Telemetry Study Summary Framework

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Study objective(s):

Primary objective - Survival and movement rates of hatchery-origin (progeny of captive broodstock) winter-run Chinook Salmon released in North Fork Battle Creek in March 2019 for the Battle Creek Jumpstart Project.

Study Timing:

- Study Duration (years): 2019 – pilot; funding for 4 more years
- Release Dates (range): March-April

Study site(s):

- Collection site(s): Coleman NFH
- Release location(s): North Fork Battle Creek

Fish

- Species-race: winter-run
- Life stage: pre-smolt
- Source: Livingston Stone / Coleman NFH

Size (median & range):

- Weight (if applicable): 7.2 g; 6.0-11.3 g
- Length: 88 mm; 81 – 100 mm

Transmitter Information

- Type/model: ATS SS3000 single battery
- Weight (gm): 0.30
- PRI/life of tag: 10 sec PRI / ~90 d

Implant procedure

- Surgical placement of acoustic tag in peritoneal cavity of juvenile salmon. Incision closed using two sutures.

Telemetry Receivers:

- Receivers Maintained (type/model, number, & geographical extent): 4 ATS receivers installed in Battle Creek
- Receiver Deployment (e.g., year-round, study-based/seasonal – specific dates): Study-based deployment, Installed March 10 and removed June 25
- Coordination with other studies/receivers needed? (Y/N, geographical extent): Y, coordinated acoustic telemetry receivers in Sacramento River, Delta, and Bay.
- Frequency of data download required: 90 d after release (download in June or July)

Survival estimate (per species or objective)

- Type (project, etc.): TBD
- Value & SE: TBD
- Sample size/replicate: 500
- # replicates: 1
- Analytical model: TBD

Hypothesis test and results (if applicable)

- H_o: N/A
- H_a: N/A
- Conclusion: Observational

Characteristics of estimate

- Effects reflected (direct, total, etc): TBD
- Absolute or relative: TBD

Environmental/operating conditions (if applicable)

- Relevant discharge indices: N/A
- Temperature: N/A
- TDG: N/A

- Treatment(s): TBD

Unique study characteristics:

The 2019 study was an exploratory effort to determine feasibility, work on coordination and timing, and provide initial results to be used in determining an appropriate sample size for future efforts. It was recognized that multiple options were present for in-depth analyses of survival and distribution in Battle Creek and the Sacramento River. Due to the limited time of inception of this study and the target release date, many of these details were not worked out prior to fish tagging and release. Battle Creek winter-run Reintroduction Efforts will continue on annual basis, with an anticipated release of 215,000 pre-smolts and there will be opportunity to expand these study efforts to tagging multiple release groups or tagging more fish within one release group. This study is unique because it provides insight on survival, travel time, and distribution of reintroduced fish. Additionally, these fish are released (early spring) into the Battle Creek later than the LSNFH release groups and are present at a time when there are not other AT fish migrating through the system.