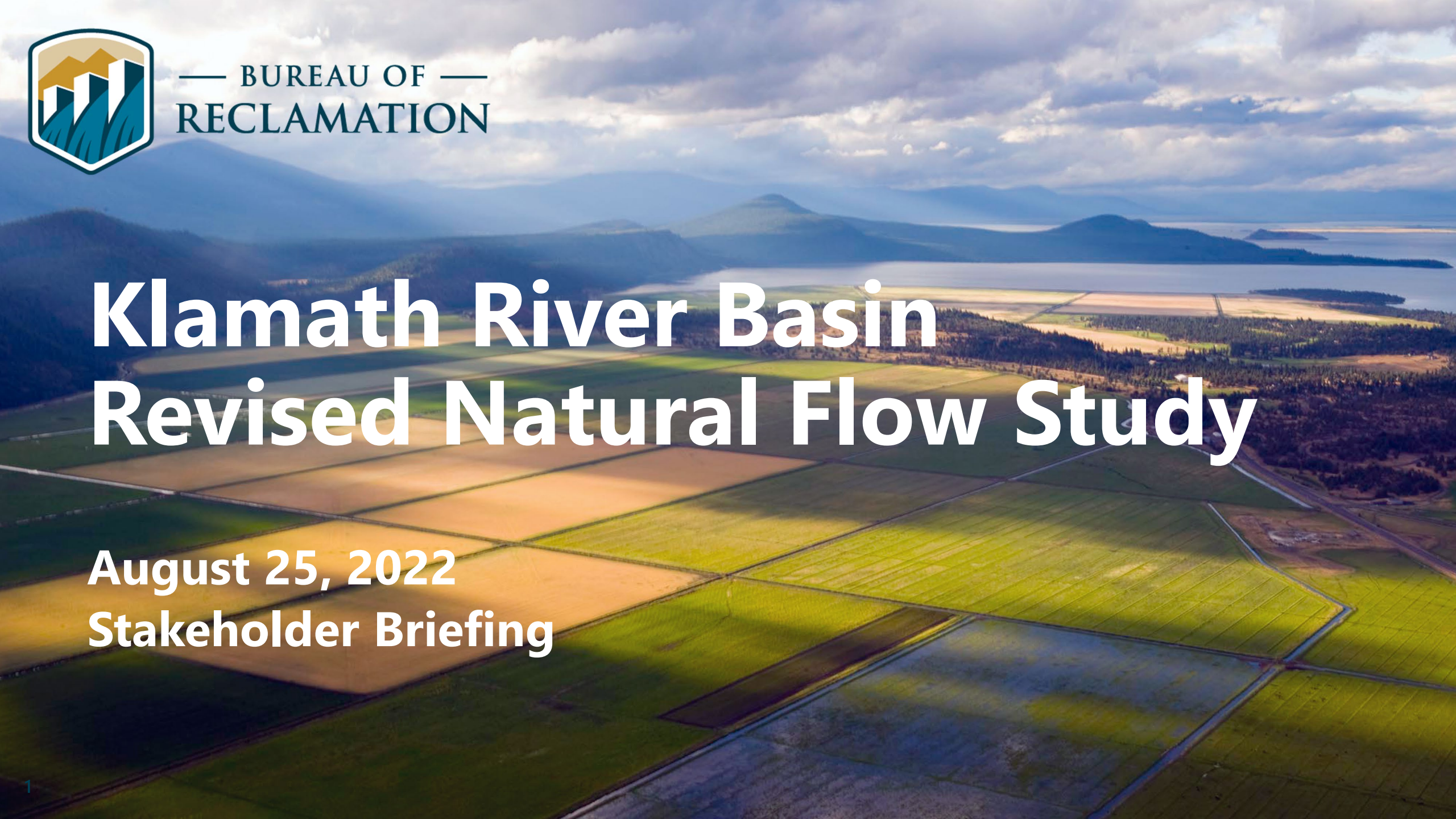


Klamath River Basin Revised Natural Flow Study

August 25, 2022
Stakeholder Briefing

Update Outline

- Introduction
- Project Goals & Context
- Technical Approach
- Challenges
- Schedule Update
- Next Steps

2005 Natural Flow Study

- Monthly flow timeseries for water years 1949-2000

- National Research Council (NRC) Recommendations (2008)
  - Quantitative groundwater assessment
  - Daily time step
  - Improve ET estimates
  - Incorporate land cover changes

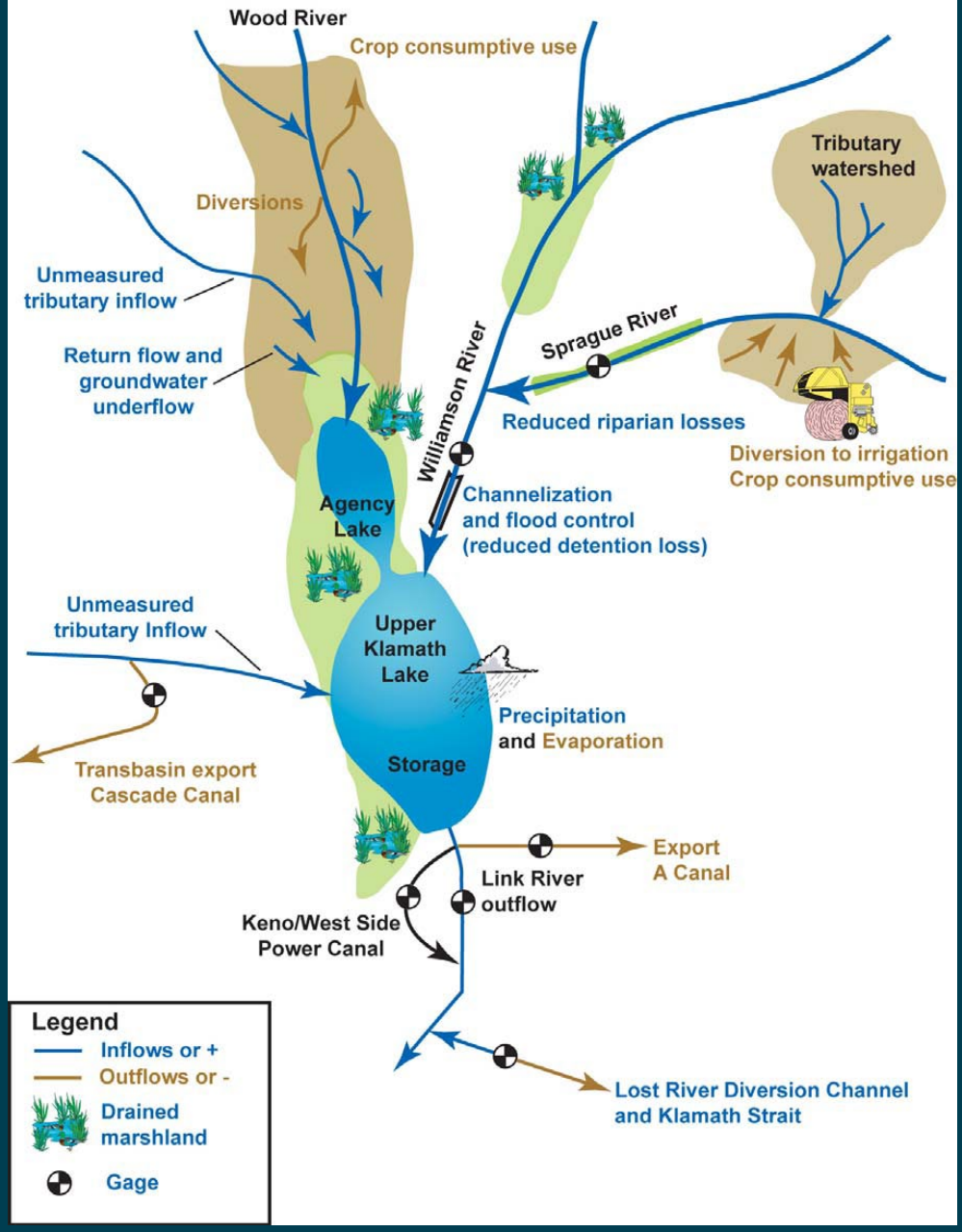
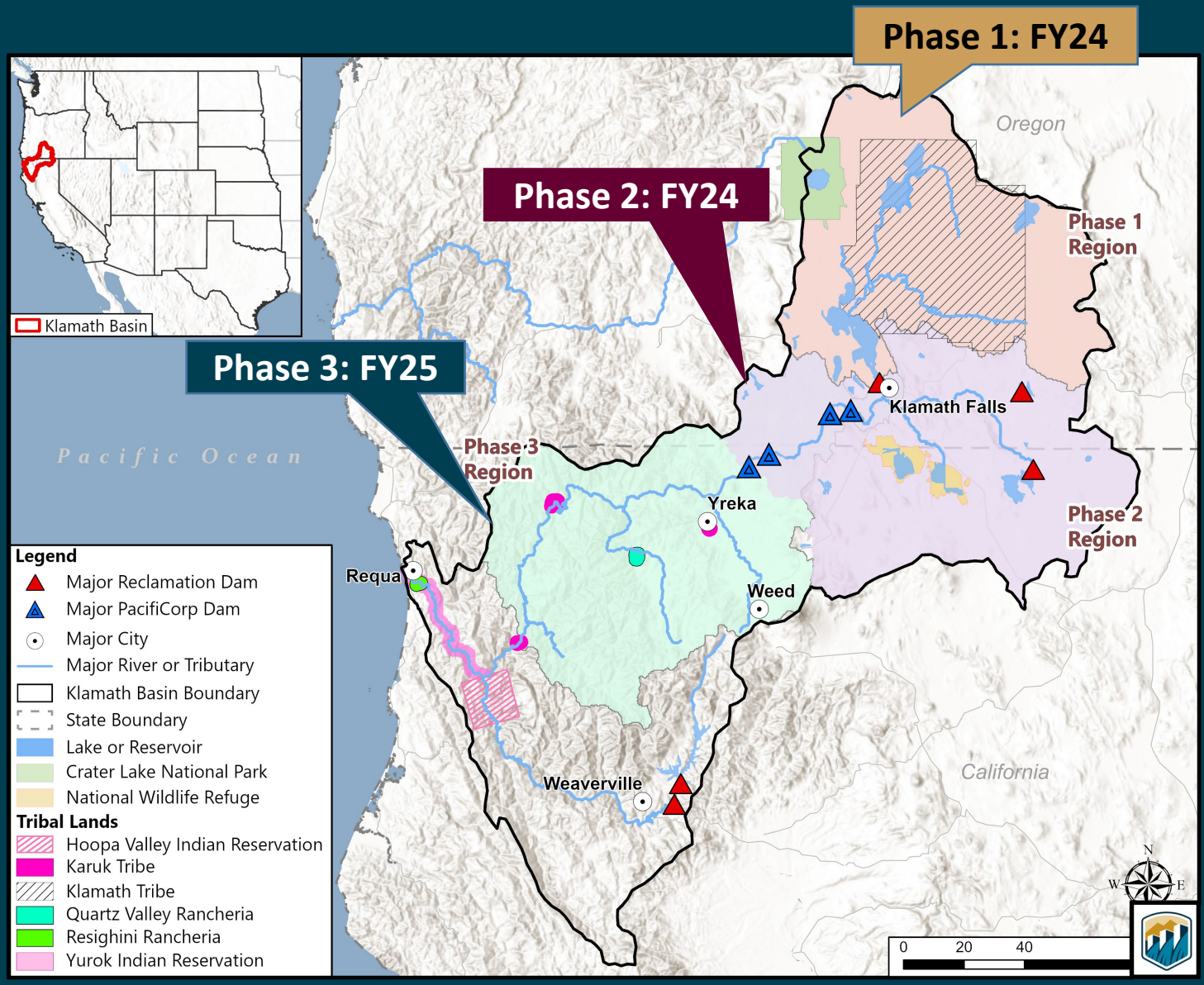


Figure 3. Sketch of the current conditions and types of changes that are addressed in this study.

2025 Natural Flow Study

- Supply the most scientifically thorough estimates of daily natural flows
- Use current data, novel scientific technologies and methods
- Highly Influential Scientific Assessment (HISA)
  - Internal Peer Review
  - External Peer Review
  - Collaboration with local SMEs



How do we define Natural Flow?

General Definition

"The water that would exist in a watercourse absent of human intervention."

2005 Natural Flow Study

Streamflow that would exist in a water course by removing "the effects of agricultural development on natural flows."

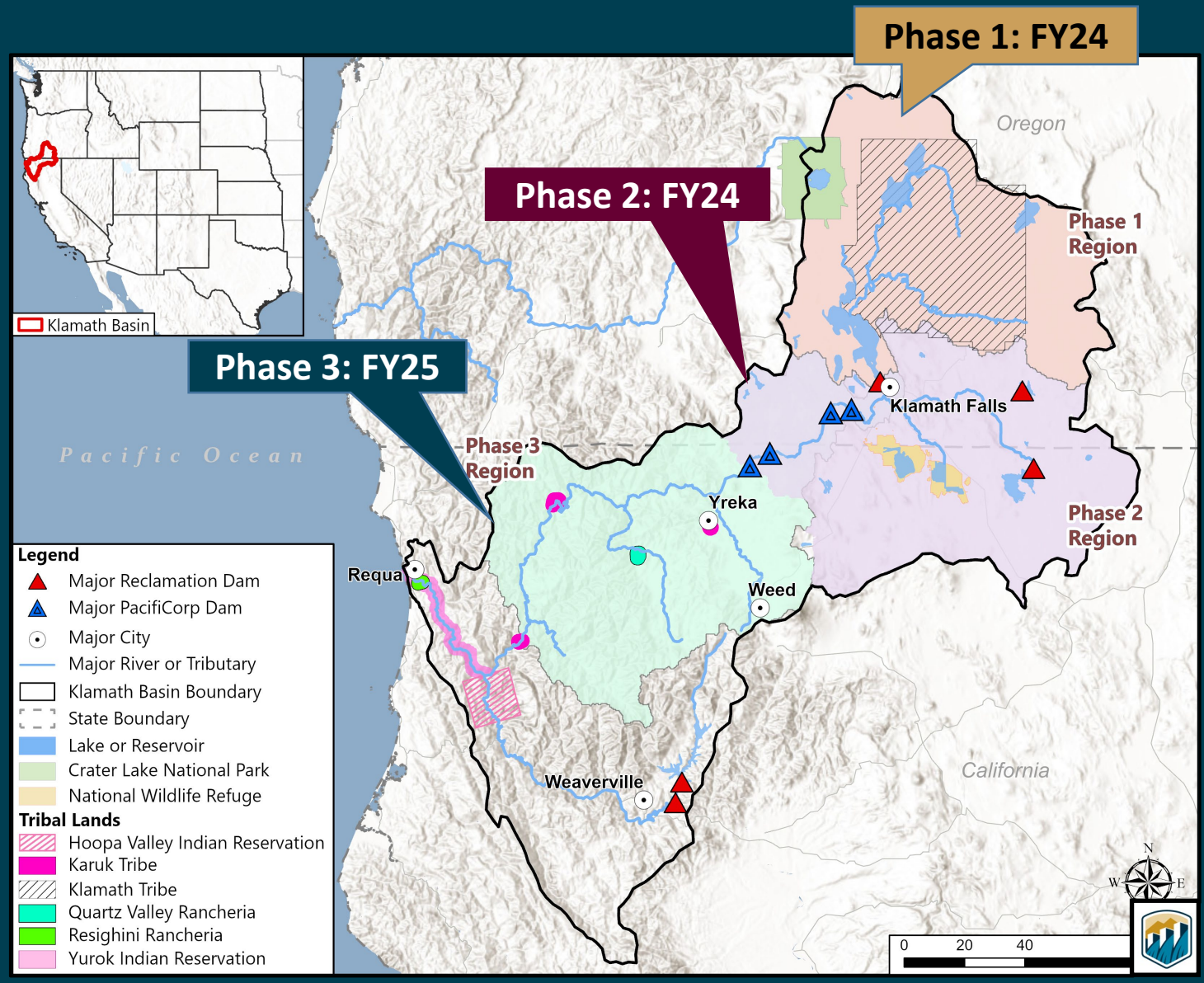
Current Natural Flow Study

"Naturalized streamflow is defined as the streamflow that would have occurred in the absence of agricultural and other development (roads, railroads, municipalities, etc.) during the 1981-2020 water years."

Scope of Work

Project Extent

- Phase 1 – Above Link River Dam (UKL inflows)
- Phase 2 – Link River Dam to Irongate Dam
- Phase 3 – Irongate Dam to the confluence with the Trinity River



Why is the NFS so important?

- Contribute to Klamath Basin Science Initiative
- Provide rigorous scientific information to support habitat studies, drought planning, and water supply/allocation planning
- Address 2005 NFS deficiencies (simplistic, coarse timescale, lack of transparency)

NEWS RELEASE ARCHIVE

Reclamation invests in new science updates for Klamath Project

Media Contact: Mary Lee Knecht, 916-978-5100, mknecht@usbr.gov

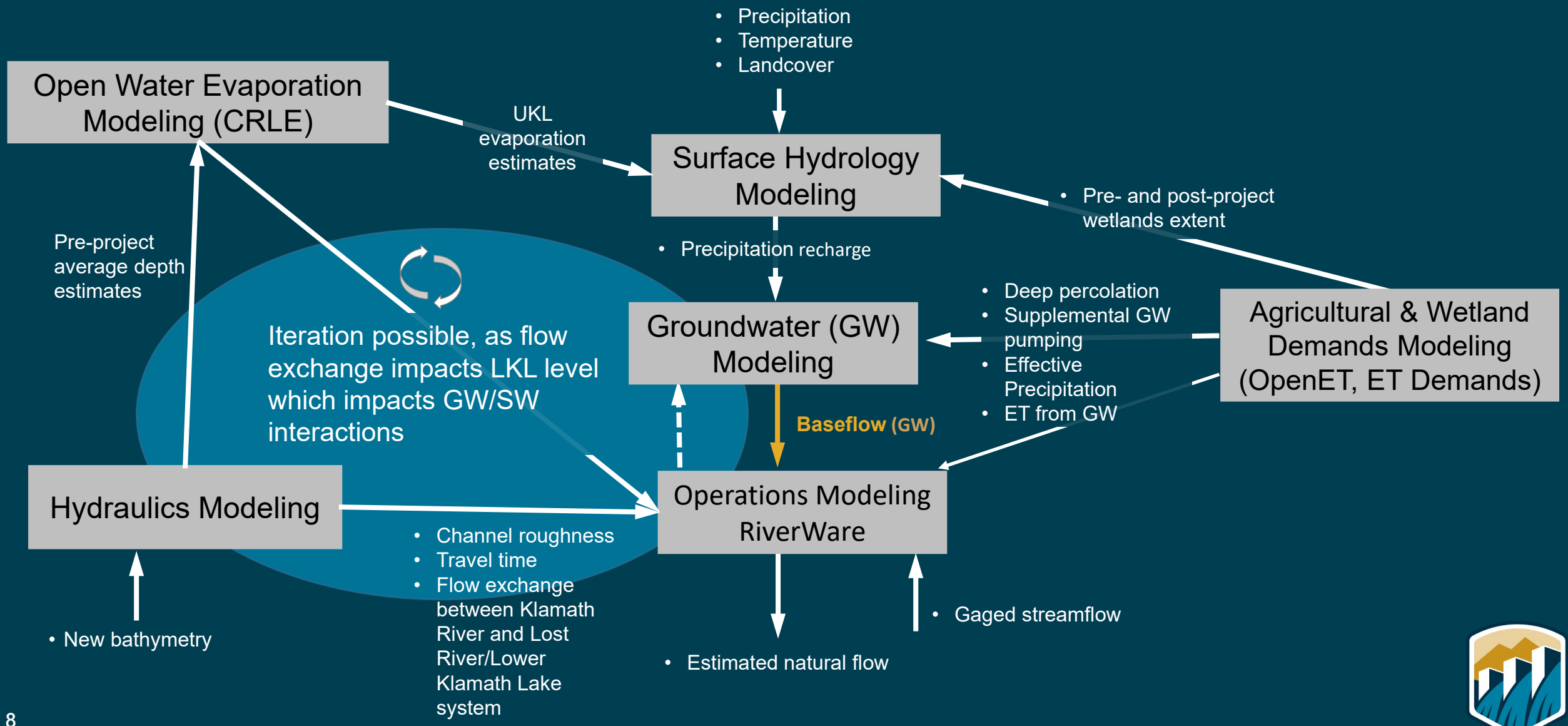
For Release: July 29, 2020

The sun rising over upper Klamath Lake near Klamath Falls, Oregon.

KLAMATH FALLS, Ore. – In response to Secretary of the Interior David Bernhardt and Reclamation Commissioner Brenda Burman's recent visit with Klamath Basin ranchers, farmers, tribes and community officials, Reclamation is launching a new science initiative to inform Klamath Project operations. The project supplies water to more than 230,000 acres of irrigated farmland along the border between Oregon and California. Updated science will improve water supply forecasting, operations planning and modeling.

"We heard firsthand from the community on the best path forward to address longstanding water challenges," **said Commissioner Burman.** "Reclamation is launching a fresh approach with an initial $1.2 million investment in applied science projects. These projects will improve our understanding of natural stream flows and the relationship between project operations and aquatic ecosystems in the Klamath Basin."

Technical Approach



Technical Accomplishments Focus: Phase 1 & 2

Accomplishments

- Reclamation and USGS collaboration on Phase 1 & 2 groundwater modeling + peer review
  - IA awarded on 8/22/2022
- Reclamation and Desert Research Institute collaboration on consumptive use Phase 1, 2 & 3
  - ~83% Complete
- Additional Resources available
  - USGS – groundwater modeling
  - Project Manager
  - On-boarding 2 hydrologic engineers
  - Filling vacancies for junior staff

Challenges	Implemented Solutions
Technical challenges, including complex model dependencies for daily timestep estimates	• External Review Team according to HISA requirements • Engage external SMEs (e.g., USGS, DRI, OWRD) • Regular coordination with project partners
Workload, PM, and loss of key staff	• High Priority Project • On-boarding 2 hydrologic engineers + TSC PM • TSC + KBAO + Leadership Coordination Meetings • Onboarding USGS for Phase 1 & 2 GW Assessment + Peer Review
Phase 3 Groundwater Assessment	• Adding a scoping task to Phase 3 to determine extent + detail required • Scoping Mtgs with KBAO + USGS • Leverage existing studies (UC-Davis)
Study Visibility - Political landscape *"How will the results of this study be used?"*	• Developing a stakeholder engagement plan • Coordinating with other USBR efforts within the basin • Researching how similar studies have been applied in other basins

Status Update – Schedule

	Technical Products / Technical Memorandums	Original	Updated	% Complete
	Start	7/5/20	7/5/20	
1	**Phase 1 - Surface Hydrology Modeling and Analysis**	8/31/2021	10/25/2022	98%
2	**Phase 2 & 3 - Surface Hydrology Modeling and Analysis**	3/31/2024	8/29/2023	0%
3	**Phase 1 & 2 - Hydraulics Modeling and Analysis**	6/30/2023	1/16/2023	71%
4	**Phase 1, 2 & 3 - Evapotranspiration (ET) Modeling and Analysis**	3/31/2023	3/31/2023	83%
5	**Phase 1, 2 & 3 - Reservoir and Lake Evaporation Modeling and Analysis**	6/30/2024	10/31/2022	75%
6	**Phase 1 & 2 - Groundwater Modeling and Analysis (USGS)**	5/31/2023	9/30/2024	1%
7	**Phase 1 & 2 - Riverware Water Operations Modeling and Analysis**	6/30/2023	7/31/2024	5%
8	**Phase 3 - Hydraulics Modeling and Analysis**	6/30/2024	6/11/2024	0%
9	***Phase 3 - Groundwater Modeling and Analysis (unknown approach)***	6/30/2024	9/30/2024	0%
10	***Phase 3 - Riverware Water Operations Modeling and Analysis***	7/31/2024	1/14/2025	0%
	Project Complete	10/1/2024	1/30/2025	

Ahead of schedule
On schedule
Delayed

Next Steps for Project Success

- Implement on HISA peer review plan
- Communication & Collaboration
  - Continue to consult with technical experts and local SMEs
  - Finalize stakeholder communication plan
  - Quarterly updates with TSC Leadership
  - Semiannual updates with local stakeholders
- Scoping Study for Phase 3 groundwater modeling strategy leveraging existing resources

Questions and Additional Discussion

Points of Contact

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