



NOAA
FISHERIES

CWF Phase 2b Peer Review - draft BiOp and Preliminary Effects

January 23, 2017

Analytical Approach

- In response to phase 2a report, NMFS:
 - Expanded the VSP section to further address how we evaluate project effects on diversity and spatial structure;
 - Added more detail to our application section to describe how weights of evidence would be determined;
 - Included explicit references in our legal and policy section to clarify that ESA consultations give the benefit of the doubt to the species when there is uncertainty in predicting effects of the action;
 - Further discussed how uncertainties would be dealt with and the role of adaptive management framework; and
 - Included more information on how NMFS treated climate change in this opinion.

Effects Analysis Outline

- Effects to the Species
 - Construction
 - Acoustics
 - Sediment Concentration and Turbidity
 - Contaminant Exposure
 - Increased Temperature
 - Reduced Prey Availability
 - Increased Predation Risk
 - Physical Impacts to Fish
 - Operations
 - Increased Upstream Temperature
 - Redd Dewatering
 - Redd Scour
 - Stranding
 - Screen Impingement and Entrainment
 - Increased Predation Risk
 - Reduced Delta In-Flows
 - Travel Time
 - Routing
 - Salvage
 - Through-Delta Survival

Construction-Related Effects

- Large construction project with many actions lasting multiple years
- Most activities during work windows
- Potential to adversely affect a few listed Chinook despite window
- Barge traffic - widespread, year-round, several years
- Acoustic Stress - Multiple years of exposure for migrating adults, in particular Adult steelhead

Operations-Related Effects (Upstream)

- Small increases in late summer/early fall temperatures in some water year types
- High rate of temperature exceedance for PA operations, which may be addressed through RTO or RPA adjustment
- Entrainment rate expected to be very low, but impingement ~ 1-2% per screen, up to 7% cumulatively
- Increased redd dewatering risk
- All analyses are from the BA, except for NMFS SWFSC Egg Mortality Model

Operations-Related Effects (Delta)

- Delta operations were examined by stressor
 - Travel time
 - Migration routing
 - Salvage at south Delta
 - Migratory success (survival)
- Large focus of Delta Operations Effect Analysis is on overall migratory success
- Survival differences between proposed action (PA) and No Action Alternative (NAA)
 - Survival by migratory route
 - Through Delta cumulative survival
- Models available
 - Perry 2017 flow survival model, Delta passage model, Newman 2003, SalSim, NMFS life cycle model

Operations-Related Effects (Delta)

- Main effects:
 - Reduced river velocity and increased effect of tides increases travel distance and time for juvenile salmonids
 - Travel time for SJR basin smolts decreases because of HORB
 - Effects vary by month and water year type
 - Overall reduction in survival for Winter-run juveniles for PA vs NAA
- Would like to focus on NMFS life-cycle model and Perry Flow-survival analyses