Telemetry Study Summary Framework

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<table>
<tr><td colspan="2">Point of Contact:
Name: Matt Johnson E-mail: Matt.Johnson@wildlife.ca.gov Phone: (530) 527-9490</td></tr>
<tr><td>Study Timing:
• Study Duration: 1 year
• Release Dates: 11/2-12/12 (2018)</td><td>Study site(s):
• Collection site: Deer Creek 39.5950.75N, 121.5803.38 W
• Release location: at screw trap</td></tr>
<tr><td colspan="2">Fish</td></tr>
<tr><td>• Species-race: Central Valley spring-run Chinook
• Life stage: smolt
• Source: wild</td><td>Size (median & range):
• Average Weight: 14.1 g
• Average Length: 108.9 mm</td></tr>
<tr><td>Transmitter Information
• Type/model: ATS SS300/SS400
• Weight (gm): .30
• 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 two sutures.</td></tr>
<tr><td colspan="2">Telemetry Receivers:
• Receivers Maintained: 4 Technologic receivers in Deer Creek maintained by CDFW. Additional receivers deployed in Sacramento River/Delta/SF Bay by USGS and UCSC
• Receiver Deployment: Deployed in Deer once tagging begins and remain in place for 30+ days after last fish is tagged
• Coordination with other studies/receivers needed? Yes. Coordination with deployment of receivers in Sacramento River/Delta/Bay
• Frequency of data download required: 1X year for Deer Creek receivers</td></tr>
<tr><td colspan="2">Survival estimate (per species or objective)
• Type (project, etc.): NOAA-UCSC 1A
• Value & SE: .30 (+/-10%)
• Sample size/replicate: up to 100 fish in fall and spring tagging period
• # replicates: NA Fish tagged as available based on RST captures
• Analytical model: River and STAR models. These models analyses will be completed by NMFS at the end of the year</td></tr>
<tr><td colspan="2">Hypothesis test and results (if applicable)
• $H_{o:}$ NA
• $H_{a:}$ NA
• Conclusion: Observational</td></tr>
<tr><td colspan="2">Characteristics of estimate
• Effects reflected (direct, total, etc.): Evaluate survival in Deer Creek, the Sacramento River, Delta and San Francisco Bay across multiple years. Associate movement and survival</td></tr>
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rates with flow and water temperature in each region to evaluate their influence on smolt survival.

- Absolute or relative: Absolute survival

Environmental/operating conditions (if applicable)

- Relevant discharge indices: Deer Creek flow 1,500 cfs or less
- Temperature: <22
- TDG: NA
- Treatment(s): Flow, turbidity, temperature

Unique study characteristics: The high numbers of spring-run Chinook smolts historically captured by rotary screw trap in lower Deer Creek (Tehama County) makes this study ideal for acoustic tagging purposes. The average smolt size is large enough that concerns for acoustic tag shedding are low, and the high numbers of fish historically captured in the fall allows for large sample sizes to be tagged and released seasonally. This study is unique in that it gives managers a snapshot into survival and movement rates of natural-origin Central Valley spring-run Chinook smolts out-migrating in the fall.