

# HB 2018 Informational Testimony

OREGON



WATER RESOURCES  
DEPARTMENT

House Water Committee  
Hearing on HB 2018  
March 4, 2021

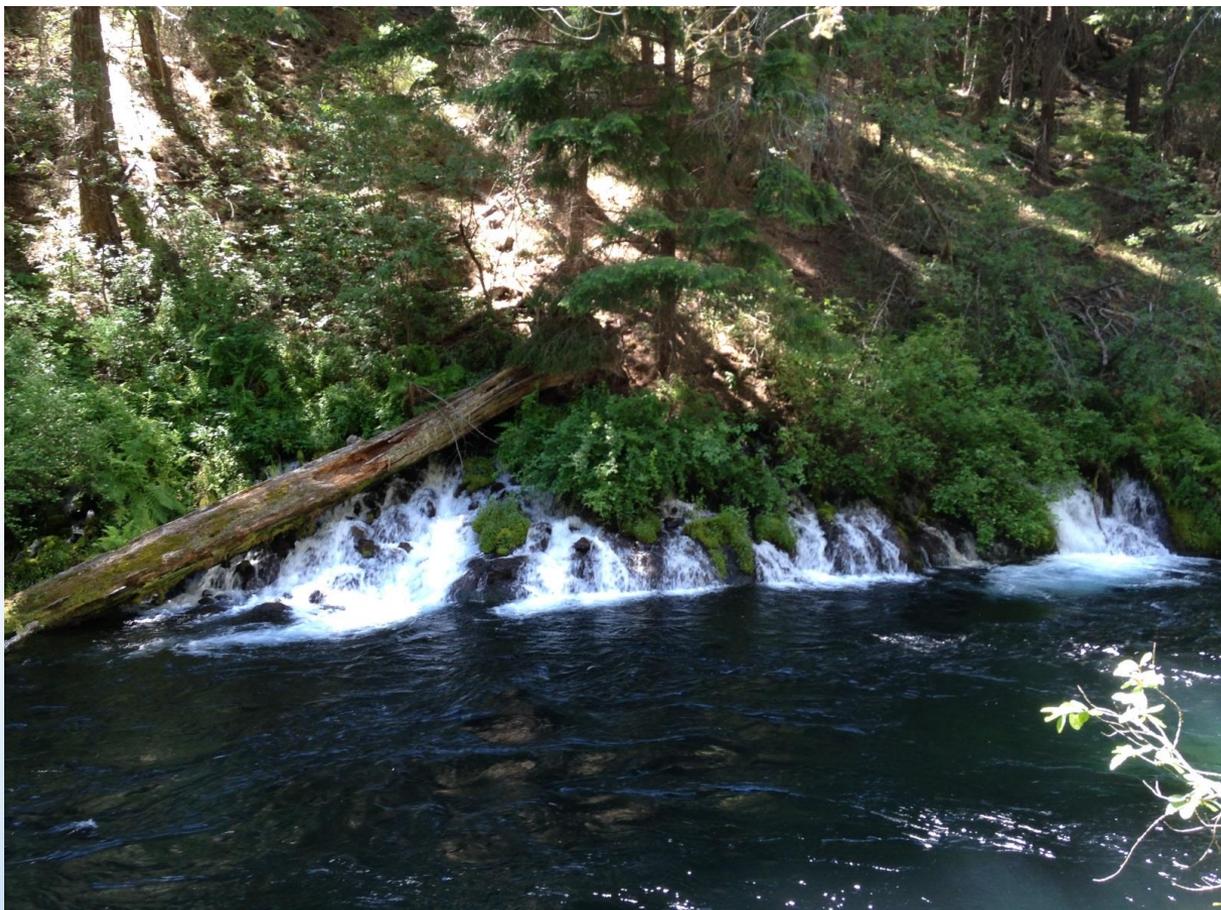
Ivan Gall, Field Services  
Division Administrator

Justin Iverson,  
Groundwater Manager



# HB 2018 Informational Testimony

- Purpose to provide background information on the technical concepts of the bill
- No position on HB 2018



# HB 2018 Components

- Groundwater budgets for all major hydrologic basins
- Consumptive irrigated water use and open reservoir evaporation
- Improved/Expanded groundwater level monitoring network
- Prioritize basins for further studies and water management



# Statewide Strategy

## Oregon's **2017** Integrated Water Resources Strategy



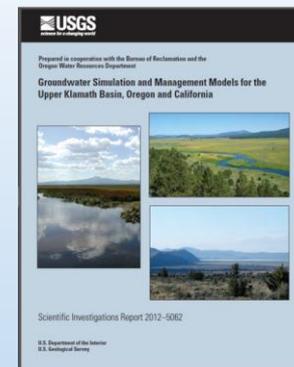
### Recommended Action 1.A Conduct Additional Groundwater Investigations

Examples of how to implement this action:

- Install and maintain dedicated state observation wells in priority basins
- Partner with U.S. Geological Survey to conduct and cost-share additional groundwater recharge studies and basin investigations
- Evaluate groundwater administrative areas; review time-limited permits more efficiently
- Locate and document water wells, including exempt use wells, permitted wells, and unused wells
- Ensure high-quality groundwater level measurements; install measuring tubes and make scheduled measurements

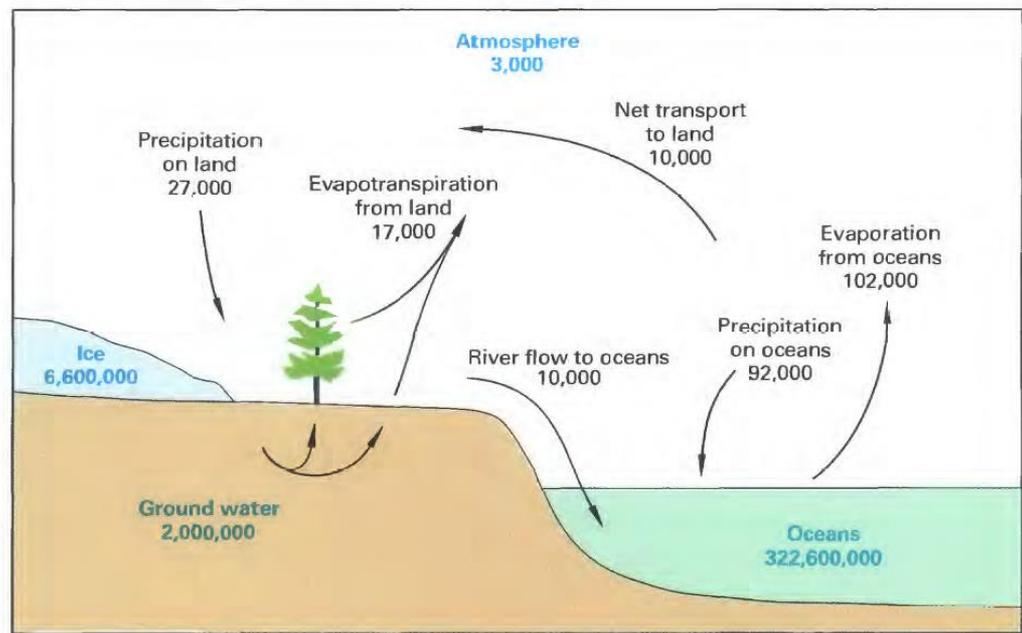
# Groundwater Basin Studies

- Comprehensive description of an unseen component of the hydrologic cycle:
  - Water Budget – water in, water out, and change in long-term storage; how much?
  - Hydrogeologic Framework – direction of groundwater movement and aquifer properties; where to and how fast?
  - Numerical Model – timing of response to future scenarios; what if?
- Foundation for informed decision making:
  - Future allocation within the capacity of the resource
  - Evaluate options to address overallocation
  - Solutions such as the Deschutes Basin Mitigation Program



# Water Budgets

**A water budget is an accounting of water stored within, and water exchanged among, the hydrologic components of a watershed.**



**Table 1.** Estimated global water supply (from Nace, 1967).

[km<sup>3</sup>, cubic kilometers]

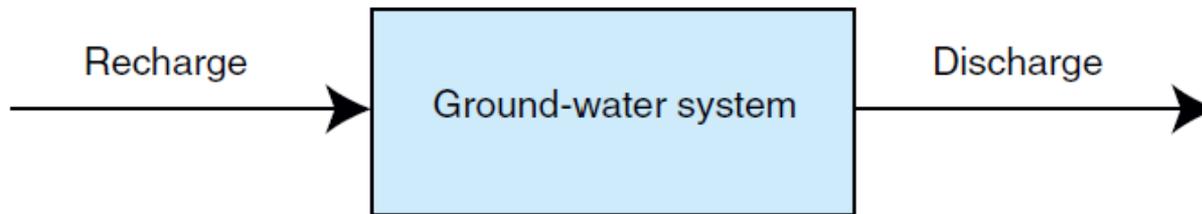
Water storage	Volume, in thousands of km <sup>3</sup>	Percentage of total water
Ocean water	1,320,000	97.1
Atmosphere	13	0.001
Water in land areas	37,800	2.8
Freshwater lakes	125	0.009
Saline lakes and inland seas	104	0.008
Rivers	1.25	0.0001
Icecaps and glaciers	29,200	2.14
Soil root zone	67	0.005
Ground water (to depth of 4,000 meters)	8,350	0.61

**Basic Water Budget Equation:**

**Precipitation + Water Flowing In = Evapotranspiration + Change in Storage + Water Flowing Out**

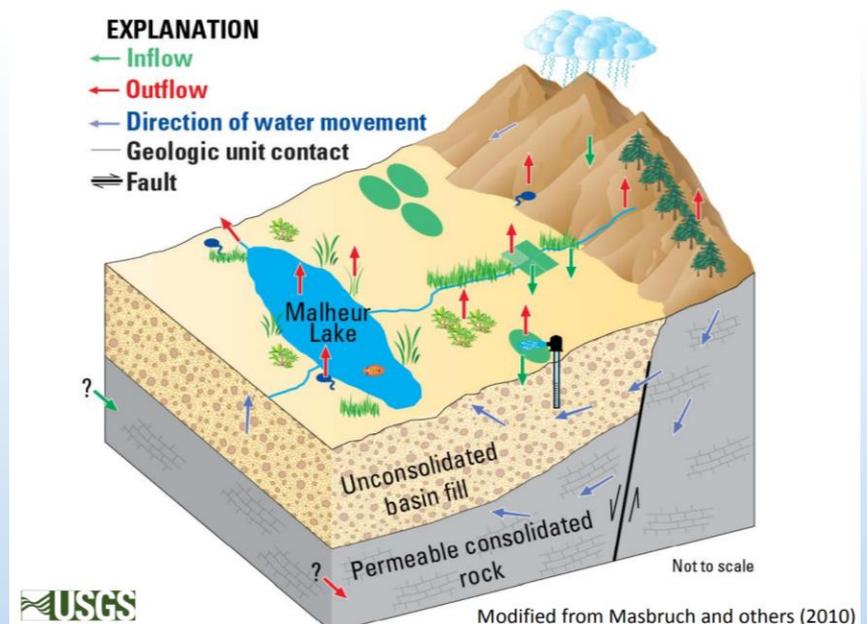
# Groundwater Budgets

**A groundwater budget is an accounting of water stored within, and water recharged to and discharged from, a groundwater system.**



**Table 1.** Possible sources of water entering and leaving a ground-water system under natural conditions

Inflow (recharge)	Outflow (discharge)
1. Areal recharge from precipitation that percolates through the unsaturated zone to the water table.	1. Discharge to streams, lakes, wetlands, saltwater bodies (bays, estuaries, or oceans), and springs.
2. Recharge from losing streams, lakes, and wetlands.	2. Ground-water evapotranspiration.



# Consumptive Use via OpenET

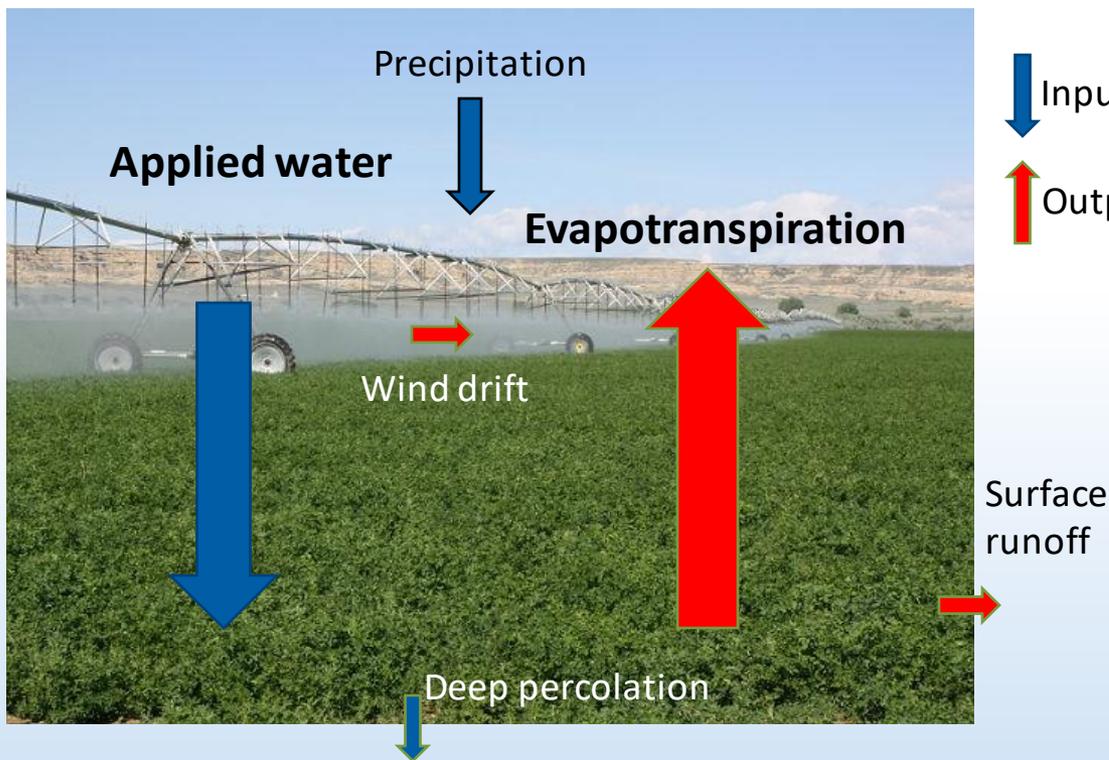


## Use of Satellite Technology to Estimate Consumptive Water Use from Irrigated Agriculture: OpenET

Ivan Gall, Administrator, Field Services Division  
Jordan Beamer, Hydrologist, Technical Services Division

House Committee: Water  
December 17, 2020

# Consumptive Use via OpenET



- Crop water consumed via evapotranspiration is one way water leaves the water system
- ~85% of diverted water is for crop irrigation
- ET is a key part of estimating a basin water budget

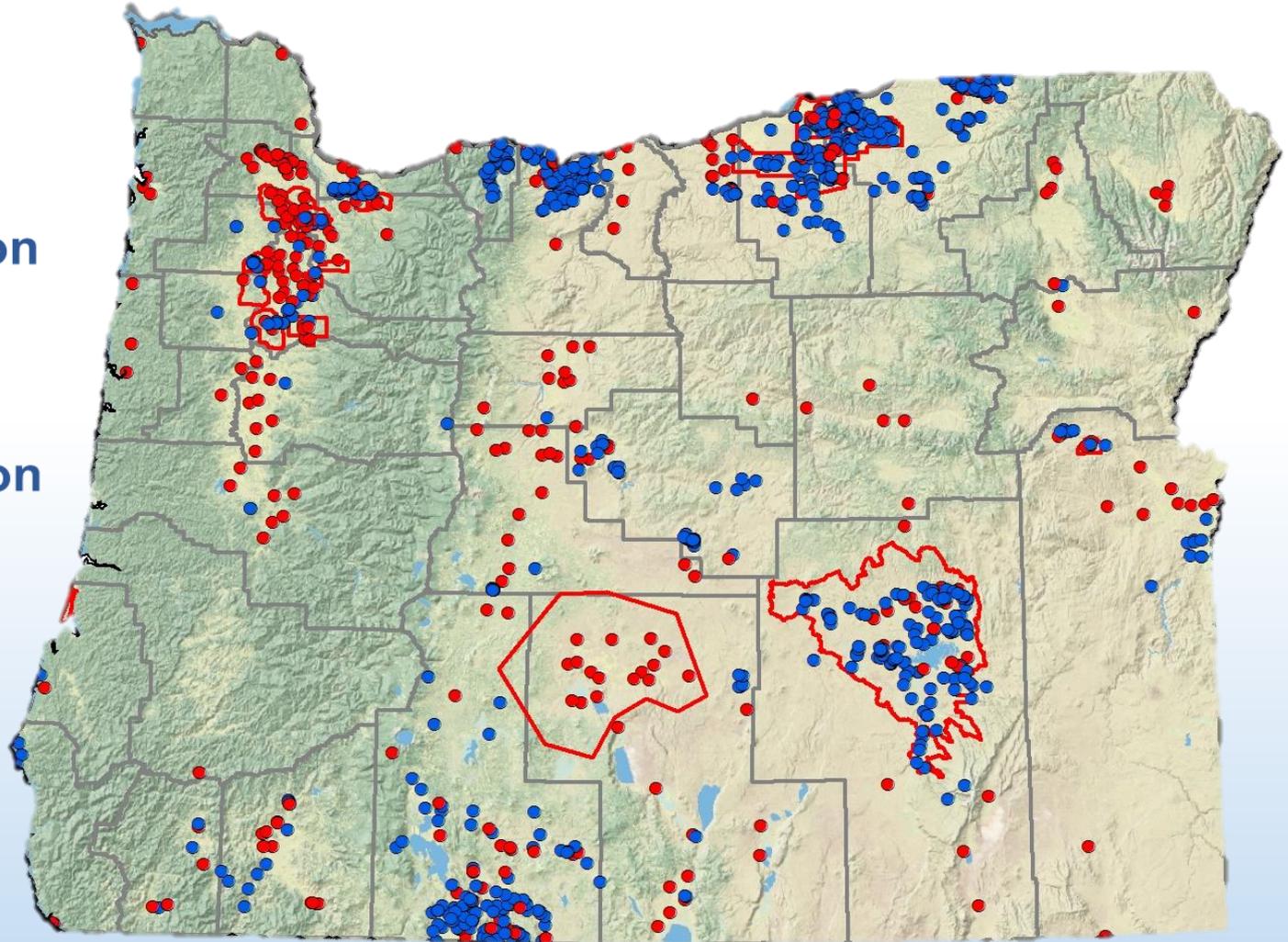


# Groundwater Level Monitoring

● State  
Observation  
Well

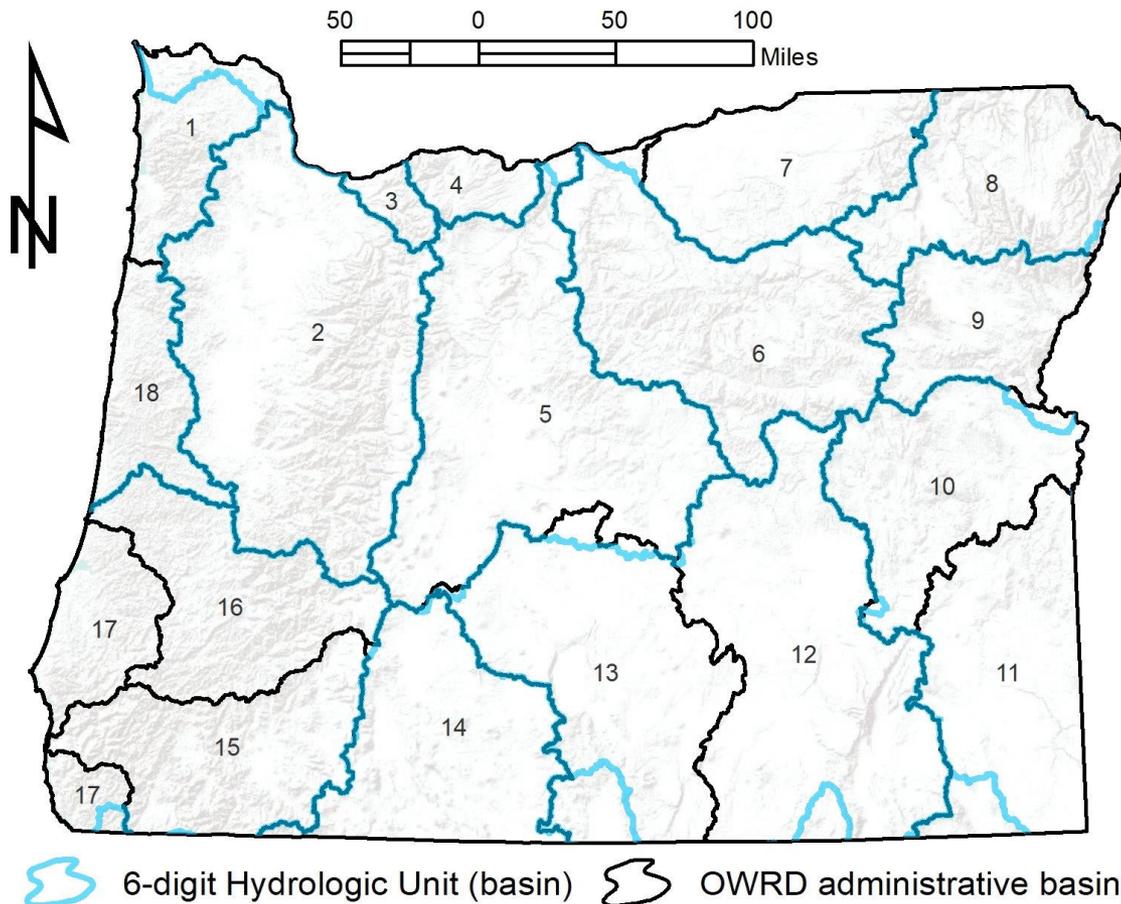
● Other  
Observation  
Well

378 State  
870 Other





## Major Hydrologic Basins



OREGON



WATER RESOURCES  
DEPARTMENT