Captive Rearing Study Update
for
Restoration Goal Technical Feedback Group Meeting

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Need for Captive Rearing

• Spring-run Chinook Salmon are threatened in California
• Remove small numbers from each donor system for amplification in the captive rearing program
Need for Captive Rearing Research

- Practice Hatchery Techniques
- Develop protocols
  - Rearing
  - Feeding
  - Genetic Management
  - Spawning
  - Fish Health Monitoring
  - Marking and Tagging
  - Holding and Transportation

Facility Investigations – Hatchery Tours

Feather River Hatchery

Bonneville Hatchery

Oregon Hatchery

Warm Springs Hatchery

Livingston Stone

Research Facility
Interim Facility Conceptual Design

Interim Facility Today
Egg Collection – Merced River Hatchery

- 55 crosses
- 10 eggs per cross
- 550 eggs
- 30 day quarantine
PIT Tagging

- Tag Retention – (428/444) 96.4%
- Equipment Conflicts
- Need for VI Tags

Genetic and Sex Chromosome Analysis
Water Temperature Profile

Average Daily Temperatures at San Joaquin Hatchery Complex
8/26/11 - 3/23/12

[Graph showing temperature profile over time]

2010 MRH Fall-run Broodstock Overview

Percent Egg Survival From Fall Spawn to December 2011

[Graph showing survival rates over time]

Preliminary draft; subject to revision.
Precocity

Critical periods for maturation decision – based on body size/growth rate

Fall decision period

Spring decision period

Fast growth = Yes

Fast growth = Yes

Mature

Slow growth = No

Fast growth = Yes

Immature

Spawning

Larsen et al. NOAA Fisheries

2010 Broodstock Growth Data

Figure 2. Average Fish Weight by Gender and Precocity of Experimental Broodstock Reared at the Interim Facility (Friant, CA).
Cryopreservation

• Sperm Motility
• Freezing Methods
• Protocols

Other Research Support

• Telemetry Study
• Egg Survival Study
• Streamside Incubation
Conclusions and Recommendations

• Continue captive rearing study.
• Introduce a second group of eggs this fall.
• Use results from study to help guide conservation hatchery construction.
• Continue to investigate growth rate modulation.
• Investigate methods to reduce hatchery induced selection.

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