Fisheries Technical Feedback Group Meeting
March 1, 2013

Spring-run Captive Rearing Program Update

Paul Adelizi
California Department of Fish and Wildlife

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Why Captive Rearing?

- CV spring-run Chinook salmon are threatened in California.
- Mining fish from a donor population can have negative impacts to that population.
- Captive Rearing will amplify small numbers of donor fish with minimal impact to the donor populations.

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Program Priorities

- Balancing science and nature in effort to create a naturally reproducing and self-sustaining population.

The Seattle Times 9/20/2012

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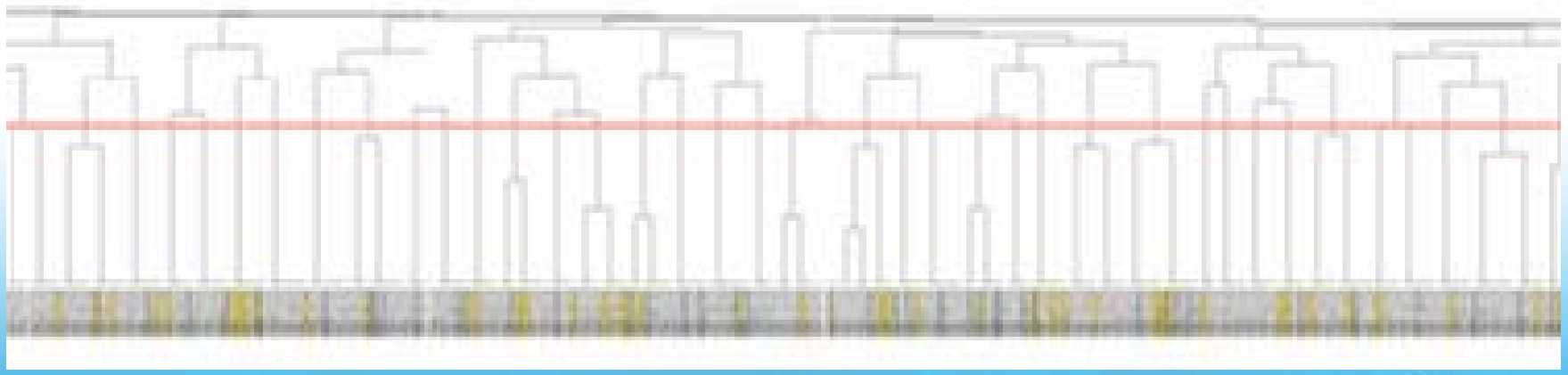
Program Priorities - Genetics

- Genetic Diversity
  - Start with diverse population
  - Mate unrelated individuals
  - Use modern genetic tools (SNPs)



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Program Priorities - Minimize Precocity

Don Larsen, NOAA Fisheries

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Program Priorities - Reduce Hatchery Induced Selection (Artificial Redd Experiments)

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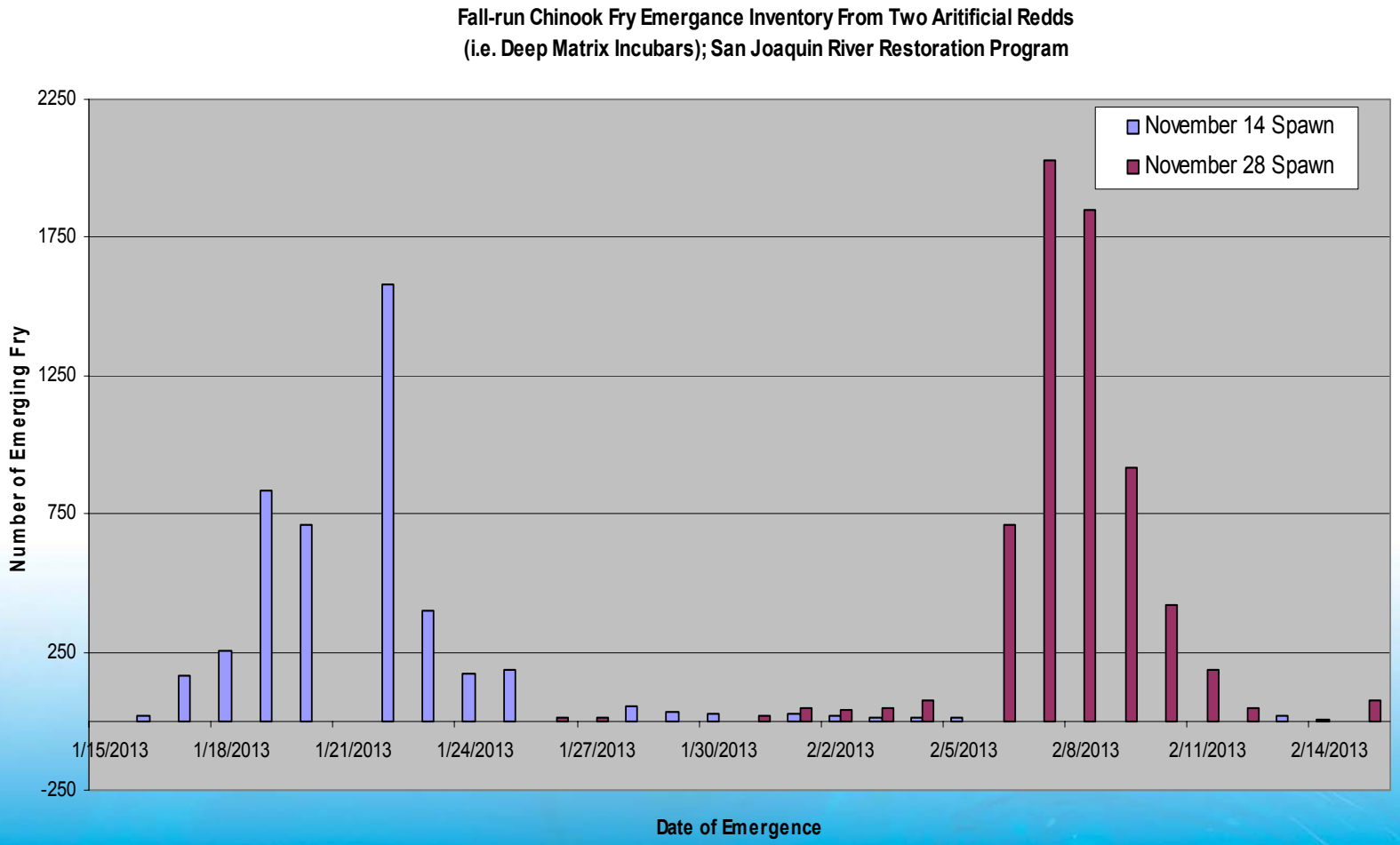
Artificial Redd Experiments



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Planning - Analysis

- The multi-agency Genetics Subgroup and Fisheries Management Workgroup analyzed the situation and developed the following documents:
  - Stock Selection Strategy
  - Reintroduction Strategy
  - HGMP

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Planning - Facility Investigations

Feather River Hatchery

Bonneville Hatchery
Oregon DFW

Warm Springs Hat

Oregon Hatchery
Research Facility

Livingston Stone

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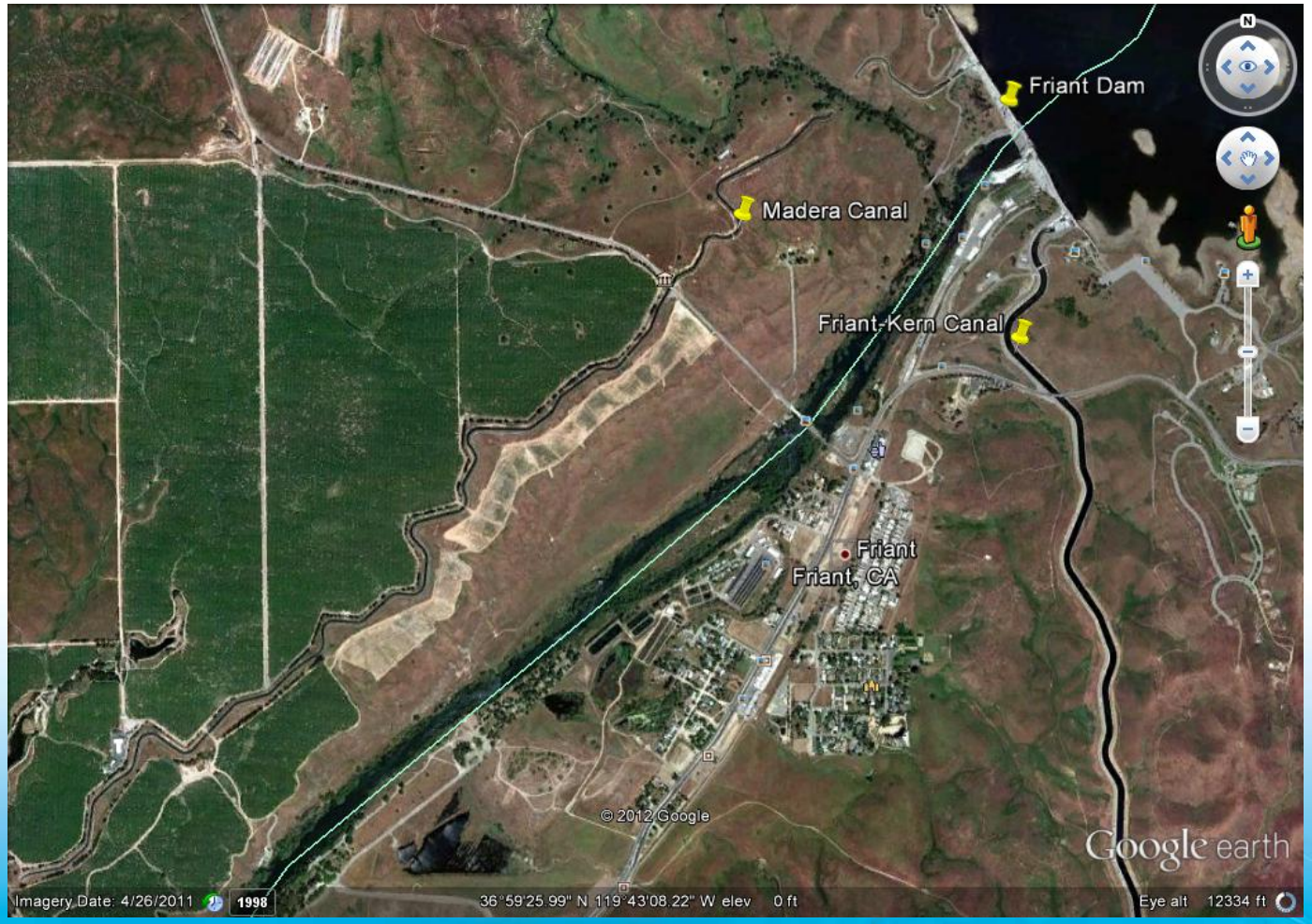
Proposed Location



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Proposed Location

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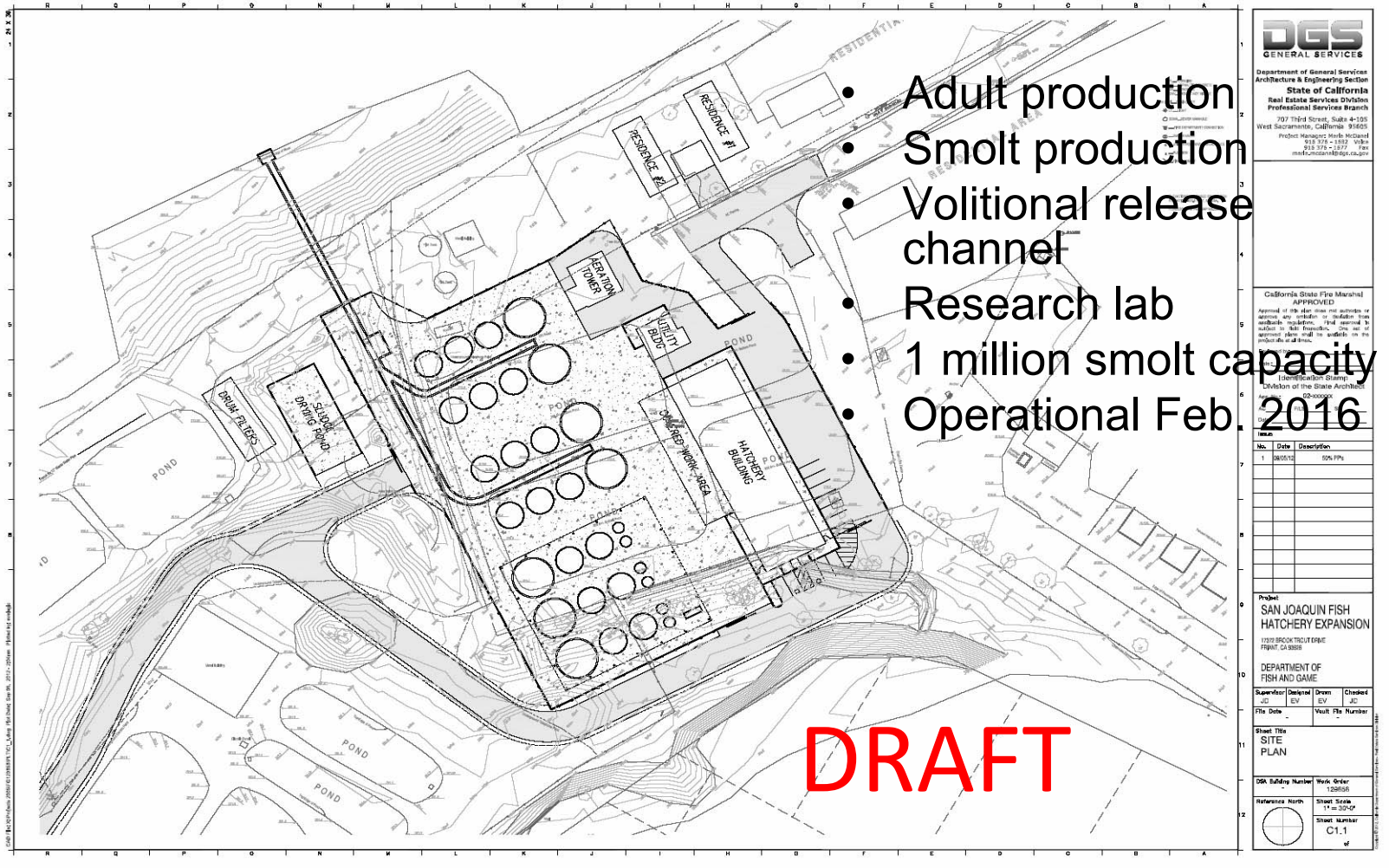
Preliminary Drawings



- Adult production
- Smolt production
- Volitional release channel
- Research lab
- 1 million smolt capacity
- Operational Feb. 2016

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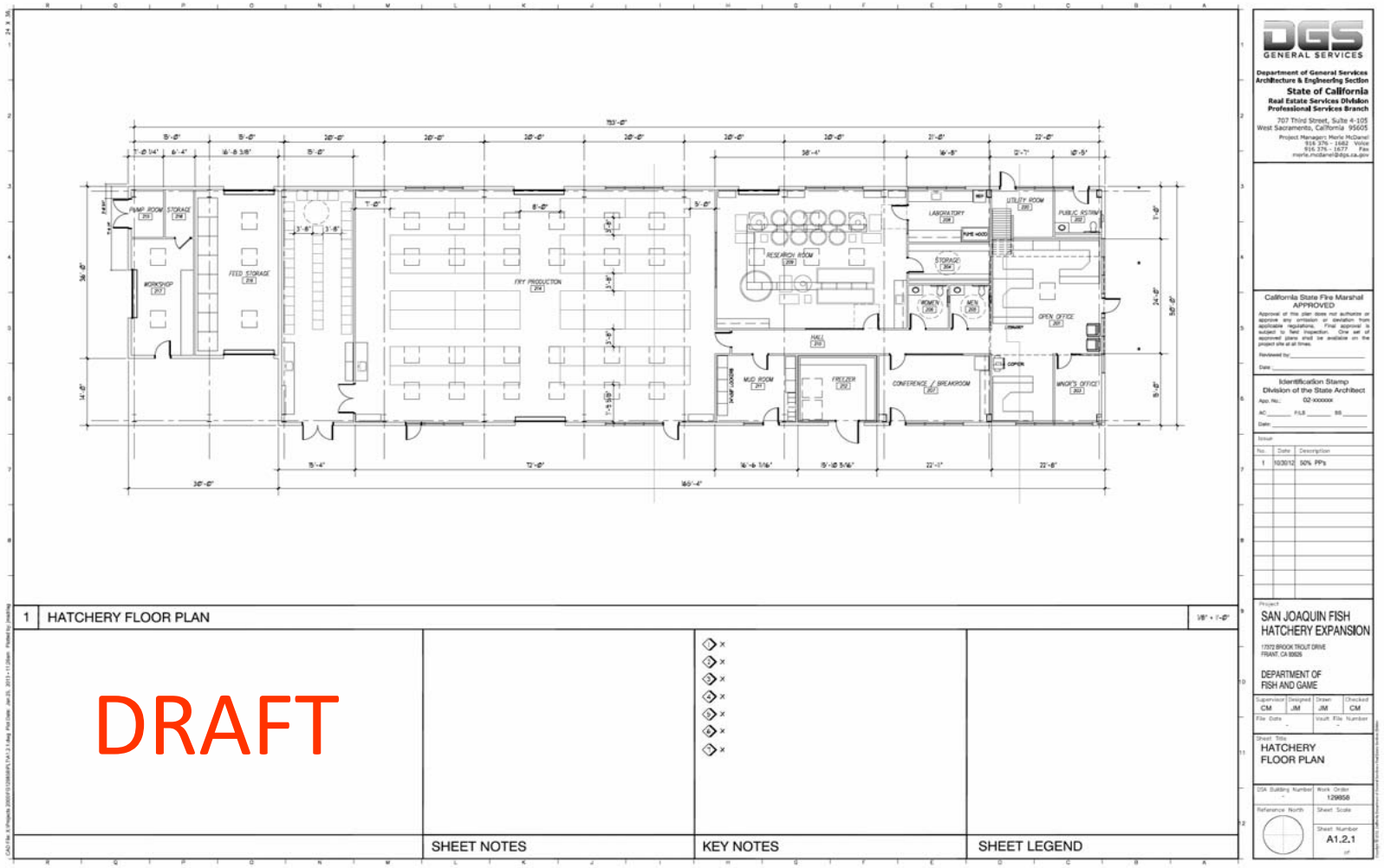
Hatchery Building



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Interim Facility

FRH Ladder Opened September 17

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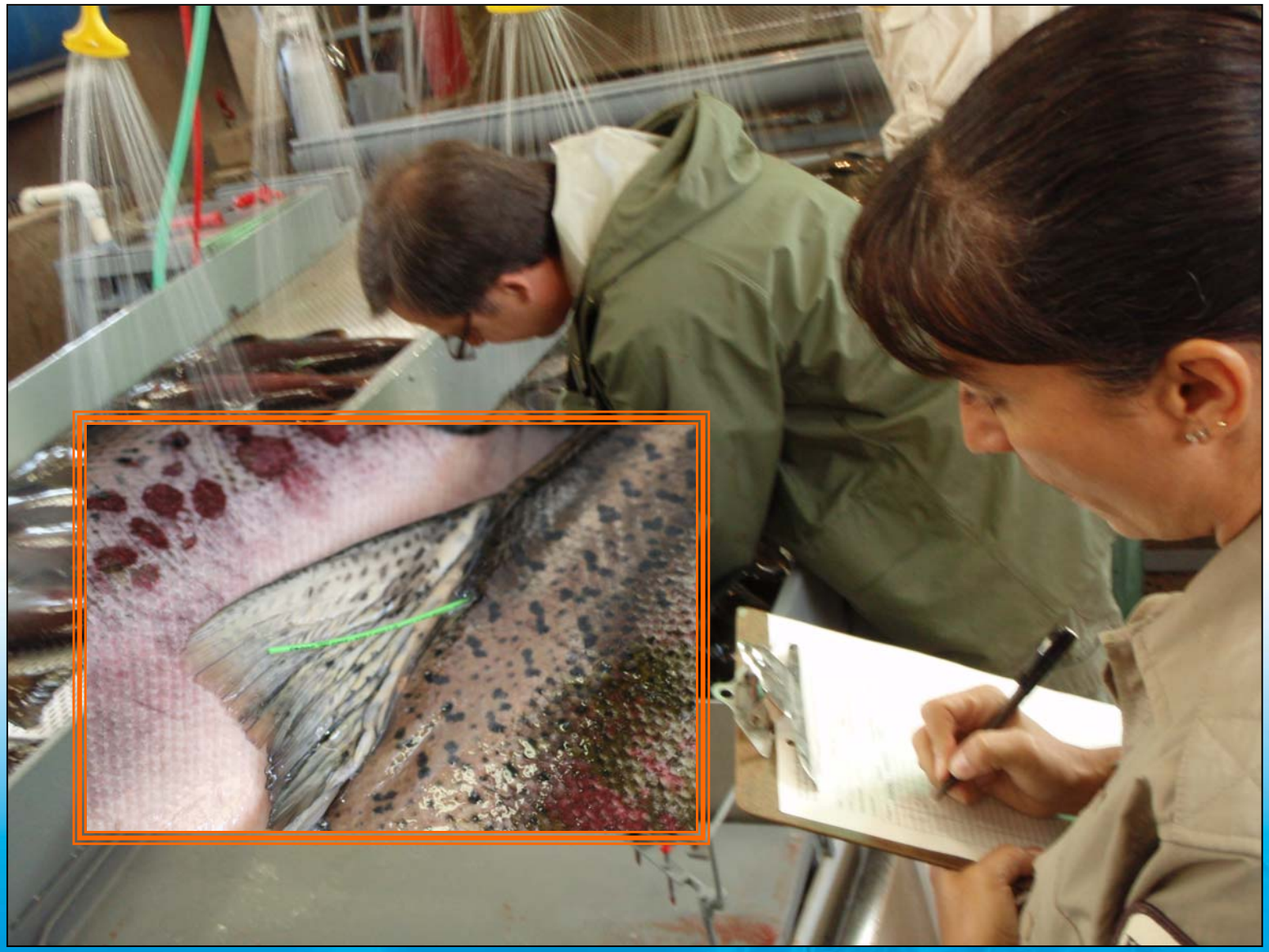
Recording Hallprint Tags and Ovarian Fluid



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Spawning

- Spawning occurred on September 21, 25, and 28
- First 30 pairs were mated
- Only used fish with CWTs

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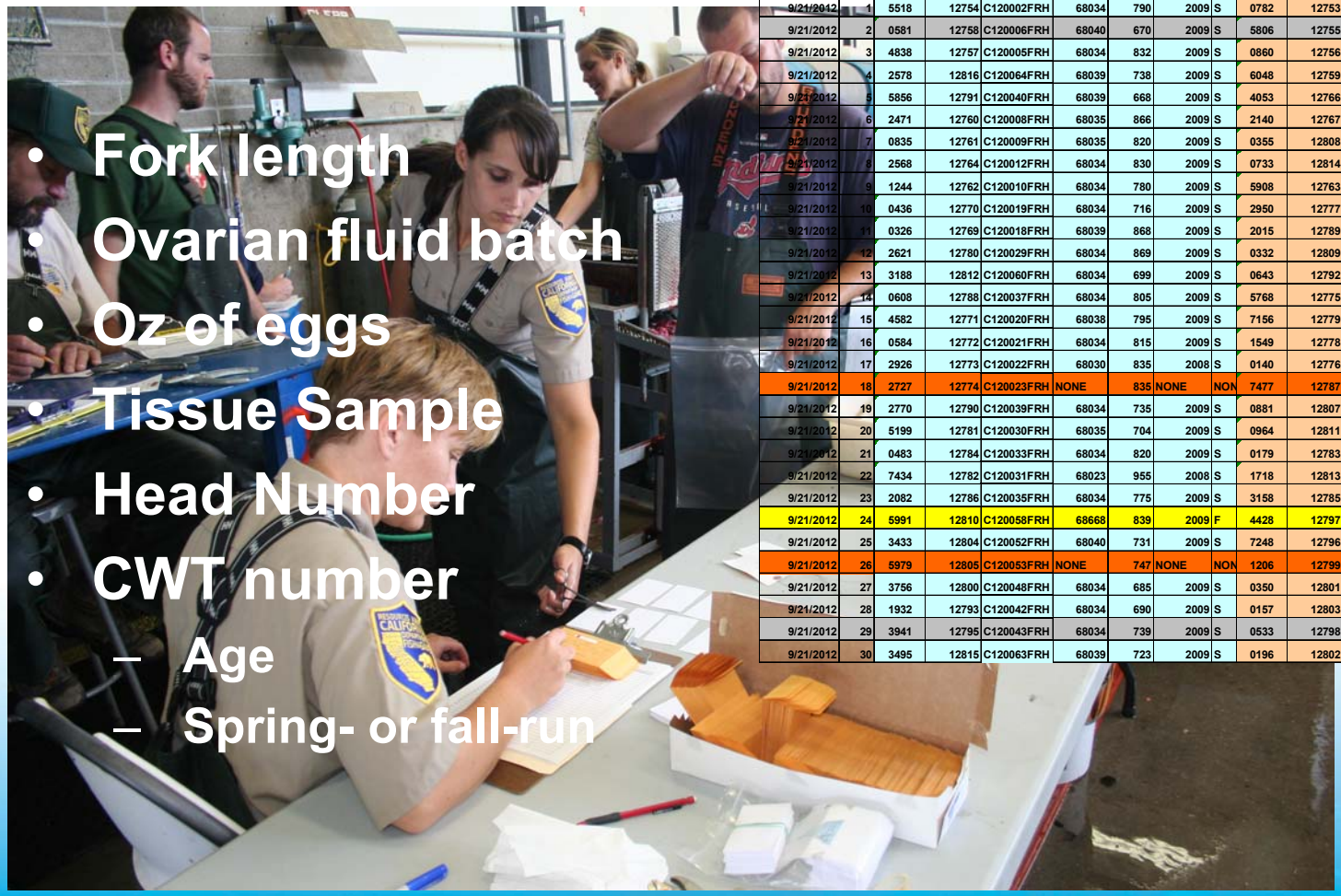
Data Collection



- Fork length
- Ovarian fluid batch
- Oz of eggs
- Tissue Sample
- Head Number
- CWT number
  - Age
  - Spring- or fall-run

DATE	Cross #	♂ Male Data							♀ Female Data						
		Hallprint#	Head Tag#	CVTA ID#	CWT#	FK (mm)	Brood Year	Run	Hallprint#	Head Tag#	CVTA#	CWT#	FK (mm)	Brood Year	Run
9/21/2012	1	5518	12754	C120002FRH	68034	790	2009	S	0782	12753	C120001FRH	68034	750	2009	S
9/21/2012	2	0581	12758	C120006FRH	68040	670	2009	S	5806	12755	C120003FRH	68035	700	2009	S
9/21/2012	3	4838	12757	C120005FRH	68034	832	2009	S	0860	12756	C120004FRH	68035	685	2009	S
9/21/2012	4	2578	12816	C120064FRH	68039	738	2009	S	6048	12759	C120007FRH	68035	770	2009	S
9/21/2012	5	5856	12791	C120040FRH	68039	668	2009	S	4053	12766	C120014FRH	68034	761	2009	S
9/21/2012	6	2471	12760	C120008FRH	68035	866	2009	S	2140	12767	C120016FRH	68034	725	2009	S
9/21/2012	7	0835	12761	C120009FRH	68035	820	2009	S	0355	12808	C120056FRH	68034	766	2009	S
9/21/2012	8	2568	12764	C120012FRH	68034	830	2009	S	0733	12814	C120062FRH	68034	747	2009	S
9/21/2012	9	1244	12762	C120010FRH	68034	780	2009	S	5908	12763	C120011FRH	68035	680	2009	S
9/21/2012	10	0436	12770	C120019FRH	68034	716	2009	S	2950	12777	C120026FRH	68034	750	2009	S
9/21/2012	11	0326	12769	C120018FRH	68039	868	2009	S	2015	12789	C120038FRH	68034	730	2009	S
9/21/2012	12	2621	12780	C120029FRH	68034	869	2009	S	0332	12809	C120057FRH	68034	795	2009	S
9/21/2012	13	3188	12812	C120060FRH	68034	699	2009	S	0643	12792	C120041FRH	68034	795	2009	S
9/21/2012	14	0608	12788	C120037FRH	68034	805	2009	S	5768	12775	C120024FRH	68035	679	2009	S
9/21/2012	15	4582	12771	C120020FRH	68038	795	2009	S	7156	12779	C120028FRH	68034	748	2009	S
9/21/2012	16	0584	12772	C120021FRH	68034	815	2009	S	1549	12778	C120027FRH	68034	710	2009	S
9/21/2012	17	2926	12773	C120022FRH	68030	835	2008	S	0140	12776	C120025FRH	68034	690	2009	S
9/21/2012	18	2727	12774	C120023FRH	NONE	835	NONE	NON	7477	12787	C120036FRH	68040	700	2009	S
9/21/2012	19	2770	12790	C120039FRH	68034	735	2009	S	0881	12807	C120055FRH	68034	789	2009	S
9/21/2012	20	5199	12781	C120030FRH	68035	704	2009	S	0964	12811	C120059FRH	68034	728	2009	S
9/21/2012	21	0483	12784	C120033FRH	68034	820	2009	S	0179	12783	C120032FRH	68034	718	2009	S
9/21/2012	22	7434	12782	C120031FRH	68023	955	2008	S	1718	12813	C120061FRH	68034	707	2009	S
9/21/2012	23	2082	12786	C120035FRH	68034	775	2009	S	3158	12785	C120034FRH	68035	695	2009	S
9/21/2012	24	5991	12810	C120058FRH	68668	839	2009	F	4428	12797	C120045FRH	68034	730	2009	S
9/21/2012	25	3433	12804	C120052FRH	68040	731	2009	S	7248	12796	C120044FRH	68037	739	2009	S
9/21/2012	26	5979	12805	C120053FRH	NONE	747	NONE	NON	1206	12799	C120045FRH	68034	686	2009	S
9/21/2012	27	3756	12800	C120048FRH	68034	685	2009	S	0350	12801	C120049FRH	68034	668	2009	S
9/21/2012	28	1932	12793	C120042FRH	68034	690	2009	S	0157	12803	C120051FRH	68034	656	2009	S
9/21/2012	29	3941	12795	C120043FRH	68034	739	2009	S	0533	12798	C120046FRH	68034	721	2009	S
9/21/2012	30	3495	12815	C120063FRH	68039	723	2009	S	0196	12802	C120050FRH	68023	876	2008	S

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Results

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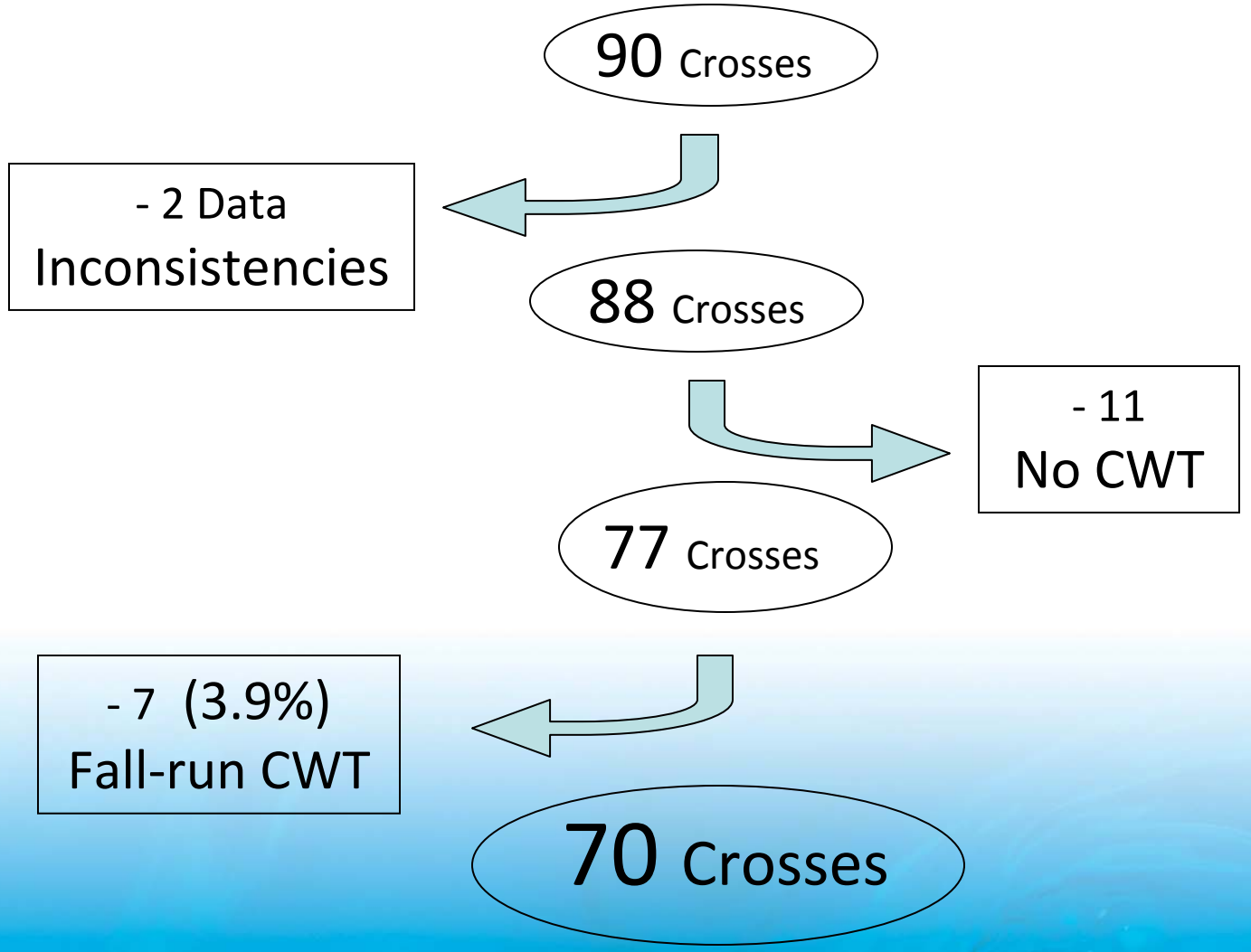
Selection Process



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Silverado Fisheries Base

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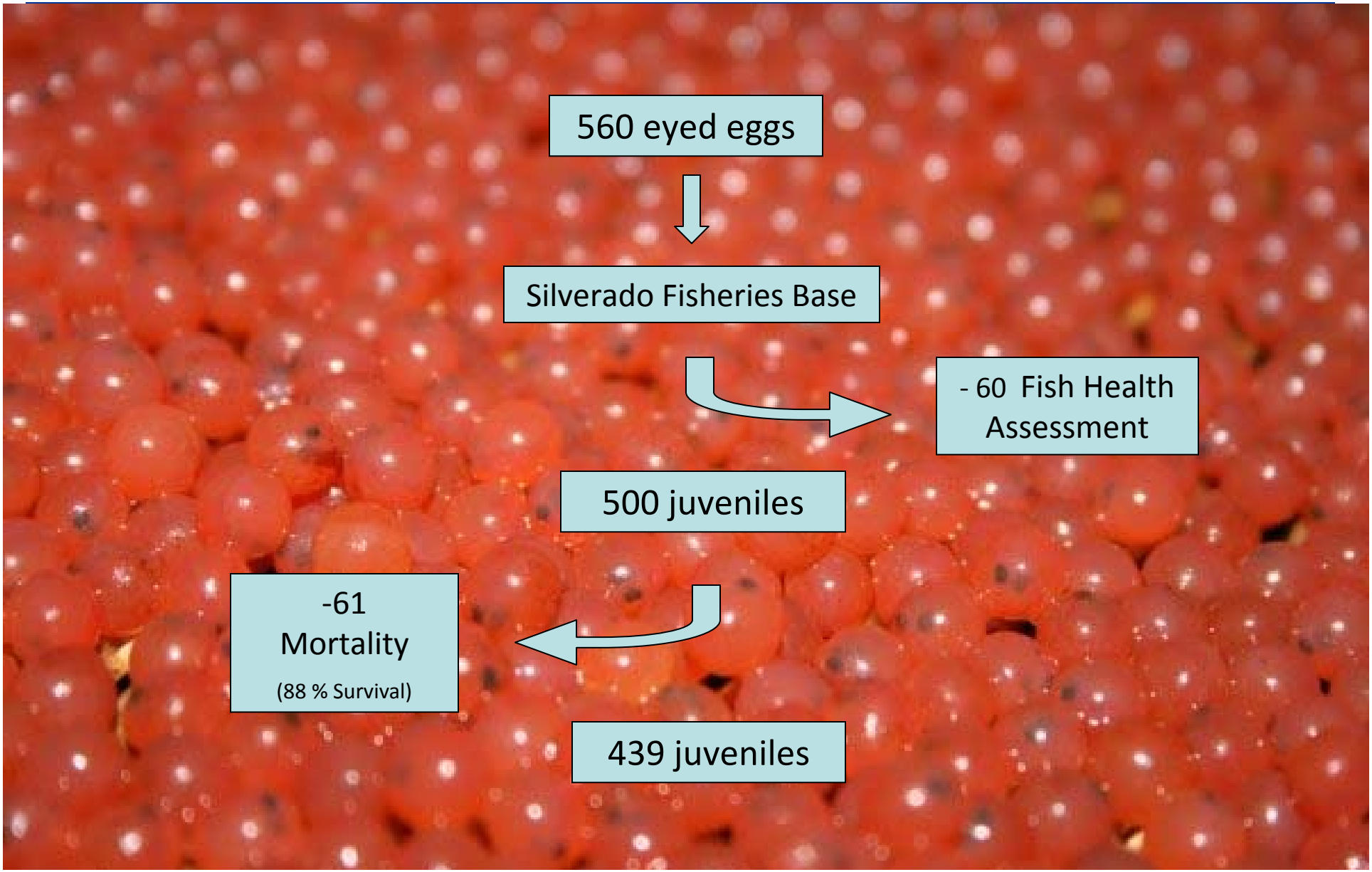
Broodstock Inventory



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Near-term Activities

- Tagging at SFB (CWT)
- Transport to Interim Facility
- PIT tagging, Tissue Sampling
- Sex identification
- Separate males and females
- Growth rate modulation September - January

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Long-term Activities

- Quarterly growth monitoring
- September 2013 – Maturity Check
- September 2013 – Egg collection at Feather River Hatchery
- September 2014 – (1) Spawn Jacks and Jills using mating matrix and (2) Egg collection at Feather River Hatchery
- September 2015 – (1) Spawn 3 year old brood stock using mating matrix and (2) Egg collection at Feather River Hatchery
- Continue to explore conservation hatchery techniques.

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Acknowledgements

- US Fish and Wildlife Service
- National Marine Fisheries Service
- NOAA's Southwest Fisheries Science Center
- US Bureau of Reclamation
- UC Davis Genomic Variation Lab
- CDFW Feather River Hatchery
- CDFW Silverado Fisheries Base
- CDFW Tissue Archive Lab
- CDFW Fish Health Lab

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Questions?