Cachuma Project Water Rights Hearing

October 2003

Panel V

Fishery Habitat Investigations on the Santa Ynez River Downstream of Bradbury Dam

Presenter:

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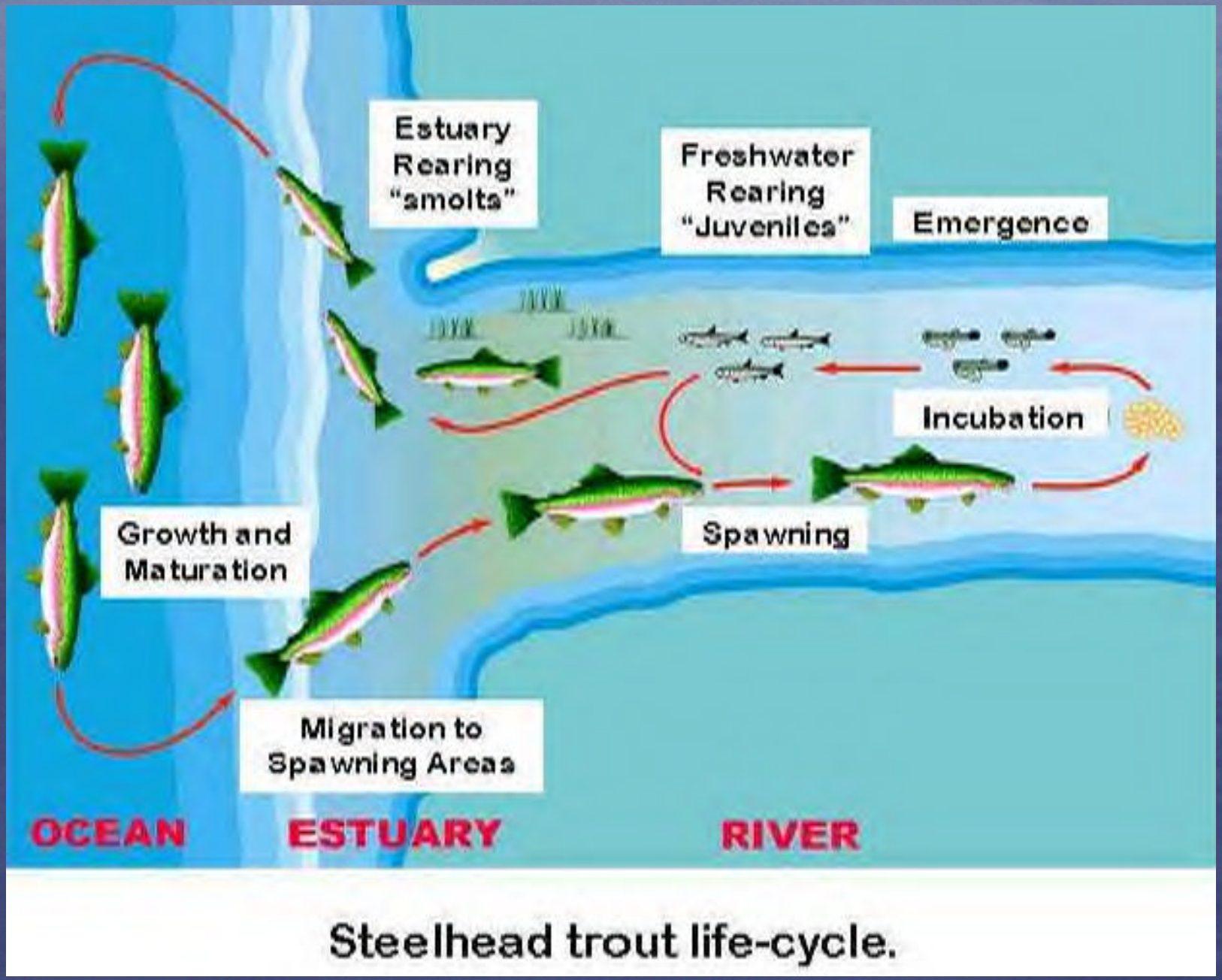
Fishery Habitat Investigations on the Santa Ynez River Downstream of Bradbury Dam

- Steelhead Life History
- Fishery Habitat Investigations Downstream of Bradbury Dam
- Identification of Limiting Factors for Steelhead and Management Actions



Steelhead trout life-cycle.

Cachuma Member Units Exhibit No. 242/Slide-**3**

Specific Objectives of the Scientific Studies

- Diversity, abundance, and condition of steelhead and other Public Trust fishery resources within the lower river
- Habitat quality and quantity
- Alternative flow regimes
- Non-flow measures

Identify and Evaluate Potential Alternative Management Actions

- Improve habitat conditions to maintain fish populations in good condition
- Protect, maintain, and improve habitat conditions for steelhead
- Improve habitat for a variety of fish and wildlife species

Scientific Monitoring Investigations and Analysis

- Hydrology
- Water Quality
  - Mainstem Water Temperature
  - Mainstem Dissolved Oxygen
  - Santa Ynez Lagoon
  - Tributary Water Temperature
- Habitat Characteristics
- Fishery Resources

Hydrology

- Seasonal and inter-annual variability of instream flows
- Breaching of the sandbar
- Upstream and downstream steelhead passage
- Releases to recharge downstream groundwater basins

- Fish reserve account

  1. Maintain and protect fishery resources

  2. Conduct specific experimental studies

- Instream flow releases for steelhead are being made in compliance with the Fish Management Plan and NOAA Fisheries Biological Opinion

Water Quality

Mainstem Water Temperatures

- Seasonal pattern
- Longitudinal gradient of increasing temperature moving downstream
- Thermal tolerance criteria for steelhead

- Water temperatures are suitable during the late fall, winter, and early spring
- Water temperatures are suitable between the dam and Highway 154
- Water temperatures at a number of mainstem monitoring sites exceed temperature criteria for rainbow trout/steelhead during the summer

Mainstem Dissolved Oxygen

- Algal production and dissolved oxygen concentrations
- WR 89-18 releases remove much of the algae from pool habitats
- The reduction in algal accumulations directly improves habitat conditions

Santa Ynez River Lagoon

- Water temperatures
- Dissolved oxygen concentrations

Tributary Water Temperatures

- Hilton Creek
- Nojoqui Creek
- Salsipuedes Creek
- El Jaro Creek

Habitat Characteristics

- The mainstem contains a generally diverse mix of habitat types
- Riparian vegetation is poorly developed in the mainstem downstream of Highway 154
- Portions of some tributaries are well shaded
- Pools provide habitat for juvenile and older age classes of rainbow trout/steelhead, largemouth bass, and sunfish

- Gravel of suitable size for spawning rainbow trout/steelhead
- Mainstem passage barriers
- Two cascades below bridges in Salsipuedes Creek were identified as passage impediments
- A bridge on El Jaro Creek was identified as a passage impediment

Fishery Resources

- The fish community in larger, deeper pools is dominated by introduced species
- All of the native species reported for the river in the 1940s are still present
- Rainbow trout/steelhead are most abundant in the reach downstream of the dam to Highway 154 and less abundant in the Refugio reach and Alisal reach

- Rainbow trout/steelhead juveniles have been observed to survive in isolated pools downstream of Highway 154 through the summer months
- Rainbow trout/steelhead populations are abundant in some tributaries
- The tributaries support populations of primarily native species including rainbow trout/steelhead

- Steelhead spawning (redds) in the mainstem was observed in 1998, 2000, and 2002

- Steelhead spawning (redds) have been documented in Hilton Creek, Quiota Creek, Upper Salsipuedes Creek, Lower Salsipuedes Creek, El Jaro Creek, and San Miguelito Creek

- Tributaries support a range of age classes including young-of-year rainbow trout/steelhead

Identification of Limiting Factors for Steelhead and Management Actions

- Limiting factors
- Management actions
- Biological Assessment (BA) submitted to NOAA Fisheries as part of the Section 7 consultation
- Variability and uncertainty

- Flexibility and adaptive management as a key to successful implementation of the Fish Management Plan
- Scientific investigations and monitoring are continuing
- The scientific investigations provide the foundation for the Fish Management Plan and actions to protect and enhance conditions for steelhead and other aquatic resources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