Telemetry Study Summary Framework

Date of last modification: March 27,2020

<table>
<tr><td colspan="2">Point of Contact:
Name: Rachelle Tallman E-mail: rltallman@ucdavis.edu Phone: 831-419-3738</td></tr>
<tr><td colspan="2">Study objective:</td></tr>
<tr><td>• Study Timing: Release Dates Late March- April (released timed with when fish are of taggable size)</td><td>Study site(s): River Garden Farms, Knaggs Ranch, UC Davis Laboratory Fish</td></tr>
<tr><td colspan="2">Fish</td></tr>
<tr><td>• Species-race: Fall-run Chinook salmon
• Life stage: smolt
• Source: Coleman National Fish Hatchery</td><td>Size (median & range):
• Weight: 5.38g
• Length: 77.8 mm</td></tr>
<tr><td>Transmitter Information
• Type/model: SS400 single battery
• Weight (gm): 0.217
• PRI/life of tag: 5 sec PRI</td><td>Implant procedure
Surgical placement of acoustic tag in peritoneal cavity of juvenile salmon. Incision closed using one suture.</td></tr>
<tr><td colspan="2">Telemetry Receivers: 2 ATS receivers in the mainstem of the Sacramento near (38.690673, -121.634606)
Receiver Deployment: Receivers deployed before release (March 25, 2020). Receivers will be retrieved in late July.
Coordination with other studies/receivers needed? (Y)
Frequency of data download required: Once every 1-2 months depending on staff availability</td></tr>
<tr><td colspan="2">Survival estimate (per species or objective)
• Type (project, etc.): UC Davis and California Rice Commission
• Value & SE: TBD
• Sample size/replicate: 1000 released telemetry fish,
• 295 Knaggs, 51 River Garden fish (1st Release)
327 River Garden Fish, 327 Laboratory Fish (2nd Release)
• # replicates: 2
• Analytical model: multinomial multi-state mark recapture sensu Buchanan et al. (2013, 2018)</td></tr>
<tr><td colspan="2">Hypothesis test and results (if applicable)
• H_o:
• H_a:
• Conclusion:</td></tr>
<tr><td colspan="2">• Characteristics of estimate: Effects reflected (direct, total, etc): Evaluate survivability of differentially-reared salmon in the Bypasses, Sacramento River, Delta and San Francisco Bay across multiple years. Associate movement and survival rates with flow and water temperature in each region to evaluate their influence on survival. Evaluate RT distribution through river, Delta, and presence/absence in the Delta
Absolute or relative: absolute survival</td></tr>
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Environmental/operating conditions (if applicable)

- Relevant discharge indices:
- Temperature:
- TDG:
- Treatment(s): Rice field reared versus laboratory

Unique study characteristics: Previous research has shown that Chinook salmon reared on agricultural floodplains exhibit high growth rates, however it remains unknown whether this pattern translates into higher out-migration survival rates. By modifying agricultural floodplains post-harvest and determining effects on fish survival, this data could be useful in informing practice standards for farmers to adopt towards supporting fish populations in the Sacramento River basin.