

Lake Oroville Coho Salmon Stocking Program 2000 - Present

California Department of Water
Resources (DWR)
December 2009



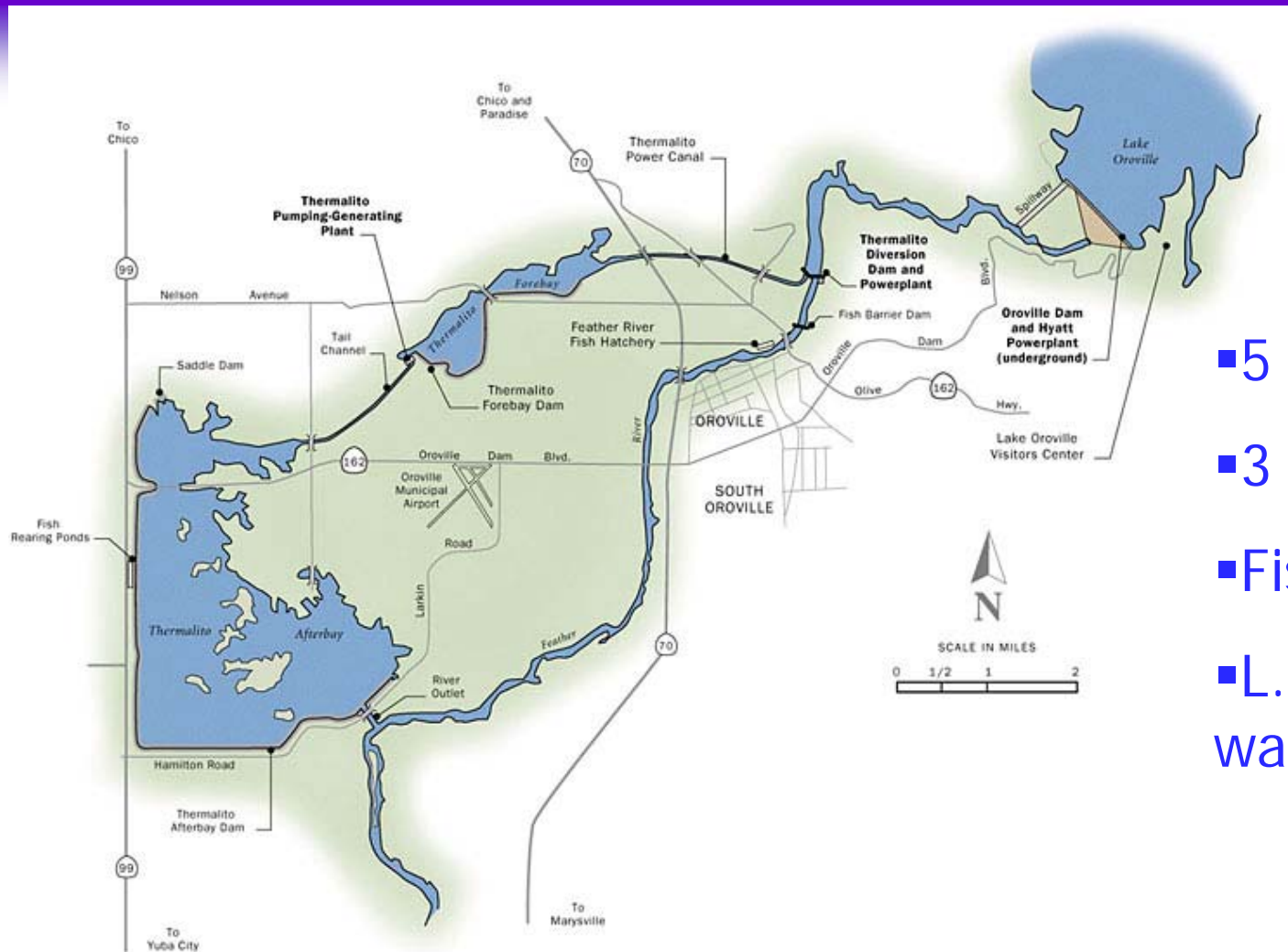
CALIFORNIA STATE WATER PROJECT

CALIFORNIA DEPT. WATER RESOURCES

- Largest state-built power & water supply system in U.S.
- 34 storage facilities, 20 pumping plants; 4 pumping-generating plants; 5 hydroelectric plants; 700 mi. canals and pipelines
- Water supply for 755,000 ac. farmland & 23 million Californians (2/3 CA pop.)
- Other SWP purposes:
 - Delta water quality, flood control, recreation, fish & wildlife enhancement



LAKE OROVILLE COMPLEX



- 5 reservoirs
- 3 power plants
- Fish Hatchery
- L.Oro is hatchery water supply



Lake Oroville and FERC



- 3.5 maf, 2nd largest in CA
- At 770', highest dam in U.S.
- 15,810 ac
- DWR maintains a FERC license to generate power; requires a Recreation Plan
- Fishery enh. was added to the Rec Plan in 1993



Coldwater Fish Stocking Program Objectives

- Maintain compliance with FERC requirement to stock coldwater fish in Lake Oroville
- Provide for a desirable recreational fishery at Lake Oroville
- Minimize negative impacts to other species



HISTORY OF L. OROVILLE STOCKING 1968 - 2000

- L. Oroville stocking began in 1968
- 1968 – '92: DFG stocking (w/addl. private stocking)
 - RBT, BN, CHIN, COHO, KOK, BKT, LT
- 80s - early 90s: Fish disease & supply problems
- 1993-2000: DFG/DWR: CHIN and BN
- 2000: Recommendation for 170,000 CHIN (60,000 BN)
- 2000: IHN Virus problem at FRH, traced to L. Oro CHIN, moratorium placed on L. Oro stocking



HISTORY OF L. OROVILLE PROGRAM (CONT'D)

- 2001: DFG/UCD IHN studies – IHN resistance of 8 salmonid species: BN, KOK, LT, COHO, RBT-Pit R. strain, BKT, Lahontan CT, Coastal CT
 - Significant mortality in all but coho, so DFG decided that only coho should be planted in L. Oro
- 2002: Eggs from commercial hatch. in WA (Aquaseed)
- 2002 & 2003: Coho stocked, very popular w/anglers
- 2004-05: Disease problem with Aquaseed broodstock (BKD) - DFG fish pathologists provide guidance to Aquaseed on their broodstock management
- 2006-09 - Stocking of Aquaseed coho resumed



Current Lake Oroville Fish Stocking Program: Coho Salmon



- 170k – 200k coho yearlings (annually)
- “Put-and-grow” type of program
- ≥ 13 in. at 18 months;
▪ ≥ 16 in. at 24 months
- Minimize impacts to downstream native fish species (Feather R. steelhead and Chinook)



COHO STOCKING RESULTS

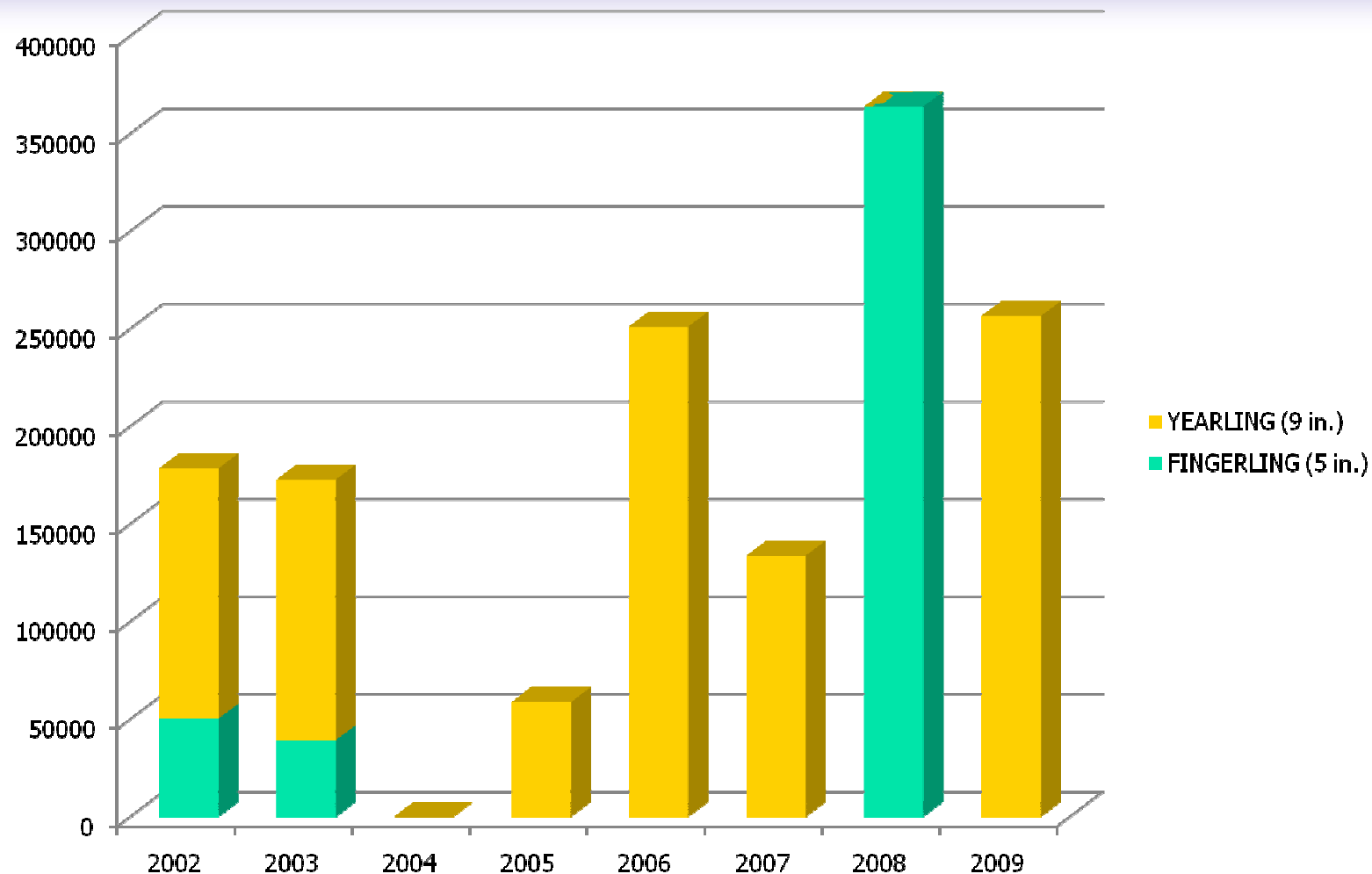


- Growth goals achieved: 15in. @ 18 mo., 20in. @ 24 mo.

- High level of L. Oro angler satisfaction
- Unique fishery, only lake in CA with coho
- Shallower orientation than CHIN, easier to catch
- Strong fighting ability, good jumpers, excellent eating
- Numerous articles in local and state fishing publications
- Requested by local angler groups



LAKE OROVILLE COHO STOCKING TOTALS



MINIMIZE IMPACTS TO DOWNSTREAM FISH SPECIES

- 2001 & 2004, risk assessment for NMFS:
- Could the Lake Oroville coho develop a self-sustaining population in the Feather R. below Oroville?
- Could the Lake Oroville coho stray into coastal coho streams and harm their populations? Central CA Coast ESU - FE, SE); Southern OR/Northern CA Coast ESU - (FT, ST)



Self-Sustaining Downstream Populations? *No!*



- Although periodic escapees, no evidence of self-sustaining populations
- 1969-91: 937,125 coho stocked
- 1956-58, DFG tried & failed to establish coho in Mill Cr. (150,000 yearlings)
- Monitoring: 100% CWT at L. Oro
- BY 2005 & 2006: 371,106 CWT, zero recoveries

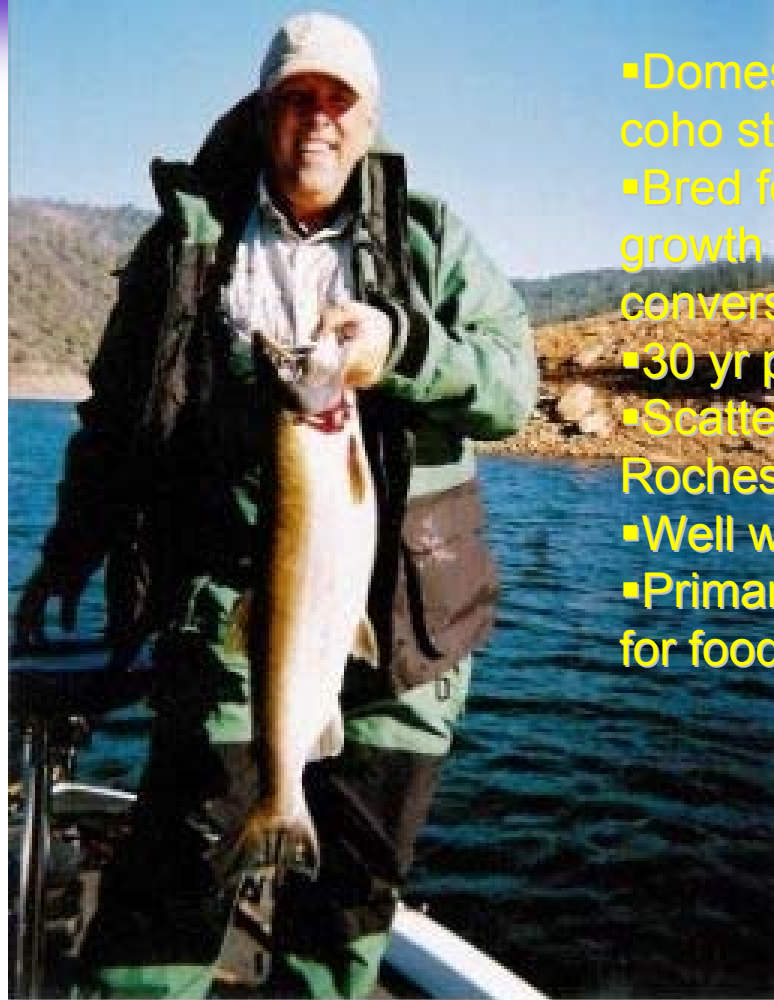


AQUASEED DOMSEA® COHO SALMON



SPECIES: COHO SALMON
LOCATION: LAKE OROVILLE
WEIGHT: 9.90 LBS
ANGLER: JERRY OTT-DAYTON, NV
METHOD: TROLLING

New Lake Record
9.90 Lbs (Aug 2005)



- Domesticated coho strain
- Bred for fast growth & high feed conversions
- 30 yr program
- Scatter Cr. Hatch. Rochester, WA
- Well water
- Primarily grown for food

10.23 Lbs (Dec 2005)



L. OROVILLE FISH STOCKING BACKUP PLAN: work in progress



- Stocking Feather River Hatchery steelhead in the Thermalito Afterbay
- Completed once in 2007 (12,000 fish)



L. OROVILLE FISH STOCKING BACKUP PLAN: work in progress



B. Cavallo photo

- Afterbay steelhead stocking - very popular!
- Growth to 18 in. after 1st yr in lake, 5 lbs. after 2nd yr



L. OROVILLE FISH STOCKING BACKUP PLAN: other options?

- Obtaining coho eggs from another California DFG Hatchery such as Trinity River Hatchery?
- Obtaining coho eggs from another out-of-state hatchery?
- Identifying another species/strain that would be acceptable to DFG (and NMFS) for stocking in Lake Oroville or another downstream reservoir?
- Captive broodstock of Feather R. Steelhead?



LAKE OROVILLE PROGRAM CONCLUSIONS



- Currently meeting objectives, though egg-source reliability/options need improvement
- Appears that coho fingerling survival is lower than what was seen during Chinook salmon studies
- Additional options are needed for the backup fish stocking plan

