COLUMBIA RIVER BASIN
2026 LONG-TERM WATER SUPPLY & DEMAND FORECAST

DEPARTMENT OF ECOLOGY State of Washington

WASHINGTON STATE UNIVERSITY

Aspect

WRC STATE OF WASHINGTON WATER RESEARCH CENTER

PROJECT OVERVIEW
State Caucus
October 28, 2024

Sasha McLarty
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Key Differences to 2021 Forecast

- **No Tier Analysis - the integrated modeling of water supply and agricultural demand**
  - Projections 20 years into the future won't change significantly from 2021 to 2026
  - Focus on where the science has improved, and getting ready to integrate that new science effectively in future Forecasts
  - Focus on policy-relevant questions with some urgency to evaluate options
- **2026 Forecast is focused on 6 modules**
  - Prioritized based on input during previous Forecasts
  - Will be framed in the context of future projections from 2021 Forecast
  - May inform future tier analysis scenarios
- **More streamlined and shorter products for the State Legislature**

2026 Forecast - Modules

- **Impacts Analysis - Lead: Sonia Hall** (what you did today)
- **Groundwater Modeling - Lead: Sasha McLarty**
- **Water Conservation - Lead: Julie Padowski**
- **Back-to-back Drought - Lead: Mike Brady**
- **Climate Data Improvements - Lead: Mingliang Liu**
- **Temporary Worker Housing Demand - Lead: Dan Haller**

Goal: identify linkages between modules and agency needs

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IMPACT ANALYSIS

Module Coordinator: Sonia Hall

Module Team Members:
Georgine Yorgey and Alex Kirkpatrick

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GROUNDWATER MODELING

Module Coordinator: Sasha McLarty
Module Team Members: Seann McClure and Bob Anderson

GROUNDWATER MODELING: Primary impacts

- **Primary impacts (management):**
  - Evaluate future management strategies under different climate scenarios
  - Evaluate drought impacts on groundwater
  - Support water rights decisions
- **Primary impacts (research): Improved representation of agriculture impacts on groundwater recharge**
  - Drought impacts on confined groundwater
  - Improved temporal discretization and simulation of seasonal variabilities

GROUNDWATER MODELING: Integration

- **Cross-team:**
  - Back-to-Back Drought impacts on groundwater
  - Target hot spot areas for Water Conservation
  - Climate Data for future scenarios
- **State agencies/state caucus:**
  - Increased monitoring/data collection
  - Agency-informed scenarios
  - Mapping groundwater vulnerabilities
- **Other stakeholders:**
  - Conservation districts - GW monitoring
  - USGS - CPRAS model technical coordination

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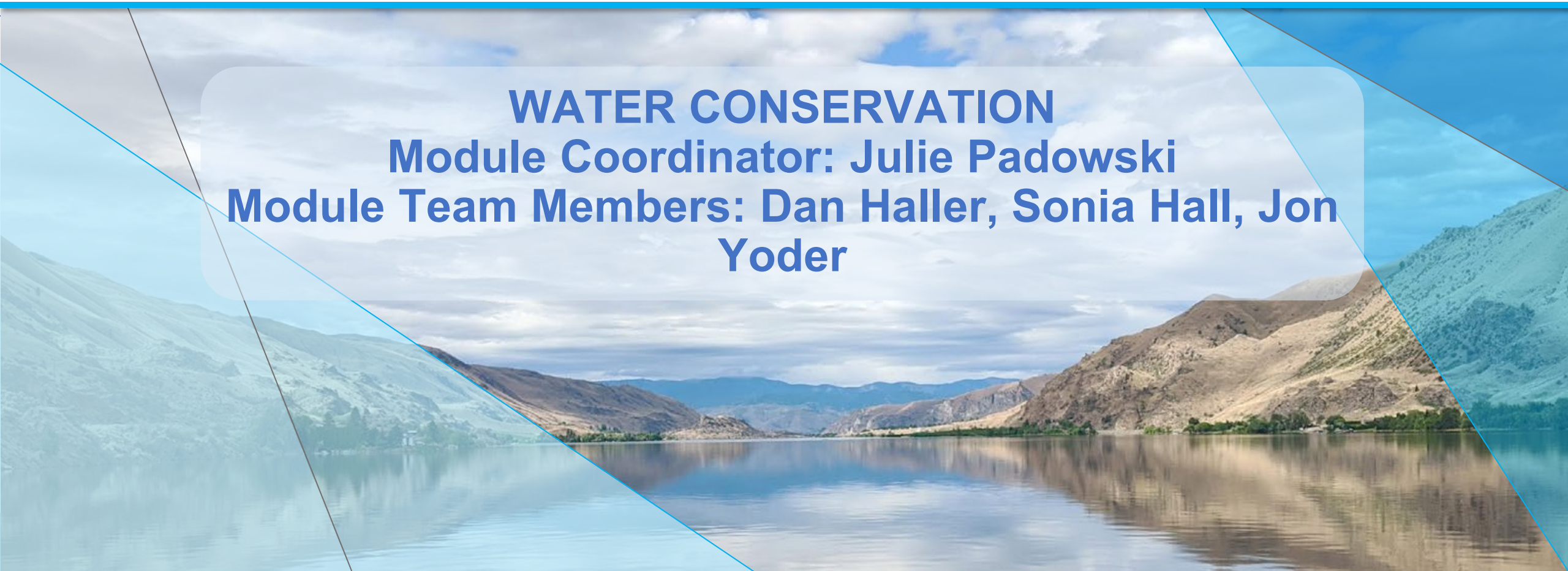
WATER CONSERVATION

Module Coordinator: Julie Padowski

Module Team Members: Dan Haller, Sonia Hall, Jon Yoder



Water Conservation: Primary impacts

- **Primary impacts (management):**
  - Summary of conservation practice types and their uses by demand sector
  - Assessment of conservation practices as a function of magnitude of water savings and nature of benefit
  - In-depth analysis of select case studies (selected with OCR)
- **Primary impacts (research):**
  - Better understanding of how conservation is being used in the CRB across water sectors
  - Quantitative summary of water saving and impact of efforts in different water sectors that can be used to inform other parts of the Forecast

Water Conservation: Integration

- **Cross-team:**
  - Initial conversations to identify known/commonly used conservation measures in different water sectors
- **State agencies/state caucus:**
  - Municipal water conservation is co-managed by DOH and ECY
  - Other conservation incentives or practices informed by ECY
- **Other stakeholders:**
  - Municipal water providers, industrial water users, agricultural water users, ecological water users
  - Potential case studies include: Yakima Basin Integrated Plan, Walla Walla 2050, Icicle Strategy, and Palouse Basin Aquifer Committee

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BACK-TO-BACK DROUGHT

Module Coordinator: Mike Brady

Module Team Members: Kirti Rajagopalan, Jenny Adam, Mingliang Liu, Matt Yourek

Back-to-Back Droughts: Primary impacts

- **Primary impacts (management):**
  - Summary of qualitative and quantitative data collected from grower interviews cataloging actual sequential drought impacts that can be used to target drought relief and other drought mitigation efforts.
  - Forecasted change in sequential drought probability in the future under alternative climate change scenarios, which is relevant for assessing water supply investments.
- **Primary impacts (research):**
  - Better understanding of the impact of climate sequential drought likelihood in the Columbia River Basin compared to other regions.
  - Improve understanding of long-run grower drought mitigation and adaptation strategies.

Back-to-Back Droughts: Integration

- **Cross-team:**
  - Interaction with surface hydrology and crop growth modeling for future model development that incorporates cumulative multi-year drought impacts.
- **State agencies/state caucus:**
  - Coordinate with WSDA to plan for future drought economic impact analyses.
- **Other stakeholders:**
  - Extensive discussions with irrigation districts to coordinate and assess discussions to collect primary information on sequential droughts.

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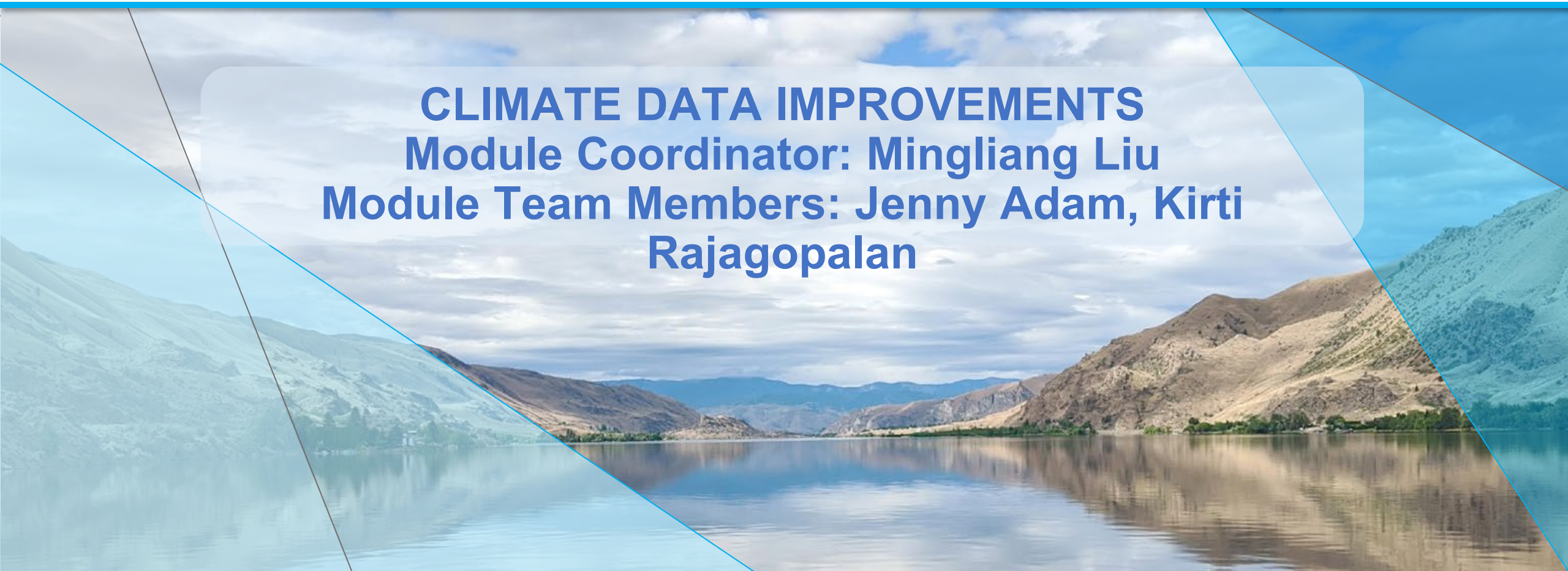

CLIMATE DATA IMPROVEMENTS

Module Coordinator: Mingliang Liu
Module Team Members: Jenny Adam, Kirti Rajagopalan

Climate Data Improvements: Primary impacts

- **Primary impacts (management):**
- Updated projected climate, which is the bases for long-term planning and decision making processes;
- Identify the differences between CMIP5 and CMIP6 over PNW, therefore the corresponding impacts on projected water supply, water demand, and drought occurrences.

- **Primary impacts (research):**
- Dynamic downscaled climate data can better capturing extreme conditions that result in droughts

Climate Data Improvements: Integration

- **Cross-team:** Updated climate data; updated hydrological and crop parameters.
- **State agencies/state caucus:** Which RCP scenarios should be considered related to policy making processes.

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TEMPORARY FARM WORKER HOUSING DEMAND

Module Coordinator: Dan Haller
Module Team Members: Julie Padowski

Temp Farm Worker Housing: Primary impacts

- **Primary impacts (management):** Demand for water for temporary farm worker housing in rural areas is expected to grow tenfold in recent years according to WTFA at a time when “molecular” level impacts are being tracked under the Foster Supreme Court case
- **Primary impacts (research):** Understanding the problem is the first step to OCR developing water supply solutions to help solve the problem

Temp Farm Worker Housing: Integration

- **Cross-team:** Integration of this demand into the Forecast's other domestic demand projections will improve Forecast accuracy
- **State agencies/state caucus:** Ecology, WDFW, Dept of Ag and others are interested in how this sector is growing and how growers can supply adequate water to workers. WDFW will be interested in how that balance with environmental objectives can be achieved.
- **Other stakeholders:** The WTFA and other farm organizations will be interested in the practical supply side solutions to meet this demand.

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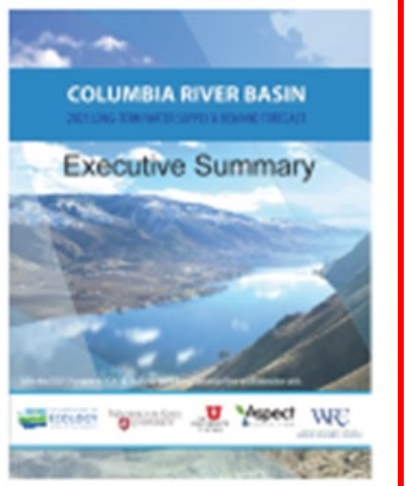
PRODUCTS AND OUTREACH

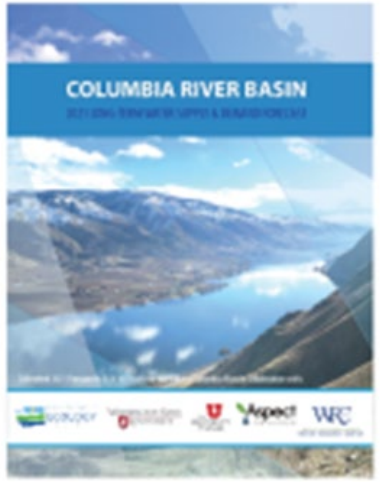
Module Coordinator: Sonia Hall

Module Team Members: Georgine Yorgey, Kirti Rajagopalan, Jenny Adam

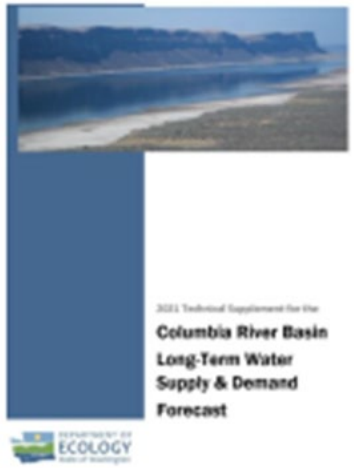
Legislative Report: Approach for Products



Executive Summary



Legislative Report



Technical Report


Flyer


Data Access Website

WSU Press Release

- **SHORT Legislative Report**
  - Module results integrated into Legislative Report (aka "Summary task report for draft executive report")
  - What vulnerabilities do we face?
  - Module results in context of 2021 Forecast tier analysis results
  - Through lens of how modules can inform a 2031 tier analysis

Technical Report

- With module-specific chapters (aka "Technical task report chapter")

Flier & Press Release

Approach for Outreach

- State Caucus meetings
- Public meetings
- Public review period for draft Legislative Report
- Comments and team responses in Technical Report

- One note: Washington Dept. Fish and Wildlife - implications for flows

Approach for Outreach

- **State Caucus meetings**

-WHAT MODULES ARE YOU INTERESTED IN HEARING MORE ABOUT?

-HOW/WHO ENGAGE WITH THE TEAM?

-REVISIT: *What do you not have and would need/like to have in terms of data and information?*

-AND: What is missing? Any FYI's?

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