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Managing Water in the West

Red Bluff Technical Teams - 2011 Activities



U.S. Department of the Interior
Bureau of Reclamation

Two Red Bluff Technical Teams:

- **Diversion Dam Operations**
 - **Minimum Gate Openings**
- **Green Sturgeon Research**
 - **Coordination Among Agencies**
 - **ACOE, UCD, DWR, USFWS, USBR, CDFG, NMFS**
 - **Coordination among Cooperators for Biological Opinion-Related Research**

Red Bluff Diversion Dam Operations Team



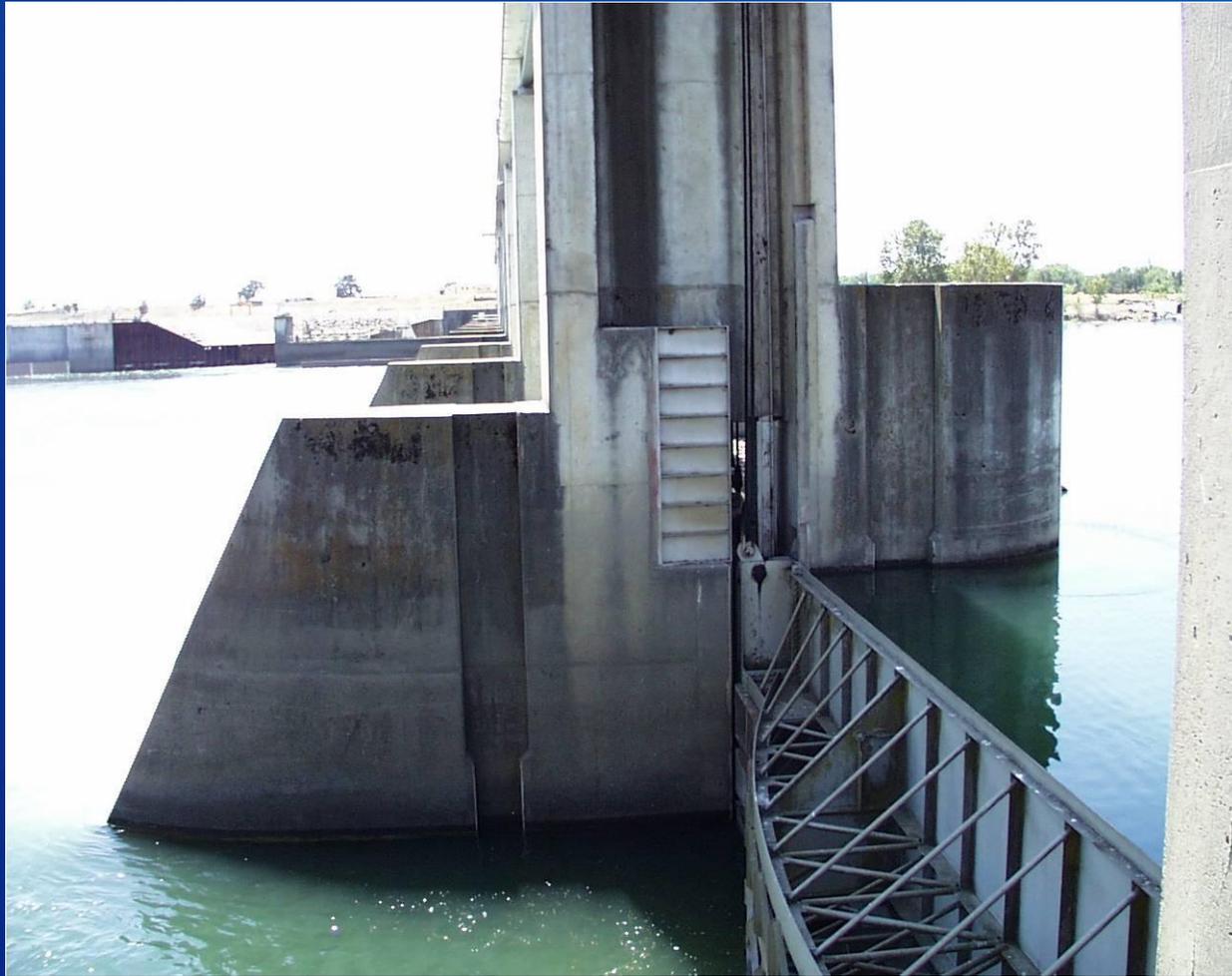
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Dam Operations



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Dam Operations



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Dam Operations

- **The Team did not Consider Any Reduction in the Minimum Gate Openings for the Gates Adjacent to the Fish Ladders**
- **The Team Decided Not to Install the Center Ladder**

Dam Operations

- **Dam Gates Were Closed June 16. Reclamation Began Raising the Gates on September 1, and They Were Completely Out by September 4.**
- **Minimum Gate Openings Remained at 18 Inches for the Entire “Gates In” Period , Except “Regulating” Gate 11 was at 1.2 and 1.3 Feet for a Couple of Days**
- **Temporary Center Ladder Was Not Installed**

Green Sturgeon Research

- **RPA Prescribed Research:**
 - Genetic Evaluation of Spawning Population
 - Telemetric Studies of Adult Movements
 - Characterization of Spawning Habitat in Sac. River
 - Telemetric Studies of Juveniles; Identify Rearing Habitat
 - Spawning Wild-Caught Sturgeon and Rearing Juveniles
 - Evaluation of Fish Screen Performance and Alternative Fish Exclusion Technologies
- **Three-Year Research Program**

Green Sturgeon Research

- **The Remaining Two Years of the Cooperative Agreement With U.C. Davis was Funded in 2011**
- **Continued Cooperation With USFWS**
- **Research Activities Continued During 2011:**
 - **Adults Were Tagged With Acoustic Transmitters**
 - **Adults Were Tracked With Fixed and Mobile Receivers**
 - **Spawning Areas Were Being Identified and Characterized**
 - **Larval and Juvenile Sturgeon Were Captured in Traps and Benthic Nets, and Are Being Reared for Telemetric Studies**
 - **Mortalities and Other Samples are being used for Genetic Studies**

Green Sturgeon Research

- About 900 green sturgeon larval samples were collected for genetic evaluation
- Genotypes will be created and estimates of 2010 and 2011 spawner contributions will be completed in 2012

Green Sturgeon Research

- A total of 22 adult green sturgeon were tagged in the study area in 2011
- Fourteen of these passed upstream of the dam before the gates were lowered
- Eleven of these fish passed downstream of the dam before the gates were lowered
- Two successfully passed under the dam gates
- One was last detected about 10 miles upstream of the dam on June 21 – probably the tag lost battery power, as the fish was tagged in 2005

Green Sturgeon Research

- Eight tagged fish did not pass upstream of the dam
- A Vemco Acoustic Positioning System was deployed in the Antelope Creek vicinity to track fine-scale movements of tagged adult fish
- Fifteen sites were characterized, 5 each of:
 - Known spawning grounds
 - Confirmed sturgeon presence
 - No confirmed sturgeon presence
- Discharge, flow profiles, bathymetry

Green Sturgeon Research

- Seven juvenile sturgeon captured by the U.S. Fish and Wildlife Service are being reared at UC Davis facilities – planning to tag them and learn more about rearing habitat
- Laval and juvenile green and white sturgeon swimming performance and behavior has been studied in the UC Davis laboratory – in relation to fish screens and guidance louvers
- Differences of opinion about the captive spawning of wild-caught green sturgeon has delayed this task

Green Sturgeon Research

- **Questions for the Science Panel:**
- **Are there genetic implications of spawning wild-caught fish in captivity and eventually releasing their progeny?**
- **Are there scientific implications to the green sturgeon population if they are spawned in captivity and the juveniles that are not used for research euthanized?**
- **Would there be less risk to the population if wild juveniles were captured and utilized for the studies?**

Green Sturgeon Research

- **Questions for the Science Panel:**
- **What are some methods to capture juveniles in the wild for studies?**

Construction Update

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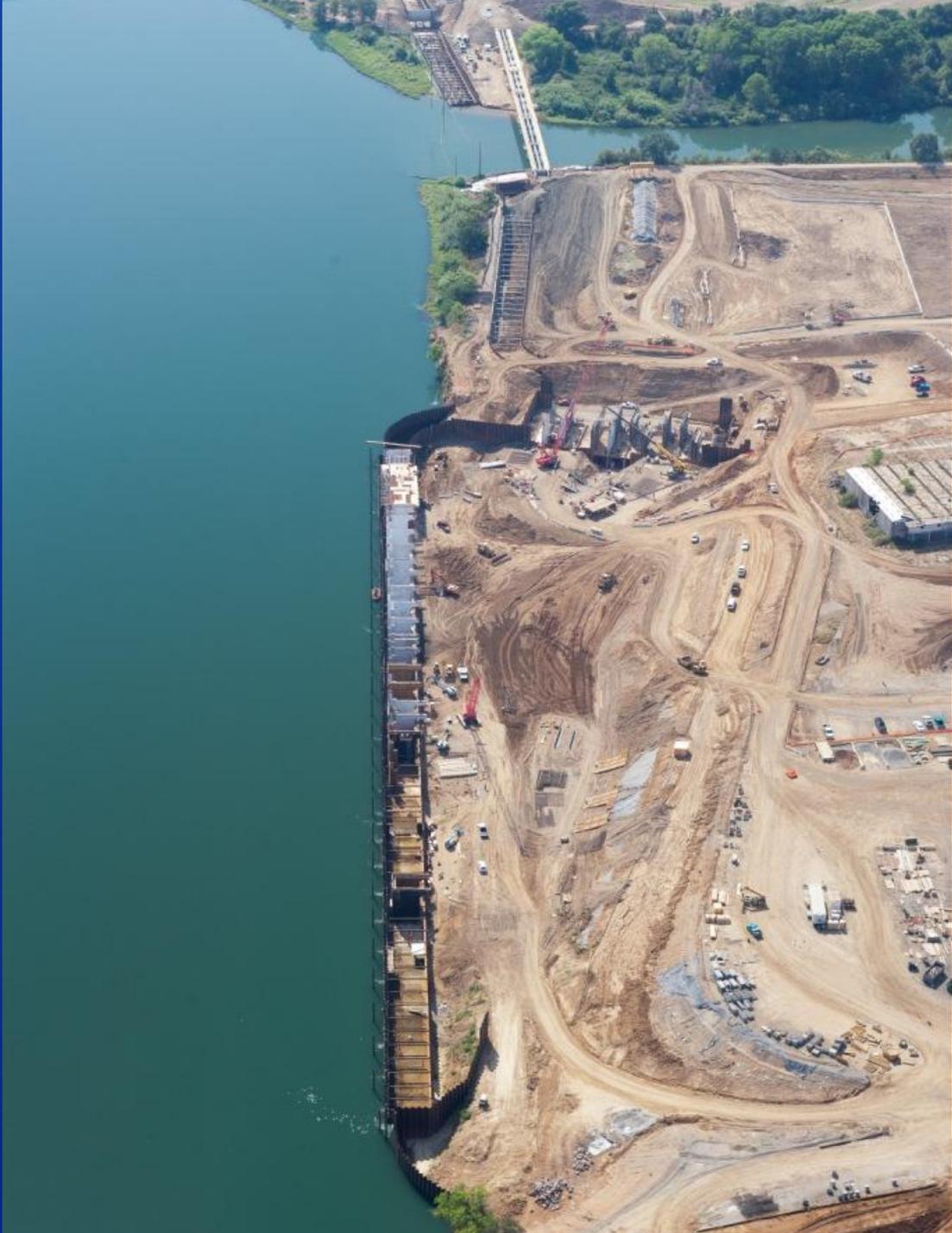






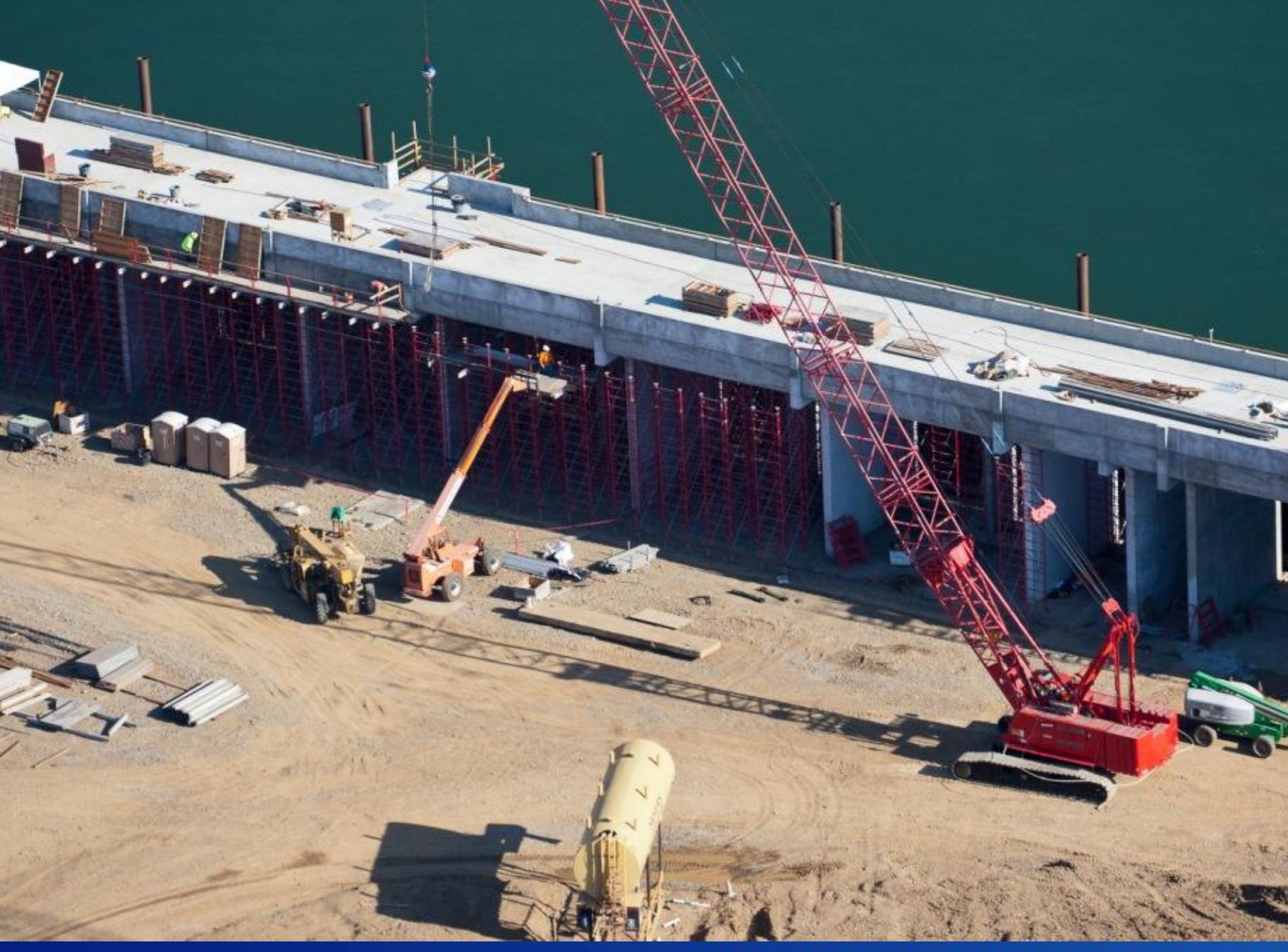
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Questions ?

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