphology and Function
8 Historically, winter-run Chinook salmon inhabited the Little Sacramento River, Pit-Fall-Hat Creeks, the McCloud River, and Battle Creek.
Appendix B, Section 2.0 Sacramento River Winter-run Chinook Salmon
Central Valley Chinook Salmon 2-57 July 2014
and Steelhead Recovery Plan
8. Loss of Floodplain Habitat
9. Loss of Tidal Marsh Habitat
10. Spawning Habitat Availability
12. Physical Habitat Alteration (e.g., lack of instream gravel supply, watershed disturbance)
13. Invasive Species/Food Web Changes
14. Entrainment
15. Predation
17. Hatchery Effects

Water temperature
Flow conditions
--redd scour
``redd dewatering
--adult or juvenile stranding
--floodplain inundation
--travel time
--survival
--routing
--riverine vs. tidal transition zone (which links to routing/survival)
--support of riparian vegetation
--geomorphic processes
--Excessive fines in spawning gravel results from lack of overbank flow
--rearing habitat
--passage impediments (e.g. low DO)
--pulse flows

Entrainment into unscreened CVP diversions

Impingement on screened CVP diversions
Predation
--structure-related
--flow-related
--routing-related

Entrainment and loss at facilities
Contaminant exposure
Reduced spawning area
Limited spawning habitat availability
Excessive fines in spawning gravel results from lack of overbank flow
Reduction in rearing habitat quantity and quality
Limited rearing habitat availability
Reduction in rearing habitat complexity due to lack of channel forming flows
Reduced quality of rearing habitat
Lack of channel-forming flows, loss of rearing habitat and riparian habitat, loss of riparian vegetation, impaired geomorphic processes
Higher flows and cooler water temperatures during the summer (leading to residualized O. mykiss)
Flow fluctuations (leading to potential stranding)
Reversed natural flow pattern (high flows in summer, low flows in fall)
Flood releases

Nimbus hatchery O. mykiss spawning with natural-origin steelhead in the American River and in other CV streams
Predation
Monitoring
Studies in Appendix 2-B (on green sturgeon)
Treatment of Clifton Court Forebay with herbicides

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