Yolo Bypass Drainage and Water Infrastructure Improvement Study

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In coordination with Yolo County and the Yolo Basin Foundation

YBFEP Team Meeting - May 14, 2013
Overview

• Summary of interviews
• Bypass wide recurring themes
• North to south overview of location specific improvements
• Bypass-wide issues and improvements
• Next steps
Summary

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Bypass Wide Recurring Themes

• Maintenance is primary concern
  – Beaver blockages removed daily to weekly during flood and drain
  – Vegetation and silt maintenance 2 - 3 times per year or on as needed basis

• Many culvert ag crossings and drains are undersized

• Operating winter flooded wetlands with summer ag system design needs improvement

• Coordination between land use types and water ops managers determines “success”
Yolo Bypass, North to South

• Describe suggested improvements
  – North of I-5: TeVelde and Knaggs
  – I-5 to I-80: Conaway and Swanston
  – City of Davis inputs
  – YBWA North: Glide Causeway Ranch and Los Rios farm operations and CDFW managed wetlands, Dixon RCD
  – YBWA South: Tule Ranch grazing, CDFW managed wetlands, duck clubs and RD 2068
  – Terminus north of Yolo Ranch

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**Location Specific Improvements Overview**

- **Potential Projects (new, overlap)**
  - Wallace Weir Improvements
  - Lower Knaggs Toe Drain Bladder Dam for Seasonal Habitat Operations
  - Conaway Main Supply Canal Improvements
  - Westside Railroad and I-80 Undercrossing Improvements
  - Tule Canal/Toe Drain Ag Crossing Improvements
  - Davis Wetlands Water Supply
  - South Davis Drain Input Reconfiguration
  - Lisbon Weir Water Supply and Fish Passage Improvements
  - RD 2068 Stormwater and Summer Tailwater Re-use and Supply
  - Putah Creek Realignment (Collaboration)
• Supply concerns:
  – Wallace Weir impoundment

• Wallace Weir
  – Earthen berm April/May to Dec 1
  – cbec surveyed KLRC channel Jan ’13
  – Proposed infrastructure improvements for supply reliability
Conaway Ranch Improvements

- Scour holes: concrete line the main supply channel
- Supply and drain canals: improved maintenance and electronic controls at outlets
- Vegetation: improved maintenance

Disconnected scour holes prolong drain time and road/canal maintenance activities

Trees under I-5

Photo: Tim Miramontes
Swanston Ranch Improvements

• Improve access from west levee
• Increased connectivity under railroad at west levee
• Toe Drain ag crossing and internal culvert crossing improvements
Ag Crossing Improvements – Tule Canal/Toe Drain

Suspended pipe over Tule Canal, through levee to RD1600

Tule Canal Flow

Photos: April Sawyer

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City of Davis Drainage to Bypass System

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• Secure reliable year-round source for Davis Wetlands
• Reliably capture first flush stormwater events from Channel A to Davis Wetlands
• Allow periodic Willow Slough floodwater into Davis Wetlands
El Macero Channel (South Davis Drain)
- Stormwater overwhelms YBWA drainage system
- Impacts Los Rios operations
- Solutions
  - Lower drain pipe in levee south of El Macero pumps as second entry point
  - Lower drains discharging to Toe Drain and more control at Lisbon
  - Ag crossing improvements
• Improvements:
  – Dual supply/drain separation
  – Public and O&M roads for early spring access
  – Upgrade priority crossings

• Concern over future moist soil management practices, begin March
  – Waterfowl food supply
  – Noxious weed control

(Ducks Unlimited, 2012)
YBWA Maintenance Challenges

Photos: April Sawyer

Lisbon Weir

Trestles

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Lisbon Weir Improvements

• **Benefit area:** Yolo Bypass Wildlife Area and Swanston Ranch
• **Project Components:** replace rock with an adjustable height dam/weir structure
• **Potential benefits:** improved summer water supply for YBWA, improved drainage after smaller flood events, fish passage
• **Potential challenges:** reliability and maintenance cost
• **Collaboration outlook:** BDCP CM2 plans to implement a related project as a Phase 1 (Year 1-5), Category 3 Project (after YBFEP EIR/EIS and NEPA/CEQA compliant)

Photo: April Sawyer
YBWA South of Trestles

• Tule Ranch: concerns
  – Late spring flooding drowns out desired fodder, leaves cockle burr

• Duck clubs: concerns
  – Coordinated water management

• Shared drain and supply issues
  – Vegetation management
  – Mechanical silt removal
RD 2068 Drainage to Bypass

- Improvements:
  - As available and as needed water for supply to contracted users
  - RD 2068 tailwater reuse or excess diversion near Midway Road area
  - Water available mid May to early November and during winter flood flows
Bypass Wide Management Issues

- Mosquito abatement

- Methylmercury concerns

Recent studies by the Delta Methylmercury TMDL Nonpoint Sources Workgroup for Managed Wetlands and Irrigated Agriculture
Bypass Wide Improvements

• Maintenance, maintenance, maintenance...

• Potential projects
  – Local Internal Ag Crossing Prioritization for Replacement with Railcar Bridges
  – Creation of a “Coordinated Maintenance & Improvement District”

• Other studies
  – Bypass Sedimentation Rate Changes due to Managed Flooding
  – Converted Ag Lands Vegetation Study
  – Mammal Management Plan
  – Ag /Wetland Cooperative System Design Improvements
  – Cooperative Management (Mutual Water Company Development)
Ag Crossing Improvements – Local Canals

- **Benefit area**: Bypass wide, local internal systems and potentially surrounding areas depending on location in Bypass system.

- **Project**: replace priority culvert crossings with railcar bridges, concrete abutments.

- **Potential benefits**: reduced maintenance from beaver activity, improved drainage and supply during flood and low water operations.

- **Rough cost estimate**: ~$85,000 per bridge with concrete in 2011 (P. Phillips, CWA).

Railcar bridge over lower Putah Creek, north of The Island.
Coordinated Maintenance & Improvement District

- **Benefit area**: entire Yolo Bypass

- **Potential project components**:
  - Develop a branch of an existing entity (RCD?) to provide ditch maintenance operations, improvements
  - Based upon landowners consent

- **Further study recommended**: contact other districts with maintenance plans (Solano Irrigation District, others?) for effort and cost estimate

Photo: April Sawyer
Next Steps

- Continued coordination with other planning efforts
- Next steps?
- Questions?

Thank you!

Photo: Dave Feliz