FLOODPLAINS REIMAGINED

ADVISORY COMMITTEE MEETING SUMMARY

February 10, 2023, 9 – 11 AM

Zoom Virtual Meeting

Meeting Objectives

- Recommendation for the Bird Habitat Suitability Criteria to the Steering Committee
- Shared understanding of the Modeling Calibration and initial drainage and inundation modeling
- Identified lessons learned from Yakima Basin Integrated Plan for application to Floodplains Reimagined
- Shared understanding of CA Ricelands Salmon Project Partnership MOU

Action Items

1. K&W – Bring recommendation for Bird Habitat Suitability Criteria to the Steering Committee.
2. Paul Buttner, CA Rice Commission and Steve Zeug, Cramer Fish Sciences – –Consider request to comparing CalRice Study data for hatchery fish survival after rearing on ricefields with wild fish survival on CalTrack.
3. Kearns & West – Share updated link for the CalRice Project.

Welcome and Introductions

Karis Johnston (Johnston), Kearns & West, welcomed all attendees. Advisory Committee (AC) members in attendance are listed in the table below.

Advisory Committee Members & Other Attendees	Affiliation
Ally Bosworth	NMFS
Andy Duffey	Reclamation District 70, 1660 / Tisdale Irrigation District, Butte Slough Irrigation
Ashley Overhouse	Defenders of Wildlife

Advisory Committee Members & Other Attendees	Affiliation
Baker Holden	USFWS
Bjarni Serup	CDFW
Brian Ellrott	NMFS
Craig Fleming	USFWS
David Rasmussen	EPA
Dan Fehringer	Ducks Unlimited
David Pesavento	CDFW
Erik Foraker	Murdock Ranch, Gun Club / Foraker Properties
Hans Herkert	RD 1004
Jessica Lopez	Konkow Valley
Jesus Esparza	DWR
Jim Earley	USFWS
Jim Wallace	Wallace Bros. Farms / Colusa Drain Mutual Water Co. / Colusa Groundwater Authority
Justin Fredrickson	California Farm Bureau Federation
Mark Thompkins	FlowWest
Matt Brown	USFWS
Michael Paccassi	CDFW
Paul Buttner	California Rice Commission
Roger Cornwell	Sutter Mutual Water Co. / RD 1500
Roger Swanson	Wild Goose Club
Ryan Luster	The Nature Conservancy
Torey Byington	River Partners
Virginia Getz	Ducks Unlimited

The following Program and Technical Team members attended:

Program or Technical Team Member	Affiliation
Barry O'Regan	KSN
Bethany Taylor	Kearns & West
Bronwen Stanford	SFEI
Chris Campbell	cbec
Holly Dawley	KSN
John Stofleth	cbec
Julie Leimbach	Kearns & West
Karis Johnston	Kearns & West
Kayla Kelly-Slatten	Kearns & West
Kristy Dybala	Point Blue
Lewis Bair	RD 108
Mark Cowan	LWA
Steve Zeug	Cramer Fish Sciences

Johnston reviewed the meeting agenda and objectives.

Program Timeline Status

Holly Dawley (Dawley), KSN, shared an update on the Floodplains Reimagined timeline as follows:

- Program funding from the current CNRA grant for Phase I: Feasibility Study is scheduled to conclude by March 2024 and the technical assistance projects will end in2023.
- The Program is working on additional funding sources to continue to support the Program into Phase II.
- The Program Team plans to share a more detailed timeline in March 2023.

Risks & Assurances

Brian Ellrot (Ellrott), NMFS, and Paul Buttner (Buttner), California Rice Commission, presented on the California Ricelands Salmon Project Partnership Memorandum of Understanding (MOU).

Project Details

- The idea for the partnership between NMFS and California Rice Commission began over seven years ago with the intent to alter practices and management standards on rice fields for the benefit of salmon survival.
- The two entities decided to formalize the partnership with an MOU, seeing it as a value to landowners to show commitment to the project and earn landowner support.
- UC Davis created a study kicked off by the California Rice Commission. Components of the 2019 – 2020 study included:
    - Testing small rice plots
    - Implementing protective mechanisms such as trenches and covers
    - Adding 10,000 juvenile salmon to the rice fields
    - Researchers tried an approach involving the addition of drilling holes in checks, board placement, as well as notches. When water flows over a notch, it results in a depth of 10-12 inches on the field.
    - Fish are able to swim over the notch or through the drilled holes in the checks.
    - The field is managed with natural-origin fish including winter, spring, and fall-run salmon. Hatchery fish are used only as surrogates.
    - Researchers planned to release 4,500 PIT-tagged fish onto the fields on 2/10/2023. Plans for studies to determine how fish are moving through the Sutter Bypass.
    - Process Results:
        - Covering or changing the field structure did not yield improvements.
        - Benefits to juvenile salmon can be produced by managing rice fields through water management and providing for volitional passage.
        - This study is going well despite implementation during a period of drought.

Questions/Comments

- I'm interested in tracking the project through data and photos due to concerns about stranding on our floodplains in Washington state. [Tom Elliott, Yakama Nation Fisheries]
    - The project website is under revisions but will soon feature weekly updates: www.salmon.calrice.org
    - Interested individuals may also contact Paul Buttner at pbuttner@calrice.org
- Does the website feature data on river fish versus floodplain fish? It's critical data for evaluating fish benefits. [Steve Zeug, Cramer Fish Sciences]

    - Request to analyze wild vs. hatchery fish survival. Data for wild fish survival is available on CalTrack under the Historical Data tab. [Bjarni Serup, CDFW]
    - Yes, the CalRice Study released equal numbers of floodplain fish versus lab-reared fish. The CalRice Study observed a four-fold percent increase in the number of rice field-reared fish that survived to the ocean. The data will be posted on the new CalRice website. [Buttner, California Rice Commission]
- I don't doubt the survival data but believe it's important to reflect what's happening in the survival data. [Serup, CDFW]
    - Agreement that the data will help answer many questions. If the practice standard proves successful, there could be a financial incentive for landowners to implement and enter the program. [Ellrott, NMFS]

Yakima Basin Integrated Plan

Tom Elliott [Elliott], Tributary Enhancement Special Project Leader and Staff Biologist for the Yakama Nation Fisheries, presented the Yakima Basin Integrated Plan ("the Plan"). The Yakama Nation also presented the Plan to the Floodplains Reimagined Tribal Ad Hoc Group in early 2022. Central Washington shares landscape similarities with California's Central Valley and Elliott's presentation was intended to inform the Floodplains Reimagined program through the Yakama Nation's inundation of floodplains. Elliott has worked in wetlands management and wildlife for 12 years and transitioned to the fisheries program in 2020 to primarily manage Steelhead.

Orientation to the Yakima Basin and the Integrated Plan

Elliott shared the following details about the land and the Yakima Basin Integrated Plan:

- The Plan includes conservation, habitat protection, and fish passage.
- The Department of Ecology regulates water in Washington. The Bureau of Reclamation funds the Yakima Basin Integrated Plan.
- East of the Cascade Mountains, the landscape is similar to that of the eastern side of the Sierra Nevada Mountains.
- The Yakima Basin used to produce millions of fish but struggles with fish survival today.
- Dams are now used more frequently for agricultural storage rather than flood control.
- Yakima is urbanized and workers must contend with working around major infrastructure. Chinook salmon and Steelhead had previously spawned in this area but were diminished by urbanization.
- The tributaries bring winter precipitation to the lower Yakima Valley.

Toppenish Creek Floodplain ("the Floodplain")

- The Toppenish Creek Floodplain serves as the cultural and population nexus for the Yakama people.
- It stretches 45 miles and covers thousands of wetland acres.
- It's a densely-worked land with construction happening in nearly 200,000 acres in the valley.
- The Floodplain receives about six inches of natural, annual rainfall, forcing workers to compensate by adding an additional 32 inches of water to the land.
- The Floodplain's irrigation system dates back to the 1910s and relies on gravity to drain Toppenish Creek, leading to contaminated water by summer.

Corridor Plan Principles

Elliott shared that the Corridor Plan is guided by tribal values and goals and required the cooperation and collaboration of both the Yakama Tribe and the agricultural sector. The values represented include:

- Holistic: Incorporating cultural and natural resources
- Multi-disciplinary: Incorporating fisheries, wildlife, engineering, and water resources
- Long-term, adaptive
- Taking a stewardship approach
- Requiring strong partnerships with federal, state, and other entities

Questions/Comments

- Will you elaborate on the timeline required to build the partnership? I'm curious because Floodplains Reimagined is still in its early stages. [Program Team]
    - The entire process took about ten years. Previous project efforts had failed resulting in litigation and court cases where people argued over water rights. The head of the Yakama Nation and the leader of the irrigation district began communications about what each side of the argument needed. Eventually, other groups including environmentalists and the Bureau of Reclamation started getting involved. They reached a point where all water rights holders were able to receive 70 percent of their allocated water. [Elliott, Yakama Nation Fisheries]
- Are you actively using beavers to restore function? [Justin Fredrickson, California Farm Bureau Federation]

    - We are restoring the beaver population at a 30 percent success rate. The lower systems are great areas for beavers in places where we have slowed the water flow and added in structure. Unfortunately, this same success is not yet taking hold in the upper areas. [Elliott, Yakama Nation Fisheries]

- Will you speak to any groundwater recharge aspects of the project? [Fredrickson, California Farm Bureau Federation]
    - We're looking at subsurface and surface water storage in places where we could potentially pump it into upper reservoirs and draw from that supply during the summer. We built levees and cut a lateral canal across the slope. We run irrigation channels in the winter. If there's water in the stream, we run 2,000 – 3,000 acres of water out over the fan. We're examining new and innovative ways of using modern infrastructure.
- Can you expand more on the fish-stranding issue and management of the wetlands, as well as the applicable life stages of the fish? [Serup, CDFW]
    - We mostly manage Steelhead in the tributaries and watershed management area and it is a struggle. Our Steelheads usually leave as 1-2 year-olds. Steelhead thrived in the original floodplains, but we don't have rice fields; we have semi-natural wetlands that have been modified to remain more static by the duck club managers. Overall Steelhead survival in the lower 26 miles of the river is only 25 percent. In some areas, it's as low as 10 percent; in others, as high as 90 percent. We suspect that Steelhead are moving out to static ponds and then don't have an opportunity to move back into the stream, and so they die. We are trying to provide connections to the floodplains using passable structures and installing screens at strategic locations. Three generalized steps for improving fish conditions and survival rates are:
        - Identify hotspots where fish mortality is high;
        - Reconfigure the floodplains;
        - Add in the required infrastructure to allow for better fish passage. [Elliott, Yakama Nation Fisheries]

Bird Habitat Suitability Criteria

Dr. Kristy Dybala, Principal Ecologist at Point Blue Conservation Science, presented the Bird Habitat Suitability Criteria with the goal of reaching a recommendation for the Steering Committee by the Advisory Committee. She shared the following updates and recommendations:

- The priority species groups for Phase 1 are:
    - Shorebirds (non-breeding)
    - Waterfowl (non-breeding)
    - Sandhill crane – roosting

    - Sandhill crane – foraging
- Species identified for future phases:
    - Shorebirds (breeding)
- Habitat Suitability Criteria
    - The criteria presented factors such as flooding status, flooding depth, and flooding season for each Phase 1 priority species;
    - The criteria treats these parameters as hard limits for creating an optimal habitat;
    - The criteria assumes no change to the provided suitable habitat from Oct. 1 onward.
- Workflow and Next Steps
    - Point Blue and cbec are working to incorporate the criteria into the hydrodynamic modeling;
    - Habitat suitability will undergo bioenergetics evaluation and modeling by year, basin, and scenario.

Formal Recommendation

No objections were raised to the criteria; the Advisory Committee recommends the incorporation of the Habitat Suitability Criteria to the Steering Committee.

Model Calibration and Field Scale Inundation and Drainage

John Stofleth (Stofleth), cbec, reviewed model calibrations and discussed the accuracy of the model. He reviewed model calibrations for various flood events in the Sacramento River, Butte Basin, and Colusa Basin.

Hydrodynamic Models

Stofleth provided a high-level summary of hydrodynamic models:

- Hydrodynamic models simulate water conveyance
- Hydrodynamic models simulate a historic period of time and compare how well the model is simulating levels in the rivers as well as flow at various locations
- Hydrodynamic models compare output and assess how well the model is performing
- Although model accuracy is not 100 percent, models can be calibrated to minimize error and can quantify the amount of potential error

Calibrations by Region

Stofleth reviewed model calibrations for the following regions:

- Mainstem Sacramento River

    - Uses different calculations from the other two regions
    - Modeling examines the main channel and overflows
    - Accounted for flood events in 1997, 1998, 2006
    - Examined the longitudinal profile for WY 2019
- Butte Basin
    - Examined WY 2019
    - Examined spillover at the Colusa and Moulton Weirs
- Colusa Basin
    - Examined WY 2019
    - Examined spillover at Highway 20, Davis and Wallace Weirs, and Knights Landing

Stofleth also presented on the managed water levels and fields during the winter. The presentation featured animations of the 2019 field management for the Colusa Basin flood-up in the fall and winter, and draw-down in the late winter to spring.

Stofleth reviewed information on inundation and drainage shared at previous Floodplains Reimagined meetings:

- Fields experiencing winter flooding
    - Rice fields
    - Private wetlands, including duck clubs
    - State and federal wetlands
- Majority of fields have a target inundation depth of 10 inches

Stofleth shared animations depicting the flood-up process from Oct. 1 – Dec. 1, and the draw-down from Feb. 1 – mid-April. The animations included a flood pulse, or expected precipitation event. The model also accounts for water evaporation over time in addition to direct rainfall in an average water year. cbec plans to develop simulations of baseline conditions for a series of six particular water years. SFEI, Point Blue, and Cramer Fish Sciences will then do additional calculations for determining habitat suitability.

Floodplains Reimagined Website

Johnston provided a brief orientation to the Floodplains Reimagined website. She showed Advisory Committee members where they can find documents such as the program Charter, past meeting summaries, and meeting presentations.

Adjourn

Johnston thanked Advisory Committee members for their attendance and adjourned the meeting.