

EATSM Release Summary Form

Date: 06/27/2019

Study objective(s): Evaluation of paired releases of fall Chinook Salmon from Coleman National Fish Hatchery at downstream acclimation net pens and on-site in Battle Creek	
Study Timing: <ul style="list-style-type: none">Study Duration (years): 3 years, 2019-2021Release Dates (range): Late-March through mid-April, annually	Study site(s): <ul style="list-style-type: none">Collection site(s): Coleman National Fish HatcheryRelease location(s): Battle Creek (Coleman NFH) and Sacramento River at Scotty's Landing (RM 196)
Fish	
<ul style="list-style-type: none">Species-race: fall Chinook SalmonLife stage: pre-smolt and smoltSource: Coleman NFH	Size (median & range): <ul style="list-style-type: none">Weight (if applicable): 6.5 g (5.0-8.1)Length: 84 mm (78-91)
Transmitter Information <ul style="list-style-type: none">Type/model: ATS SS300Weight (gm): 0.30 gPRI/life of tag: 5s/ 71 days	Implant procedure <ul style="list-style-type: none">Surgical placement of acoustic tag in peritoneal cavity of juvenile salmon. Incision closed using 2 sutures.
Telemetry Receivers: <ul style="list-style-type: none">Receivers Maintained (type/model, number, & geographical extent): EATSM receivers onlyReceiver Deployment (e.g., year-round, study-based/seasonal – specific dates): Seasonal: Mid-March through late May (approximately 70+ days after the final fish is tagged)Coordination with other studies/receivers needed? (Y/N, geographical extent): Sacramento River and Bay-Delta RegionFrequency of data download required: No additional requirements outside of normal download schedule	
Survival estimate (per species or objective) <ul style="list-style-type: none">Type (project, etc.): Analysis details pendingValue & SE:Sample size/replicate: 300/release group/year# replicates: 0Analytical model: updated version of the multi-state mark-recapture model to estimate reach-specific survival (S), detection probabilities (P), and route use probabilities (Ψ) in out-migration reaches	
Hypothesis test and results (if applicable) <ul style="list-style-type: none">H₀: There is no difference in fishery contribution, returns to Battle Creek, stray rates or juvenile in-stream survival between release sites/methodsH_a: There are differences in fishery contribution, returns to Battle Creek, stray rates or juvenile in-stream survival between release sites/methodsConclusion: Pending. Data may be used to inform future hatchery release practices.	
Characteristics of estimate <ul style="list-style-type: none">Effects reflected (direct, total, etc): Evaluate instream survival of juvenile FCS throughout the freshwater emigration corridor using real-time data from acoustic tagsAbsolute or relative: Relative survival between release sites/methods	
Environmental/operating conditions (if applicable) <ul style="list-style-type: none">Relevant discharge indices: Battle Creek and Sacramento River through emigration corridor	

- Temperature: Battle Creek and Sacramento River through emigration corridor
- TDG: N/A
- Treatment(s): Flow, turbidity, temperature in Battle Creek and Sacramento River through emigration corridor

Unique study characteristics: The primary goal of this study is to evaluate the fishery contribution, escapement to Battle Creek and stray rates of paired releases of juvenile FCS from Coleman NFH released into acclimation pens in the Sacramento River and released directly from the hatchery into Battle Creek. The study will assess if the proposed off-site release strategy is aligned with the Service's goals for Coleman NFH, which are to promote increased survival of salmon to support ocean and freshwater fisheries while encouraging a high rate of fidelity to Coleman NFH to ensure a source of hatchery broodstock and reduce the potential for negative impacts that can result when hatchery fish stray to natural spawning areas. A secondary study goal is to evaluate instream survival of juvenile FCS throughout the freshwater emigration corridor using data from acoustic tags. This study was developed in partnership with Golden Gate Salmon Association (GGSA), NorCal Guides & Sportsmen's Association, Pacific Coast Federation of Fishermen's Association and US Bureau of Reclamation. The UC Davis Biotelemetry Team performed acoustic tagging surgeries in the first year of the study.