

COLUMBIA RIVER BASIN 2016 LONG-TERM WATER SUPPLY & DEMAND FORECAST

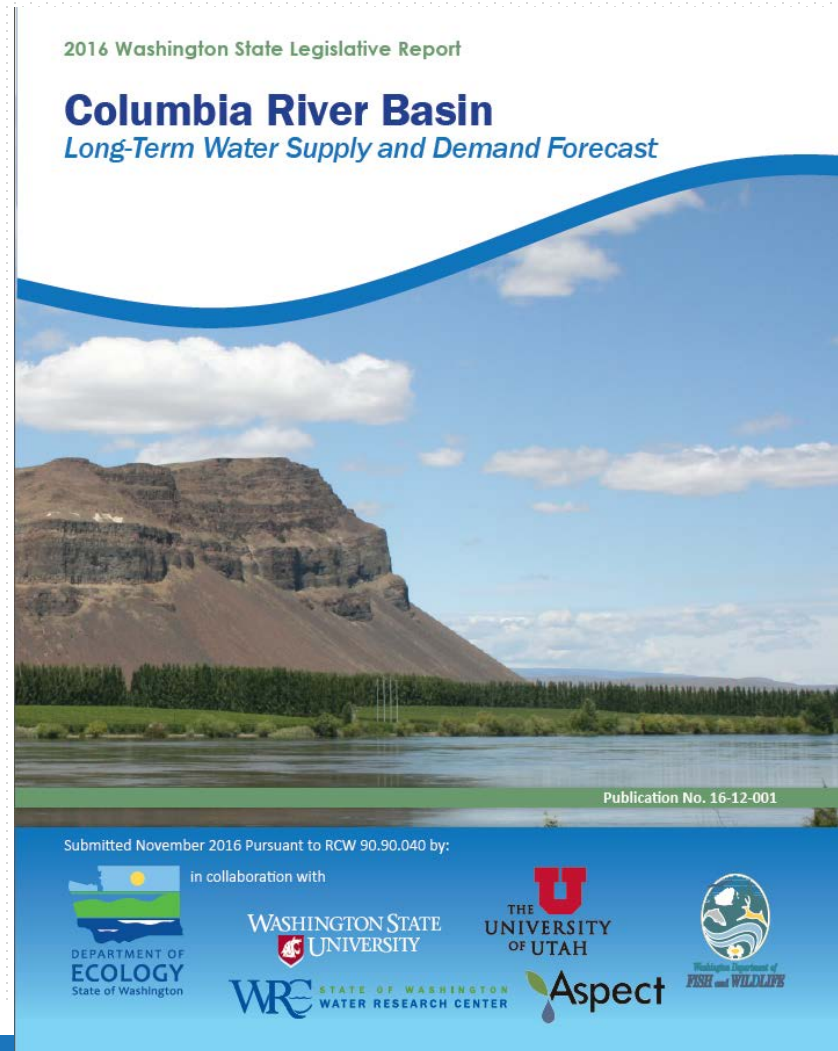
Presented by:

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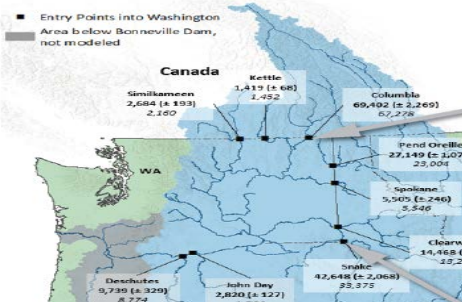
Background

- Every 5 years, the Washington State Department of Ecology's Office of the Columbia River (OCR) is required to submit a long-term (20-year) water supply and demand forecast to the State Legislature
- Washington State University (WSU) was assigned to develop the forecast for water supply and out-of-stream demand
- The forecast helps improve understanding of where additional water supply is most critically needed, now and in the future

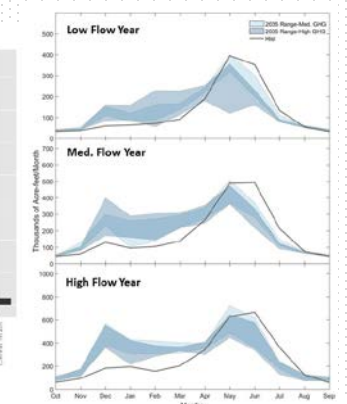
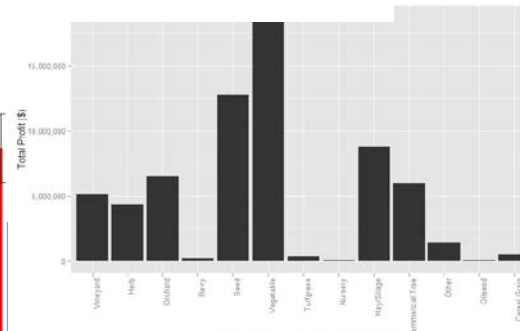
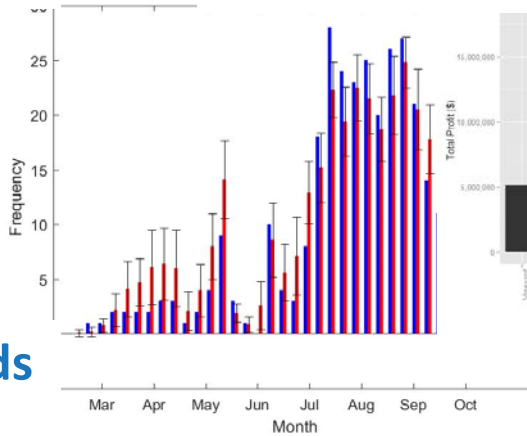


2016 Forecast: Wealth of Other Results, Tools, and Ongoing Work

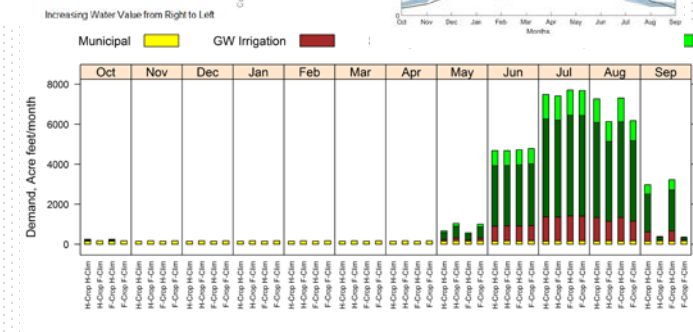
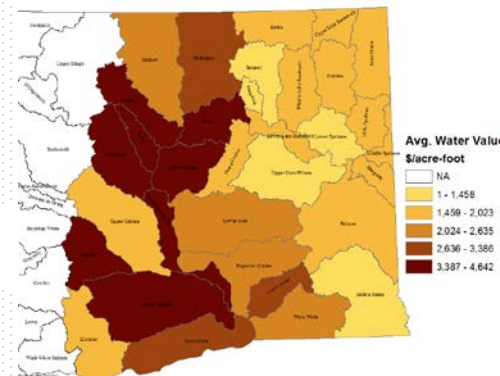
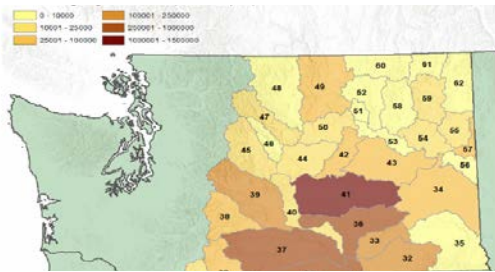
Columbia River Basin



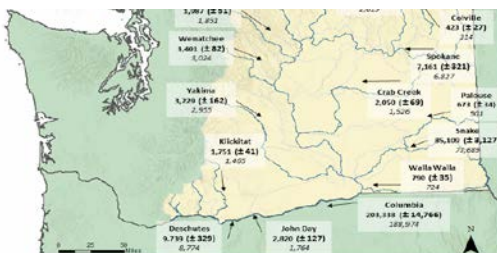
CURTAILMENT MODELING



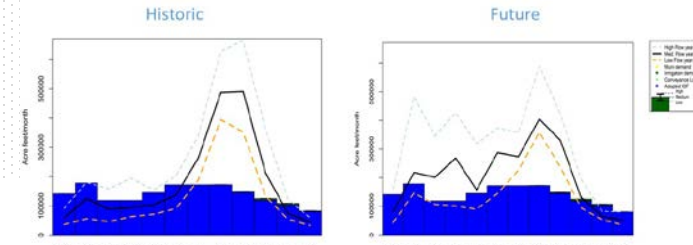
Washington's Watersheds



Columbia River Mainstem



WATER CAPACITY SCENARIOS



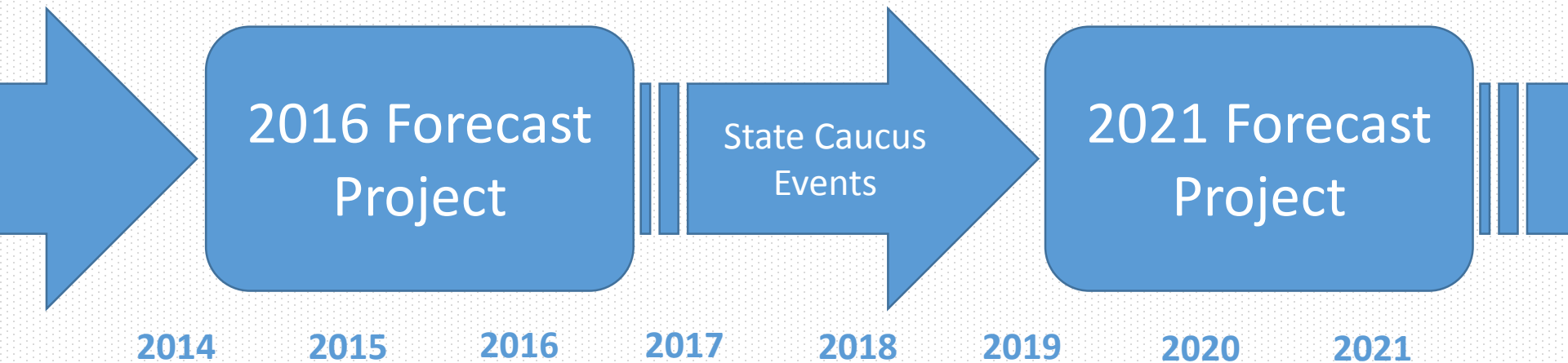
WRIA-Specific Supply and Demand

2016 Forecast: Summary of Water Demand Results

Water Use or Need	Estimated Volume (AF) (average of climate scenarios)
Projected changes in Eastern WA Agricultural Demand by 2035	-332,837 to -250,027
Projected changes in Agricultural Demand by 2035 with 10% Double Cropping	-272,837 to -130,027
Projected changes in Agricultural Demand by 2035 with 10% Double Cropping and Planned Water Supply Projects	27,163 to 169,973
Projected changes in Eastern WA Municipal and Domestic Demand (including municipally-supplied commercial) by 2035	80,000
Projected changes in CRB Hydropower Demand by 2035	35,000 to 75,000
<i>Water Use or Need to be Met with Surface Supplies</i>	
Unmet Columbia River Instream Flows in 2001 at McNary Dam	13,400,000
Unmet Tributary Instream Flows (historical droughts)	659,918
Unmet Columbia River Interruptibles (historical droughts)	40,000 to 310,000
Yakima Basin Water Supply (pro-ratables, municipal/ domestic and fish) (from 2011 Yakima Report)	450,000
Alternate Supply for Odessa (from 2010 Odessa Report)	155,000
Declining Groundwater Supplies (other than in the Odessa Subarea)	750,000

Timeline of Water Supply/Demand Forecasts

- **State Caucus: to collect data and discuss improvements for 2021 Forecast**
 - July 31, 2017 (completed)
 - February, 2018 (target)
 - Summer, 2018 (target)
 - Winter, 2019 (target)



Meeting Objectives

- **Discuss Recommendations from July 31, 2017 State Caucus**
 - filling data gaps
 - prioritizing model refinement
 - policy considerations
- **Seek PAG endorsement for specific action items**
- **Follow-up on PAG endorsements with the State Caucus in February.**

Action Items for PAG Support

1. Should WSU model irrigation demand beyond current supply constraints?
2. Should WSU include curtailment modeling between junior and senior water right holders?
3. Should WSU increase detail on municipal demand from annual to monthly to improve forecasting?
4. Should OCR / Ecology encourage/require groundwater level monitoring to help with decisions on declining groundwater?
5. Should OCR coordinate with WDFW and fisheries co-managers to increase metrics used for estimating instream flow needs?
6. Should supply and demand forecasting be expanded statewide?
7. Should Ecology gather more information on user-pay program?

Action Item #1: Irrigation Expansion

- **Irrigation Demand Expansion**

- Past forecasts have only considered irrigation expansion for OCR planned developments.
- OCR budget and projects may be self-limiting relative to actual demand for agricultural irrigation.
- An economic analysis of the value of new irrigated acreage could help gauge the benefits of further water supply investments.

Action Item #1: Irrigation Expansion

- **PAG Request**

- Should WSU develop an Economic Analysis scoping document for the 2021 Forecast?

Action Item #2: Curtailment

- **Current module shows competition between adopted instream flows and interruptible water users**
- **Need similar curtailment module for competition between junior and senior water right holders.**

Action Item #2: Curtailment

- **PAG Request**

- Should WSU develop a curtailment scoping document and coordinate with Ecology to populate it?
- Curtailment information can be tracked at first in excel followed by potential integration into WRTS.

Action Item #3: Municipal Data

- **Current forecast only provides annual demand data**
- **Monthly data (by water system size, location, etc.) could improve forecasting with nominal effort.**
- **Coordination opportunities with DOH exist relative to water system planning.**

Action Item #3: Municipal Data

- **PAG Request**

- Should WSU develop a municipal scoping document to outline an approach for the 2021 Forecast?

Action Item #4: GW Level Monitoring

- The 2016 Forecast assumed groundwater supplies did not limit demand.
- The 2016 Forecast provided an audit of 10 areas where groundwater levels may limit demand in the future.
- State agencies with water resiliency mandates could encourage/require groundwater level monitoring to help Ecology with decisions on declining groundwater.

Action Item #4: GW Level Monitoring

- **PAG Request**

- Should Ecology to send letters requesting monitoring and data sharing to state agencies like DOH and DNR to improve information for the 2021 Forecast?
- Should this request be extended to counties who may be addressing groundwater supplies in response to Hirst?

Action Item #5: Instream Demand

- **Current forecast creates instream demand by comparing adopted instream flow levels to average and drought water year supplies.**
- **Other metrics or methodologies could be used to estimate instream flow demand.**

Action Item #5: Instream Demand

- **PAG Request**

- Should WSU and OCR collaborate with WDFW and fisheries co-managers on whether the current methodology is adequate to describe instream flow demand?

Action Item #6: Statewide Forecast

- **Request statewide forecasting**
 - State would benefit by statewide forecast.
 - Integrate east and west side planning efforts.
 - Parity with other states as water supplies continue to tighten.
 - Partnership between Ecology/OCR would be required.

Action Item #6: Statewide Forecast

- **PAG Request**

- **Should Ecology request authorization from Governor's office to scope this effort?**

Action Item #7: User-Pay Program

- **The 2016 Forecast surveyed participants in past user-pay programs.**
- **Ecology could implement data collection in current user-pay programs like cost-reimbursement permitting to better assess future demand and water supply price-points.**

Action Item #7: User-Pay Program

- **PAG Request**

- Should WSU outline a scoping document on how Ecology processes could be modified to gather data on ongoing user-pay programs?