

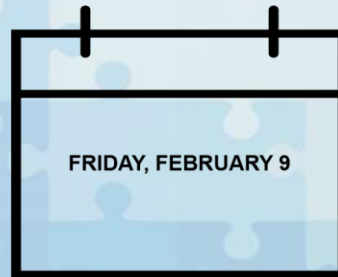
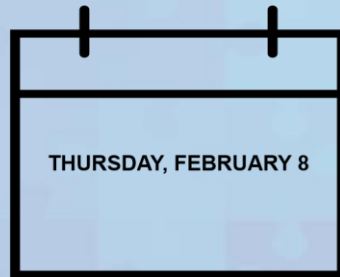
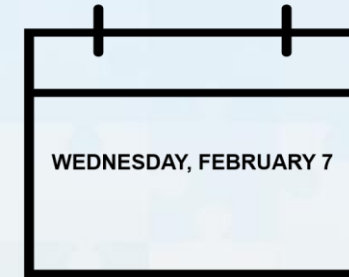
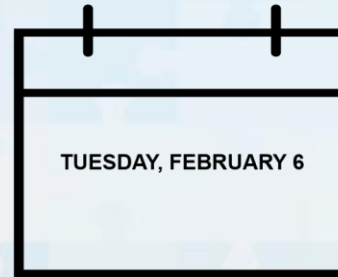
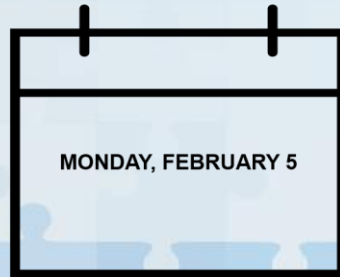
# 1996 FLOOD: A QUICK REFLECTION

Paul Sclafani

February 23, 2026



# 1996 FLOOD: A QUICK REFLECTION



AFTER THE FLOOD





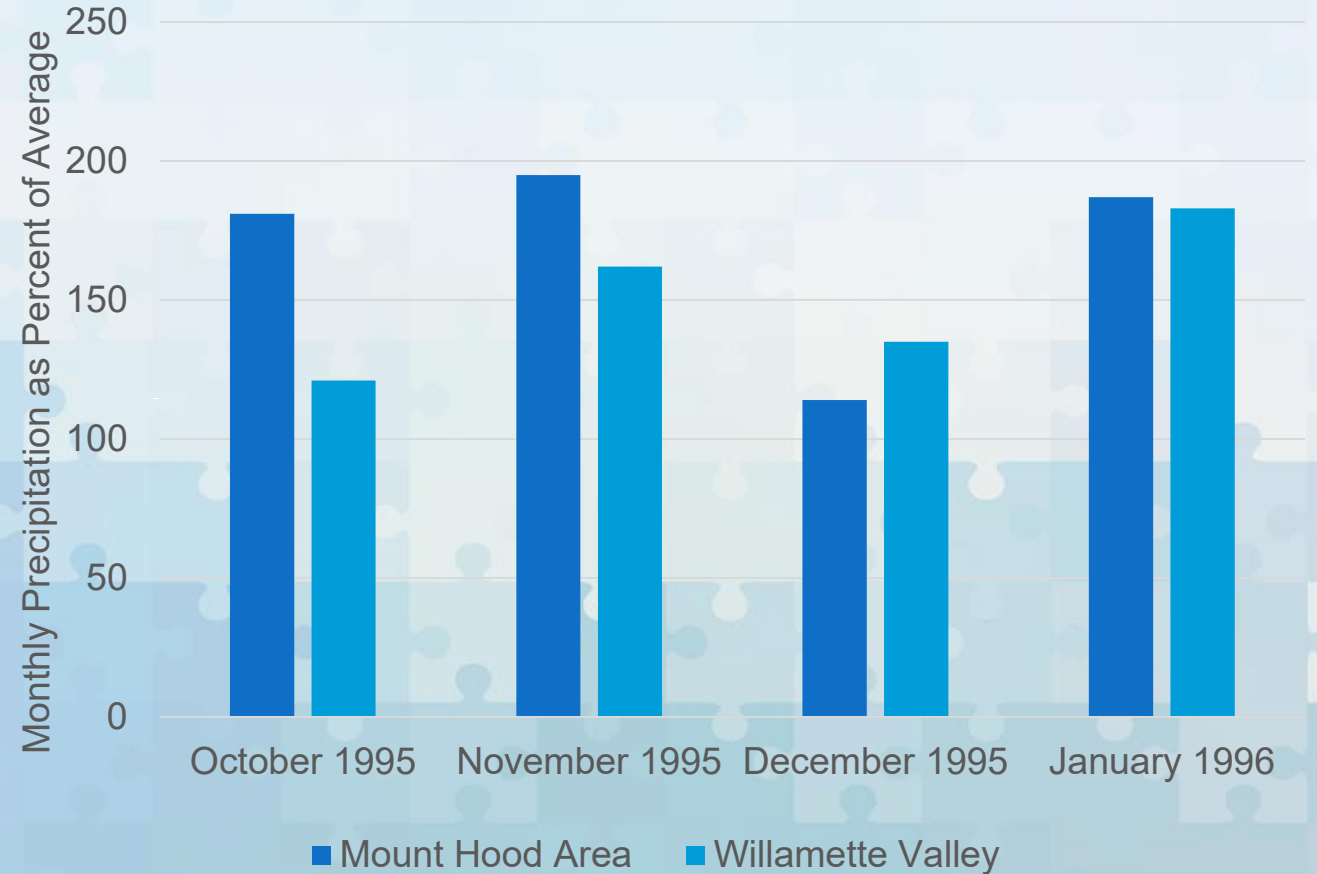
**MONDAY, FEBRUARY 5**





# MONDAY, FEBRUARY 5

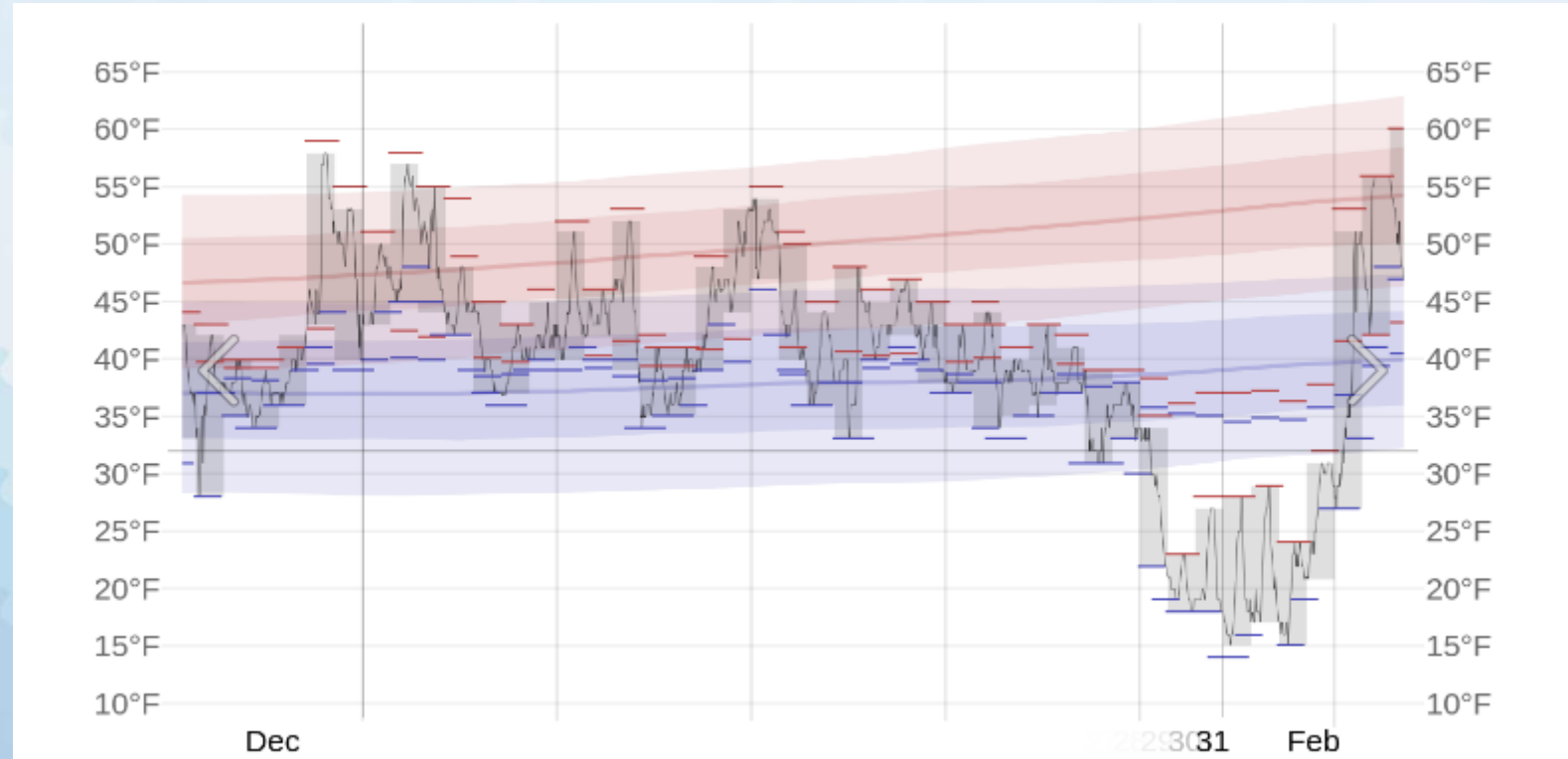
- USACE's Reservoir Control Center (RCC) identifies similarity to 1964 flood.





# MONDAY, FEBRUARY 5

- USACE's Reservoir Control Center (RCC) identifies similarity to 1964 flood.
- Severe drop in temperatures beginning January 18, freezing a saturated ground.



From Weather Spark using data from the Portland Airport <https://weatherspark.com/h/m/757/1996/1/Historical-Weather-in-January-1996-in-Portland-Oregon-United-States#Figures-Temperature>

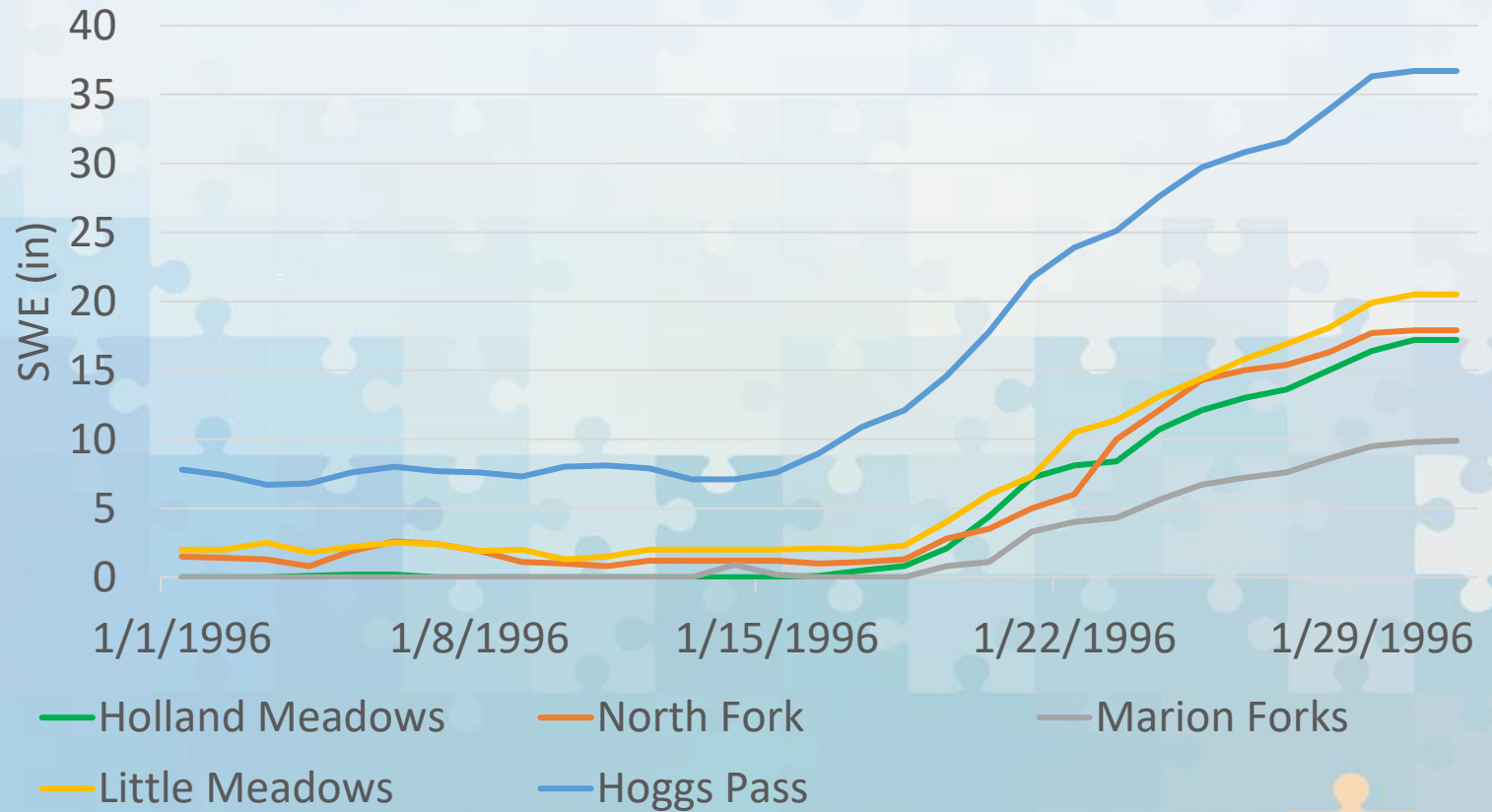




# MONDAY, FEBRUARY 5

- USACE’s Reservoir Control Center (RCC) identifies similarity to 1964 flood.
- Severe drop in temperatures beginning January 18, freezing a saturated ground.
- Large increase in snow up to 112%. Snow and ice reached Valley floor.

### Measured SWE Through January 1996 From NRCS SNOTEL



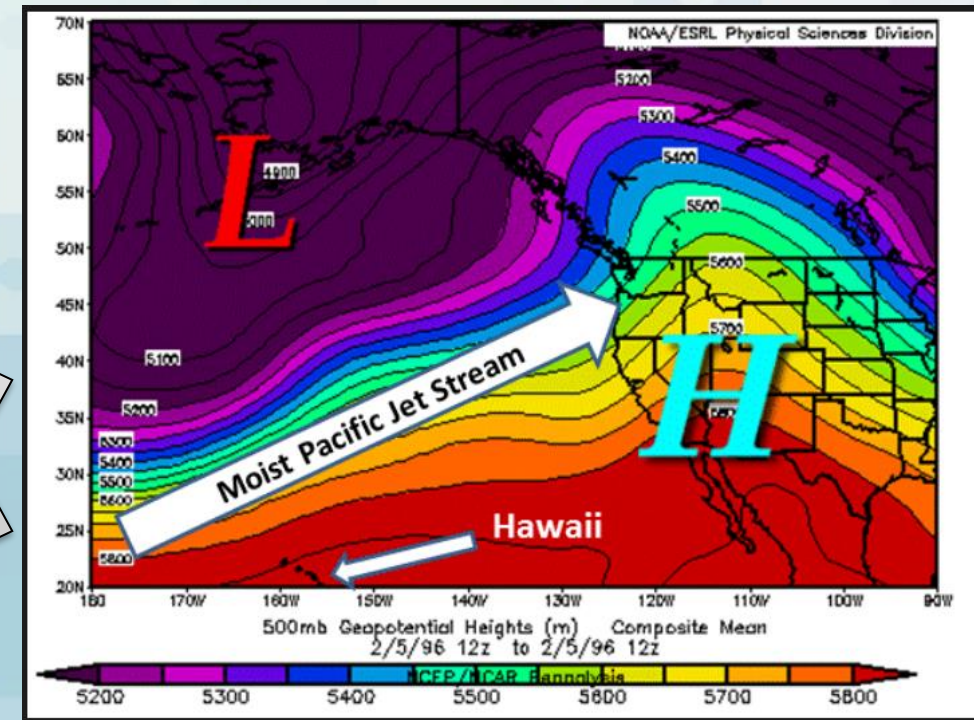
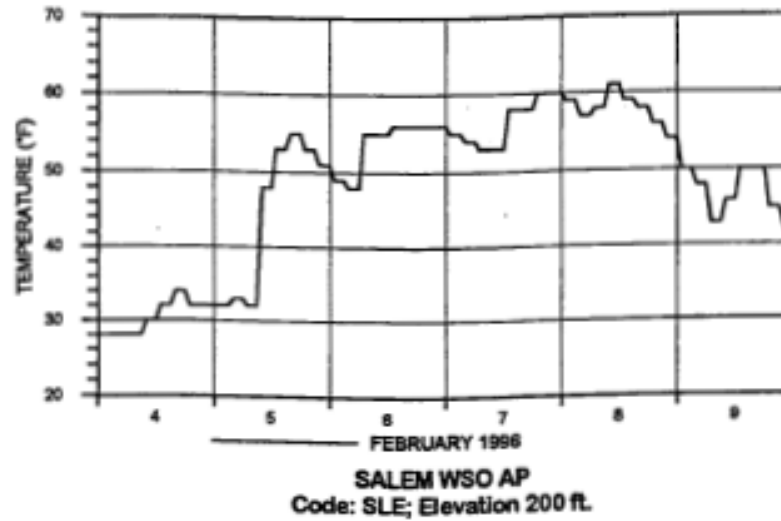


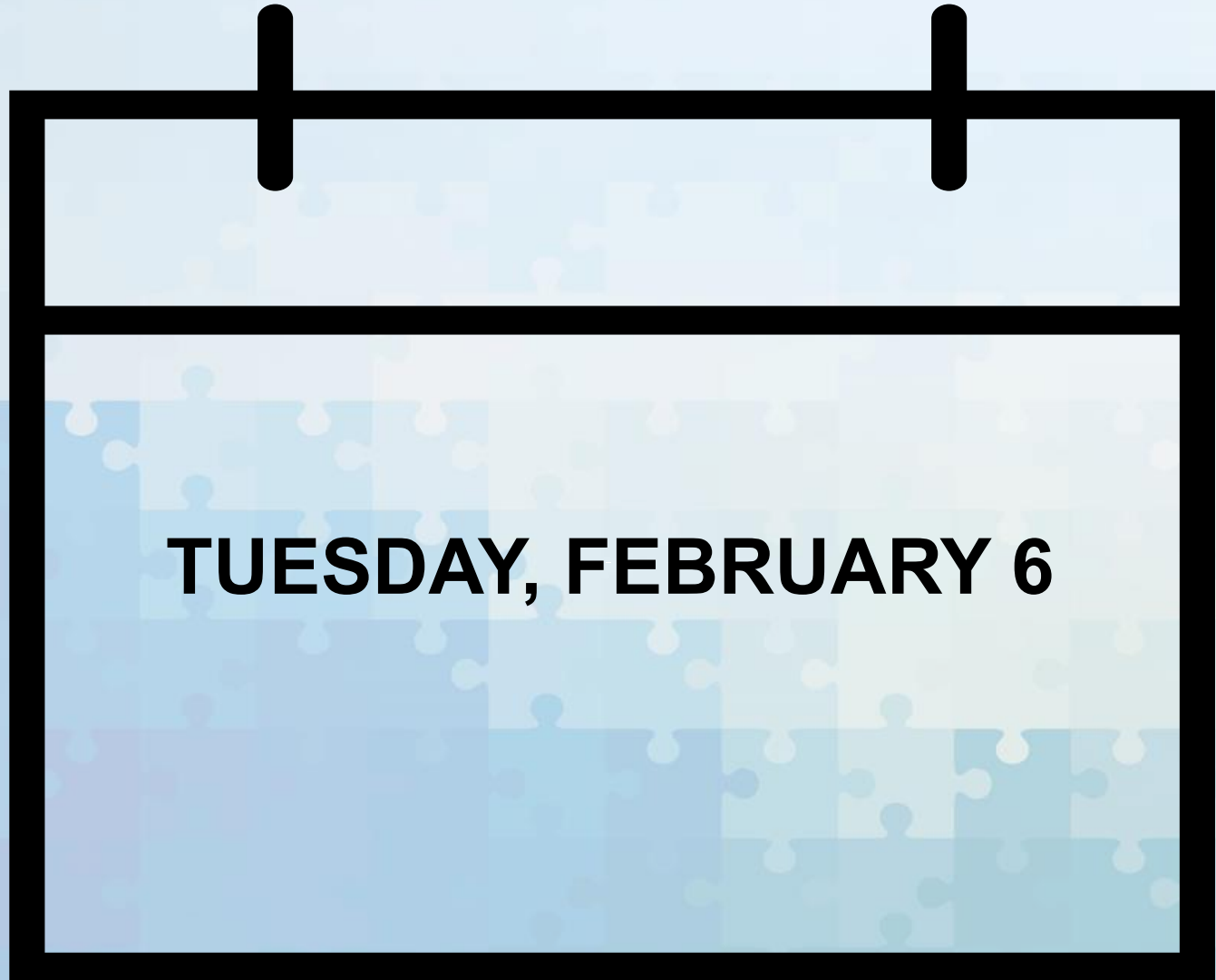
# MONDAY, FEBRUARY 5

- USACE's Reservoir Control Center (RCC) identifies similarity to 1964 flood.
- Severe drop in temperatures beginning January 18, freezing a saturated ground.
- Large increase in snow up to 112%. Snow and ice reached Valley floor.
- ✓ Using Portland Harbor as a flood control point, John Day Drafted by 1ft to increase flood capacity by 50k ac-ft.

The Forecast Worsens...

Portland Harbor  
Forecasted to  
14 ft (18 ft is  
flood stage)







# TUESDAY, FEBRUARY 6

- Portland Harbor Forecast now exceeds 14ft.
- ✓ RCC requests BC Hydro to reduce output down to natural flow rates from 92,000 cfs to 15,000 cfs.
- ✓ John Day drafts another 1.5 ft.



Photo by Chauncey Anderson

USGS Oregon Water Center Remembers the 1996 Flood  
<https://www.usgs.gov/centers/oregon-water-science-center/news/usgs-oregon-water-science-center-remembers-1996-flood>



From USACE's "Columbia River Treaty: Past, Present, Future"  
<https://www.state.gov/wp-content/uploads/2018/12/The-Columbia-River-Treaty-Past-Present-and-Future.pdf>



**WEDNESDAY, FEBRUARY 7**





# WEDNESDAY, FEBRUARY 7

- Flood stage at Portland Harbor reached by Wed morning.
- ✓ John Day evacuates as much water as possible while not flooding out Portland Harbor.
- John Day lowered 4.3 ft total.
- ✓ USACE requests regional entities in the Columbia River Basin to implement flood reduction measures, including Snake River Dams
- ✓ USACE reduces Dworshak's outflow by 90 percent





**THURSDAY, FEBRUARY 8**





# THURSDAY, FEBRUARY 8

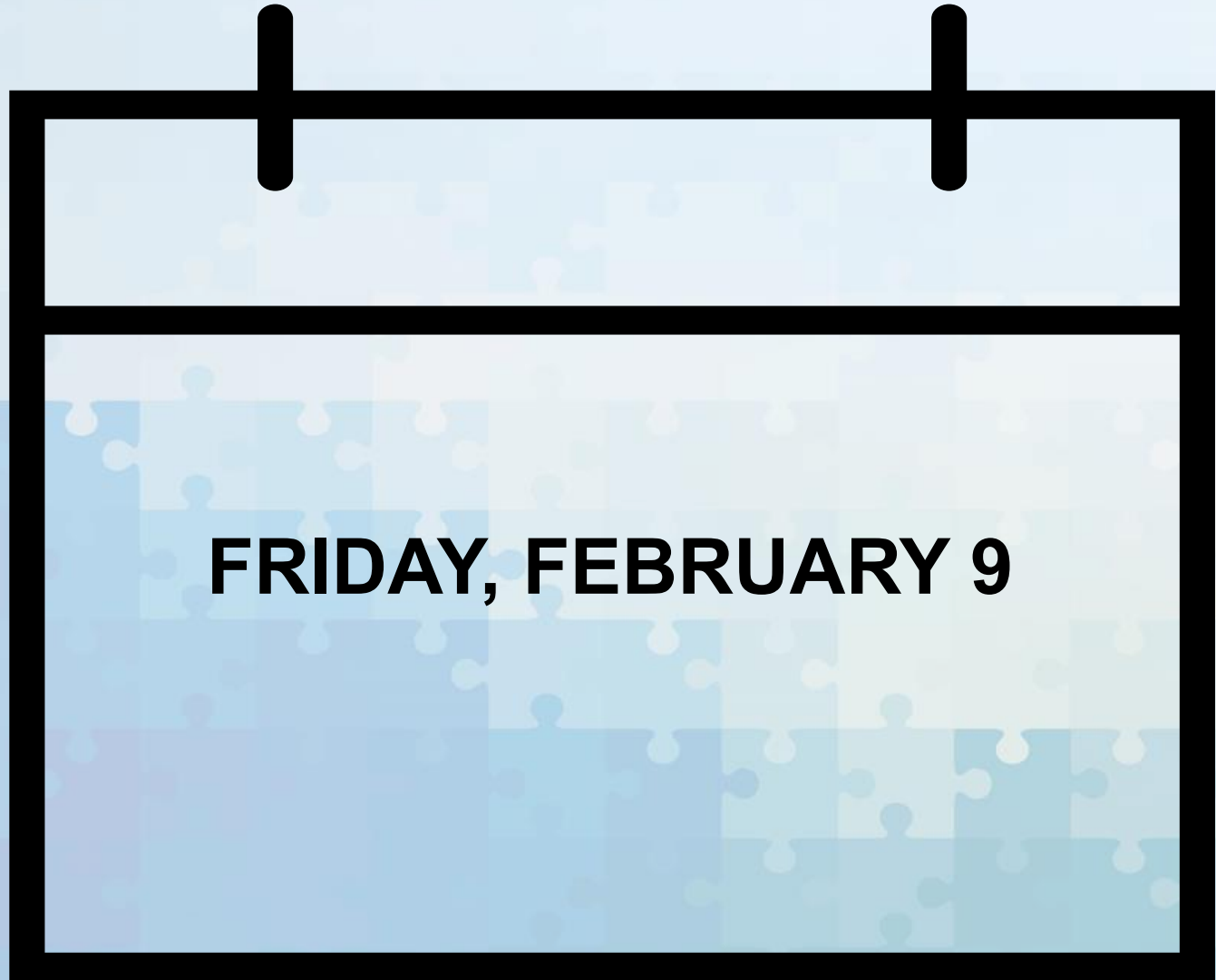
- ✓ USACE requests Idaho Power to reduce flows from Brownlee Dam
- ✓ USACE requests BOR to reduce Grand Coulee outflow by ~65%.
- Reduction in flows reduce power generation. BPA struggles to meet system load.
- ✓ USACE attempts to compensate for loss of power with Lower Snake River Dams; but Bonneville still forced to purchase power from regional market at \$5M.
- ✓ USACE requests Middle Columbia PU to not power peak and keep constant outflow.



“Currents of Change”, USACE Portland District



John Day Begins to Refill with Floodwaters



**FRIDAY, FEBRUARY 9**





# FRIDAY, FEBRUARY 9

- John Day captures Columbia floodwaters, storing a total of 400,000 ac-ft
- As storm moved inland, flooding threatened to fill dams that were holding back waters from lower Columbia.
- ✓ Upper Basin Dam outflows at Duncan, Libby, Hungry Horse and Albeni Falls lowered to compensate.
- ✓ Montana Power asked to reduce releases by 63%.



Palouse River at Colfax, WA (NWS Spokane)



Spokane Falls from February 1996 (NWS Spokane)



**MEANWHILE...ON THE WILLAMETTE**





# MEANWHILE...ON THE WILLAMETTE

## Willamette Basin

Dams have nearly all flood control storage available at start of storm (8% loss was a result of rain in prior months).



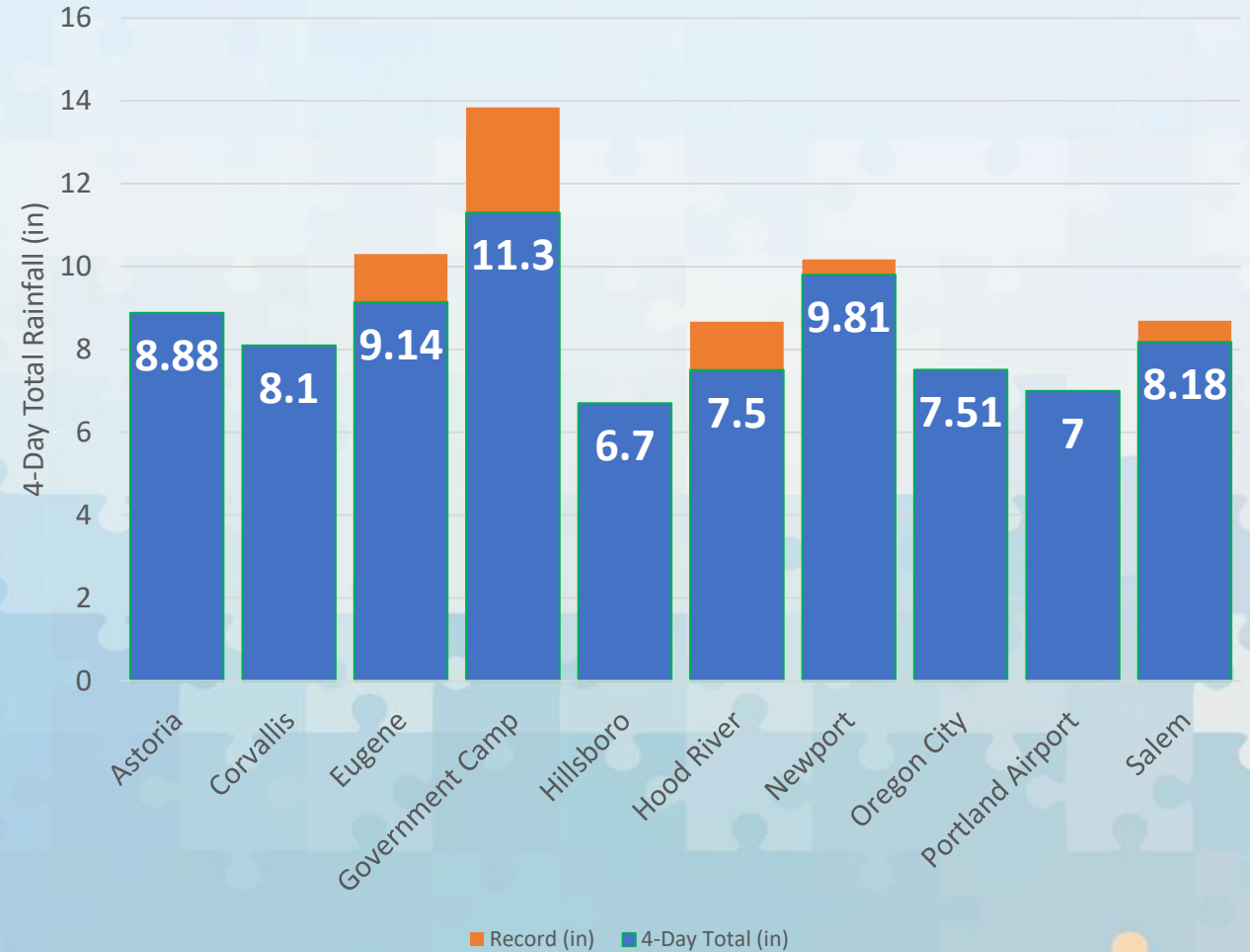


# MEANWHILE...ON THE WILLAMETTE

## Willamette Basin

Dams have nearly all flood control storage available at start of storm (8% loss was a result of rain in prior months).

Virtually all flooding on the Willamette due to uncontrolled tributaries downstream of projects.





# MEANWHILE...ON THE WILLAMETTE

## Willamette Basin

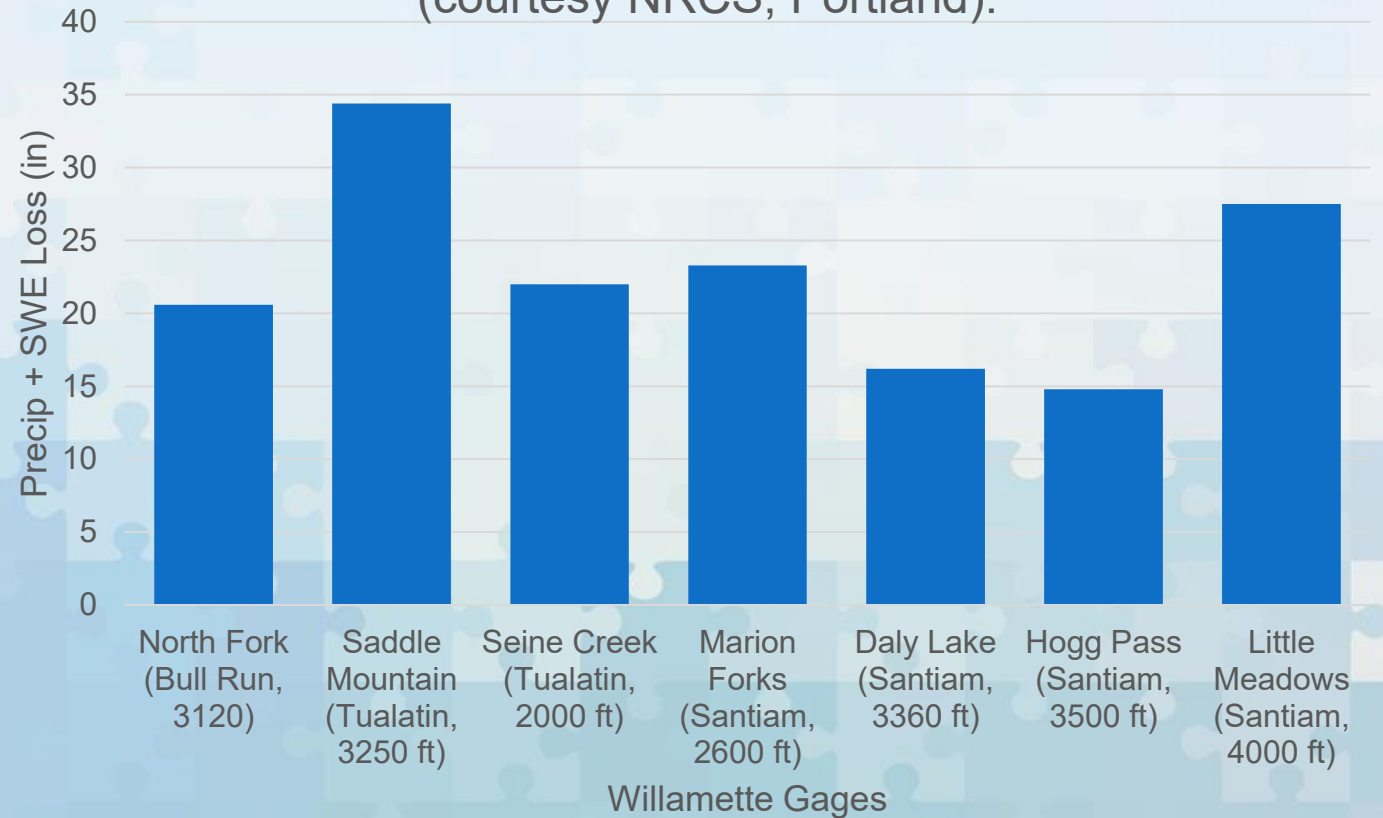
Dams have nearly all flood control storage available at start of storm (8% loss was a result of rain in prior months).

Virtually all flooding on the Willamette due to uncontrolled tributaries downstream of projects.

Willamette Projects (dams) captured inflows. Only Foster was required to pass inflow because of filling.

Willamette drafted to max bankfull at control points, then cut off to min and filled....once filled pass inflow...but only foster filled, the dams held back all the flood waters above control points.

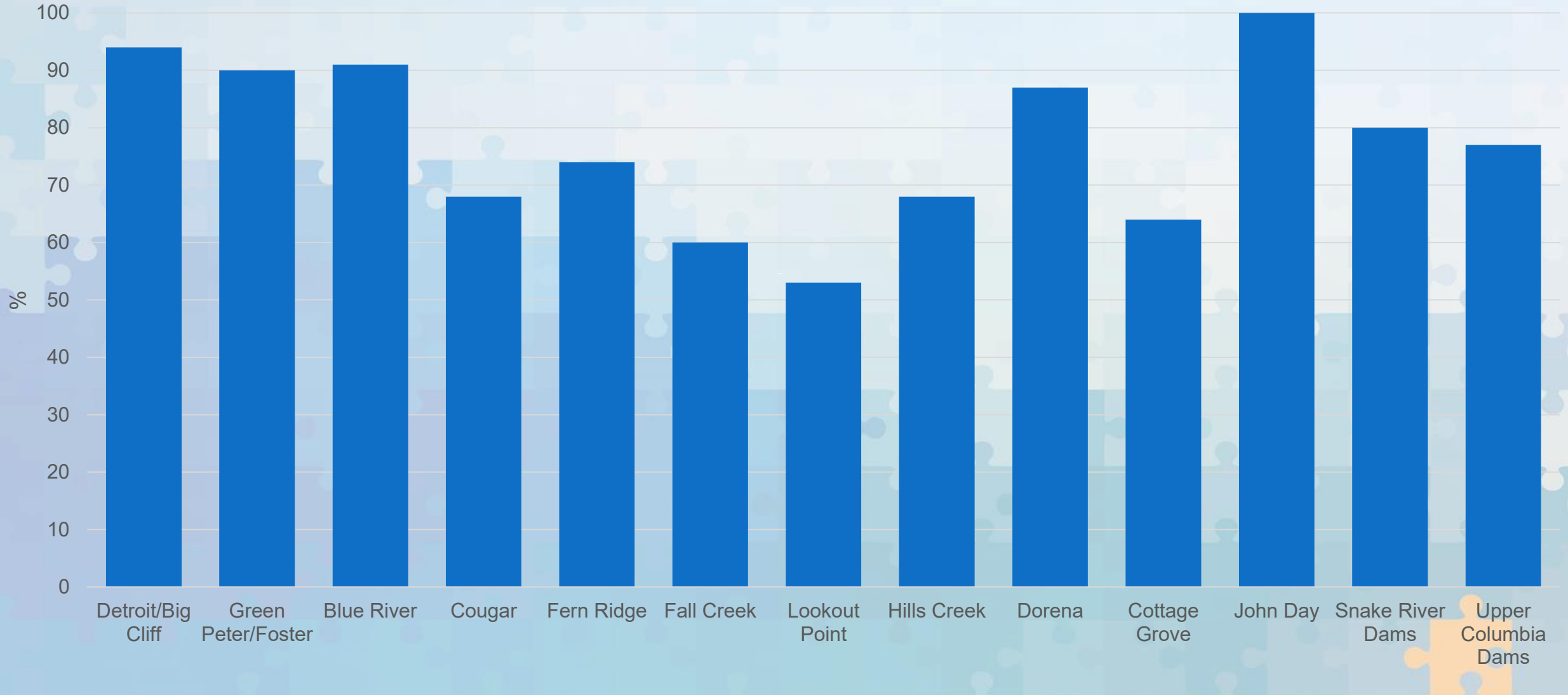
Total precipitation and SWE for the period February 5-9 for NRCS SNOTEL stations in Oregon (courtesy NRCS, Portland).





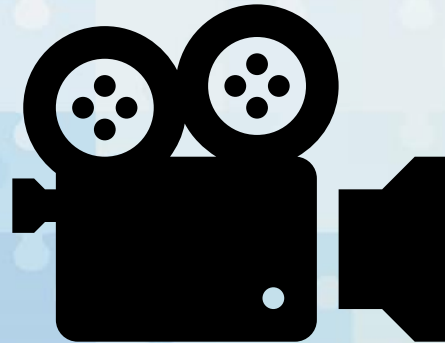
# MEANWHILE...ON THE WILLAMETTE

Percent of Flood Storage Used





**PLAY VIDEO**





# AFTER THE FLOOD





# AFTER THE FLOOD

- Public and Individual Assistance totaled 150 Million
- \$400M uninsured damage (Oregonian 1996)
- Tillamook HWY 101 6 ft underwater, many stranded livestock drowned
- Many statewide landslides affect turbidity, roadways, structures.
- USACE releases water from Detroit/Big Cliff to clear out water and address turbidity at the Salem water intake.
- Teams deployed for damage assessments, perishable data, landslide inspection, and more.

Damage Category	Damage Estimate (1996 \$'s)
Home Losses	40,000,000
Business Losses	30,000,000
Ag Losses	30,000,000
Local Government Costs	190,000,000
<b>Total</b>	<b>290,000,000</b>

\* From USACE 1996 Post Flood Report



# DAMAGE ASSESSMENTS

Taken from the post flood reports and estimates may have changed, but generally:

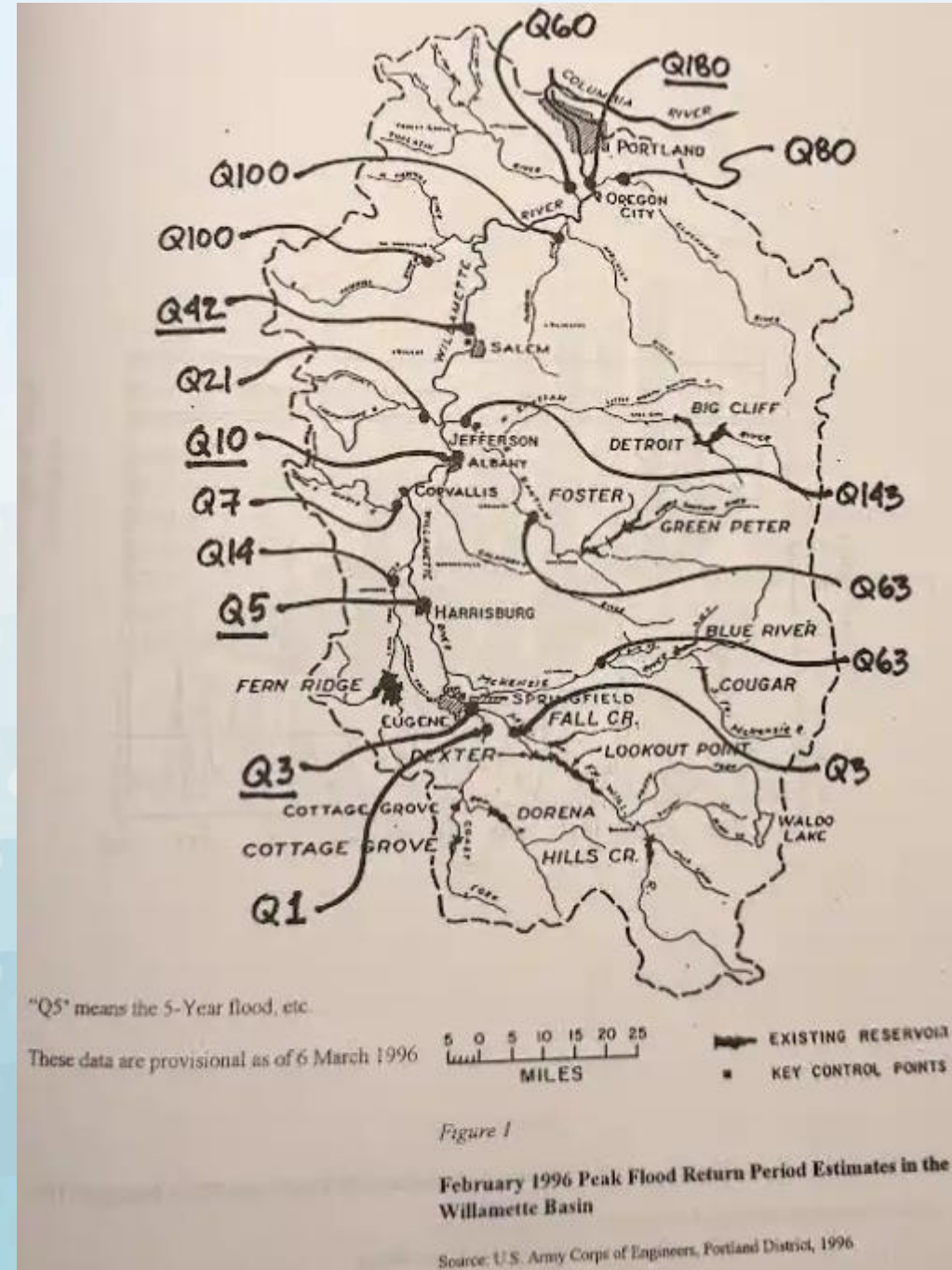
100-Year Estimated for:

- NW Basins (Tualatin, Yamhill, Tillamook)
- Mollala, Santiam Basins

Southern Willamette Valley Less Severe.  
Willamette Dams Regulated Floods

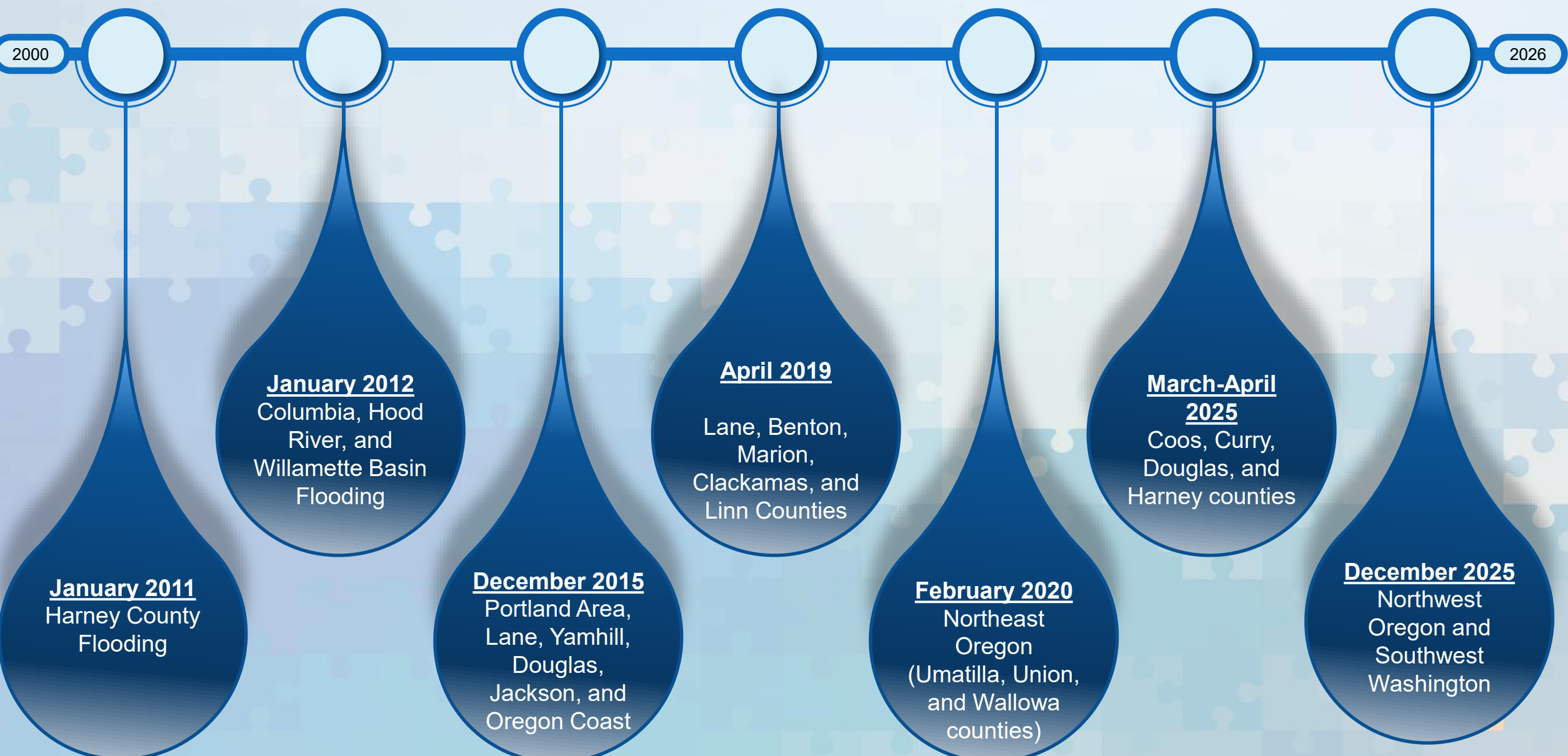
Location	Stage Reduction	Damage Reduction
Eugene	9 ft	\$ 195 Million
Salem	7.5 ft	\$ 250 Million
Portland	1.9 ft	\$ 1.64 Billion

\* From USACE 1996 Post Flood Report





# WE HAVEN'T SEEN THIS SINCE?????





# WHAT WE LEARNED

- Through the Flood Response, there was a tremendous demand for information.
- Strong need for coordination among agencies.
- Lulled into false sense of security by benign weather in 1980s-1990s.
- Spending cuts forced USGS and NOAA to reduce monitoring backbone of river flow measurements.

