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Delta Levee Investment Strategy (DLIS) Risk Reduction Analysis

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**Delta
Stewardship
Council**

A CALIFORNIA STATE AGENCY

Introduction

- DLIS Background
- Analysis
- What did we learn?

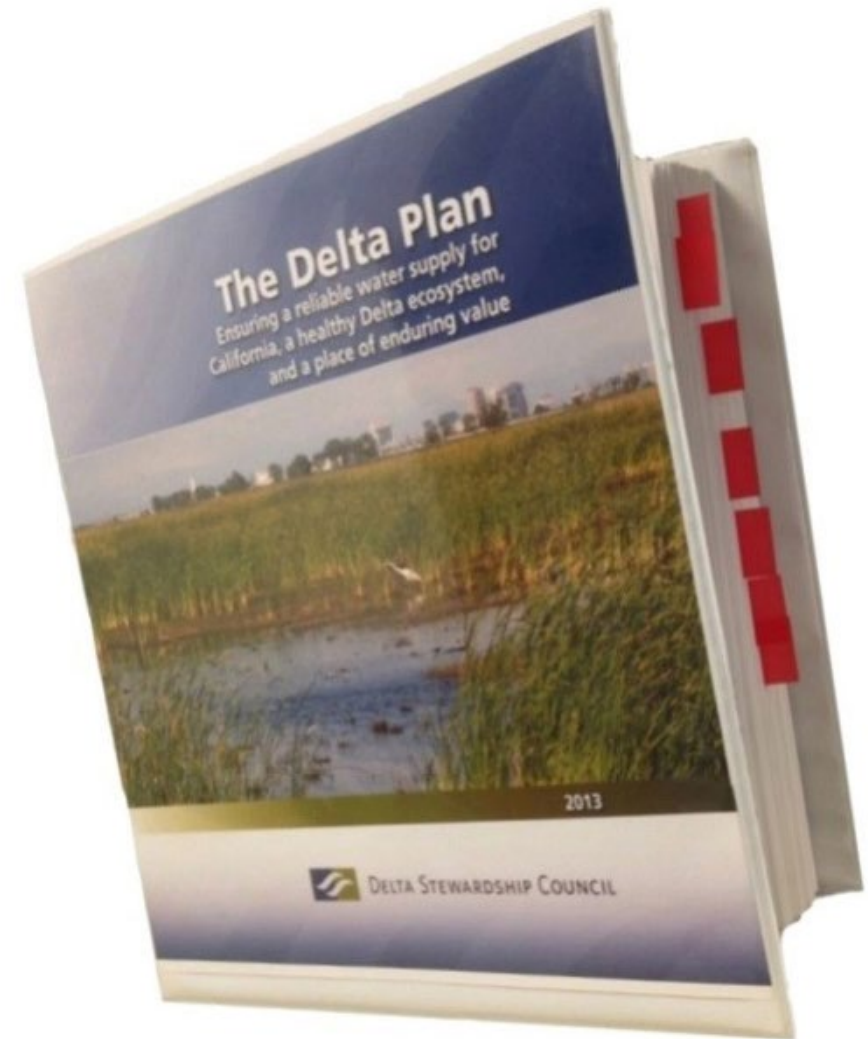


01. **DLIS Background**

Delta Reform Act

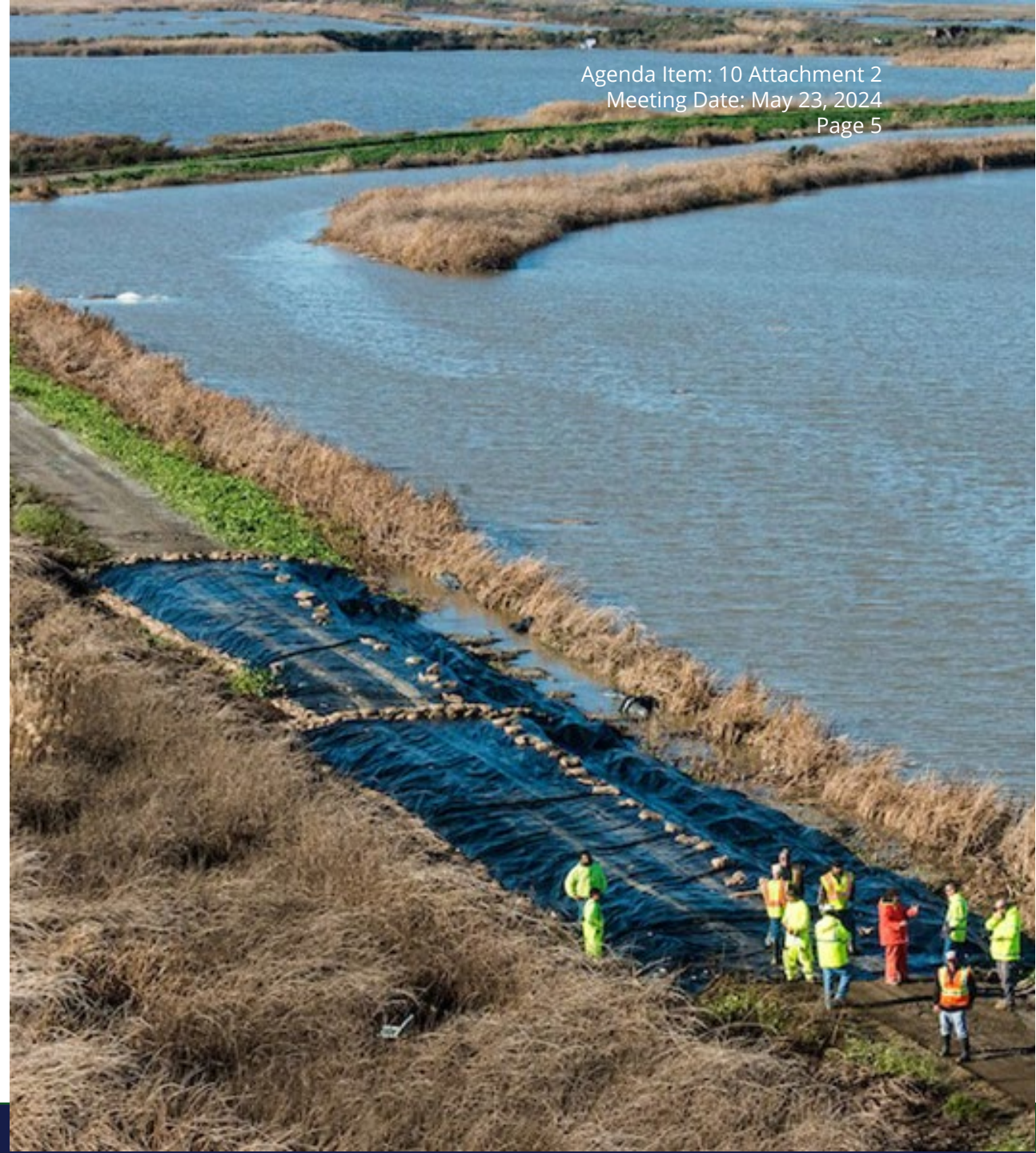
- Water Code 85306

“The council, in consultation with the Central Valley Flood Protection Board, shall recommend in the Delta Plan priorities for state investments in levee operation, maintenance, and improvements in the Delta, including both levees that are a part of the State Plan of Flood Control and nonproject levees.”



Delta Levees Investment Strategy

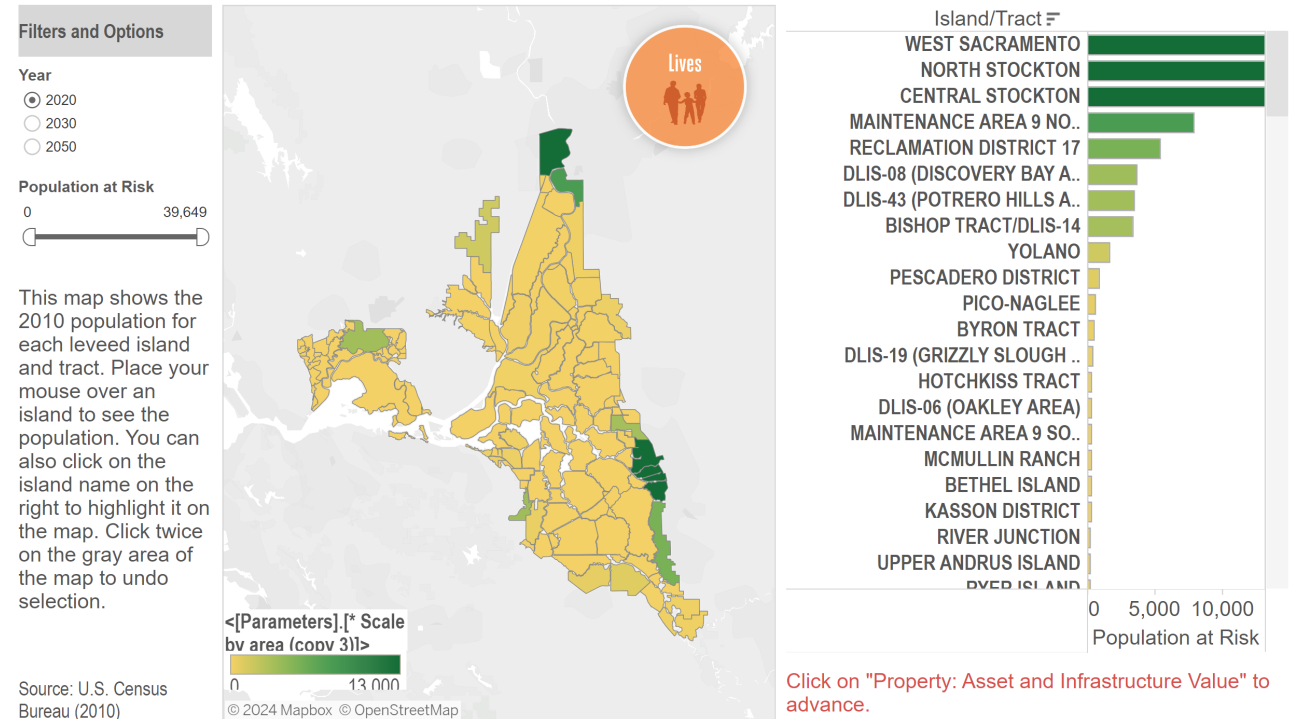
- Peer reviewed methodology identifies State interests.
- Decision Support Tool to develops and communicate risk.
- Supports public deliberation on where State investments should be made.
- Identifies Operation and Maintenance as a priority.
- Reporting requirement that creates transparency, dialogue, and accountability.



Decision Support Tool (DST)

- Tool Inputs
 - Levee Fragility Curves
 - Seismic Fragility Curves
 - Best available hydrology
 - Population data from the US Census
 - Information on assets, infrastructure, and the ecosystem
- As new data becomes available the DST is updated.
- Results from the DST inform the prioritization, but it doesn't set it.

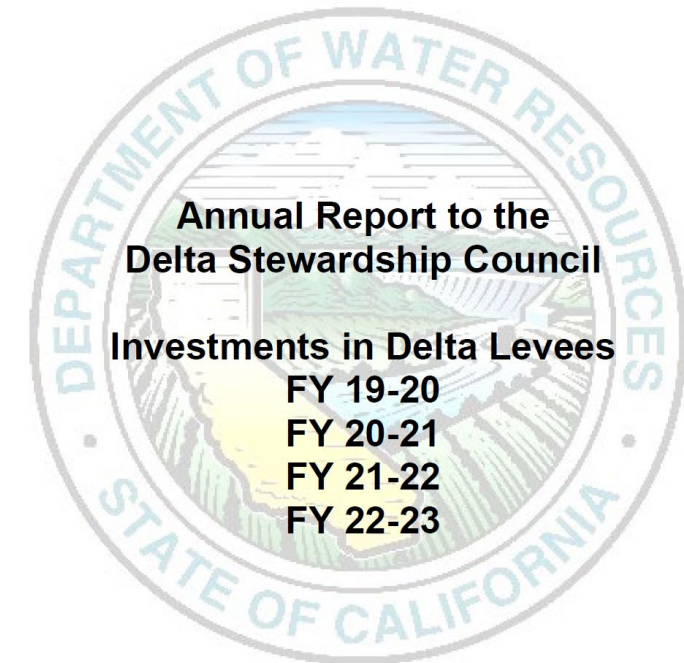
Population in the Delta



DWR Report to the Council

- **DLIS Investment Strategy:** Directs public resource investments.
- **Annual Reporting:** DWR must submit a written report to the Council.
- **Content Requirements:** Description of funding decisions for Delta levee improvements.
- **Data for Risk Analysis:** Includes necessary data for Council staff to perform risk analysis.

State of California
Natural Resources Agency
Department of Water Resources



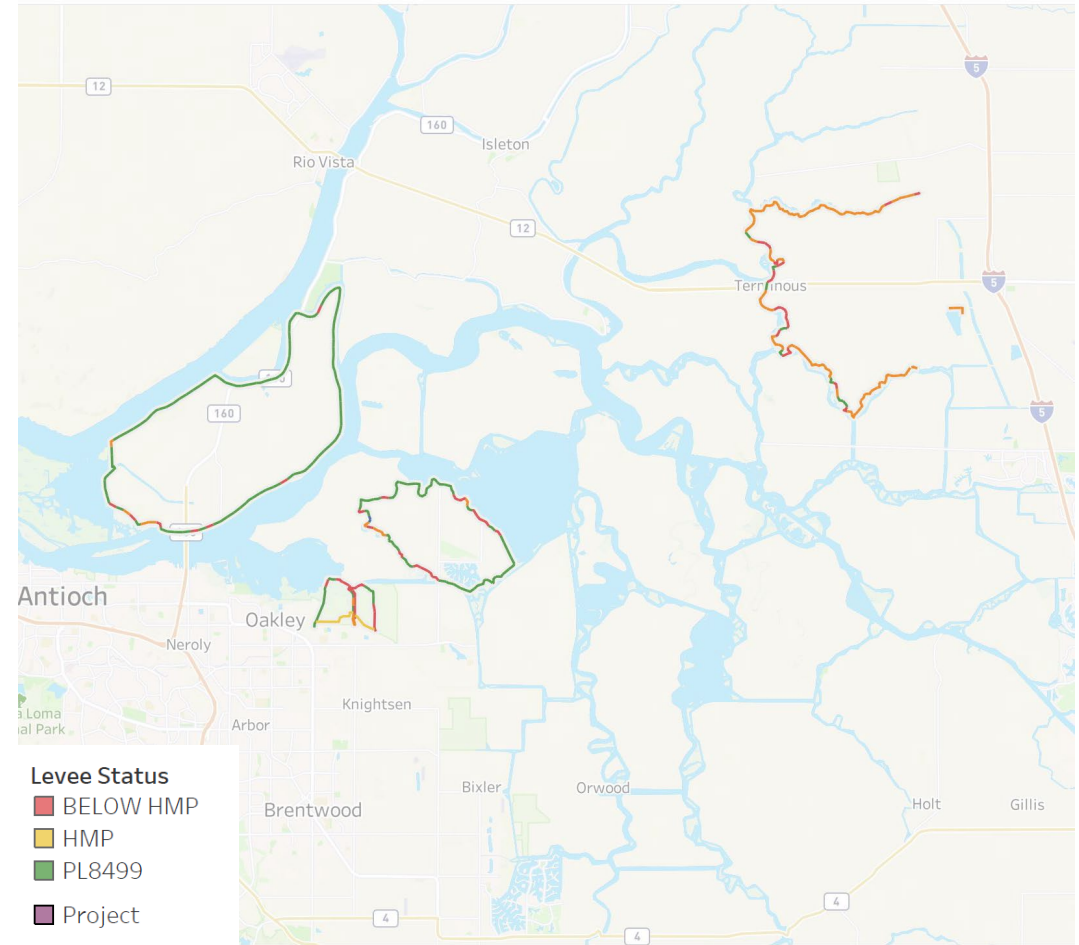
December 2023

02.

ANALYSIS

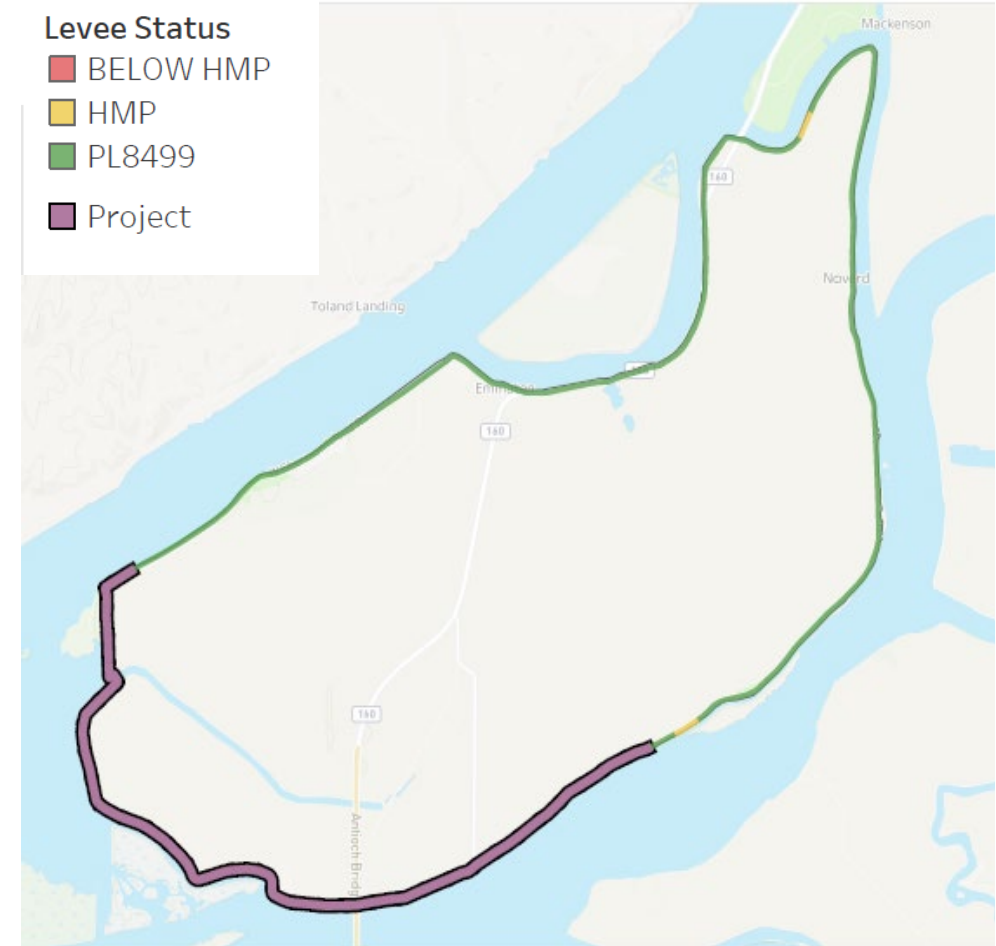
Reported Completed Projects (2019-2023)

- Overview:
 - Four levee improvement projects completed in this reporting period.
- Project Locations:
 - Sherman Island
 - Bethel Island
 - Terminous Tract
 - Dutch Slough



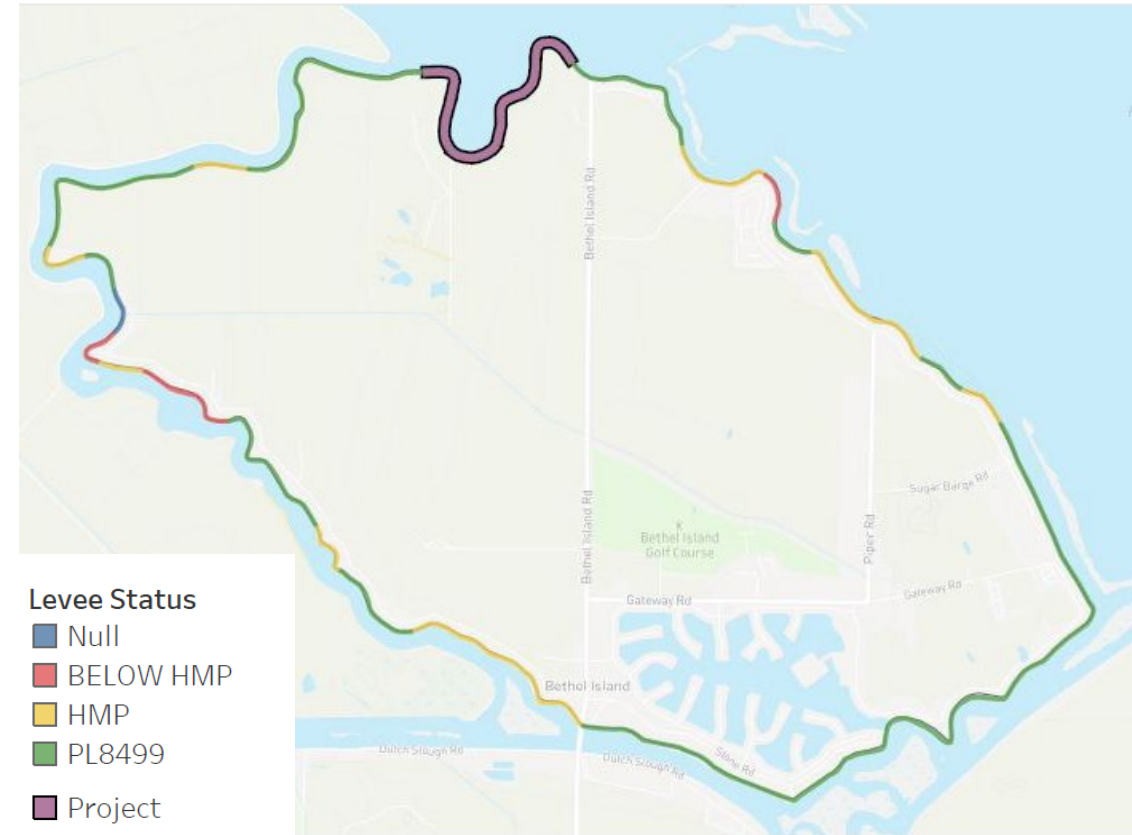
Sherman Island (DLIS Priority: Very High)

- **State Interests at Risk:**
 - Water Quality
 - Ecosystem
 - Delta as Place (State Highway)
- **Reduced Risk:**
 - **Levee Improvements:**
 - Widened levee and improved stability.
 - Reduced probability of failure before overtopping.
 - Established wide base for future levee raises.
 - **Quantitative Impact:**
 - Limited change in risk metrics captured by the DST tool.
 - Future potential for increased protection through levee raises.



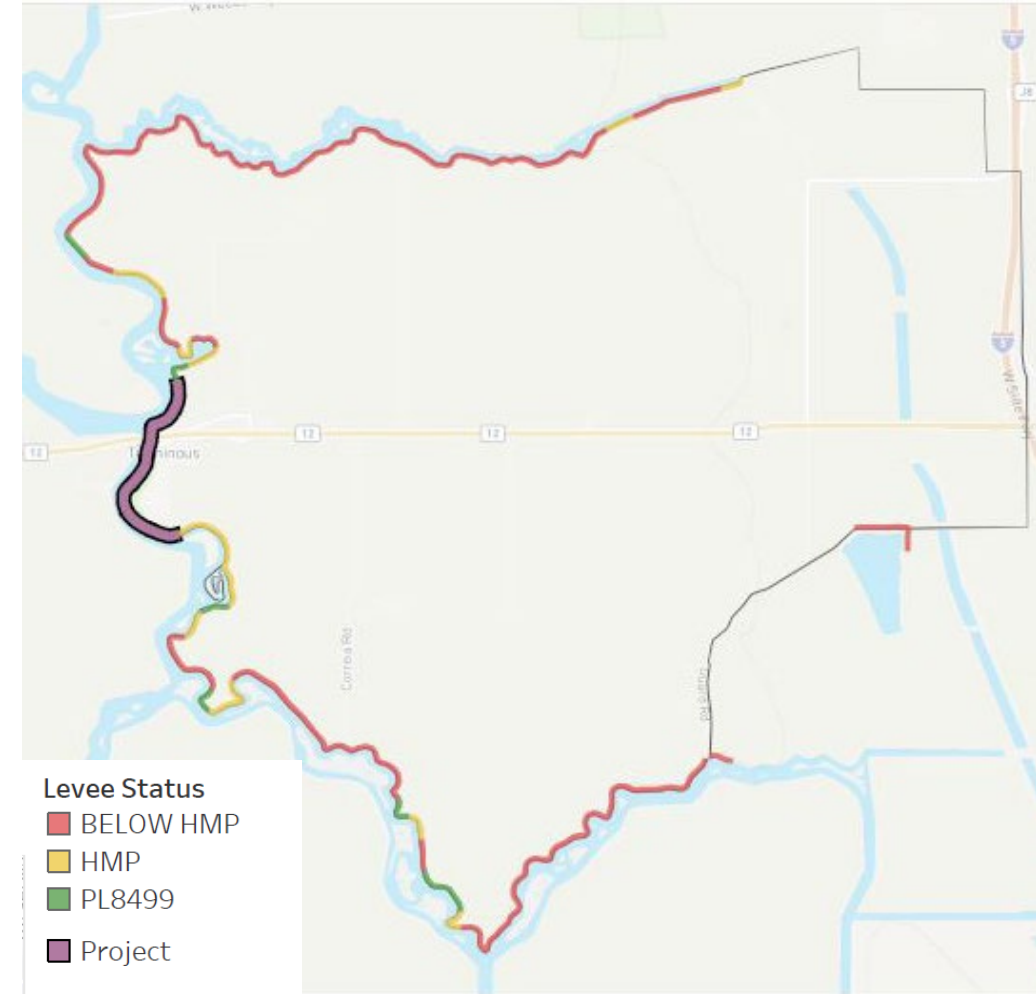
Bethel Island (DLIS Priority: Very High)

- **State Interests at Risk:**
 - People
 - Property
 - Water Supply
 - Delta as Place (Legacy Community of Bethel)
- **Reduced Risk:**
 - **Levee Improvements:**
 - A new setback levee was constructed (1-mile).
 - Reduced seepage and enhanced levee stability.
 - Established wide base for future levee raises.
 - 22-ft wide crown all weather access road for emergency response.
 - **Quantitative Impact:**
 - Expected annual damage reduction: \$45,526
 - Expected annual fatalities reduction: 0.005
 - Probability of levee failure reduction: 1.58%



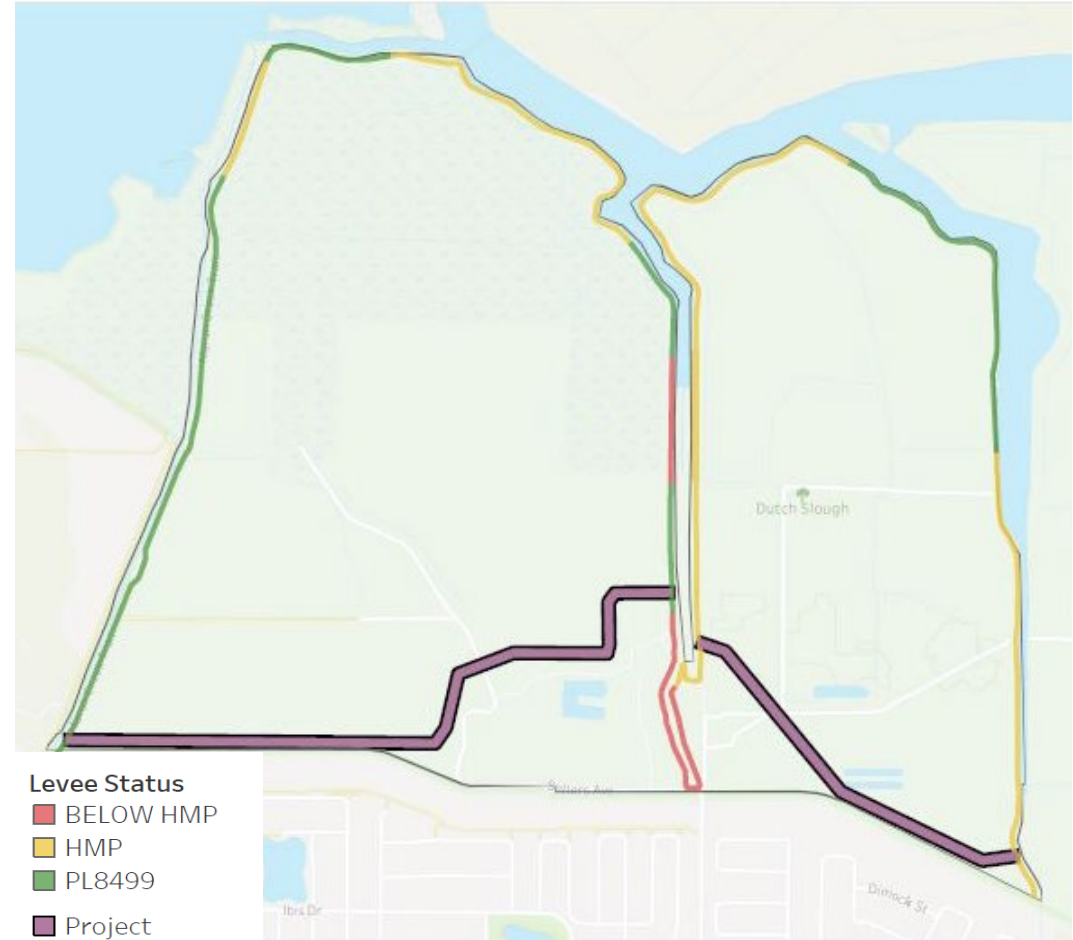
Terminous Tract (Priority: Very High)

- **State Interests at Risk:**
 - Property
 - Delta as Place (State Highway 12 and Prime Agriculture)
- **Reduced Risk:**
 - **Levee Improvements:**
 - Raised levee crown by placing fill, enhancing the flood protection.
 - Reduced seepage and enhanced levee stability.
 - **Quantitative Impact:**
 - Expected annual damage reduction: \$230,475
 - Expected annual fatalities reduction: 0.007
 - Probability of levee failure reduction: 12.52%



Dutch Slough (DLIS Priority: Very High)

- **State Interests at Risk:**
 - Property
 - Ecosystem
 - Part of EcoRestore
- **Reduced Risk:**
 - **Levee Improvements:**
 - New 1.6-mile flood control levee.
 - Provides 200-yr level of flood protection, designed to DWR's Urban Levee Design Criteria.
 - Features a 20-ft crown width and an all-weather surface doubling as an access road.
 - **Quantitative Impact:**
 - No comparison of risk metrics possible due to significant changes in levee configuration.
 - New baseline established for future comparisons.

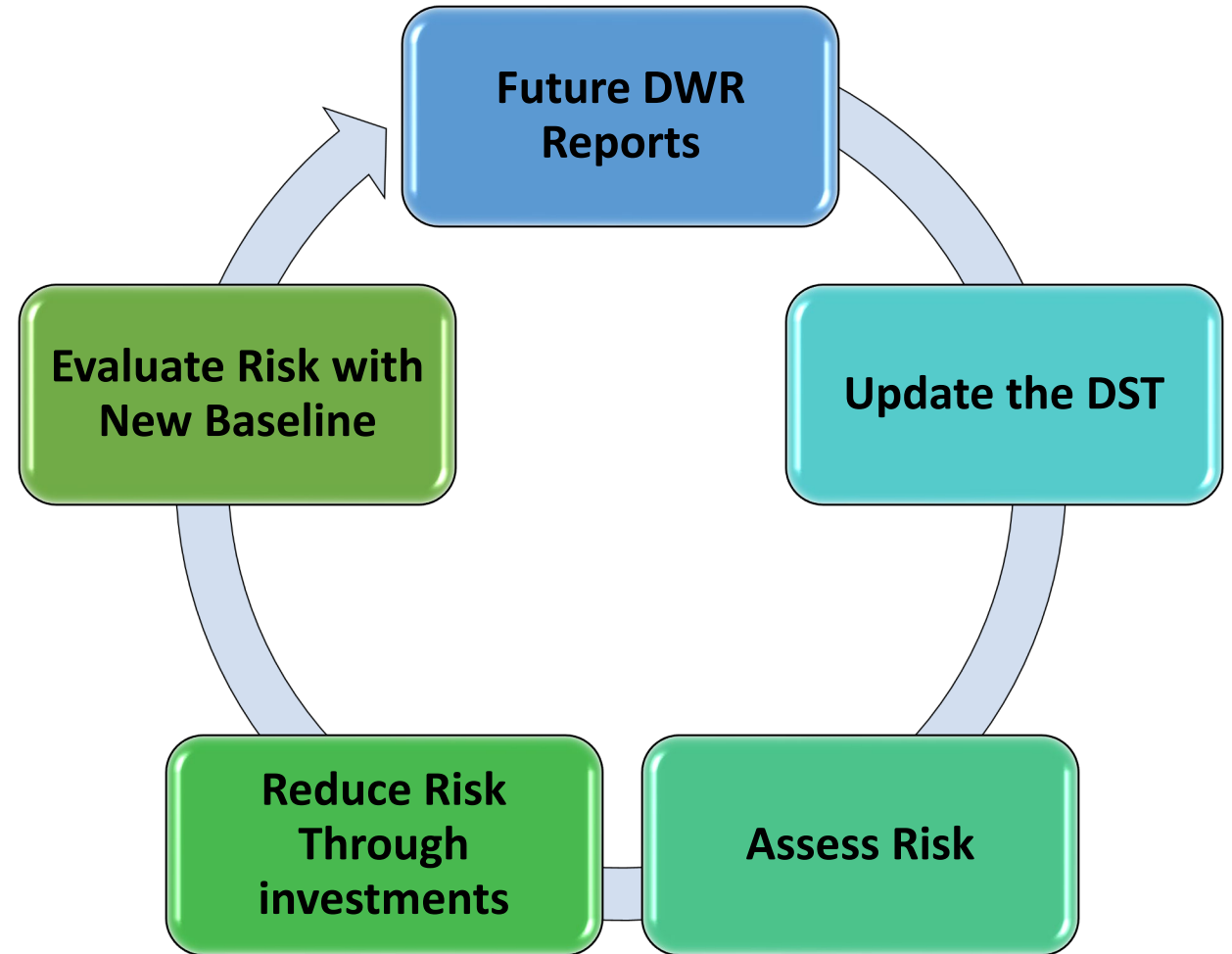


03.

WHAT DID WE LEARN?

What does this mean, and where do we go from here?

- As the Delta evolves, so does DLIS
- Risk will change with changing conditions
- Our understanding of risk will change with new information
- Modest Investments = Moderate Reduction in Risk
- \$12.5 Million out of \$1.3 Billion Need
- Continued investment is critical



Thank you

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