

2023 WATER YEAR IMPACTS SURVEY PRELIMINARY RESULTS

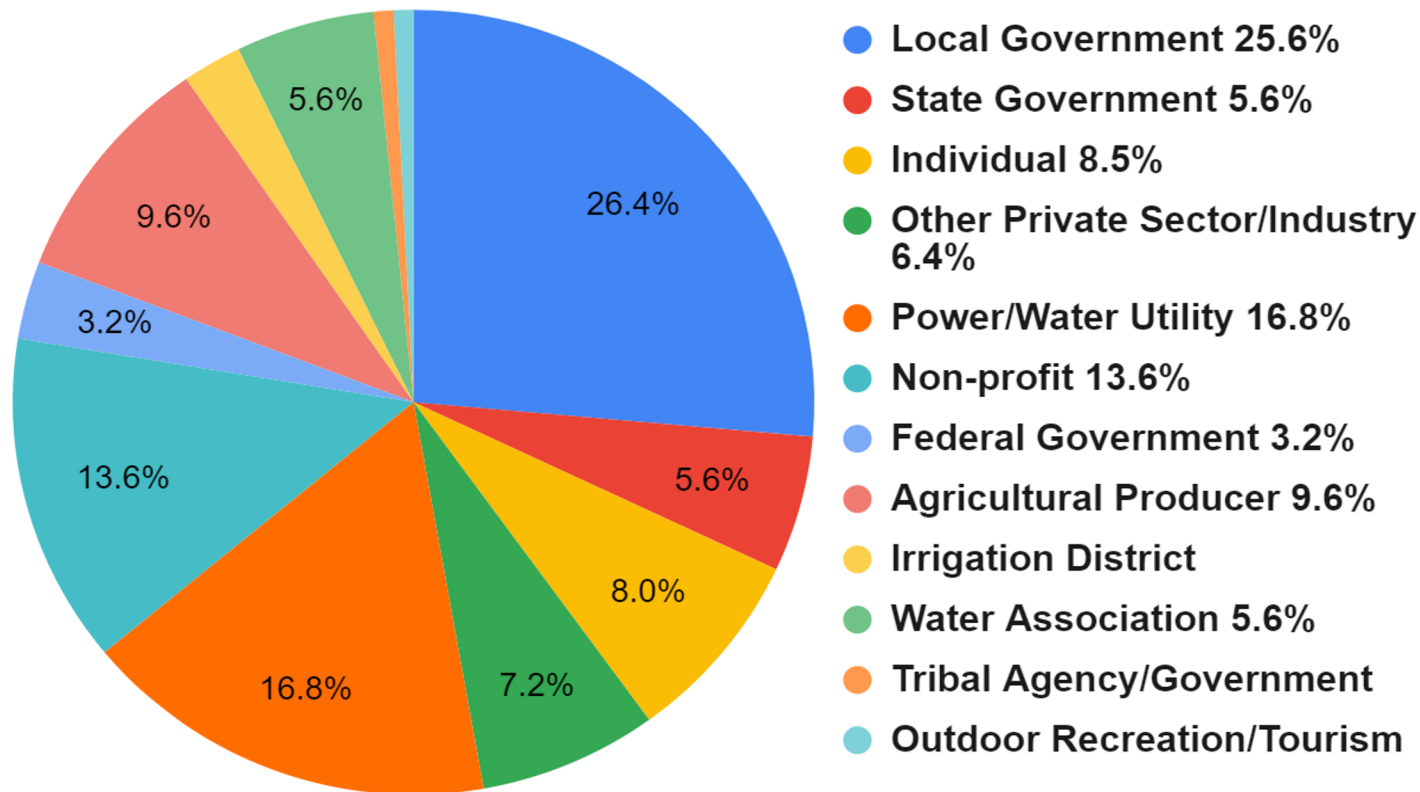
Purpose:

- Gather information about impacts and response actions taken during the water year (October 1, 2022 - September 30, 2023) due to abnormally dry or abnormally wet conditions.
- Connect climate conditions to sector-specific impacts to help inform planning, response actions, and technical & scientific information needs.

SURVEY RESPONDENTS

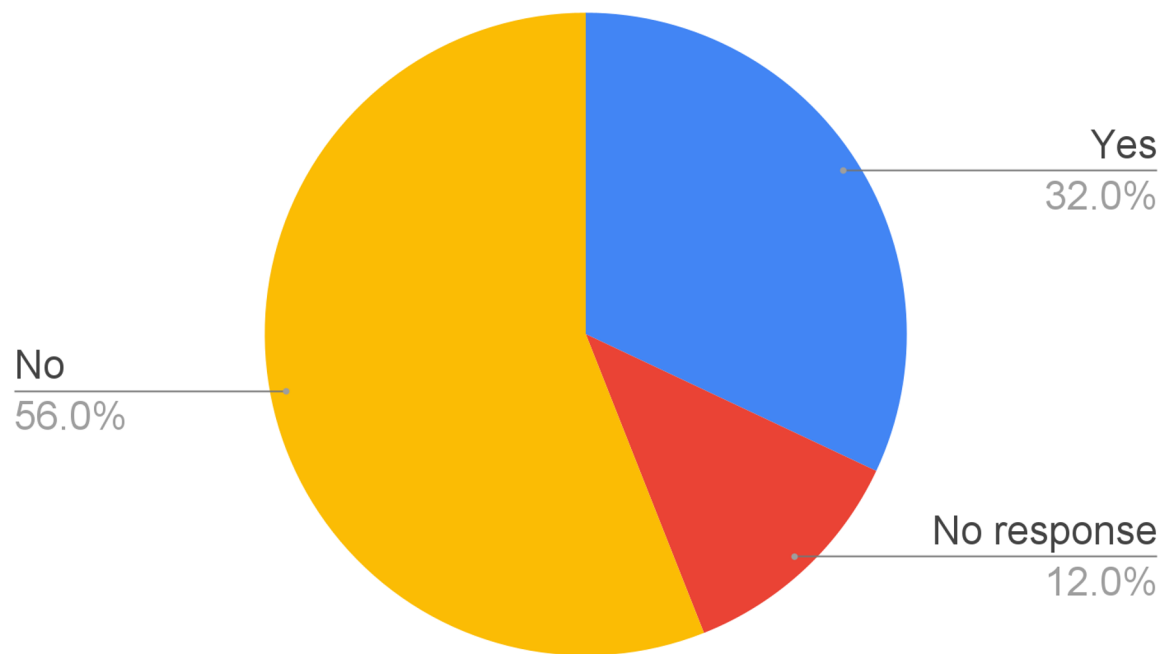
125 Respondents

What type of organization do you represent?



SURVEY RESULTS

Did you experience impacts that could be directly related to the warmer than normal May temperatures or the mid-month heat wave?



“The rapid loss of snowpack in May, followed by lower than normal flows in June appeared to lead to dewatering of some steelhead redds in snow fed tributaries. There does not appear to be a significant loss of the population, but it was an unusual occurrence.” [Fisheries]

“More water production was needed. Seasonal wells were brought on sooner and pumping higher volumes than normal this time of year.” [Drinking Water]

“We had a lot more blight in our Bartlett pear trees than usual due to warmer temperatures at times of rain.” [Agriculture]

“Yes, supply reservoirs started summer drawdown season earlier than typical and rate of decrease in elevation was faster than typical.” [Drinking Water]

AGRICULTURE SECTOR RESULTS

SECTOR	% THAT EXPERIENCED ABNORMALLY DRY OR WET CONDITIONS	IMPACTS DRY	IMPACTS WET	% THAT CHANGED OPERATIONS IN RESPONSE
AGRICULTURE 17 Respondents	DRY: 94% WET:24%	<ul style="list-style-type: none"> ▪ Increased plant stress (10) ▪ Increased water demand due to low soil moisture (8) ▪ Less surface water and streamflow available (7) ▪ Reduced crop yield (5) ▪ Increased insect infestation (5) ▪ Increased weed pressure (5) ▪ Reduced pasture/forage (5) ▪ Reduced crop quality (4) 	<ul style="list-style-type: none"> ▪ Delayed planting (2) ▪ Conditions that prevented planting (1) ▪ Increased weed pressure (1) ▪ Increased plant stress (1) 	DRY: 80% WET: 67%

Quotes Elaborating on Impacts and Responses

“Sun Scald, plant stress with some demise, seed demise”

“Hay yield was down 60%”

“More frequent irrigation. Several replantings”

Changes in irrigation

- Change in timing of irrigation (4)
- Stop irrigating less than 1 week early (2)
- Stop irrigating 1 week to 1 month early (1)
- Stop irrigating more than 1 month early (1)

Most affected crops: apples, grain, hay, pasture

Other affected crops: blueberries, cherries, grapes, pears, vegetables

Positive effects: apples, cherries, grapes, hay, pears

DRINKING WATER SECTOR RESULTS

SECTOR	% THAT EXPERIENCED ABNORMALLY DRY OR WET CONDITIONS	IMPACTS DRY	IMPACTS WET	% THAT CHANGED OPERATIONS IN RESPONSE
DRINKING WATER 28 Respondents	DRY: 96% WET: 29%	<ul style="list-style-type: none"> ▪ Less surface water and streamflow (12) ▪ Declining groundwater levels/increased pumping (10) ▪ Lower than normal reservoir levels or inflows (8) ▪ Voluntary conservation (14) ▪ Water rate change (4) ▪ Mandatory conservation (3) 	<ul style="list-style-type: none"> ▪ Decrease in water demand (3) ▪ Increased source water contamination (3) ▪ Damage to utility-managed infrastructure (3) 	DRY: 52% WET: 8%

Quotes Elaborating on Impacts

“Reservoir levels were lower in major population centers and some calls for voluntary conservation were enacted near the end of the water year.”

Responses

- Limited well pumps to do most pumping during the night
- More public outreach and education to conserve water
- Shifted production to wells further from the shoreline
- Increased monitoring

FORESTRY SECTOR RESULTS

SECTOR	% THAT EXPERIENCED ABNORMALLY DRY OR WET CONDITIONS	IMPACTS DRY	IMPACTS WET	% THAT CHANGED OPERATIONS IN RESPONSE
FORESTRY 11 Respondents	DRY: 100% WET: 0%	<ul style="list-style-type: none"> ▪ Tree mortality (8) ▪ Leaf or needle drop/sparse canopy (6) ▪ More disease (4) ▪ Loss of timber due to wildfire (2) ▪ Seedling mortality (2) 		DRY: 60% WET:

Quotes Elaborating on Impacts

“The south side of the ridges were especially affected by drought and bug kill. White fir and ponderosa pine were worse off than the douglas fir or oaks.”

Responses

- Advising people to switch tree species and reduce stocking levels.
- Water native trees
- Mulching at tree base

FISHERIES SECTOR RESULTS

SECTOR	% THAT EXPERIENCED ABNORMALLY DRY OR WET CONDITIONS	IMPACTS DRY	IMPACTS WET	% THAT CHANGED OPERATIONS IN RESPONSE
FISHERIES 12 Respondents	DRY: 92% WET: 42%	<ul style="list-style-type: none"> ▪ Reduced streamflows (10) ▪ Warmer stream temperatures (8) ▪ Fish passage blocked (6) ▪ Poor water quality due to low flows (4) ▪ Timing of fish migration changed (4) 	<ul style="list-style-type: none"> ▪ High sediment loads (4) ▪ Fish spawning areas flooded/scoured (2) 	DRY: 56% WET: 33%

Quotes Elaborating on Impacts

“Side channels lost connectivity and dried out faster than average years. Mainstem reaches dried out that typically do not.”

“Very low returns of summer Chinook and lower than expected summer steelhead in the North and South Umpqua Rivers”

“Low flows seen in all rivers of the Quillayute Basin led to the complete closure of fisheries throughout the basin by the Quileute Tribe, WDFW, and the

Adaptation Responses

- Fisheries closures
- Closed all fisheries in the Quillayute River basin
- Noting temperature barrier issues in years past, fishing seasons at the mouth of the Yakima River/Columbia River confluence were delayed to allow for fish blocked by temperature barriers to move before the season opener.
- Adapted restoration effort to work in smaller⁷

RECREATION SECTOR RESULTS

SECTOR	% THAT EXPERIENCED ABNORMALLY DRY OR WET CONDITIONS	IMPACTS DRY	IMPACTS WET	% THAT CHANGED OPERATIONS IN RESPONSE
RECREATION 11 Respondents	DRY: 100%. WET: 36%	<ul style="list-style-type: none"> ▪ Closures due to wildfire (3) ▪ Closures due to wildfire smoke (3) ▪ Limited sites for activities (2) ▪ Change in visitation amount or timing ▪ Shortened river recreation season (2) ▪ Longer summer hiking and camping season (2) 	<ul style="list-style-type: none"> ▪ Erosion in local streams and tributaries ▪ More flood monitoring ▪ Great ski season! 	DRY: 50%. WET: 50%

Quotes Elaborating on Impacts

“Glacier and alpine climbing was limited in summer months due to early and extreme snowmelt on upper glaciers. Many upper reaches of mountains normally covered in snow, had exposed ice and crevasses creating dangerous climbing conditions.”

Responses

- “Staff spent time had watering areas without irrigation to keep plants and trees alive.”
- “More drought meetings”

During the year, how often do you use these seasonal forecasts?

