# PUBLIC

COMMENTS

# SUBMITTED FOR

# APRIL 29, 2024

# SPPDAC MEETING

April 29, 2024

To City of Rockaway Beach,

SourceWater Protection Plan Development Advisory

Re: The 2023 Oregon Secretary Of State's Office audit of Rural Water Supplies tells the story of a drinking water crisis across our state..

The Secretary of State's Office (SOS) audit report on rural water supplies has been released. North Coast Communities for Watershed Protection, representing the North Oregon Coast, participated in developing this report. We had two sessions with auditors and submitted written testimony from ten people from North Coast communities who told their stories about their drinking water problems. Our contributions were recognized on Page 3 of the report and our presentation summary can be found on Pages 48-49. We were one of three regions in Oregon that were highlighted. A timeline outlining damage over the past twenty years to the Jetty Creek watershed, the source of drinking water for Rockaway Beach, Oregon, was included as an appendix. **To read the full report go to: https://sos.oregon.gov/ https://sos.oregon.gov/.** We encourage everyone interested to read the entire report. It is thoughtful, comprehensive, and contains a detailed history of water in Oregon. The recommendations on Page 71 are particularly significant. For those who just want the quick version, we offer the following summary: The report goes to the Governor, the Legislature, and other government agencies. It describes some progress, but acknowledges that many Oregonians are suffering from water insecurities and inequities. It concludes by saying: "Oregon is underprepared to provide meaningful support to many communities facing water insecurity."

The report illustrates that State leadership and governmental agencies do not necessarily share the same water policies, and often work at cross purposes. It describes how meaningful data on water is unavailable, and puts a face on the water inequities facing many rural Oregonians. It shows how decision making on water issues is decentralized, uncoordinated, and based on seniority, leading to significant inequities. This report illustrates why citizens in Portland get drinking water from the highly-protected Bull Run watershed, but citizens in rural Rockaway Beach have to depend on water from the clearcut Jetty Creek watershed.

The auditors stress the need to enhance public awareness of the State's water challenges. Here's one of their most significant statements:"Oregon must adopt integrated and holistic policies and practices of good water governance." What we need to do now is highlighted on Page 30. NCCWP felt it was important to get our concerns on the record. We were the only group raising forestry and timber-cutting practices as a main contributor to coastal water shortages and impurities. Over 90% of the drinking water for North Coast communities comes from Coast Range watersheds. We were able to show how State government inaction and their deference to timber companies contribute to the failure to protect our drinking water.

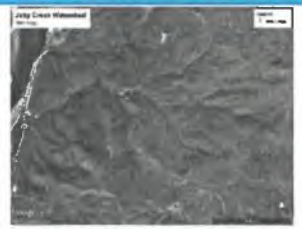
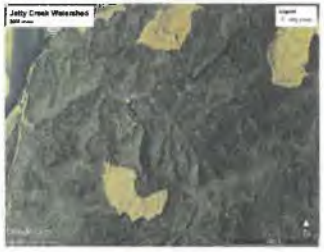
We hope that the audit recommendations are fully adopted and implemented. But despite this report, we don't think we can wait for politicians and governmental agencies to solve our water concerns, especially when it comes to something as critical as drinking water. We need to do everything we can to get the attention of the government so that they will take action. Given the realities of State politics and the urgency created by climate change, we think our best chance to instigate change and improvement in drinking water protections is to bring a ballot measure directly to the people. If we can get the support of enough people to take the issue of drinking water quality to the voters, maybe that will put pressure on the decision makers to adopt the SOS audit report recommendations. The audit report justifies this approach.

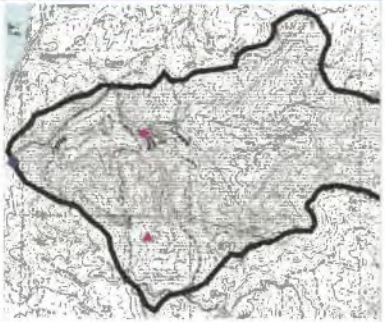
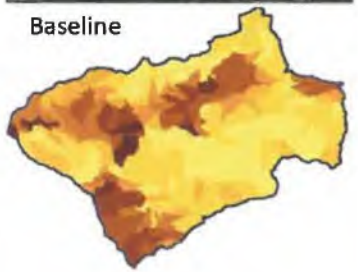
From: Ron Byers and Nancy Webster, North Coast Communities for Watershed Protection, rockawaycitizen.water@gmail.com

*As a matter of necessity and regardless of land ownership, NCCWP demands no more logging and no more pesticide spraying within our drinking-watersheds. Safe drinking water and clean air are part of the public trust that we all are entitled to have. Please help North Coast Communities for Watershed Protection safeguard and restore our drinking watersheds.* healthywatershed.org | www.facebook.com/

## 20 years of clearcuts & pesticide spray:

## Watch what happens to a small Oregon town's drinking water . . .

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| | 1994 | **Intact Jetty Creek Watershed,** the primary source of drinking water for the Oregon coastal town of Rockaway Beach. | | Jetty Creek watershed is 2.1 sq. miles or 1,344 acres.<br>**********<br>Note the lack of both roads and clearcuts | **1994 image from Google**<br>**********<br>**USGS Black & White Aerial Photo Image** |  |
| | 2000 | MORE ROADS and a clearcut at edge Jetty Creek watershed | | The single clearcut in the upper right corner is only partially in the Jetty Creek watershed. | **2000 image from Google**<br>**********<br>**USGS Black & White Aerial Photo Image** | |
| | 2002 | Two clearcuts completed by Stimson Timber, primary landowner in Jetty Creek watershed | Acreage unknown; ODF destroys records of forest operations after 7 years | | **2003 image from USDA showing 2002 Stimson Timber clearcuts**<br>**********<br>**Color Photo Aerial Image** |  |

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| 💡 | 10/1/02 | Oregon Department of Environmental Quality (DEQ) identifies 2002 clearcuts in Jetty Creek watershed as potential "higher risk" contaminating source to Rockaway Beach drinking water | DEQ has no legal authority under Safe Drinking Water Act to restrict contaminating sources; source water protection in Oregon is "voluntary" | The two 2002 clearcuts were identified by DEQ in as higher risk contaminating sources to drinking water. (SOURCE WATER ASSESSMENT SUMMARY BROCHURE ROCKAWAY BEACH WATER DEPARTMENT PWS # 4100708) | **2002 DEQ map of Rockaway Beach Water system's source watershed with pink arrows showing "area-wide" managed forests as contaminating sources** |  |
| ❗ | 1/14/05 | **Oregon Health Authority (OHA) Water Quality Alert issued** to Rockaway Beach Water system; Sampling dates were 9/15/04 & 11/30/04 | | **First ever water quality alert for carcinogenic toxins issued to Rockaway Beach** TOTAL TRIHALOMETHANES (TTHMs) and TOTAL HALOACETIC ACIDS (HAAs); **safe levels exceeded.** See records here.; Both toxins are disinfection byproducts (DBPs) caused when chlorine interacts with organic materials (sediment) present in water. Jetty Creek water diverted for September 2004 was 28.74 acre feet; well water used for that month was 8.4 acre feet; for November 2004 Jetty Creek water used was 20.31 AF and well water used was 13.14 AF; see DWR Rockaway Beach Entity Water Use Report | | |
| ❗ | 8/16/05 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date was 05/25/05 | | TTHMs safe levels exceeded See records here. Jetty Creek water diverted for sampling month of May was 24.52 acre feet; well water used for that month: 13.09 acre feet; see DWR Rockaway Beach Entity Water Use Report | **8/2005 Image from State of Oregon ********** Note, much larger area of clearcuts** | |
| 💡 | 2006 | The 1,344 acreJetty Creek watershed has 931 acres of forest cover after recent clearcutting by Stimson Timber | | Sediment yield calculated as 2006 baseline (2011 unpublished presentation: Hydrological Impact Assessment-Oregon Coast Pilot Projects, hydrologist Shreevita Basu) Note that the areas with higher sediment yields align closely with the clearcuts in the photo above | **Darker colors mean more sediment yield from catchments ***************** compare to 2005 & 2011 post-logging maps** | Baseline  |

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| ! | 2/23/07 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date was 1/08/07 | | TTHMs safe levels exceeded See records here. Rockaway Beach failed to report wafer usage for entire year of 2007; see DWR water use report-surface water; see DWR water use report groundwater | | |
| $$ | 6/1/09 | Rockaway Beach water rates at $24-27/per 800 cu feet (approx. 6,000 gallons) | | 2009 Rockaway Beach City Council resolution | | |
| $$ | 8/31/09 | Rockaway Beach receives $2,407,870 state & federal loans for new water treatment plant | **OHA tells Rockaway Beach that new water treatment plant needed** with membrane filter, to treat higher levels of turbidity (sediment) | (FinancialServices/SZ9002 Rockaway Beach Contract.doc) Net revenues of Rockaway Beach Water System shall be used to repay the loans; rates and fees to be set to enable repayment of loan, as specified in Special Conditions of the contract | | |
| ! | 6/23/10 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date was 06/15/10 | | TTHMs safe levels exceeded See records here. Rockaway Beach failed to report wafer usage for entire year of 2010; see DWR water use report-surface water; see DWR water use report groundwater | | |
| | 9/1/10 | OSU hydrologist Kevin Bladon publishes paper demonstrating the **increasing need for source water protection from land disturbance** | | "Implications of land disturbance on drinking water treatability in a changing climate: Demonstrating the need for 'source water supply and protection' strategies" Water Research 45(2): 461-72 Read article here. | | |
| ! | 9/14/10 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date was 8/30/10 | | TTHMs safe levels exceeded See records here. Rockaway Beach failed to report wafer usage for entire year of 2010; see DWR water use report-surface water; see DWR water use report groundwater | | |
| ! | 12/8/10 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date was 11/30/10 | | TTHMs safe levels exceeded twice in 4th quarter; See records here. Rockaway Beach failed to report wafer usage for entire year of 2010; see DWR water use report-surface water; see DWR water use report groundwater | | |

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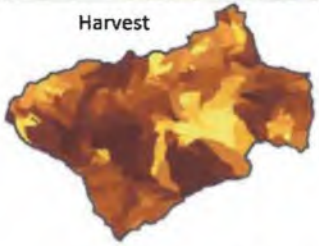
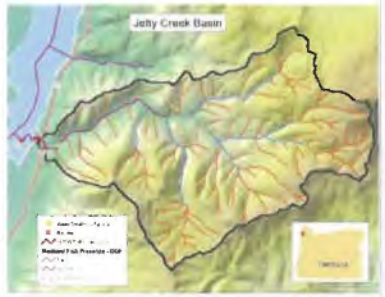
|---|---|---|---|---|---|---|
| | 2011 | Rockaway Beach residents observe aerial pesticide spray with helicopters in the watershed | Records of pesticide spraying are kept by the applicators for only 3 years & not public information OAR 603-057-0410; annual reports of past pesticide spraying retained by Oregon Department of Agriculture (ODA), but are confidential & not available to the public OAR OAR 603-057-0417 | | | |
| | 2011 | Jetty Creek forest cover is 54% less than in 2006; now estimated at 428 acres | | (2011 unpublished presentation: Hydrological Impact Assessment-Oregon Coast Pilot Projects, hydrologist Shreevita Basu) | **11/2011 USDA Satellite Image ************ Many new clearcuts, very little forest is left** | |
| | 2011 | Sediment yield increases significantly in Jetty Creek after forest clearcutting | | 2011 sediment yield calculated; compare to 2006 baseline map; (2011 unpublished presentation: Hydrological Impact Assessment-Oregon Coast Pilot Projects, hydrologist Shreevita Basu) | **Darker colors mean more sediment yield from catchments ********* compare to 2006 baseline map** | Harvest  |
| | 2011 | Summer streamflow decreases 30-40 percent in some reaches of Jetty Creek watershed, compared to 2006 baseline | | Reduction in streamflow calculated; (2011 unpublished presentation: Hydrological Impact Assessment-Oregon Coast Pilot Projects, hydrologist Shreevita Basu) | **Reaches shown in bright red = 30-40% decrease in summer stream flow; Reaches shown in brown = 20 -30% decrease in summer streamflow** | |
|  | 3/23/11 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date was 4/28/11 | | TTHMs safe levels exceeded See records here. Rockaway Beach failed to report wafer usage for entire year of 2011; see DWR water use report-surface water; see DWR water use report groundwater | | |

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| ! | 4/28/11 | Rockaway Beach Water System's **annual average for TTHMs in water exceeds the level considered safe for this carcinogen** | OHA requires Rockaway Beach to send out a public notice | OHA contacts Rockaway Beach Water System: The running annual average for TTHMs was over the maximum contaminant level. This is the first time the Annual Average for TTHMs has exceeded a safe level. This is of special concern, because significant peaks are possibly hidden in the average and TTHMs are carcinogenic. See detailed report here. Rockaway Beach failed to report wafer usage for entire year of 2011; see DWR water use report-surface water; see DWR water use report groundwater | | |
| $$ | 5/4/11 | Rockaway Beach completes construction of new water treatment plant; contract cost $2.4 million; financed by State of Oregon; city to pay back $1.7 million (2009 Rockaway Beach contract) | | New plant uses a membrane filtration system to treat the 109 million gallons of water used annually by the City of Rockaway Beach. Read news article here. | | |
| ! | 7/8/11 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date 6/28/11: | | TTHMs exceeded running average for several quarters; OHA Water quality alerts continue after new water treatment plant up and running. See detailed report here. Rockaway Beach failed to report wafer usage for entire year of 2011; see DWR water use report-surface water; see DWR water use report groundwater | | |
| ! | 10/7/11 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date 9/28/11 | | TTHMs safe levels exceeded See records here. Rockaway Beach failed to report wafer usage for entire year of 2011; see DWR water use report-surface water; see DWR water use report groundwater | | |
| ! | 10/7/11 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date 9/28/11 | | HAAs safe levels exceeded See records here. Rockaway Beach failed to report wafer usage for entire year of 2011; see DWR water use report-surface water; see DWR water use report groundwater | | |
| ! | 5/21/12 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date 5/10/12 | OHA tells Rockaway Beach it needs to upgrade water treatment plant | TTHMs safe levels exceeded See records here. Rockaway Beach failed to report wafer usage for entire year of 2012; see DWR water use report-surface water; see DWR water use report groundwater | **7/2012 Google Earth Satellite Image ******** Shows much larger area of clearcuts** | |

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| ! | 10/10/12 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date 9/25/12 | | TTHMs safe levels exceeded. See records here. Rockaway Beach failed to report wafer usage for entire year of 2012; see DWR water use report-surface water; see DWR water use report groundwater | | |
| ! | 10/10/12 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date 9/25/12 | | HAAs safe levels exceeded See records here. Rockaway Beach failed to report wafer usage for entire year of 2012; see DWR water use report-surface water; see DWR water use report groundwater | | |
| | 10/13/12 | Nancy Webster of Rockaway Beach Citizens for Watershed Protection raises pesticide risk issues with ODF stewardship forester | ODF can't legally stop pesticide spraying, which is regulated by ODA | Email 10/13/12 between Nancy Webster & Stewardship Forester Ed Wallmark | | |
| $$ | 2012 | City of Rockaway Beach submits corrective action plan for water treatment plant to OHA; cost estimate $400K | | Read article here | | |
| ! | 4/3/13 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date 3/21/13 | | HAAs safe levels exceeded See records here. Jetty Creek water usage for March 2013 was 26.87 AF; well usage was not reported for 2013; see DWR water use report-surface water; see DWR water use report groundwater | | |
| ! | 4/3/13 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date 3/21/13 | | TTHMs safe levels exceeded See records here. Jetty Creek water usage for March 2013 was 26.87 AF; well usage was not reported for 2013; see DWR water use report-surface water; see DWR water use report groundwater | **2013 Oblique Aerial Photo by Don Best ****** Shows extensive Jetty Creek watershed clearcuts** | |
| ! | 7/1/13 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date 6/25/13 | | HAAs safe levels exceeded See records here. Jetty Creek water usage for June 2013 was 27.82 acre feet; see DWR water use report-surface water; Rockaway Beach failed to report groundwater usage for entire year of 2013; see DWR water use report groundwater | | |
| ! | 7/1/13 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date 6/25/13 | | TTHMs safe levels exceeded See records here. Rockaway Beach failed to report groundwater usage for entire year of 2013; see DWR water use report groundwater see DWR water use report-surface water; | | |

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| | 2013 | Pesticides aerial sprayed in headwaters of Jetty Creek by Stimson Timber: | | ***Toxins: Clopyralid, Glyphosate, Imazapyr, Metsulfuron methyl, Sulfometuron Methyl; surfactant,and Chemical additives Cross hair and Syl-Tac and MSO.*** | | |
| | 2013 | Public comments submitted: People should not be exposed to these toxic chemicals, which can persist in soil and move into surface and ground water. | ODF and OHA claim these pesticides are safe when used as directed. Neither ODF or OHA have authority to stop pesticide application. OHA does not monitor pesticide drift in air. | Emails between Nancy Webster and ODF staff member David Farrar July 2013 | | |
| | 6/24/13-12/31/13 | Pesticide application: Aerial spray north of treatment plant in Jetty Creek by Olympic Resource Management: | | ***Toxins: Oust Extra, Glyphosate, Accord XRT, Chopper, and MSO surfactant.*** | | |
| | 9/18/13 | DEQ & Tillamook Estuaries Partnership **detect pesticide sulfometuron-methyl in Rockaway Beach raw drinking water** | | (p. 24, 2015 DEQ final draft) Rockaway Beach Water District spoiled prior test between August 13-26 because of plant tests done at sampling time. So had to be re-done in September. | | |
| | 9/24/2013 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date 9/12/13 | | TTHMs safe levels exceeded See records here. Rockaway Beach failed to report wafer usage for entire year of 2013; see DWR water use report-surface water; see DWR water use report groundwater | | |
| | 10/10/13 - 12/31/13 | "2013 Mt Beaver Control" 500 acre county-wide rodenticide ground application; within 100 feet of numerous fish-bearing & domestic use streams | | **Toxin: chlorophacinone** Statutory written plan required; included; FERNS notification # 2013-511-00314 | | |
| | 12/4/2013 | **OHA Water Quality Alert issued** to Rockaway Beach Water system; Sampling date 11/21/13 | | **Rockaway Beach has now received more OHA water quality alerts than any other public water system on the Oregon Coast.** Carcinogenic TTHMs safe levels exceeded See records here. Rockaway Beach failed to report wafer usage for entire year of 2013; see DWR water use report-surface water; see DWR water use report groundwater | | |
| | 12/17/2013 | NOAA and EPA issue finding that **Oregon Forest Practices fail to protect water quality in coastal zone** | ODF continues to treat forest practice rules as best management practices | (OR CZARA Decision Doc 12-17-13.pdf); Four deficiencies cited: inadequate riparian buffers, inadequate landslide prevention, inadequate mitigation for forest roads, inadequate pesticide mitigation | | |
| | 2014 | City of Rockaway Beach completes construction of enhanced treatment (pressurized sand filters) | | USWA_00708RockawayBeach.pdf (DEQ source water assessment, p. 8) | | |

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| | 1/1/14 - 12/31/14 | "Roadside spraying" county wide within ORM lands; no application method described; within 100 feet of fish-bearing & domestic water use streams | | ***Toxins: LV6, Escort; Common: Glyphosate, Imazapyr, Triclopyr*** Statutory written plan required; included; FERNS notification # 2014-511-00003 | | |
| | 02/28/14 - 12/31/14 | "Jetty Tie Road" 110 foot logging road construction | ODF waives 15 day waiting period | No statutory plan required; FERNS notification #2014-511-00052 | | |
| | 5/1/14 - 9/30/14 | "2014 county wide scotch broom spray" 100 acres; within 100 feet of streams or lakes; ground application | | ***Toxin: triclopyr*** Statutory written plan required; included; FERNS notification # 2014-511-00103 | | |
| | 9/4/2014 | More than 200 people attend the first RBCWP town hall meeting, featuring a panel discussion of aerial spraying with Lisa Arkin and Laurie Bernstein, Beyond Toxics. | | | **7/2014 Google Earth Satellite image** | |
| | 2014 | Jetty Creek watershed now 82% clearcut since 2000 | | Beyond Toxics organization does analysis of percent clearcut in Jetty Creek watershed. | **2014 Analysis of Jetty Creek Watershed** ********** **82 % Clearcut** | |
| | 2015 | DEQ completes final draft of report linking private forests to water quality risks | | Private forest land is the source of drinking water for 40% of Oregon's water providers; "managed forests" listed as "higher risk" impact for drinking water | | |
| | 1/30/15 | EPA & NOAA find **Oregon's Forest Practice Rules not in compliance with Clean Water Act in the coastal zone** | ODF continues to use existing Forest Practice Rules | Forestry regulations found insufficient to protect water quality from weak stream side buffers, impacts of legacy roads, impacts from landslides & pesticides Read finding here | | |
|  | 2/1/15 - 2/15/15 | **OHA issues major violation** to Rockaway Beach Water District for failing to report turbidity & treatment monitoring required by federal Surface Water Treatment Rule | | Returned to compliance 04/03/15; Read violation report here; Jetty Creek water usage for February 2015 20.48 acre feet; well water usage for February 2015 zero AF; see DWR water use report-surface water; see DWR water use report groundwater | | |
| | 4/26/15 -12/31/15 | "Countywide scotch broom spray" within 100 feet of fish-bearing stream | | ***Toxins: triclopyr with acid; chemical additives: Forest Crop Oil*** Statutory written plan required; included; FERNS notification # 2015-511-06201 | | |

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| ☠ | 4/27/15 - 12/31/15 | "County wide roadside spray" including Jetty Creek watershed; within 100 feet of fish-bearing & D streams and domestic water supply | | ***Toxins: glyphosate, imazapyr, and triclopyr with acid and 2,4-D with ester; chemical additive: Forest Crop Oil***<br>Statutory written plan required; included; FERNS notification # 2015-511-06202 | | |
| ☠ | 4/28/15 - 12/31/15 | "Paradise Pole" 17.5 acre herbicide application within 100 feet of fish-bearing stream; | | ***Toxins: glyphosate and imazapyr and sulfometuron methyl and metsulfuron methyl; chemical additives: Crosshair and Syul-Tac and MSO Concentrate***<br>Statutory written plan required; included; FERNS notification # 2015-511-06533 | | |
| ☠ | 7/4/15 - 10/31/15 | "Rockaway Roadside Spray" on ORM timberlands; within 100 feet of fish-bearing streams | | ***Toxins: 2,4-D with acid and glyphosate and triclopyr with acid; chemical additive: MSO concentrate***<br>Statutory written plan required; included; FERNS notification # 2015-511-09445 | | |
| $$ | 8/1/15 | Rockaway Beach **water rates double** since 2009 to $48-54/800 cu ft. (approx. 6,000 gallons) | | Before treatment plant was built water rates were $24-$27/800 cu. ft; | | |
| ☠ | 10/14/15 - 12/31/15 | "Boomer Trap Paradise Pole" 17 acre rodenticide ground application targeting mountain beaver; within 100 feet of fish-bearing stream | | **Toxin: Rozol pellets**<br>Statutory written plan required; included; FERNS notification # 2015-511-13039 | | |
| 💡 | 2016 | Oregon Department of Fish & Wildlife (ODFW) releases **Jetty Creek map showing presence of native fish** | | | **ODFW Fish Map**<br>**********<br>**Purple = Coho**<br>**Blue = Fish**<br>**Red = Non-fish**<br>**********<br>**"Olympic Line" Logged in 2020 involves Fish Bearing Stream** |  |
| ☠ | 5/30/16 - 12/31/16 | "Tillamook 2016" Herbicide application ground spot application, undisclosed acreage, within 100 feet of stream | | ***Toxins: triclopyr with ester and triclopyr with acid and triclopyr with amine and 2,4-D with ester and 2,4-D with amine and glyphosate with chemical additives MSO concentrate*** | **8/1/2016 Google Earth Satellite image**<br>**********<br>**Red O in area where 10/1/2016 ground image was taken** | |
| ☠ | 7/9/16 - 12/31/16 | "Hatchet " 35 acre herbicide application, ground,-pressurized, broadcast; within 100 feet of fish-bearing streams | | ***Toxins: clopyralid and sulfometuron methyl***<br>Statutory written plan required; included; FERNS notification # 2016-511-07995 | | |

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| ☠️ | 9/1/16 - 12/31/16 | "Maple Clump 2.0" 47 acre herbicide application, within 100 feet of fish-bearing streams; ground manual spot application; | | **Toxin: Imazapyr** Statutory written plan required; included; FERNS notification # 2016-511-10209 | | |
| 💡 | 9/2/16 | Jones & Perry research published: **"Summer streamflow deficits from regenerating Douglas-fir forest in the Pacific Northwest"** | | Plantation-style forestry shown to reduce stream flows Read article here. | | |
| 😱 | 1/6/17 | After pushback from the timber industry, DEQ scraps 2015 report linking private forests to water quality risks | State Forester Peter Dougherty states there is no evidence showing forest practices harm water quality. | "After Pushback, Oregon Scraps Report Linking Private Forests To Water Quality Risks," Peter Schick, OPB Read OPB article here | | |
| | 4/11/2017 - 12/31/17 | "Olympic Line Pre" Road construction and landing expansion in headwaters of Jetty Creek watershed | Headwaters streams not protected by forest practice rules | Statutory written plan not required; FERNS notification # 2013-511-03705 | | |
| 📣 | May 2017 | Lincoln County voters passed Measure 21-177, banning aerial pesticide spraying in the county | State law pre-empts county's power to ban pesticides | Ordinance will later be overturned by Circuit & Appeals Court rulings | | |
| 👥 | 5/13/17 | Jetty Creek Excursion: Rockaway Citizens hike with Western Oregon College Green Team and Environment Club to see what trees are left standing after last clearcut. | | | **6/2017 Google Earth Satellite Image *********** The last area of older forest in remains in the center.** | |
| ❗ | 8/01/17 - 8/31/17 | **OHA issues major violation** to Rockaway Beach Water District for **failing to report turbidity** & treatment monitoring required by federal Surface Water Treatment Rule | | Returned to compliance 10/04/1 See violation record here | | |
| 💲💲 | 11/1/17 | Rockaway Beach **water rates almost triple,** increasing again from 2009 to $68-74/800 cu ft. (approx. 6,000 gallons) to cover cost of treatment plant | | 2009 water rates were $24-27/per 800 cu.ft (approx. 6,000 gallons) | | |
| ❗ | 3/21/18 | **OHA issues "BOIL WATER" Advisory** to Rockaway Beach | Affected 20 homes; Advisory lifted 3/22/18 | Loss of water pressure due to a landslide; 60 feet of pipe need to be replaced; Read report here | | |

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| | 5/26/18 - 12/31/18 | Aerial herbicide application to 496 acres various sites in Tillamook County including Jetty Creek; Syl-Tac,and Crosshair | | ***Toxins: glyphosate, metsulfuron methyl, sulfometuron methyl, imazapyr, aminopyralid and Metsulfuron methyl with additives of Super Spread, MSO***<br>Targeted plants include native species Elderberry, Salmonberry, Thimbleberry, Cascara Buckthorn;<br>Statutory written plan required; included in file; Summary 2018-511-07155.pdf | | |
| | 2/1/19 | RBCWP celebrates new name for organization: North Coast Communities for Watershed Protection (NCCWP). | | The organization has expands to more than 700 members, including neighboring north coast communities concerned about clearcutting and toxic spray in drinking watersheds<br>Read about it here | | |
| | 4/26/19 - 12/31/19 | Aerial, ground pressurized & broadcast herbicide application; 411 acres; within 100 ft. of numerous fish-bearing, domestic use & salmon, steelhead & bull trout streams in Tillamook County | | Includes Jetty Creek watershed;<br>***Toxins: glyphosate,metsulfuron methyl, sulfometuron methyl, imazapyr, aminopyralid, and metsulfuron methyl with chemical additives Super Spread MSO, Syl-Tac, and Crosshair***<br>Summary 2019-511-05120.pdf | | |
| | 5/22/2019 | Flyover reveals recent major clearcut logging in Jetty Creek watershed | | Image at 2 minutes 53 seconds in "TROUBLED WATERS, in Oregon Forests"<br>Watch the video here | **Jetty Creek Watershed with "Olympic Line" logged in 2020 in center among clouds** | |
| | 7/21/19 | NCCWP co-sponsors statewide petition to Governor Kate Brown to stop aerial spraying | No action. | | | |
| | 9/1/19 | Circuit Court strikes down Lincoln county ordinance banning aerial pesticide use, citing the Oregon Pesticide Control Act, state law which says only the state can regulate pesticide use. | State law pre-empts county ordinances | Read article here | | |
| | 9/1/19 - 12/31/19 | "Boomer Bait" 809 acre Rodenticide application throughout Tillamook County, including Jetty Creek watershed;; within 100 feet of numerous fish-bearing & salmon, steelhead & bull trout streams and within 300 feet of wetlands & eagle nests | | **Toxin: Rozol (aimed at killing native Mt. beavers)** Mt. Beavers are a native rodent that play a valuable role in ecosystem functions. They are poisoned because they eat new tree seedlings. There are alternatives to poison that prevent this activity.<br>Statutory written plan required; none found in file; Summary 2019-511-06470.pdf | | |

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| | 2020 | NCCWP signs petition to Governor Kate Brown requesting moratorium on pesticide aerial spraying, slash burning, & prescribed burning during the Covid-19 pandemic. | Request for aerial pesticide moratorium dismissed; burning was restricted | | | |
| | 1/11/20 | NCCWP joins Informational rally in Wheeler. Theme: "Ask Stimson to Stop Spraying and Clearcutting above Wheeler." | | Event in response to Stimson Lumber Company's proposed ground-spray pesticides on 93 acres of their clearcut land near Wheeler, Oregon residential areas. Read news release here | | |
| | 2/10/20 | **Oregon environmental groups, timber companies strike 'extraordinary' compromise,** signaling end to November ballot fight | | **NCCWP refuses to sign onto the compromise** (MOU) because it doesn't address worst impacts to drinking water: Clearcutting, toxic pesticide spraying & because NCCWP wants to keep speaking out about needed forestry reform .Read Oregon Live article here | | |
| | 6/20 | Hydrologist Kevin Bladon publishes research showing that **sediment increases tenfold in logged areas over uncut areas inside stream buffers.** | | "Quantifying effects of forest harvesting on sources of suspended sediment to an Oregon Coast Range headwater stream" Forest Ecology and Management 466:118123. Read the article here | | |
| | 6/20 | Hydrologist Catalina Seguro publishes research showing **streamflow 50% lower in a 40 yr-old plantation relative to 110-yr-old forest.** | | "Long-term effects of forest harvesting on summer low flow deficits in the Coast Range of Oregon," Seguro et al; Journal of Hydrology Read the article here | | |
| | 9/11/20 | Oregonian/Propublica publish **"Big money bought the forests. Small timber communities are paying the price"** | | Excerpt: "In western Oregon, at least 40% of private forestlands are now owned by investment companies that maximize profits by purchasing large swaths of forestland, cutting trees on a more rapid cycle than decades ago, exporting additional timber overseas instead of using local workers to mill them and then selling the properties after they've been logged." Read the article here | | |
| | 12/5/20 - 12/31/20 | "Olympic Line" 56 acres of clearcuts within 50 feet of Jetty Creek fish-bearing & domestic us streams & wetlands | | Statutory written plan required; none found in file; Summary 2020-511-12574.pdf | **Aerial Photo of the clearcuts done during "Olympic Line"** | |

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| | 11/24/20 - 12/18/20 | 129 citizens & NCCWP members submitted public comments to ODF opposing the Olympic Line clearcut because of impacts to drinking water and other environmental impacts | ODF dismisses comments; ODF rejects request for extension of 15 day waiting period due to upcoming holiday & COVID. | ODF does not have the authority to "disapprove" a forest operation See ORS 527.674 | **Spring 2021 Google Earth Satellite Image** ****** **Shows "Olympic Line" Clearcuts** | |
| | 12/26/20 - 12/31/20 | "Crossover Salvage" 10 acre clearcut in Jetty Creek watershed, within 100 ft of fish-bearing stream | | Statutory written plan required; none found in file; Summary 2020-511-12979.pdf | **In background, "Crossover Salvage" logging in progress; In foreground, 2014 clearcut shows poor regeneration & much bare soil** | |
| | 12/31/20 | Jetty Creek featured in ProPublica/OPB article: **"Timber Tax Cuts Cost Oregon Towns Billions. Then Polluted Water Drove Up the Price"** | | Excerpt: "More than two dozen communities have had at least 40% of the forests around drinking water sources cut down in the past 20 years....Rural communities in Oregon paid millions of dollars for clean, safe drinking water because the state didn't protect their watersheds from logging-related contamination." Read article here | | |
| | 3/2/21 | **Pesticides used in forestry detected in clams, mussels & oysters off along Oregon coast** (Portland State University study) | | Scully-Engelmeyer K, et al., "Exploring Biophysical Linkages between Coastal Forestry Management Practices and Aquatic Bivalve Contaminant Exposure." *Toxics*. 2021; 9(3):46. Read article here | | |
| | 3/17/21 | Betsy Herbert, Ph.D,, testifies on behalf of NCCWP to the Oregon State Legislature in support of HB 2594, Directing the Department of Forestry to Better Protect Community Drinking Water Supplies | HB 2594 failed | Read HB 2594 & testimony here | | |
| | 4/18/21 | Comments by Nancy Webster, Betsy McMahon & Ron Byers, Esq. on behalf of NCCWP to NOAA. | | Comments request emphasis on drinking water and watershed protection in the EIS of the HCP for western Oregon forests. | | |

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| | 5/1/21 | "Olympic Line" extensive blowdown along Jetty Creek and in watershed area feeding Jetty Creek | | Intermittent stream channel with narrow 20 foot strip of trees for protection is blowing down severely in just five months, | **Extensive blowdown in "Olympic Line" stream buffers; Soil exposed by the blowdown will likely wash down into Jetty Creek creating turbidity & water treatment problems** | |
| | 6/1/21 | Oregon Appeals Court affirms lower court ruling striking down Lincoln County's local ordinance to ban aerial pesticide spraying | | Read news article here | | |
| | 6/17/21 | Betsy Herbert, Ph.D., submits public records act request to ODF, requesting all records of logging and pesticide spraying in the Jetty Creek watershed back to 2002. | ODF charges $725 for the records. Reason: High cost because records are not kept at the watershed scale. | Approximately half the records provided are not within the watershed. No records before 2015 are provided. ODF destroys all records of forest operations after 7 years. | | |
| | 7/22/21 | Betsy Herbert, Ph.D., testifies on behalf of NCCWP to DEQ's forum re: "DEQ's Obligations Regarding Protection of Community Drinking Water Supplies from Impacts of Industrial Forest Practices" | TBD | Dr. Herbert testifies that DEQ has the authority to override ODF's forest practices if DEQ finds that the regulations are not sufficient to protect water quality. | | |
| | 9/8/21 | Ron Byers, Esq. & Trygve Steen, Ph.D. testify on behalf of NCCWP before the Board of Forestry urging prioritization of watershed and drinking water protections in ODF goals. | TBD | | | |
| | 9/29/21 | "Extraordinary compromise" known as Private Forest Accord reached between fisheries advocates and timber industry | | Agreement expands stream side buffer zones throughout private forest lands, more restrictions on forest roads, and logging on steep slopes; DOES NOT ADDRESS clearcutting, cumulative impacts from forest operations on water quality/ quantity, DOES NOT PROHIBIT pesticide spraying in drinking watersheds, DOES NOT REQUIRE 80-year rotations in drinking watersheds. | | |

| | Date | Event | Agency Response | Notes | Caption | Photos & maps (thumbnails) |
|---|---|---|---|---|---|---|
| | 10/7/21 | DEQ lists community water systems that qualify as "impaired" for turbidity; Jetty Creek is not on the list | TBD | Dr. Betsy Herbert publicly asks DEQ why Jetty Creek is not listed as impaired after being 95% clearcut over 20 years, receiving more water quality alerts for disinfection byproducts than any other water system on the coast, and Rockaway Beach not reporting their water usage for most of those years. | | |

# Advisory Report

## State Leadership Must Take Action to Protect Water Security for All Oregonians

January 2023
Report 2023-04

OREGON SOS
Secretary of State
Shemia Fagan

OREGON AUDITS DIVISION
Audits Director
Kip Memmott

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# Executive Summary

Water insecurity is a reality for many Oregon residents and a growing risk for many more. Ongoing drought conditions and concerns around the quality, safety, and accessibility of water have demonstrated the need for better governance to protect Oregon's water security. This advisory report addresses gaps in Oregon's water governance that can lead to or worsen water insecurity and lead to inequitable outcomes for higher-risk communities. We offer suggestions for state leadership on how to improve these gaps in governance.

The state has made some efforts to address water security concerns. The passage of House Bill 5006 in 2021 led to significant investments in local infrastructure projects, increases in agency staffing, and the creation of the State Supported Regional Water Planning and Management Workgroup. Several state agencies have demonstrated a commitment to finding broad, cross-cutting solutions to water security concerns through ongoing efforts to improve water data, include more diverse communities in decision making, and engage in planning and coordination.

While these developments hold promise, Oregon is underprepared to provide meaningful support to many communities facing water insecurity and has more work to do to meet the state's immediate and long-term water security and water equity needs.

### The following aspects of Oregon's water governance need urgent attention:

Oregon communities facing water insecurity often encounter numerous barriers to addressing the problem directly. The state has a fragmented and siloed institutional structure around water that can make it challenging to apply cross-agency and multi-level solutions to local problems, and there is not a clear framework in place to support multi-level coordination. State water policy also prioritizes water access for senior water right holders and does not fully account for the complexity of the resource or its relationship to ecosystem health.

- Many communities are not fully integrated into water decisions and often not even aware there is a problem.
- The Oregon Integrated Water Resources Strategy is not clearly connected to state and regional planning efforts and does not have clear implementation pathways.
- Oregon's state leadership and agencies do not necessarily share water security priorities. Agencies have distinct areas of focus and limited resources and capacity that limit the ability to engage broadly with communities or work across agency lines.
- Oregon water data is disaggregated, sometimes incomplete, and not set up to support regional governance needs.
- Oregon lacks a water funding strategy that ties state and regional planning to investments. The state's water infrastructure suffers from decades of disinvestment and natural resource agencies lack funding and capacity to properly enact their duties.
- State water regulatory agencies have broad discretion but face external pressures that may hinder them from fully using this discretion to benefit the public.

Furthermore, while Oregon's federally recognized Tribes are proactive in addressing water insecurity, a history of oppression and ongoing industrial and agricultural practices ecologically inappropriate for Oregon's water basins has undermined their ability to ensure water security in their homelands.

### Oregon must adopt integrated and holistic policies and practices based on principles of good water governance

The Oregon Legislature and Governor's Office, in coordination with state agencies that work with water, must commit to developing a robust state and regional framework. The framework should be centered on meeting public needs and applying holistic and scientifically sound water management practices. It should incorporate the principles of good water governance to enhance water security and equity. Specific needs addressed in the report include:

- Developing priorities centered on water security and equity shared by state leadership and agencies that can guide decisions based on a statewide, integrated approach.
- Connecting an actionable and equitable state-level water plan based on shared priorities to regional planning.
- Convening a formal planning and coordination body with diverse representation to guide the statewide plan and provide consistent support to regional planning and other governance needs.
- Defining clear agency roles and responsibilities within a state and regional framework to ensure there is no operational overlap or gaps in service.

- Balancing interests and addressing high-priority water needs by integrating more communities into statewide and regional management decisions.
- Enhancing public awareness of the state's water challenges.
- Prioritizing the human right to water in state policy and exploring policy changes that could better protect community and ecosystem health.
- Improving water data to support strategic decision making within a state and regional framework.
- Adopting a strategic approach to funding and a consistent funding base to support desired outcomes.
- Supporting state agencies in carrying out their regulatory responsibilities.
- Integrating Oregon's federally recognized Tribes as full and equal partners into state and regional water decision-making.

Our goal is for this report to inform state leadership and support additional changes needed to protect water security for all. We hope state leadership can maintain the momentum of recent actions taken to address Oregon's water needs and build on past and ongoing efforts of state agencies, communities, stakeholders, and Tribes to craft a robust approach to water governance that can support the needs of current and future generations.

Community members meet in Morrow County to discuss needed response to nitrate-contaminated groundwater, summer 2022.

# About the Project

Following several years of drought and growing concerns about water in the State of Oregon, the Oregon Audits Division planned to launch an audit in 2021. The division determined there were water governance and equity concerns that needed to be addressed to protect water security for all Oregon residents. However, without a single lead agency for water governance and with an identified need to address state water policy, the Division opted to direct an advisory report to the Oregon Legislature and Governor's Office, rather than conduct an audit under Government Auditing Standards.

This report addresses specific systemic gaps in Oregon's water governance that can create or worsen water insecurity and lead to inequitable outcomes for higher-risk communities. This report is not intended to provide a comprehensive review of all water risks or concerns faced by the state.

The division spoke with several state agencies, legislators, the Governor's natural resources team, local and county government representatives, academic researchers, nonprofits and community-based organizations, three Oregon Tribes, community members, and a variety of other water stakeholders.

The division would like to thank Oregon state agencies and other stakeholders for their cooperation on this project — in particular, we appreciate the assistance and support of the Oregon Water Resources Department, the Department of Environmental Quality, the Oregon Watershed Enhancement Board, the Oregon Health Authority, and Business Oregon. We would also like to extend our gratitude to the Klamath Tribes, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians, community members in Harney County, the Lower Umatilla Basin, and the North Coast region of Oregon, and community-based organizations North Coast Communities for Watershed Protection and Oregon Rural Action for their assistance, support, and guidance on this project.

**Audit Team**
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Wendy Kam, MBA, CFE, Staff Auditor
Ariana Denney, MPA, Staff Auditor

## About the Secretary of State Audits Division

The Oregon Constitution provides that the Secretary of State shall be, by virtue of the office, Auditor of Public Accounts. The Audits Division performs this duty. The division reports to the elected Secretary of State and is independent of other agencies within the Executive, Legislative, and Judicial branches of Oregon government. The division has constitutional authority to audit all state officers, agencies, boards and commissions as well as administer municipal audit law.

# What Does Water Management Look Like in Oregon?

Water is life. Water impacts nearly every part of our lives and is essential for human survival. People depend on regular access to water to serve a variety of needs. In Oregon, these needs include water for drinking, agriculture, industry, recreation, hydropower, and ecological and cultural stewardship.

Despite Oregon's reputation for being rainy and wet, two-thirds of the state consists of arid high desert with hot, dry summers like those seen across much of the western United States. Communities in Central and Eastern Oregon have long dealt with limited water, but with the advancement of climate change, a perennial concern for many has evolved into an ongoing crisis.

Communities in Oregon's temperate coastline and Willamette Valley are also struggling; demand for local water resources sometimes outstrips supply. Across the state, water quality can be compromised by improperly regulated agricultural and industrial practices and by increasing water temperatures brought on by high water demand, declining overall precipitation and snowpack and natural water storage, and increasingly hot summers.

Oregon has also been hit by the same megadrought that is incapacitating other parts of the western United States. The megadrought started in 2000 and is the worst to hit the region in 1,200 years. The past 22 years have been the driest on record in the western United States.

There is a broad spectrum of potential causes that lead to water insecurity, and some communities are more vulnerable than others. Many communities in Oregon are at high risk of becoming water insecure in the very near future, if they are not already. An incomplete list of these risks includes:

- Climate change
- Aging infrastructure or poor water quality that can lead to health issues for affected communities
- Communities unable to afford clean and safe water for domestic needs
- Seismic events including the Cascadia earthquake that threaten water infrastructure and services
- High demand and shrinking supply threaten the state's ability to meet all water needs
- Unpredictable federal and state funding
- Competing interests in water driven by differing values
- Highly litigious environment
- Antiquated, incomplete, and non-integrated water data systems which slow decision making
- Western water law disincentivizing cooperation and conservation
- Limited public knowledge of water issues in Oregon
- Limited community representation around water planning and decision-making
- Over-allocation of water resources
- Rapidly declining groundwater from agricultural, industrial, and municipal overuse in several areas of the state

The array of risks faced by different communities makes working to ensure water security at the state level a challenge. Thoughtful, well-coordinated action to address the causes and the impacts of water insecurity is critically important.

**What is Water Security and Water Equity?**

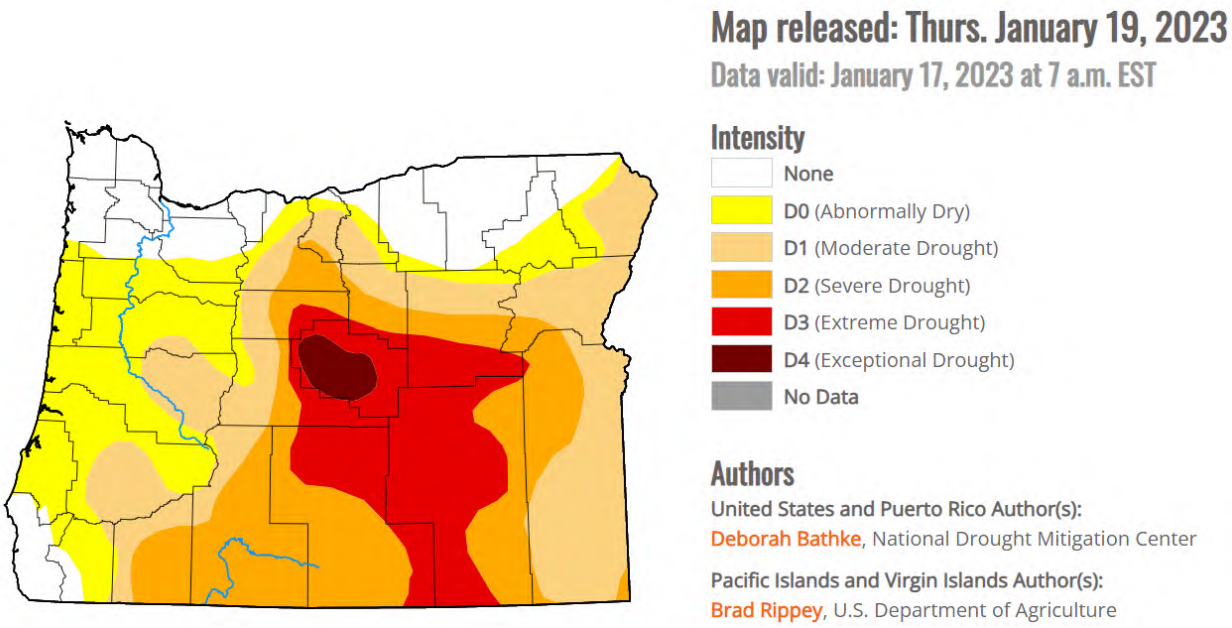
**Water security** and **water equity** are assurances that water is safe, clean, available to use for basic human and ecosystem needs, and by all people. For the purposes of this report, we use the United Nations' definition of **water security**, which describes the ability of communities to access adequate, safe, clean water to sustain human well-being, protect livelihoods and socio-economic development, protect against pollution and water related disasters, and preserve ecosystems.

At the recommendation of the Confederated Tribes of the Umatilla Indian Reservation, the Audits Division has expanded this definition of water security to include the ability of communities to **interact with** water, not simply access it, for these purposes. The U.S. Water Alliance further expands on this definition by stating **water equity** occurs when these conditions are enjoyed by all communities. For Oregon's water system to be both equitable and secure, these conditions need to be met.

## Oregon faces daunting water security concerns as climate change advances

One major threat to Oregon's water security is climate change. Climate change is both a cause and a complicating factor for other causes of water insecurity. It is a clear and present danger to people and ecosystems and affects our natural environment in broad and sometimes unexpected ways. For example, climate change leads to larger and more intense wildfires that affect air and water quality, resulting in poor public health and the displacement of communities.

**Figure 1: As of January 19th, 2023, over 80% of Oregon was still in drought or abnormally dry**




Source: U.S. Drought Monitor

According to the 2023 Sixth Oregon Climate Assessment, Oregon's annual average temperature has already increased by 2 degrees Fahrenheit since 1895 and is expected to increase by an additional 5 degrees Fahrenheit by the 2050s and over 8 degrees Fahrenheit by the 2080s if greenhouse gas emissions continue at current levels.[1] The greatest seasonal temperature increases are expected to occur during the summer months.

Climate change also affects the water cycle, and Oregon's precipitation profile is changing fast. Precipitation is projected to increase during the winter and decrease during the summer. The number and intensity of heavy winter precipitation events will likely increase, and more water will arrive as rain rather than snow. The frequency and likelihood of droughts is also growing.

According to a 2019 University of Maryland report, by the year 2080, hundreds of North American cities are anticipated to become climatically similar to contemporary cities 525 miles to the south, should carbon emissions continue unabated. Portland, Oregon's closest 2080 analog is the city of Lincoln, California, located just outside of Sacramento. On average, Lincoln is 6 degrees Fahrenheit (3.6 degrees Celsius) warmer than Portland and over 30% drier in winter months.

Changes to one part of the water cycle have cascading effects — warmer winters and declining snowpack in Oregon and other western states has already led to less water in lakes, rivers, and aquifers during summer, when demand from cities and farms is at its peak. This puts greater stress on available water resources and can lead to other issues, including more intense droughts and disputes over water access and management. When winter precipitation arrives as rain rather than snow, or there is significant rain after a long period of drought, the risk of seasonal flooding may also increase. Wildfires lead to more erosion of watersheds; higher water temperatures in streams, rivers, and lakes lead to species loss and habitat destruction.

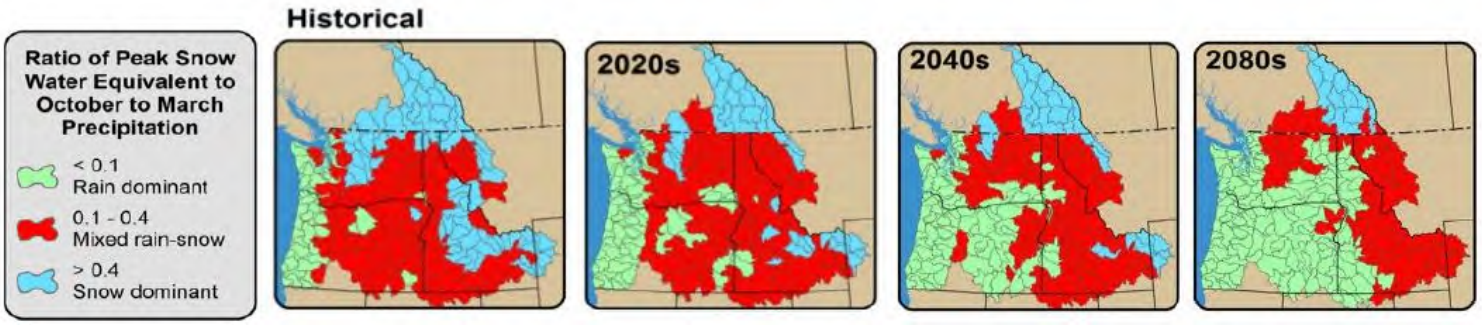
Changes in the water cycle, hotter temperatures, and certain agricultural and industrial practices also contribute to degrading water quality in lakes, streams, and aquifers around the state. Cyanobacteria (harmful algae) blooms, brought on by warmer water and the presence of pollutants like phosphorus, threaten drinking water and fish habitat. Areas of the state dependent on well water to meet domestic needs are seeing wells not only dry up but be impacted by the presence of nitrates, arsenic, and other pollutants harmful to humans and animals. Concerns have also been raised recently about the presence of PFAS[2] in domestic water supplies. The combination of low water availability and poor water quality can be dangerous for communities and ecosystems and difficult to fix.

Oregon's 2017 Integrated Water Resources Strategy showed the form precipitation takes in Oregon is anticipated to shift drastically from a mix of rain and snow to primarily rain across the state in the coming decades.

[1] The Oregon Climate Assessment is released by the Oregon State University Oregon Climate Change Research Institute: Fleishman E., editor. 2023. Sixth Oregon Climate Assessment. Oregon Climate Change Research Institute, Oregon State University, Corvallis, Oregon.

[2] Per- and Polyfluoroalkyl Substances, commonly known as PFAS, are widely used long lasting chemicals that break down very slowly over time. There are thousands of PFAS chemicals found in consumer, commercial, and industrial products that have made their way into water, air, fish and soil across the globe and may be linked to harmful health impacts in humans and animals. Per- and Polyfluoroalkyl Substances (PFAS) | US EPA

**Figure 2: By the 2080s, most of Oregon may depend upon rainfall and receive very little snow**




Source: An Overview of the Columbia Basin Climate Change Scenarios Project: Approach, Methods, and Summary of Key Results

Extreme events have become more commonplace. Since 2019, Oregon has witnessed some of the worst climate-driven natural disasters in its history. The 2020 Labor Day fires burned 11% of the Oregon Cascades, more acreage than had burned in the previous 36 years combined, destroyed communities and ecosystems, and took lives. The impacts from events like this on Oregon's more vulnerable communities — low-income, underinvested rural, people of color, and Tribal communities — could be severe and long-lasting, and lead to greater incidents of homelessness, food insecurity, and poor mental and physical health.

Other parts of the country are already facing severe water challenges made worse by climate change. A century of overuse and poor water management decisions, combined with reduced snowpack and reduced flow in stream, has created a water crisis in the Colorado River Basin that already impacts millions of people.

As directed by the U.S. Bureau of Reclamation, the seven states and certain Tribes that rely heavily on water from the Colorado River must reduce their water consumption by up to 4 million acre-feet in 2023, or risk losing water in the basin almost entirely.[3] These states failed to come to an agreement within the 60-day period granted by the federal government, which led to further administrative actions aimed at improved reservoir management across the basin. Funding from the Inflation Reduction Act has helped create the Lower Colorado River Basin System Conservation and Efficiency Program with the aim of increasing water conservation and improving water efficiency to prevent key reservoirs from hitting critical levels. The extreme drought may also lead to federally mandated water cuts to states and Tribes to protect Lake Powell and Lake Mead, which provide water and power to 40 million people in the Southwest and have dropped dangerously low. This situation is still developing.

These events are likely to become more frequent and hit closer to home without swift, decisive, and drastic local and global action to mitigate our climate impacts and adapt to changes as they occur. Considering the changes that are already occurring in Oregon — our climate is getting warmer and drier, and extreme weather events are becoming more frequent and devastating — acting now to protect water security for all is a necessity.

[3] Water is commonly measured in acre-feet. One acre-foot equals about 326,000 gallons, or enough water to cover a football field one foot deep. Four million acre-feet is the equivalent of almost 2 million Olympic-sized swimming pools.

## Working with water from a governance standpoint is a complex and difficult undertaking

Because water is dynamic and moves from one location to another, the responsibility for directly managing water can change hands numerous times, depending on where the water is and what are the local needs and conditions. The flow of water is not based on and does not observe jurisdictional, state, or national boundaries. Coordination among many jurisdictions and players is critical, though it may be difficult to accomplish in times of water shortage or increased need. Guidance on how best to manage water and create workable water governance systems at a state level exists to a degree, but states have distinctly different water needs and challenges. The many differences in state-level policy and practice can make comparisons difficult and establishing and applying best practices even more so. Water is also controversial, and discussions about water management or proposed policy changes are often fraught with conflict.

### Oregon's water governance is multi-layered, and its institutional structure is decentralized

Water as a resource is subject to many layers of governance: local districts, cities and counties, state agencies, federal agencies, and international treaties and state to state compacts all play a role. Water governance in Oregon is largely decentralized at the state level. State and local entities operate under a complex network of state and federal laws and policies.

Oregon has numerous state agencies that play a role in managing, regulating, and planning for water and its uses across the state; responding to emergency situations such as floods; or creating and implementing policies that could impact water resources. Key state agencies involved include the Water Resources Department (WRD), which oversees water allocation and permitting and has played a role in many different water planning efforts over the years; the Department of Environmental Quality, which is the key agency responsible for protecting water quality; and the Oregon Health Authority Drinking Water Services program, which is responsible for protecting community drinking water.

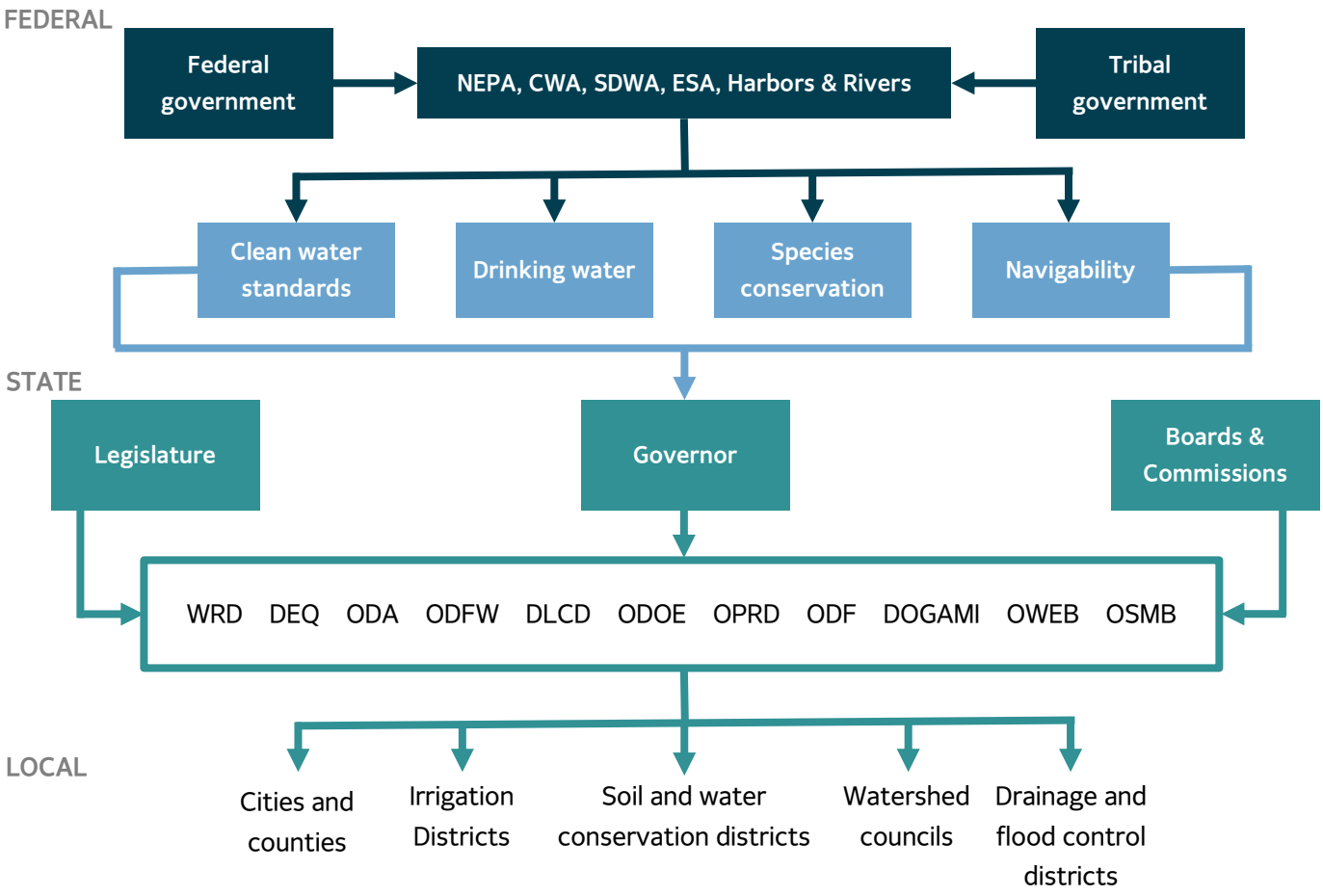
The Governor's Office and Oregon Legislature also play important roles when it comes to decision-making, coordinating, and funding for Oregon's water resources.[4]

Some other state agencies are not included in Figure 3 but play roles in Oregon's water governance and participate in the state's informally convened Water Core Team,[5] including Business Oregon and the Oregon Department of Transportation.

Unlike some other states, Oregon does not have a formalized interagency structure or a central Department of Natural Resources to help guide major water decisions and policy. Whether such a structure is necessary is a matter of debate. Having multiple separate agencies responsible for isolated pieces of water management complicates efforts to coordinate across agency lines; however, allowing agencies to focus on their respective pieces of water management may avoid unnecessary delays in the performance of their duties. Both functions are critical to effectively managing water.

[4] See Appendix G in the attached document for full list of state agencies in Oregon with a notable nexus to water.
[5] The Water Core Team is discussed in greater detail later in this report.

**Figure 3: Oregon's institutional water structure involves many players**




Source: Dingfelder, Jacqueline, "Wicked Water Problems: Can Network Governance Deliver? Integrated Water Management Case Studies from New Zealand and Oregon, USA" (2017). Dissertations and Theses. Paper 3623.

To coordinate different aspects of water management, such as drought response, Oregon depends on several formal and informal coordination mechanisms. These include task forces formally convened by the Legislature, and groups like the Water Core Team initiated by state agencies attempting to improve cross-agency decision-making.

Numerous local and regional bodies and the federal government also play key roles in water management; these include cities and counties, irrigation and other kinds of special districts, federal agencies, and private landowners. Private industries, such as large agricultural operations, also play a significant role in water management and governance.

Federal involvement in water governance is largely decentralized. Several federal agencies play key roles in aspects of water management in Oregon, and federal laws like the Clean Water Act direct and inform Oregon's water programming. These agencies include: the Environmental Protection Agency, which has oversight of Oregon's implementation of the Clean Water Act; the United States Geological Survey, which performs research and conducts basin-level surface and groundwater studies; and the Bureau of Reclamation, which funds and operates large water infrastructure projects. More than 20

federal agencies deal with some component of water management. Oregon's water agencies work closely with the federal government to ensure federal regulations are carried out and federal funding is directed through their programs to address state water needs.

**What is Water Governance and Water Management?**

**Water governance** generally refers to administrative systems, with a focus on formal institutions (laws and policies) and informal institutions (relationships and practices) as well as organizational structures and their efficiency. Ideally, water governance includes institutional and policy frameworks that foster transparency, accountability, and coordination.

**Water management** generally covers a range of operational activities intended to meet specific targets, such as aligning water resources with water supply and use.

*The Audits Division is using definitions provided by the Organisation for Economic Cooperation and Development, 2011.*

In some situations, the federal government may also play a role in water allocation, though this is generally the responsibility of individual states. Federal agencies are involved in international water negotiations with Mexico and Canada, and some interstate water decisions. For example, the Secretary of the Interior acts as the Watermaster for the lower Colorado River to guide water decisions in collaboration with the Colorado River Basin states, indigenous Tribes in the region, Mexico, agricultural interests, and many other stakeholders. In Oregon, the U.S. Department of State is leading efforts to renegotiate and modernize the Columbia River Treaty with Canada. The Columbia River Basin touches several US states and British Columbia. The treaty covers hydropower, management of flood risk, irrigation and municipal support, navigation, recreation, and ecosystem benefits. Negotiations are ongoing.

While this report focuses primarily on the state's role in water governance, other players enact key roles and must be taken into account when making water decisions. The challenges and difficulties of state-level water governance and management are shared by all states in the U.S. Institutional frameworks developed to support and guide water management efforts also tend to be unique from state to state. However, Oregon can learn from some practices enacted by other states, particularly around funding, data, and planning, and can take further steps to apply good governance principles to its water policy and practices.

## Leading practices advocate for transformative approaches to addressing water security challenges, though this varies in application

To address climate change and other water security challenges, international leading practices advocate for transformative changes in how water is managed — meaning a push toward collaborative, integrative, adaptive, and nature-based approaches — but advise tailoring approaches to local circumstances. In government, there has been a shift from the traditional, top-down regulatory and often siloed approach to water governance and management, toward more integrated and collaborative methods in support of innovation and adaptation. Such approaches as Integrated Water Resources Management require a more holistic view of the resource, incorporating water quantity, quality and ecosystem needs and the multi-level decision-making realities of water management.

Oregon, among other states, has made some attempts to better integrate its water management. However, the state remains largely siloed as agencies often focus on their distinct regulatory responsibilities. Furthermore, the practicality of integrated management has been somewhat limited given the fact governance and water management frameworks will need to accommodate a variety of local needs and circumstances. In fact, there is no universally recognized definition of "water governance," as researchers use varying conceptions of the term.[6]

### Internationally acclaimed water management approaches:

#### Integrated Water Resources Management

Per the Global Water Partnership:[7]

"Integrated Water Resources Management is a process which promotes the coordinated development and management of water, land, and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment.

It involves:

- managing water at the lowest possible level,
- managing demand in addition to supply,
- providing equitable access to water resources through transparent and participatory governance and management, and
- establishing integrated policy, regulatory and institutional frameworks."

#### Nature-Based Solutions

The United Nations advocates for a rapid uptake in the use of Nature-Based Solutions to help sustain and improve water availability and quality, while reducing water-related risks, such as those caused by climate change.

"Nature-based solutions are inspired and supported by nature and use, or mimic natural processes to contribute to the improved management of water… The solutions can involve conserving or rehabilitating nature ecosystems and/or the enhancement or creation of natural processes in modified or artificial ecosystems. They can be applied at a personal or micro-level (e.g., a dry toilet) or a macro-level (e.g., landscape) scale." These solutions include the use of natural infrastructure to meet service needs defined on page 60.

While there are a wide variety of different governance systems and structures, observing certain key principles as discussed further in this report can help ensure the framework in place is robust and serves the needs of the public. United Nations Water has cautioned "Integrated Water Resources Management has been an aspiration for decades, but has often failed due to entrenched sectoral interests, political and governance barriers, and the lack of collective responsibility."[8]

[6] For purposes of this report, the Audits Division is using the definition of water governance provided by the Organisation for Economic Cooperation and Development.
[7] The Global Water Partnership is an action network with over 3,000 partner organizations involved in water resources management in 79 countries. The partnership provides knowledge and builds capacity to improve water management at all levels: global, regional, national, and local.
[8] United Nations Water is a coordination mechanism for the United Nations' work on water and sanitation comprised of United Nations entities and international organizations working on water and sanitation issues. Its role is to ensure these entities 'deliver as one' in response to water-related challenges.

## Oregon water policy is not designed to be equitable

### Oregon's Water Code prioritizes water access for right holders and largely excludes other water users

Oregon's Water Code dictates how the state's water may be allocated and for what purpose. To access and use water in Oregon, a potential user may need to secure a water right. Under Oregon's Water Code, right holders have priority access to water. Oregon Revised Statutes 536 through 541 guide state water policy and are codified under two principles: first, all water within the state belongs to the public and is held in trust by the state, and second, water can be appropriated for beneficial use under permit, but is subject to the existence of more senior water rights. This second principle is known as the doctrine of prior appropriation and provides the foundation for water law in most western states. The doctrine can be summarized as 'first in time, first in right." Priority of access to water is based on the date of the original water claim.

Irrigation water. | Source: CCO Public Domain.

Water rights in Oregon are issued by the WRD after a permitting and review process, during which the application can be subject to public comments and protests. Once granted, water rights are generally considered permanent so long as they continue to be used beneficially under the terms of the right. Water rights are tied to a specific point of diversion from a body of water (such as a stream or lake) and are to be used for a specific purpose in a specific area. They are predominantly held by landowners.

The water rights system prioritizes the needs of senior, or oldest, right holders above more recently granted rights, and above water use by those who do not have water rights, with some exceptions. Oregon law does not clearly outline a preference for kinds of water use and relies on the date of priority to determine who may use the water. Water right holders that have seniority are the last to be shut off during low stream flow. In general, they can access and use their full allocation of water until they are restricted by nature and can use their full allotment without regard for other users. Junior, or newer, right holders may have to restrict their water use to not encroach on the allotment of senior rights holders. The exception is when a drought is declared by the Governor, wherein the Water Resources Commission may give preference to stock and human consumptive needs.

Most domestic water users do not have and do not need individual water rights. Approximately 80% of Oregon residents are serviced by large- or medium-sized community water systems, which are generally protected by water rights and federal water quality legislation. However, residents served by private wells or small community wells, which make up roughly the other 20% of the population, are not necessarily prioritized under state or federal law or regulatory requirements under the Safe Drinking Water Act.

Federal law dictates Oregon's approach to managing water quality, including the Clean Water Act of 1972 and the Safe Drinking Water Act of 1974. Several related natural resource laws can impact water management in Oregon as well, such as local land use laws and forest and agricultural practices.

### Fewer protections and a history of racial inequity puts some communities at higher risk

Water insecurity is not new to Oregon, nor does it affect everyone equally. Communities across the state are facing direct and urgent water access and quality concerns, but, as noted by the Oregon Water Futures Project, low-income communities, underinvested rural communities, and communities of color face unique barriers to achieving water security.[9] Communities that lack access to state decision makers or the resources to confront water insecurity concerns on their own are at risk of not being prioritized in the state's water decisions and not receiving necessary funding to address water infrastructure and planning needs.

Historical policy decisions affecting whether certain individuals could own property in Oregon or even legally enter the state have long been detrimental to non-white communities seeking access to water and water rights. When Oregon's Water Code was introduced in 1909, the United States and Oregon in particular had racist and exclusionary attitudes and policies in place. These include the federal Chinese Exclusion Act, passed in 1882 and remaining in force until 1943, which led to violence and mass expulsions of Chinese migrants living in Oregon.

Additionally, a series of laws passed in the 1840s and 1850s banned Black and mixed-race people from settling in the Oregon territory. The last of these laws was formally repealed in 1926. Tribes that had lived in Oregon for thousands of years were pushed onto reservations in the 1800s, only to face

[9] The Oregon Water Futures Project is a collaboration between water and environmental justice interests, Indigenous peoples, communities of color, low-income communities, and academic institutions. Through a water justice lens, the project aims to impact how the future of water in Oregon is imagined through storytelling, capacity building, relationship building, policymaking, and community-centered advocacy at the state and local level.

termination — the immediate withdrawal of all federal aid, services, and protection, as well as the end of some reservations — in the 1950s and 1960s.

These laws and the attitudes that gave rise to their passage prevented many non-white people from acquiring property or living safely in Oregon during a time when most surface water claims across the state were being staked. The majority of surface water rights in Oregon have now been claimed, predominantly for agricultural use and irrigation. Many such rights pre-date the law, going back to the late 1800s during the height of the state's most exclusionary policies. Water is also overallocated in many areas now, putting pressure on entire basins to this day to seek other sources.

Local Tribe fishing for Salmon at Celilo Falls, 1941. The falls were submerged in 1957 after the completion of the Dalles Dam. The Warm Springs, Yakama, Umatilla, and Nez Perce Tribes lost their ancestral fishing grounds. | Source: Library of Congress, Prints & Photographs Division, Farm Security Administration/Office of War Information Black-and-White Negatives.

Today, several of Oregon's federally recognized Tribes, the original inhabitants of the land, still seek to secure water rights. Some rural communities around the state are at risk of losing water completely and having to source it from elsewhere. Prairie City in Grant County has seen its community well repeatedly run dry, sometimes for months at a time. In 2021, the city had to truck in water to drink for over three months. Even those under the blanket protection of state and federal law face water insecurity — many Oregon residents on community water systems face increasing pressure to cover monthly water bills, particularly as communities have taken on more of the burden of water infrastructure investment from the federal government over the past few decades. Other residents

have urgent concerns over their water quality and its impacts on human health and well-being and the economic viability of their communities.

For this advisory report, the team considered the perspectives and experiences of communities considered to be at higher risk of water insecurity: domestic well users, underinvested rural communities, communities of color, and Oregon's federally recognized Tribes. Not all these communities have an established presence in water decision-making. They may not even be considered key stakeholders by state agencies charged with regulating, planning for, and managing the state's water. Water policy and management touches many areas and includes a wide variety of affected stakeholders, but in Oregon, not all domestic water users are explicitly protected under federal or state law and may not be systematically considered. The communities we heard from struggle with degraded water quality that could harm community health, dry wells, and unaffordable community water bills.

# The Past is Prologue: The Klamath Tribes

The Klamath Tribes call themselves *Ewksiknii*, which can be translated as "people of the waters." They are a sovereign nation with 5,774 enrolled members as of September 2022, about half of whom live in Klamath County, made up of the Klamath, Modoc, and Yahooskin Tribes. The Klamath Tribes currently hold and manage approximately 5,000 acres of land in noncontiguous parcels near the community of Chiloquin in Klamath County.

The ancestors of the Klamath Tribes inhabited the Klamath basin for thousands of years and they consider the 22-million-acre basin to be their homeland. Native species endemic to the lake, including the C'waam and Koptu (two species of suckerfish), are considered centrally important First Foods.[10] The Klamath creation story compels the Klamath to protect the suckerfish. Historically, they shared the basin with other tribes, including the Yurok and Karuk Tribes located along the Klamath River in present day California.

## Settlement had dramatic impacts on the Klamath Tribes and the ecology of the region

After white settlers began entering the region in growing numbers, the Klamath, Modoc, and Yahooskin-Paiute entered into a treaty with the federal government in 1864. The tribes ceded 20 million acres to the United States and retained an allotment of 2 million acres, where they would retain full rights to hunt and fish and could restrict access to their land and water by incoming settlers. Between 1864 and 1954, the Tribe's allotment would be chipped away to approximately 575,000 acres.

The 1864 allotment protected Tribal access to Upper Klamath Lake but did not protect it or the two larger lakes downstream, Lower Klamath Lake and Tule Lake, from development. At the time, the three lakes were among the largest in the western states, with significant biological diversity. This lake system is also part of the Pacific Flyway used by millions of migratory birds.

In 1905, the federal Bureau of Reclamation drained the two lower lakes to be converted into 200,000 acres of farmland and encourage more ranching and crop cultivation in the region. The Upper Klamath Lake was turned into a reservoir to be used by irrigators downstream. Settlers moved into the region in larger numbers to raise cattle and grow crops. They tended to use water-intensive agricultural practices potentially appropriate for the more humid eastern states, but not suitable for the Klamath Basin.

The Klamath Tribes sought out ways to protect their cultural identity and support their people, and during World War II established a robust and lucrative local lumber industry that made them one of the wealthiest tribes in the nation at the time.

[10] First Foods were the foods eaten by indigenous communities in North America prior to the arrival of European settlers. Many are still eaten to this day. First Foods serve an important role in Tribal health, well-being, and cultural identity.

Left: A photograph of the Klamath Basin Project. | Source: Oregon Encyclopedia
Right: The ancestral lands of the Klamath, Modoc, and Yahooskin covered over 20 million acres. | Source: Klamath Tribe

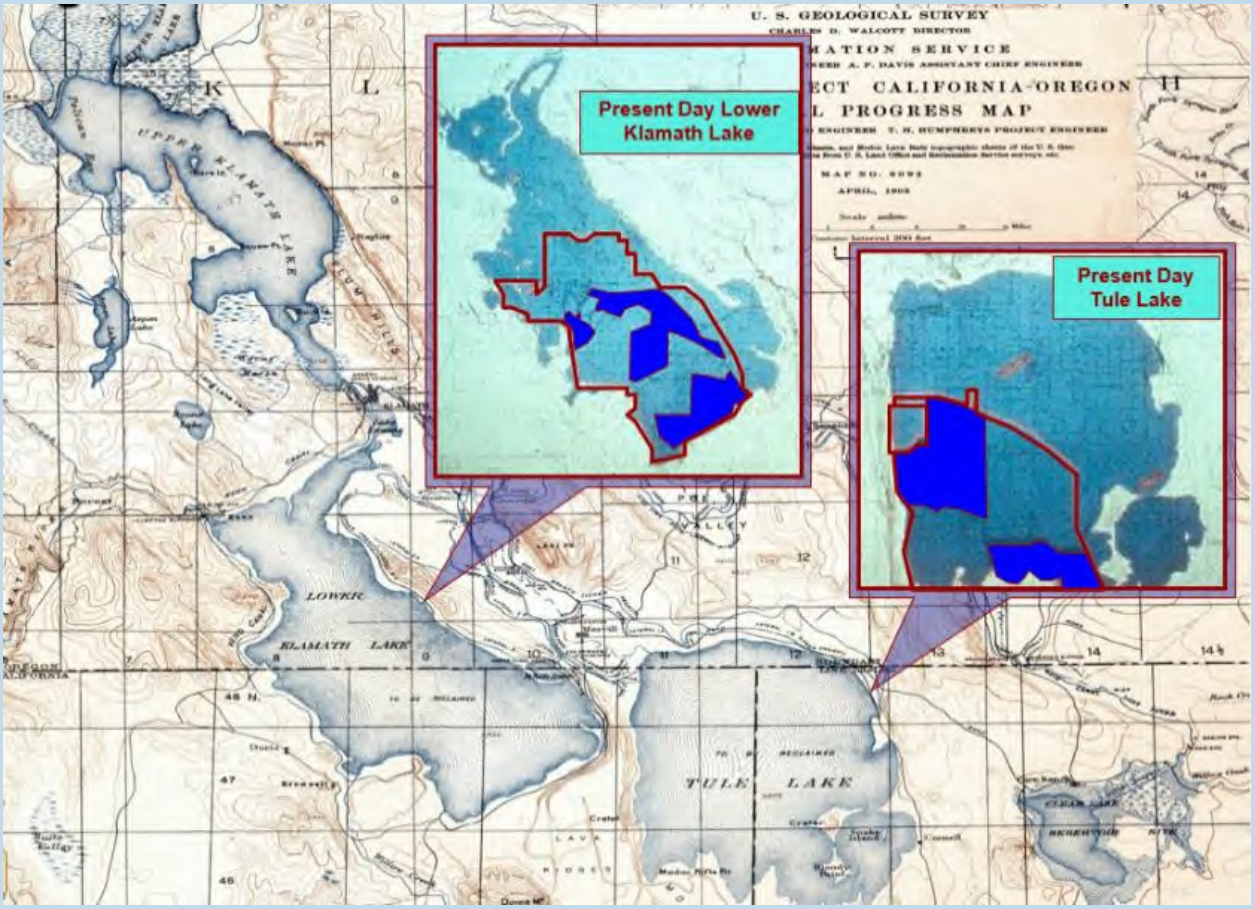
### Though senior water rights were recently granted, lands taken from the Tribe after Termination have not been restored

In 1954, Congress passed the Klamath Termination Act despite Klamath Tribal members voting against it. According to the Tribe, termination was "about getting access to their forest lands."

The federal government took the Tribe's remaining 575,000 acres. Many people moved away. The bulk of the reservation lands were converted into the Fremont Winema National Forest, and much of the remaining land was sold to private landowners. Tribal fishing, hunting, and gathering rights were also restricted for much of this period. When federal recognition was restored to the Klamath Tribes in 1986 after decades of lobbying, no land was returned with it. The Tribe had only retained a few hundred acres. That same year was the last year that the Tribe was able to catch suckerfish in the lake and in local rivers — both suckerfish species were declared endangered in 1988. With widespread and ongoing practices such as free-range cattle feeding, which can degrade streambanks and causes phosphorus to leach into the lake when cattle are not fenced out of streams, Upper Klamath Lake was quickly losing ecological viability.

The Tribe began to purchase and acquire small parcels of land around Klamath County and participated in the process of water rights adjudication. In 2013, after decades of lobbying and arbitration, the Tribe was granted time immemorial water rights, making them the senior right holder in the Basin. Recent efforts between the Tribe, farmers, and local and state governments to come to an agreement over the best use of water have been largely unsuccessful.

As of 2022, the Klamath Tribes still held less than 1% of the land they held prior to termination in 1954.

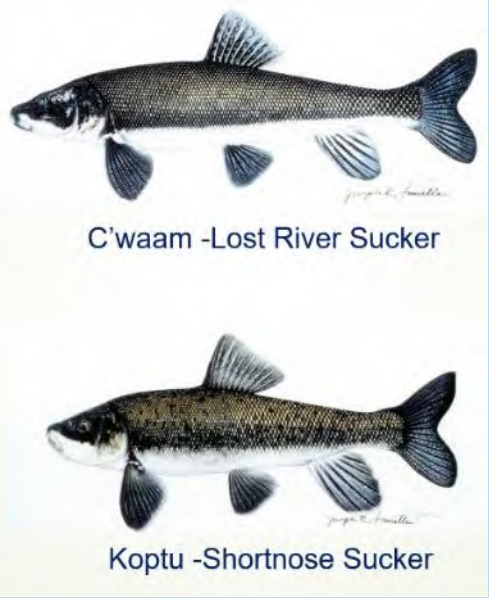


Present day Lower Klamath and Tule Lakes cover a fraction of their historical spread. | Source: Klamath Tribes

## State and federal inaction on agricultural and industrial practices threatens Tribal welfare and regional ecology

Tribal leadership considers the time for compromise to have passed. The youngest generation of suckerfish that successfully reproduced in the wild were born in the 1990s and are nearing the end of their lives. The Tribe estimates suckerfish will become functionally extinct in the wild in about 10 years. A lake that once supported tens of thousands of pelicans now only has a few hundred nesting pairs. Downstream on the Klamath River, fish kills from algae blooms are also killing off salmon, a fish of critical importance to the Yurok and Karuk Tribes. Lower Klamath Lake and Tule Lake are also struggling. According to Klamath Tribal leadership, "…the remnants are reduced to what USFS calls "sumps," basically puddles that struggle to receive water. Large disease outbreaks have occurred among migratory birds as a result of low water."

According to Tribal staff, Upper Klamath Lake is "like a tapestry. You can see that it was once richly threaded, but it is now threadbare." The Tribe works closely with state agencies like the Department of Environmental Quality, the Oregon Department of Agriculture, and the Water Resources Department, and has lobbied to increase staffing for enforcement in the region. They want agencies to regulate more effectively, but for them to do so, certain state policies need to be addressed and agencies must be properly staffed.




The two species of suckerfish endemic to Klamath Lake are now endangered. | Source: Klamath Tribe

The Tribe wants more representation from the state agencies in the region. With current staffing levels and policies that hamper effective regulation, the agencies are unable to proactively address water use issues or ecological concerns.

Policies that concern the Tribe include the Department of Agriculture's 10-step compliance process, which is triggered primarily by complaints and can reportedly take years to deliver fines to water abusers. The Tribe considers rules around cattle grazing to be ineffective, nonsensical, and almost unenforceable. For example, it is legal for cows to enter or be near a river, but it is illegal for cows to "impact riparian areas or poop in the water." As of 2022, only 5% to 10% of the riparian areas in the upper Klamath Basin were healthy. The rest have been impacted by free-range cattle and other agricultural practices.

The Tribe is cautiously optimistic about recent federal investments into ecological restoration in the region but has substantial concerns about ongoing agricultural practices and state policies that do not sufficiently protect against rampant environmental degradation. This issue, combined with the impacts of climate change and the ongoing drought, has put substantial pressure on all the water users in the region. Tension is high.

Tribal representatives told the Audits Division it has put them at odds with many of their neighbors and even other Tribes downstream as they petition to retain enough water in the lake every summer to keep the water cool enough for the suckerfish to survive. Unfortunately, that means there may not be sufficient water downstream to meet agricultural needs or ensure that the Klamath River has enough water in it for salmon.

According to the Tribe, one of the most effective things that can be done to restore the ecosystem right now is simply to stop doing it active harm. "Just let the willow trees grow on the banks… Let nature restore itself. Stop getting in the way." Yet that will require the Tribe have a more direct hand in land and water management across the basin, with ongoing state, federal, and local coordination. For the local ecosystem and the Tribe to endure and thrive, the state must do more to ensure the kinds of industrial and agricultural practices used in the basin are ecologically appropriate and may need to reconsider water use in the region entirely.

The Klamath Tribes continues to buy land and have made it clear that their end goal is the full restoration of their traditional lands to Tribal ownership and stewardship.

# What Has Oregon Done in the Past to Address Issues of Water Governance?

Oregon has struggled for decades to establish a robust water governance structure to help meet the state's needs. The state continues to face challenges defining and improving its role in water governance and in updating and enforcing water policies that protect water quantity, quality, and ecosystems.

## The introduction of Oregon's Water Code in 1909 was borne out of a need to manage the resource for the new state

Prior to the settling of the western United States, states in the eastern half of the country loosely followed the Riparian Doctrine, which was based off English Common Law and dictates the right to water belongs to whomever owns the property where the water is located. In the arid western states, prior appropriation was developed to address difficulties with water access. Prior appropriation as we know it today is considered to have originated following the California Gold Rush, where water was diverted out of streams and rivers for mining operations and rights were tied to the point of diversion.

Onlookers stand above a hydraulic gold mining operation in the late 1800s. | Source: Oregon Blue Book, Courtesy of Oregon Historical Society

In the 1800s, Congress invested heavily in infrastructure, including constructing dams, with the intention of developing the West's water resources to meet the agricultural and industrial needs of the growing nation. This new approach to water management in the West was not without controversy. John Wesley Powell, who headed the U.S. Geological Survey, opposed the direction the United States was taking around water management and water development. He did not believe that the lands of the West were suitable for agriculture and instead offered a vision centered on organizing small settlements built around watersheds, which would encourage collaboration and conservation.

Regardless, large water projects diverting rivers and draining lakes to irrigate crop fields were funded on a massive scale across the West. A series of federal laws were passed starting in the 1860s addressing natural resource use (particularly around mining). However, these laws provided little guidance on the allocation of

scarce water resources. In the decades following, policies around water allocation became the purview of individual Western states as they experienced rapid transformation under settlement.

> **"I tell you gentlemen you are piling up a heritage of conflict and litigation over water rights, for there is not enough water to supply the land."**
>
> *- John Wesley Powell, 1893*

After lobbying from business and agricultural interests, Oregon followed the example of other western states to introduce its own water code in 1909. The new law declared water a public resource held in trust by the state and required a permit for its use, which must be determined to be beneficial and used without waste. It also introduced a court-based process for settling water right disputes on claims pre-dating the introduction of the Water Code. Oregon's Water Code was an effort to create order where "...no foundation existed for titles to water. Utter confusion prevailed as to the legal status of a water right."[11]

While the Water Code created order, it was not designed to equitably allocate water resources to meet a balance of needs, particularly in the long term. Prior appropriation's origins in the mining camps of California held an economic view of water as an inert and isolated resource to be moved and used as needed, and not as a dynamic and integrated resource necessary to the health and functioning of entire ecosystems.

Since 1909, some updates to the Water Code have attempted to assert a greater balance of interests, such as the introduction of instream rights, or rights designed to hold water in the stream to protect local ecosystems, in 1987. There have also been efforts to better integrate the various state agencies whose roles and responsibilities affect water usage. These efforts have met with limited success.

## Since the 1950s, Oregon has several times attempted to overhaul statewide water planning and management, but never developed a comprehensive plan

### Legislation passed in 1955 established the state's basin programs, though they remained uncoordinated and limited in scope

Oregon sought to create an integrated water policy as early as 1955, when the Oregon Legislature passed House Bill 25 to establish a new state agency, the State Water Resources Board, a predecessor to the current State Water Resources Commission.[12] The board had broad authority to establish a coordinated, integrated water resources policy and the plans needed to promote the maximum beneficial use and control of water resources.

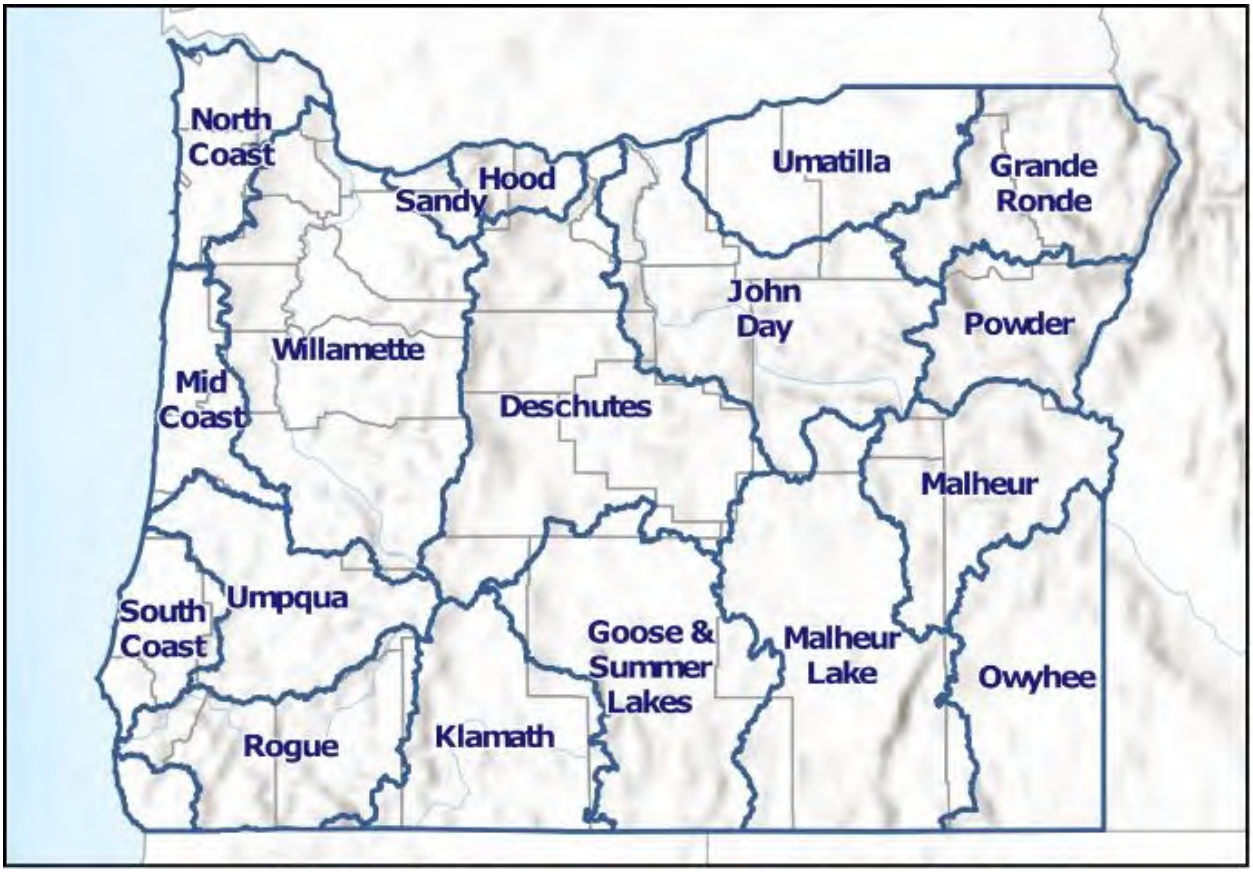
To achieve this, the state developed basin programs for most of the state's 18 river basins overseen by the Board, and now the Commission. The programs consist of state administrative rules classifying available water for future allowable uses (municipal, agricultural, and wildlife) and regulations specific to

[11] The Oregon Water Handbook. Rick Bastasch. 2006. Pg 54.
[12] The Water Resources Commission oversees and establishes the policies for the Water Resources Department, which is charged with administering the laws governing the management and distribution of surface and groundwater resources.

each basin, such as minimum stream flows. These largely state directed regulatory programs were adopted by the board starting in 1959. By 1970, the state had established programs, which focus on water classification, for 15 of the state's 18 administrative basins. Program development and updates occurred intermittently into the early 1990s.

The state intentionally took a basin-by-basin approach to accommodate each basin's varying water needs and localities and did not develop an overarching strategy to help guide or support basin efforts. Most water-related management decisions were still made by individual agencies and local governments in a largely uncoordinated way.

**Figure 4: Most of WRD's 18 administrative water basins have a basin program**




Source: WRD

## Oregon expanded state-directed basin planning to consider more holistic aspects of water management, but abandoned the effort

Amid concerns about Oregon's fragmented approach to water management and long-term sustainability, the Legislature in 1983 passed bills in an attempt to establish a state-led, strategic, and coordinated interagency approach to water planning.

A bill created the Strategic Water Planning Group,[13] consisting of the Governor's Office and representatives from nine natural resource agencies. The interagency group was tasked with

[13] Senate Bill 523 passed in 1983. Senate Bill 605, passed in 1985, called for continuing interagency coordination of water planning and management in creating the Strategic Water Management Group of a similar makeup. However, unlike 523, Senate Bill 605 did not require the new group to develop a Multiagency Water Management Plan tied to expanded basin planning.

developing a multi-faceted water management plan for river basin management to address multi-agency concerns and improve water resource conditions. The law outlined requirements for a coordinated and expanded planning process for water basins, which would integrate different aspects of water management, including surface and groundwater, and water quantity and quality. Participating agencies were also required to coordinate on budget development and develop a shared data system.

To test the new process, the state undertook extended planning for the John Day Basin Program;[14] the Water Resources Commission adopted the resulting plan in 1987. However, per a 2013 memo to the commission from Water Resource Department policy coordinators, the effort was "criticized as being overly expensive and failing to produce an interagency agreement on water resources management."

Bonneville Dam, 1941. | Source: Library of Congress, Prints & Photographs Division, Farm Security Administration/Office of War Information Black-and-White Negatives.

By the early 1990s, the Legislature had largely moved away from basin planning. Key stakeholders told auditors the process was considered too "top down" by some, and "planning" came to be known as a bad word in Oregon. Overseen by the Water Resources Commission, the programs remained a largely regulatory function. In the early 90's, the WRD section responsible for basin program updates and

[14] The John Day Basin program is one of WRD's administrative basins within Oregon's North Central regional river basin management area. The most recent study report for the basin was published in 1986 and can be found with the basin's program here: https://www.oregon.gov/owrd/programs/administrativebasins/Pages/default.aspx#b6

water policy and planning was dissolved. The state had little capacity to continue to update basin programs even for regulatory purposes.

Since then, the state has gone without comprehensive water supply planning. During much of this time, WRD has not supported basin planning in a coordinated or systematic way, and instead provided support on a case-by-case basis to locally initiated planning efforts. Most basin programs have not been updated since the 1980s. According to WRD, resource constraints, such as reductions in state and federal funding, are a key limiting factor. The programs remain an important water allocation tool and are still considered by WRD during the permit process but have been limited in their ability to protect the state's water resources.

### Oregon shifted focus in the 90's to a locally driven, collaborative governance approach to watershed restoration

Oregon watershed legislation and shifts in watershed management during the 80's and 90's reflected the state's evolving approach to water governance. Rather than taking a directive approach, the state emphasized voluntary, locally initiated actions guided by the state at a distance through grants. In response to growing concerns about federal listings of threatened and endangered fish species, major statewide reform initiatives focused on environmental species protections and watershed restoration. Other aspects of water management remained largely unchanged during this period.

In 1995, the state began developing what came to be known as the Oregon Plan for Salmon and Watersheds, a new effort to unify the state around a central water-related plan. The plan started as a state-led strategy and proposal for the federal government to avoid listing salmonid species under the Endangered Species Act. Eventually, the plan broadened to encompass additional watershed management issues.

The innovative plan[15] took a holistic approach to protecting ecosystem health and water quality and considered other factors, such as land management practices. In addition to promoting multi-state agency coordination, the plan emphasized the need for locally driven watershed initiatives. Per the Oregon Department of Fish and Wildlife: "The most important part of the plan is the idea that people working together, with the support of state and local government, can do more to help fish than can be accomplished by a strict regulatory approach." The plan leveraged the state's grant-making for local voluntary watershed councils that began to form in the 1980s with grassroots efforts as its key mechanism for salmon recovery and river restoration. Soil and Water Conservation Districts were also funded to focus on agricultural nonpoint source pollution and implement the Oregon Plan on agricultural lands.

[15] The plan was considered a finalist for the Innovation in American Government awards by the Harvard Kennedy School Ash Center for Democratic Governance and Innovation.

In 1999, the Legislature formed a lasting institutional structure to help support plan implementation by creating the Oregon Watershed Enhancement Board (OWEB), using significant dedicated funding to grants from a ballot measure passed by voters the prior year.[16] The measure, extended in 2010, allocated a portion of state lottery dollars for watershed restoration grants, which remain the bulk of on-the-ground funding and an essential funding source for the board's staffing and grantmaking. The board includes voting members from the public, Tribes, and state agencies, in addition to non-voting, advisory federal agency and state university members. Responsibility for plan implementation also falls to multiple state agencies connected to fish, wildlife, and water quality, working with local partners, with related agency programming supported by state lottery dollars.

While OWEB continues to support important statewide natural resources efforts through its grantmaking, neither the agency's programming nor the Oregon Plan for Salmon and Watersheds were ever intended to ensure all water needs are met for current and future generations. In practice, the state relies heavily on local partners for on-the-ground watershed restoration work, and local partner capacity is a limiting factor in the pace of restoration that can occur. In addition, as a competitive grant program with limited funds, not all communities applying for funding to address water and ecosystem needs receive funding, and only those adequately resourced and organized can apply. Of the communities that can apply, staff told auditors only half receive funding. State lottery funding supporting agency work on plan implementation is also limited.

## Oregon has not maintained a comprehensive water policy and management approach partly due to fluctuating priorities from changes in elected leadership

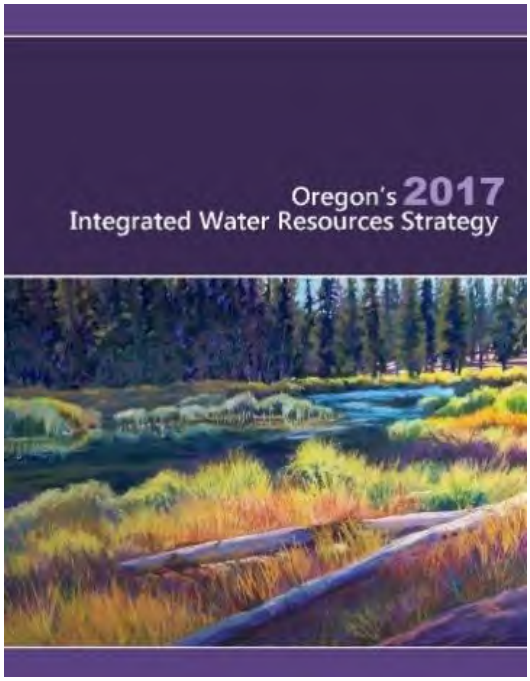
A pattern has emerged over the decades: with changes in gubernatorial, legislative, and agency leadership, the state has pursued different initiatives to coordinate state participation and support more holistic and strategic water management. However, as leadership changes have occurred alongside other social and environmental pressures, each of these reform attempts has eventually lost momentum, deviated from earlier reforms, or failed to sustain attention, commitment, and a vision for water planning or priority setting.

Governor Vic Atiyeh spearheaded expanded basin planning in the 1980s, but the legislation adopted at the time never led to coordinated and strategic water planning. The state group leading the effort was ultimately dissolved by the legislature. Governor John Kitzhaber deviated completely from basin planning to take an instrumental role in establishing the Oregon Plan for Salmon and Watersheds, garnering considerable legislative and financial support for its implementation at the time — it, too, eventually lost leadership's focus. Neither effort has led to a comprehensive water strategy.

The **Strategic Water Management** group, made up of representatives from the Governor's Office and 13 state agencies, was a centralized coordinating body aiming to ensure agency functions were complementary and not conflicting. The group was active from 1985 to 1995 and dismantled during the state's push to adopt more locally driven water management. Some of this entity's functions are now carried out informally by the Water Core Team and Natural Resources Director's Cabinet.

[16] Ballot Measure 66 passed by Oregon voters in 1998 amended the Oregon Constitution to dedicate a portion of lottery proceeds to finance the restoration and protection of native salmon populations, watersheds, fish and wildlife habitats and water quality. Measure 76, passed by voters in 2010, extended and modified the provisions.

Critical reports in the early 2000s noted the ongoing need for strategic improvements in addressing the state's water challenges. In a 2000 State of the Environment report, several Governors recognized that too often state decisions about how to manage the environment have been characterized by polarizing debates and a lack of scientific information. In a 2003 report, the Joint Legislative Task Force on Water Supply and Conservation recommended the state develop a long-term water supply management plan. The report noted "despite basin planning efforts dating back to the mid-1950s, the state does not have a comprehensive plan to ensure it can meet the water needs of streamflow dependent resources and a growing economy and population."[17]



In 2009, when Oregon was reportedly one of two states in the nation without a statewide water plan, the Legislature passed the Integrated Water Resources Strategy (IWRS) to address maintaining healthy water resources to meet Oregon's current and future water needs. The legislation specified the strategy should implement the coordinated, integrated water resources policy codified in statute in 1955. An advisory group met and several state agencies and key stakeholders were involved in development. The strategy also took a holistic approach to incorporate water quantity, quality, and ecosystems, as well as all uses of water into the document. The state updated the IWRS in 2017, with another policy advisory workgroup, and both plans resulted in legislative investments.

Just one year later, however, this effort was sidelined by a separate initiative from Governor Kate Brown. The new initiative led to a high-level strategy document, "100 Year Water Vision: A Call to Action," published in 2020. While the vision helped draw attention to water challenges and was intended to elevate aspects of the IWRS, it was not aligned with it. As detailed later in this report both plans and efforts have had mixed results.

These well-intended, but fractured, efforts have left the state unable to fulfill the intentions set out by leadership for improving water management, and, along with other factors, have seriously impeded the

[17] Final recommendations to the 72nd Legislative Assembly. Oregon Joint Task Force on Water Supply and Conservation. June 2003. See page 21. https://digital.osl.state.or.us/islandora/object/osl%3A989212

state's ability to plan for and promote water security for all Oregonians. This has so far been particularly impactful for vulnerable communities susceptible to drinking water safety and affordability challenges; meanwhile, water security risks such as climate change continue to add pressure.

## Oregon's most recent initiatives hold promise, but there is much more work to do

Since the 2020 release of the Water Vision report, the state continues to engage in the following significant statewide water planning and management efforts:

- In 2021, the Legislature and Governor Brown passed a $538 million water package, making an unprecedented investment in Oregon's water resources. The package included investments in a range of water initiatives, with most funding directed toward infrastructure improvements and regional- and basin-specific projects.
- The Department of Environmental Quality was charged with scoping a data portal project to improve water data accessibility and identify gaps in statewide water data.
- House Bill 5006, passed in 2021, directed WRD and the Oregon Consensus, a Portland State University mediation and facilitation program, to convene a workgroup to reconsider the state's approach to water planning and management.

As Oregon proceeds into the 21st century, it has yet to find a coordinated approach to water challenges. What the state does have is 100 years of history to learn from:

- Leaving out key stakeholders and Tribes— including vulnerable communities who have suffered from inequitable treatment by the state and federal and local entities — from policy decisions can harm those communities.
- Water planning cannot be entirely localized because it leads to fragmentation and a lack of coordination among individual communities. Some broader public interests are not considered, and some key players are left out.
- It also cannot be driven entirely by the state; too much "top-down" direction can cause resentment among local stakeholders and does not adequately account for varying needs across different communities.
- Changes in state leadership have made it difficult for a sustained focus on a shared set of priorities for water security and equity.

A coordinated effort by the state will require the involvement of multiple entities. This includes local communities and governments, as well as those who have suffered from inequitable treatment in the past; the federal government; Oregon Tribes; numerous state agencies with responsibilities of varying degrees tied to water use; adjacent states; and state leadership, primarily the Governor and the Legislature, among others.

These numerous stakeholders will have to strike a balance to be successful in planning for water management. On the one hand, the planning process must respect individual and varying needs across different communities, or regions; on the other, it should also include a holistic, statewide vision that accounts for long-term sustainability of our water resources and their equitable use. In other words, a state and regional water planning framework.

# What Does Oregon Need to Do Now?

## Timely and decisive action is needed to address deficiencies in Oregon's water governance and improve water security and equity

Because the landscape of water resources and accompanying need varies so widely from state to state, there is not a generally accepted framework or model for Oregon to adopt. While Oregon can learn from strategies adopted by other states it needs to develop a governance approach based on Oregon's unique needs and risks. To help guide this effort, state leadership should follow the principles of good water governance, which will help ensure the best chance of long-term success.

Oregon has already taken some important steps to set up a state-supported regional framework, but more work needs to be done to ensure this effort meets the needs of communities across the state. Underlying all of this is a particular urgency: many communities are already struggling with water security and inequity, but as climate change advances, water insecurity may ultimately threaten the environmental and economic well-being of the entire state, even rendering some regions economically unviable and difficult to inhabit.

### Applying principles of good water governance through a well-structured and supported state and regional planning framework will help ensure equitable water security for Oregonians

Developing a state and regional water planning framework can help align Oregon with leading practices and create an avenue for more community involvement in key decisions around water management. Stakeholders at all levels should be involved in local water security solutions. Leading water management practices emphasize policies should be based on long-term management plans rooted in the appropriate scale, such as at a basin level. Yet without a sound framework and strong support, under-resourced communities may face barriers to involvement in locally initiated planning and state-level water policy decisions.

There is no singular framework or model used in other states or countries that will fit Oregon's unique needs and risks. Leading practices recommend tailoring water management approaches to local environments and circumstances. What works well in one state or region may not be effective elsewhere, depending on the region' water profile, what local industries are in place, and how water policy is set up to guide water management.

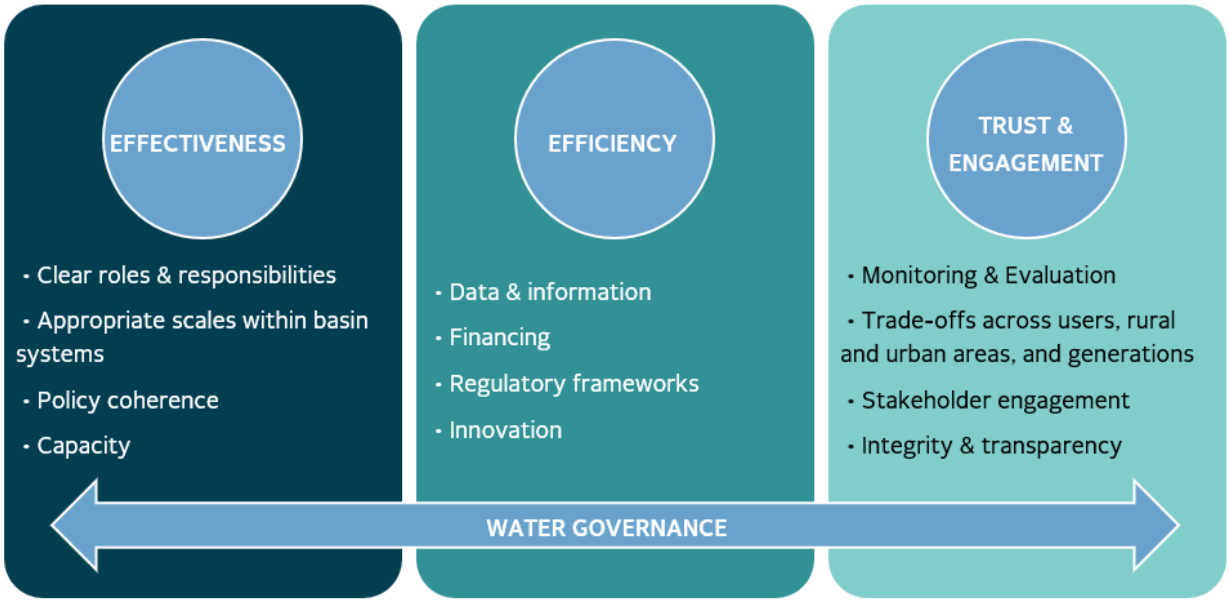
While no single best practice model exists, Oregon can possibly look to specific elements of other state's approaches to inform the development of our own model. For example, some other states have taken a "formal approach to locally-led planning, with direction and financial investments coming mainly through state resources."[18] Colorado and Texas have set up regional structures that allow for planning to encompass the entire state and prioritize needs across basins. These regional plans roll up and inform a state-level plan, and both states also have dedicated funding mechanisms for supporting plan implementation.

[18] 2012 Integrated Water Resources Strategy.

If well-developed and thoughtfully structured around the principles of good water governance, frameworks for regional and state water planning can support legitimacy in decision-making at both the state and local levels and provide effective communication conduits to promote compromise and pragmatism. These frameworks can also provide pathways for communities to address water challenges and access state support and funding, as well as support public engagement and balancing interests at the local level to develop action-oriented implementation plans. A robust framework can support equity, water security, making timely progress, and accountability in engaging groups of individuals to work together toward defined, shared outcomes and deliverables.

Regardless of the exact structure developed, a state and regional planning framework must be prioritized by the Governor's Office and Legislature and adhere to principles of good governance to better meet the state's long term water needs. Integrated water resource management is generally accepted as a best practice in the water arena. According to the international Organisation for Economic Cooperation and Development[19] (OECD), while this approach is a best practice, it has brought uneven results in different countries. It requires an operationalization framework that consistently and sustainably considers short-, medium-, and long-term needs.

**Figure 5: The Organization for Economic Cooperation and Development captures the main principles of water governance**




Source: OECD

The following principles were developed by OECD for governments seeking to strengthen their water governance and are centered on three main dimensions:

- Effectiveness, defining and implementing clear and sustainable water policy goals;
- Efficiency, maximizing the benefits of sustainable water management at the least cost; and
- Trust and engagement, building public trust and inclusivity of stakeholders.

[19] The Organisation for Economic Cooperation and Development is an intergovernmental organization with 38 member countries with a goal of stimulating economic progress and world trade through policy development and the development of international standards.

These principles are rooted in broader principles of good governance: legitimacy, transparency, accountability, human rights, rule of law, and inclusiveness.

### Oregon has started to develop pieces of a state-supported regional planning framework, but critical aspects of good water governance still need attention

The state attempted to build an integrated planning framework in 2012, with the first IWRS and it recommended place-based planning as a way to support the strategy's implementation at the local level. The IWRS sought to help the state adopt a broader and more holistic, integrated, and long-term plan for water resources. However, Oregon's current fragmented agency structure undermines the potential for the strategy's implementation, and place-based planning, which has not yet been fully established, was found to require additional state support.

> **"Oregon's once-progressive system of public ownership and management of waters too often operates, not in support of the public's interests, but in isolation from them."**
>
> *- The Oregon Water Handbook, 2006. Rick Bastach.*

In 2021, with the passage of House Bill 5006, the Oregon Legislature recognized the need for "a framework and path for state-supported water planning and management at the water region and/or basin level." This framework could support setting up the structure needed to sustain the state's focus on carrying out integrated water plans and help guide state water strategy, investment, and policy decisions. The framework's specific attributes and how it intersects with the state will be critical to ensuring it helps meet Oregon's water needs.

The bill tasked WRD with coordinating with Portland State University's Oregon Consensus[20] to convene a workgroup of water stakeholders to develop the framework. Since January 2022, members have been working in monthly meetings to understand and accomplish their difficult charge. The workgroup was intended to have balanced interests, which meant assembling a group with specific and, at times, conflicting priorities for water. In response to some initial confusion about their broad and vague assignment, in September 2022 legislators and agency leadership overseeing the effort refined the project scope to address whether place-based planning should be continued. The WRD Director clarified this could involve redefining the future of place-based planning and the group's recommendations could address specific program needs or broader system-level issues.

The group engaged in collaborative discussions to develop draft recommendations. With members representing various interests, the effort appears to also support building the political clout necessary to back their eventual proposal. Legislators overseeing the effort expected final workgroup recommendations for the 2023 legislative session.

Place-based planning has only been tested as a pilot program scheduled to sunset in the spring of 2023. The state is in the process of defining a path forward for the program, with WRD submitting a legislative concept for its continuance.

[20] Oregon Consensus is part of Portland State University's National Policy Consensus Center. They provide expert mediation and facilitation services for government and non-government entities to address public policy issues.

**Place-based planning** is a flexible, voluntary approach to engaging communities in water management strategies and solutions. As an integrated approach to water management, it has been popular among many water stakeholders in Oregon. The approach extends beyond water regulation to allow for innovative actions proposed from the bottom up. Oregon's four pilot projects were supported by WRD grants and technical assistance.

The place-based planning pilot has also revealed risks. Without elements of a necessary structure and adequate state guidance and support, there is a risk this planning will be inequitable and ineffective. Statute does not address whether or how place-based planning is going to inform IWRS development. How local plans should inform state-level water strategy or be implemented remains unclear. As locally initiated efforts, the approach cannot easily address all communities in need across the state. The pilot projects demonstrated a need for substantial resources and the state has dedicated limited capacity to planning. These hurdles and data deficiencies, often requiring assistance from the state in addressing, interfered with plan development.

WRD hosted community meeting. | Source: WRD

An evaluation of the pilot also identified the necessity to clarify the state's role in supporting planning efforts and implementation. The workgroup addressed many of those questions and worked to develop recommendations for a state-supported regional planning framework.

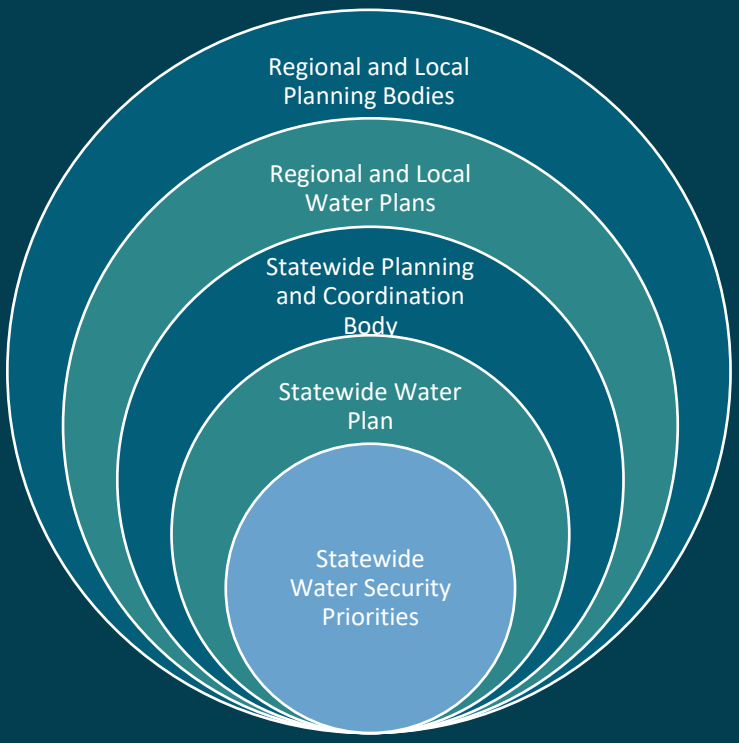
The workgroup's final report was sent to key legislators, the outgoing Governor's Office, and key agencies in December 2022. The report's recommendations focus on increasing agency capacity to support planning, and on improving and expanding the next generation of place-based planning projects. Most of the recommendations are specific to place-based planning and revolve around establishing a process for state recognition of place-based plans, enhancing agency capacity and support for planning, setting up a grant program, developing more robust program guidelines, and sustaining funding.

The regional workgroup's recommendations will expand upon previous place-based planning efforts but may not go far enough in developing a robust regional framework and water governance model that supports a wide spectrum of water needs. State involvement in the group was confined to three state agencies acting as support staff, three legislators, and the Governor's Office. The recommendations do not address the need for policy reform to enhance water security for Oregon communities and place substantial responsibilities on a handful of state agencies. However, it was not the workgroup's charge or intent to comprehensively address the state's water governance gaps.

While focused mainly on place-based planning, the workgroup's recommendations are helpful to enhancing and building upon the state's existing approach to regional planning and are largely in line with the recommendations in this report. Community and stakeholder participants in the workgroup also showed an overall high level of support for the final recommendations. How the state moves forward on them will be critical to the success of any water planning approach the regions or state pursue.

## What could an Oregon water framework look like?

The framework should be centered on shared priorities of water security and support statewide and regional planning and a broad spectrum of associated water governance needs. These needs include data, funding, Tribal and community engagement, interagency and multi-level coordination, and policy development. The framework could be supported by a central planning and coordination body that works with entities involved in local and regional planning.




Note: This diagram is meant to serve as a hypothetical example of what a framework could look like in Oregon; it is not a recommendation by the Audits Division.

A statewide planning and coordination body and regional and local planning bodies could include state, federal, and local agencies, legislators, community representatives, Tribes, and key water stakeholders. A statewide planning and coordination body could potentially perform the following actions:

- Work closely with regional and local planning bodies, state agencies, Governor's Office and Legislature, and Tribes
- Develop statewide water security priorities with regional input
- Develop state water plan with regional input to inform and guide regional planning and implementation
- Make statewide policy recommendations

Regional and local planning bodies could potentially perform the following actions:

- Work with statewide planning and coordination body, local communities, Tribes, key stakeholders, and agency representatives
- Develop local and regional water plans, guide implementation
- Ensure state water security priorities reflected in regional and local plans
- Make regional policy recommendations

## Many important aspects of water governance need to be considered when developing a state framework

The Audits Division identified multiple areas in Oregon's water governance that need attention to better protect water security and enhance water equity. To ensure Oregon can equitably serve all the water users of the state, the development of a state water governance model will need to include the following components, which reflect the core principles of good governance outlined by the OECD around effectiveness, efficiency, and trust and engagement:

- Priorities centered on water security and equity shared by state leadership and agencies that can guide water decisions
- An actionable and equitable state-level water plan based on shared priorities connected to local and regional planning efforts
- A formal planning and coordination body to enhance statewide water governance
- Clearly established agency roles and responsibilities within a state and regional framework to ensure there is no operational overlap or gaps in service
- A balance of interests and means to address high priority needs by integrating more communities and diverse voices into water management decisions
- Broader public awareness of the state's water challenges
- State water policy prioritizing the human right to water and more exploration of policy options that could better protect community and ecosystem health
- Data that can support strategic decision-making within a regional framework
- A strategic approach to funding supporting statewide planning and implementation and adequate and stable funding for key water agencies
- Clear leadership support for state water agencies tasked with carrying out critical regulatory duties.
- The full integration of Oregon's Tribes as equal partners into state and regional water decision-making.

Tribal integration into water decisions will be an especially critical component of a state and regional framework. Oregon Tribes the audit team spoke with apply a holistic view of water and other natural resources to their programs and work. Tribal land and water management practices tend to align with leading practices and are culturally significant and ecologically appropriate for their homelands. Furthermore, integrating Oregon's Tribes into water decision-making can help the state take important steps to address past harms and ongoing practices that disadvantage the land's original inhabitants.

The framework should apply broadly to water quantity, water quality, and ecosystem needs. It should build on the state's recent efforts around the Integrated Water Resources Strategy, the 100-Year Water Vision, the 2021 Water Package, and the ongoing efforts of individual state agencies, local jurisdictions and federal agencies, communities, Tribes, and key stakeholders, among others.

In developing the framework, there must be significant consideration of the complex layers of state, federal, and local water policies and practices. State leadership will need to ensure that there is feedback and representation present from critical groups when making decisions that impact that state or a specific region.

**Comparison of statewide water strategy development initiatives (2009-present)**

| IWRS | Similarities | 100-Year Water Vision |
|---|---|---|
| Established by the Legislature in 2009 and remains in statute. | | Initiated by the Governor's Office in 2018; never in statute. |
| Developed primarily by WRD in coordination with other state agencies and a public advisory committee. | Developed primarily by one state entity with some public involvement. | First phase led by the director of the Oregon Watershed Enhancement Board and included an extensive public engagement process. |
| Intended to be an integrated strategy to meet Oregon's water needs. | High-level strategy documents. | Intended to help guide Oregon into the future on planning for and investing in water infrastructure, to draw legislative investments, and elevate aspects of the IWRS. |
| Statute requires IWRS be updated every five years. | | A stand-alone statewide water planning and management development process, in two phases. |
| The 2017 IWRS update details many of the water challenges facing the state and lists 51 high-level recommended actions with more detailed suggestions for implementation. | Detail many of the water challenges facing the state and suggested recommendations for future water efforts. | Phase I, published in 2020, details many of the water challenges facing the state, articulates a vision and goals for improving the state's water security, and identified objectives for phase II. |
| The next version is slated to be released in 2023. | Responsibility is now primarily on WRD. | Phase II included several legislative investments and initiatives related to the objectives. Responsibility for its implementation shifted from OWEB to WRD. |
| Statute requires the IWRS be designed to meet Oregon's water needs. Both versions recognized this will require understanding those needs and proposed initial steps for doing so. For example, under the general goal: "Understand Water Resources Today," both versions have included the recommended action: "Improve water resource data collection and monitoring." | Advocate for obtaining foundational water information and developing additional governance structures to help meet Oregon's water needs. | The Governor intended for Phase II to help establish a state and regional structure for how water investments should be strategically coordinated and prioritized. This would involve developing recommendations for the framework and changing how the state approaches different aspects of water management in the areas of community capacity, water funding, data, and public engagement. |

## Developing shared priorities among state leadership and agencies on water security and equity will help guide Oregon in making holistic and inclusive water decisions

State leadership focus on water since 2000 has been intermittent. In 2009, the Legislature spearheaded the creation of the IWRS, released in 2012. The Legislature also reintroduced the House Water Committee in 2018-19, and in 2020 the Governor's Office released the 100-Year Water Vision.[21]

[21] See Appendices F ang G for 2017 Integrated Water Resource Strategy Recommended Actions and the Updated 100-Year Water Vision Goals and Objectives.

Several water bills have been introduced that have shifted more federal funding toward badly needed water projects.

However, both the IWRS and 100-Year Water Vision have not received the kind of sustained support needed to fully develop and implement achievable goals. Both efforts provided benefits at the time of their release, such as standing up a place-based planning pilot and the passage of the 2021 Water Package. In terms of high-level strategy, the two efforts appear duplicative — while state leadership reported the 100-Year Water Vision was needed as an implementation mechanism for aspects of the IWRS, the Water Vision repeated much of the IWRS effort.

Both efforts were developed under different Governors and have some differences but also share similarities. For example, both efforts resulted in a high-level strategy document focused on characterizing current water issues and on developing methods for moving Oregon forward on addressing water management challenges but neither effort has led to actionable water plans.

Prior to the creation of the IWRS, Oregon was noted as lacking a "future focus" when it came to water, and the system was referred to as "the eight-track tape… of natural resource management schemes." [22] While some attention has gone to remedying the state's lack of a long-term water view, the system remains largely the same as it has been for decades, despite the need for greater leadership, more enhanced coordination, and an evolving policy approach.

Oregon needs to build on its efforts around the IWRS and Water Vision to develop shared and agreed upon statewide water security priorities. These priorities can inform the development of a state plan tied to a regional planning framework and improve policy coherence and transparency of agency functions. Having core priorities in place can also help Oregon's water agencies align their missions and programming and guide their efforts to prioritize water security concerns, as well as reducing the risk they could duplicate efforts. Furthermore, setting up a formal planning and coordination body can support the implementation of these shared priorities. This kind of sustained commitment to water security on the part of state leadership is necessary to make headway with positive and lasting impacts at both the state and local level.

### An actionable and equitable state water plan, connected to a regional planning system, can help guide water decisions and policy development

Regional planning connected to an actionable state water plan could better support state water priority setting, sustaining legislative focus on shared desired outcomes, and help ensure adequate and balanced public engagement in the process. Should the state choose to use the existing IWRS as a planning base, it would likely require modifying the IWRS and the organizational structure supporting plan updates and implementation. This effort would also need to be adequately staffed and resourced, which has been an ongoing challenge for key water agencies.

[22] The Oregon Water Handbook. 2006. Author Rick Bastasch was a WRD Division Administrator overseeing the agency's Strategic Planning and Policy Coordination Division in the early 1990s. He is also the former Executive Director of the Willamette Restoration Initiative and Rivers Office Coordinator for the City of Portland.

Many stakeholders value the IWRS; however, limitations with the substance of the document, the public engagement process for its development, and a lack of implementation pathways and appropriate resources impede the strategy's usefulness.

Most of the 13 agencies asked about the strategy found it helpful, with some commending its framing of water issues. While several agencies said they refer to the IWRS as a helpful strategic decision-making guide, only two agencies have tied it to a strategic plan. Agencies recognized challenges with the substance of the document itself for implementation. Specifically, its 51 recommended actions are not prioritized, sufficient metrics or milestones are not included to track progress at meeting goals, and it lacks ties to local priorities and needs. These limitations can interfere with its use as an actionable document to support state and local water decision-making.

Concerns have also been raised about the state's lack of full engagement with Oregon communities when developing the IWRS. WRD coordinated with several state and federal entities to develop the original strategy in 2012, and policy advisory groups were convened to help develop both the 2012 and 2017 versions. However, some staff and stakeholders told auditors the document does not adequately discuss water equity and affordability issues.

Phase one of the 100-Year Water Vision attempted to address this concern by involving a more extensive public engagement process led by the director of OWEB. However, some communities may not have been adequately accounted for. After the 100-Year Water Vision's release, the University of Oregon partnered with nonprofits and community organizations to publish the Water Futures Report elevating water concerns of Black, Indigenous, people of color, and low income and migrant communities considered to have been left out.

Finally, pathways for how the IWRS will be implemented at the state or local level remain unclear. According to statute, WRD is responsible for developing the strategy, but statute does not specify how implementation is to be supported by WRD or other agencies and their various missions and boards and commissions. WRD's focus on water quantity and allocations makes it an important player, but the agency has lacked the authority, capacity, and formalized coordination mechanisms needed to ensure IWRS recommendations are implemented. Ongoing investment in the implementation of the IWRS has reportedly also been limited. The 100-Year Water Vision was initiated to garner more legislative investments in 2018, even though the IWRS update had been released just one year prior and remains in effect as of the publication of this report.

In developing a regional planning framework, creating a clear statutory connection between a state water plan potentially built on or converted from the IWRS and regional planning efforts could support the development of both, with regional plans informing the state-level plan and vice versa. Through tying a regional planning system to a state plan, state leadership and agencies could assist with the development of local and regional water policy and investment recommendations. This regional system tied to a plan could support the state's regulatory frameworks, encourage innovation, and ensure planning is happening at the appropriate scale. This actionable plan could also:

- Help sustain state agency focus and participation in integrated water planning, despite legislative and gubernatorial changes;
- Allow for monitoring and assessment of statewide desired outcomes;
- Help ensure various water interests and historically under-represented groups are included in decision-making, necessary for making state-level water decisions and supporting local stakeholder buy-in and ownership of the process; and
- Support practicality, transparency, and legitimacy in state-level priority setting, policy, and investment decisions.

### The state should convene a formal planning and coordination body to guide the statewide plan and provide consistent support for regional needs

Oregon does not have a formal board or committee that is tasked with overseeing the state's water governance; individually, Oregon's natural resource agencies lack the breadth of knowledge, capacity, and authority to take on such an enormous task. Nor, as discussed, does the state have a regional framework in place that can support communication pathways between local communities, state agencies, and state leadership. Agencies that lack shared priorities and data and compete for limited funding can struggle to effectively coordinate.

Despite these limitations, state water officials have made diligent efforts to enhance planning and coordination. Several agencies pointed to the Natural Resource Director's Cabinet and the Water Core team as useful, albeit informal, mechanisms for high-level cross-agency coordination. In particular, the Water Core team allows agency leadership and staff to meet and discuss a wide variety of water-related topics. Several task forces and cross-agency teams have also been convened over the past few decades that primarily address specific needs like water use monitoring and drought response. These efforts are notable and demonstrate the commitment of Oregon's water nexus agencies and staff to effective stewardship of Oregon's water resources.

While helpful for participating agencies, since coordination efforts around governance tend to be informal, these efforts can lack transparency and clear direction. Neither the Water Core team nor the Director's Cabinet have been formalized in statute or have meetings that are open to the public, and the Director's Cabinet does not take meeting minutes. Without a formal alternative, there tends to be very limited public involvement or awareness around these efforts.

Chronic understaffing in several natural resource agencies has also contributed to difficulties with coordination. For example, ODFW was unable to consistently assign staff to help with place-based planning efforts led by WRD for several years. Each agency has their own policies, rules, and structures that are not necessarily designed to align with those of other natural resource agencies with whom they need to coordinate.

Columbia River. | Source: CCO Public Domain

The state's informal and decentralized system can result in serious risks and harmful, costly outcomes, as demonstrated with the ongoing groundwater degradation in Morrow and Umatilla counties. The region has been a declared groundwater management area since 1990, when nitrate levels were determined to be rising beyond EPA-accepted safe levels for consumption.[23] Since that time, and despite some state involvement through the Oregon Health Authority, Department of Environmental Quality, and Department of Agriculture, the issue has only worsened. Potentially hundreds or thousands of private domestic wells in the area contain compromised water and will need filtration

[23] According to a review published in the International Journal of Environmental Research and Public Health, exposure to nitrates in drinking water can increase the risk of colorectal cancer and thyroid disease. There may also be an increased risk with ingestion of nitrate impacted water at or even below regulatory limits, which were set to protect against infant methemoglobinemia but do not factor in other risks. See Drinking Water Nitrate and Human Health: An Updated Review - PMC (nih.gov)

systems installed at significant cost. Even the presence of a state-supported, locally based groundwater management committee tasked with developing voluntary action plans has not helped; see page 61 for community perspectives.

Stronger interagency coordination can also help with getting stakeholders and communities involved in decisions that directly affect them. The responsibility for balancing stakeholder interests, sometimes against the public interest, has been delegated to individual agencies, which may not have the capacity, influence, or knowledge base to effectively engage. Only a few agencies that responded to our questionnaire included the general public in their list of key stakeholders. Other agencies work closely with specific stakeholder groups, like agricultural entities, but have limited interactions with communities outside of those relationships. Agencies need overarching guidance, clear expectations, and support to better engage with communities.

Some other states have designated non-regulatory state boards focused on leading statewide water plan development and implementation. They partner with regional planning bodies which support community engagement. These boards also perform other functions to support a variety of local and regional water needs. For example, Colorado's water planning board provides data, technical assistance, and grants to support regional plan development and implementation. The board has approximately 50 staff working to advance Colorado's Water Plan and provide this level of planning support to Colorado's regions. See page 47 for more on the Colorado planning framework.

Oregon also needs to ensure there is an appropriate balance of interests represented in any statewide or regional water management and planning efforts. One example of a broadly inclusive entity focused on water exists in Oregon, though to serve a much narrower function: the Oregon Watershed Enhancement Board. When Oregon sought to continue integrated grant-making for local watershed enhancement and restoration projects, the Legislature set up the Watershed Enhancement Board with a mission devoted to that charge and a balanced board to sustain the effort in 1999.

Should Oregon create a statewide planning and coordination body, it is important that the state learn from the lessons of the past. As noted previously, water management groups in Oregon have been convened and disbanded by the Legislature with ultimately little to show for their efforts. However, establishing a planning and coordination body can help the state with broad stakeholder engagement and improving capacity around water planning, particularly at the state level.

As part of a robust framework, the state should consider how to staff and structure an entity to help guide statewide and regional water planning. The state should aim to develop a body that meets Oregon's unique water planning needs, is set up to support strong interagency and multi-level coordination and boasts a diverse and balanced representation of public interests. Such an entity would also need a clear charge tied to planning for water security, adequate staffing and resources, and appropriate authority to carry out their charge. This would be a valuable asset to a statewide regional planning framework.

## Good water governance supports a healthy state economy

Water's full economic value for Oregon is immense and difficult to quantify. Every sector, every business, every community, and every household in Oregon depends on adequate, clean, and reliable water. Water plays an important role in creating wealth and jobs across the state and contributes to the economy in many ways, such as supporting business productivity, providing a range of environmental benefits, and contributing to public health and cultural and community well-being. Sound water governance is critical for supporting the state's economic stability and can help balance current needs and values against changing water conditions and ensure the state is prepared to meet long term water needs.

Fly Fishing on the South Santiam | Source: Pete Forsyth

Estimating the full value of Oregon's water is difficult, if not impossible; however, some studies considering statewide industries and others examining specific waterways help illustrate aspects of water's importance. For example, Oregon State University's College of Agricultural Sciences attributes about 20% of Oregon's jobs and 13% of the overall state economy to agriculture and related industries, which requires safe, adequate water supplies.[24] Another study examining the North Santiam Watershed, just one tributary within the Willamette River basin in western Oregon, estimated the watershed's

[24] Oregon State University College of Agricultural Sciences, 2021 "Oregon Agriculture, Food and Fiber: An Economic Analysis" https://agsci.oregonstate.edu/sites/agscid7/files/main/about/oragecon_report_2021.pdf

approximately 500,000 annual recreational visits generate around $36.5 million. Dam generated hydropower was estimated at $7.8 million and avoided CO2 emissions associated with hydropower generated $19.8 million in 2017.[25]

Working to ensure Oregon's watersheds and basins are healthy and able to provide clean water to communities and local ecosystems has substantial economic benefits. State and locally supported watershed restoration and natural infrastructure investments provide distinct benefits for the economy in addition to the environment and local communities. According to a 2010 University of Oregon study, every $1 million of public investment in clean water and restoration creates about 15 to 24 jobs.[26]

An analysis performed by the National Oceanic and Atmospheric Administration estimated one natural infrastructure project — funded partly by OWEB just north of Tillamook Oregon — supported 108 jobs and $14.6 million in total economic output for the state over four years.[27] Through restoring wetland habitation and reducing seasonal floods, the project's multiple benefits include improving water quality by decreasing sediment in Tillamook Bay; enhancing social and cultural benefits for recreational fishing, hiking and kayaking; and increasing nearby home values. It may also support millions of dollars in economic value through increasing the abundance of salmon populations in the bay.

[25] ECONorthwest, 2019, "Importance of Water in the North Santiam Basin, An Economic Description."
[26] University of Oregon, 2010, "Economic and Employment Impacts of Forest and Watershed Restoration in Oregon.":
[27] Shaw, Graham R. and Dundas, Steven. J. (2021) Socio-Economic Impacts of the Southern Flow Corridor Restoration Project: Tillamook Bay, Oregon. Garibaldi, OR: Tillamook Estuaries Partnership.

## Agency roles and responsibilities in state and regional water plan development and implementation need to be clearly established

According to water governance principles, roles and responsibilities across all levels of government and water-related institutions should be clearly specified. Auditors heard a range of responses from state agencies on the state's role in planning for and promoting water security. Many described the fragmentation in how the state contributes — some agencies emphasized the state does not have sole responsibility, while others suggested the state had a high degree of responsibility.

Of the 13 agencies we heard from, only one pointed to the IWRS in describing the state's role, despite its purpose as an important integration mechanism for the state. Clarifying the entire state's role in planning to address water security challenges could both help the state understand its role and the need to coordinate around achieving actionable milestones. The state's role in supporting the process, providing technical assistance, funding and implementation support for existing plans should also be clearly defined.

Agencies like WRD and the Department of Environmental Quality will need to play key roles in the development and implementation of statewide and regional water plans. However, the state should consider assessing how each water agency should participate in regional water planning, and the specific roles they should play.

For example, WRD has acted as the central agency for statewide water strategy efforts since 2012. However, the agency's regulatory responsibilities and other priorities could risk distracting its attention from planning efforts, and risk skewing its perspective on integrated water planning. WRD also lacks the authority to compel other agencies to participate in planning implementation. For statewide water planning to work, engaging stakeholders and balancing their needs in making water decisions is critical. WRD's obligations to senior water rights holders as a primary stakeholder could interfere with the agency's ability to lead statewide, integrated water planning and implementation efforts to promote water security and equity.

Furthermore, while having WRD as the primary planning entity elevates the importance of water planning within that agency, it may not have that effect for other water agencies. WRD leadership told auditors they consider the IWRS to comprehensively address water needs, but other key water agencies do not. Several agencies told the audit team they have not incorporated the IWRS into their existing strategic plans and do not take it into consideration in their programming.

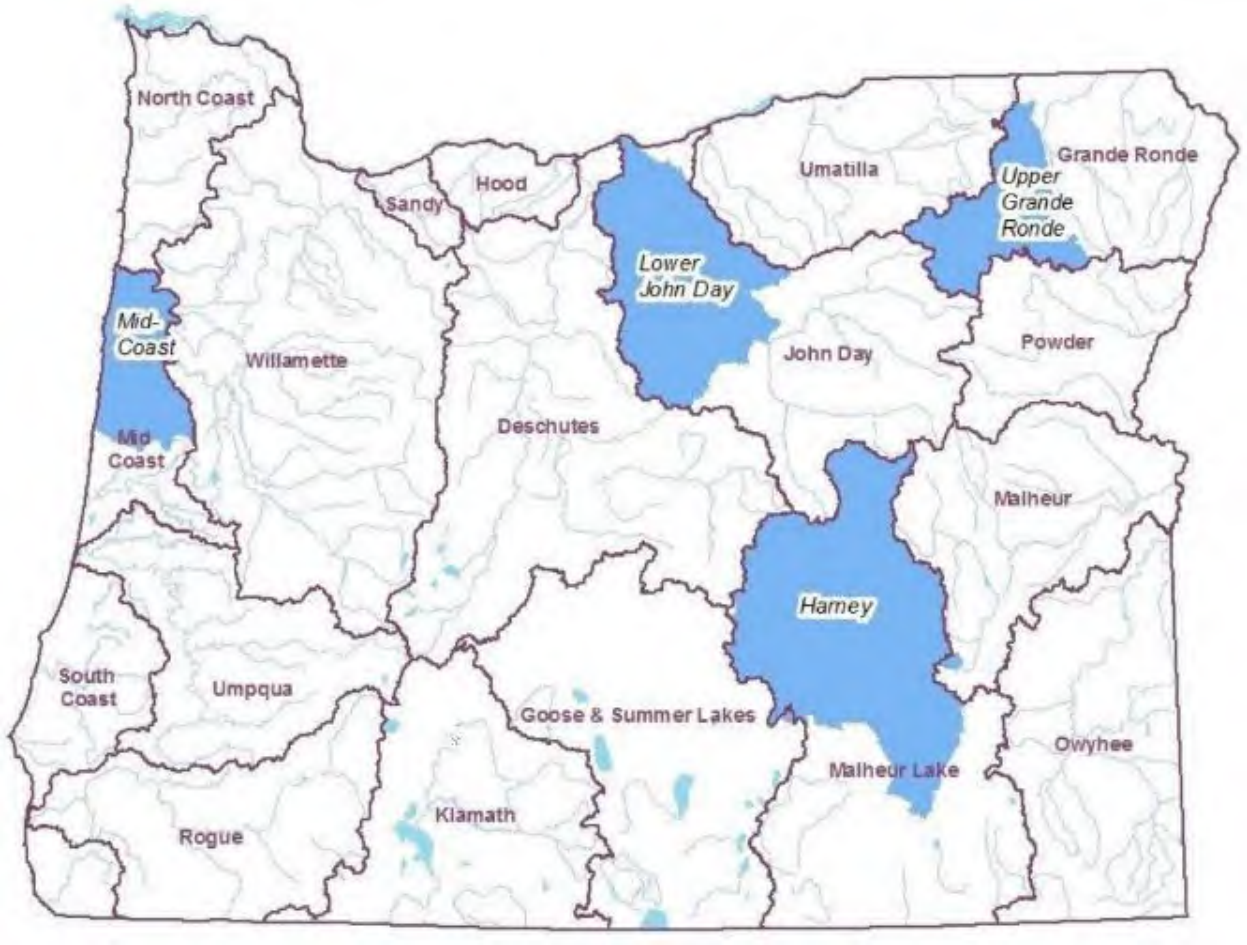
If the state establishes a regional planning framework centered on shared water security and equity priorities, all of Oregon's water agencies will need to consider how their missions and functions align with those priorities. These agencies will also need to prioritize and clearly understand their involvement in statewide and regional water planning. As part of a regional planning framework, the state may consider conducting a systematic risk assessment examining agency missions, core operations, and staffing. This could help ensure a higher level of accountability and transparency, identify redundancies and gaps in service, and provide further guidance on how to integrate Oregon's water agencies into a state and regional framework.

## Oregon must balance interests and address high-priority water security needs by ensuring community inclusion in management decisions

The contentious nature of water and various stakeholders involved requires balancing conflicting interests through meaningful stakeholder engagement, a core good governance principle. This means mitigating power imbalances and weighing feedback from over-represented groups. It also means there will be times when the state needs to display clear leadership on making tough water decisions. A state and regional water planning framework should also help manage trade-offs across water users, rural and urban areas, and generations.

Currently, Oregon lacks the kind of structure and planning approach that would allow more communities to be involved in decision-making on a consistent and reliable basis. There are numerous local efforts to coordinate water management, such as the collaborative water planning efforts taking place in the Deschutes Basin. However, other parts of the state may find it difficult to stand up a localized approach to water planning and management, let alone one that includes all critical parties. State assistance and guidance may be necessary, particularly where there are concerns about certain communities being left out or intentionally excluded.

**Figure 6: Oregon's Place-Based Planning pilot served four partial planning areas of the state's 18 administrative basins**




Source: WRD

The piloted place-based planning process has required accepted applicants use a local convener to balance interests in accordance with criteria developed by WRD. As a voluntary, locally initiated process where community groups determine the geographic area of focus, place-based planning is not designed to encompass the entire state or necessarily prioritize planning for communities most urgently in need. Even if this competitive grant program is extended beyond the pilot, it is not clear all areas of the state in need of support will be able to successfully apply and engage in the process.

This risk is heightened by the fact that powerful water users in some area of the state may not be motivated to participate or could skew representation. It is also unclear how the plans developed will inform a state-level water plan and vice versa. A statewide planning structure that incorporates all areas of the state, such as regional bodies for each area, could help ensure representation while balancing interests by those participating. This could also help ensure all priority water needs are addressed.

An example of a structured statewide approach that could help address these concerns is Colorado. Colorado's state and basin level organizational structures for water planning are intertwined to support actionable water plan development, implementation, and balancing interests in water policy decisions. The state's water plan helps guide statewide actions, and roundtables draft implementation plans for each of the state's nine basins; these basin plans feed into the statewide plan and are in turn informed by it. A state board whose voting members consist mainly of basin roundtable representatives is responsible for leading the development of the state's water plan and a separate 27-member policy committee further supports taking a statewide perspective across basins. The committee is designed to provide a diverse and balanced forum for water policy input at the state level.

Ensuring local communities are involved in statewide and regional planning efforts can also help bring in more resources and innovative solutions to address water concerns. Over $1 billion has been invested in watershed health and enhancement in Oregon over the past 30 years. Local organizations like watershed councils and soil and water conservation districts have worked with landowners and used these funds to improve water quality and watershed health. The state needs to support building more opportunities for communities to participate in developing local water solutions.

## Local Perspectives: North Coast Region

The Audits Division worked with North Coast Communities for Watershed Protection (NCCWP) to interview community members from a number of coastal cities, including people from Manzanita, Wheeler, Rockaway Beach, Garibaldi, Nehalem, and Netarts. Forestry, agriculture, and tourism are major industries in the region, which is largely rural with several small and medium sized communities. The North Coast gets substantial amounts of rain during the winter months but can be subject to dry spells in the summer. Many water users depend on surface or groundwater sources that are vulnerable to saltwater intrusion, drought, or the impacts of industrial and agricultural practices.

Residents voiced many different concerns about impacts to their drinking water, both on city systems and on private wells. Most prominent among these were the impacts of forest practices on watershed health and water availability in the coast range: the destruction or loss of water sources to private residences; environmental impacts; potential human health impacts caused by spraying pesticides in and around clear cuts; increasingly unaffordable water bills; longer periods of drought limiting water supplies for communities and water systems, particularly during the summer months; increased water demand from new development and short term rentals; and a lack of responsiveness on the part of state agencies tasked with regulating forestry operations and protecting water quality.

NCCWP members we spoke with wanted more transparency from the state and local industries on when practices like clear cutting and pesticide spraying happen and how they might impact communities. They wanted local water sources to undergo testing to ensure water quality and safety. They also wanted more clarity and support from the state on how they could effectively engage with local and regional water and land management decisions that impacted both their personal and community welfare.

### Nancy Webster

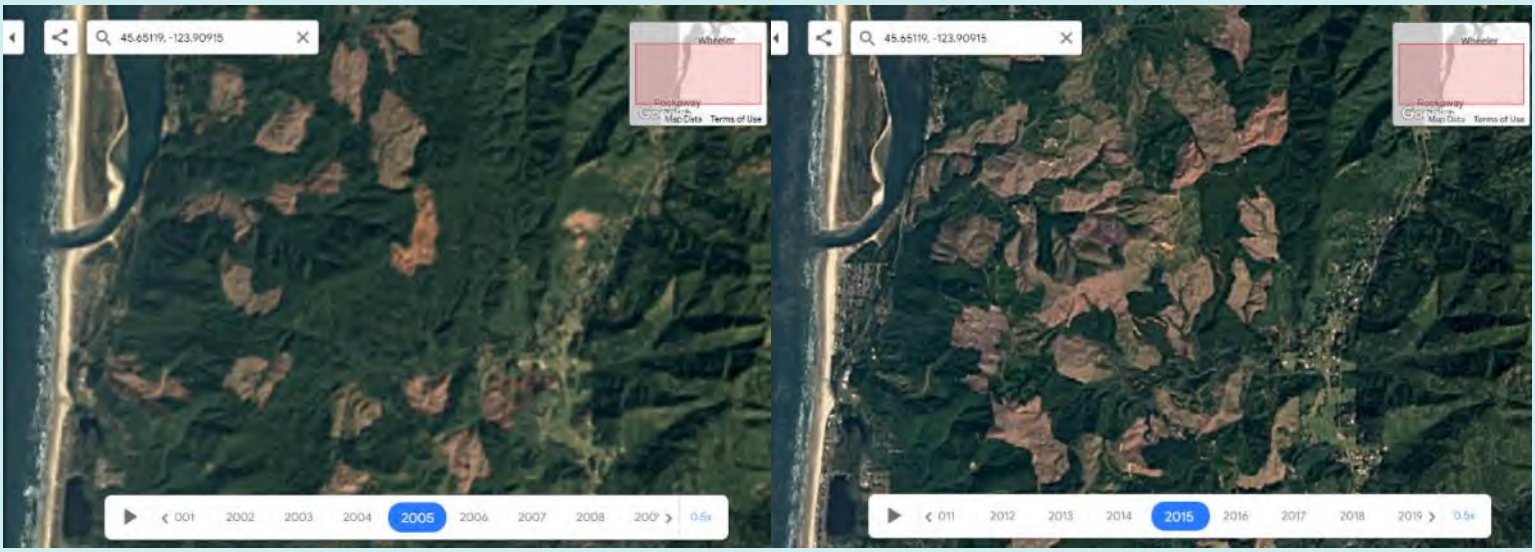
Nancy grew up on the Oregon Coast and chose to retire in Rockaway Beach. She and her neighbors became concerned about clear cutting they noticed taking place in the Jetty Creek Watershed, which is a primary source of drinking water for Rockaway Beach. She also began to receive notices with her water bill that her drinking water had exceeded EPA limits for total trihalomethanes.[28] Rockaway Beach issued 19 alerts between 2005 and 2013 before enhancing the city's filtration system in 2014. That same time saw significant cutting in the Jetty Creek watershed — ultimately, over 90% of the watershed was cut between 2000 and 2021.[29]

Nancy and other Rockaway Beach residents formed Rockaway Beach Citizens for Watershed Protection. They soon began to hear from communities all over the North Coast region concerned about water insecurity and damage to their own watersheds. The group expanded and became NCCWP, which now includes approximately 900 community members from Oregon's North Coast region.

NCCWP has pursued conversations with city officials and several state agencies, spoken at board meetings and local watershed council meetings, gathered signatures for petitions for state help, and

[28] According to the EPA drinking water notice, some people who drink water containing trihalomethane in excess of the maximum containment level over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.
[29] See Appendix H for Timeline of Events in the Jetty Creek Watershed.

filed numerous complaints about practices that could impact drinking water. Nancy stated, “none of these agencies were able to offer any significant monitoring, help, or protection,” but she believes “most of these state agency employees would like to help protect public water supplies.”




Left: A portion of the Jetty Creek Watershed was clearcut in 2005.
Right: By 2015, a substantially larger proportion of the Jetty Creek Watershed had been clearcut. | Source: Google Earth

## John Rogan

John Rogan has owned a home in Netarts since 2014. The original water source for his home came from an intake on Hathaway Creek. When a large storm hit the coast in December 2015, the embankment of a road on a clear cut above their property came down in a landslide, which dammed the creek. Shortly after, the dam failed and “sent a torrent, some 40 feet high, of mud, rocks and trees down the creek onto our property as well as our neighbor.” John and his wife had to evacuate immediately on foot; the damage to both properties was extensive and destroyed John’s water supply.

The timber producer did purchase a new water system. However, due to the damage done to the creek bed and surrounding areas, the system was unreliable and required continuous maintenance. Ultimately, John had to put in a well, at substantial personal cost.

John learned in 2020 the same timber producer planned to clear cut a steep slope directly above his house. The company had been given permission to proceed by the Department of Forestry.

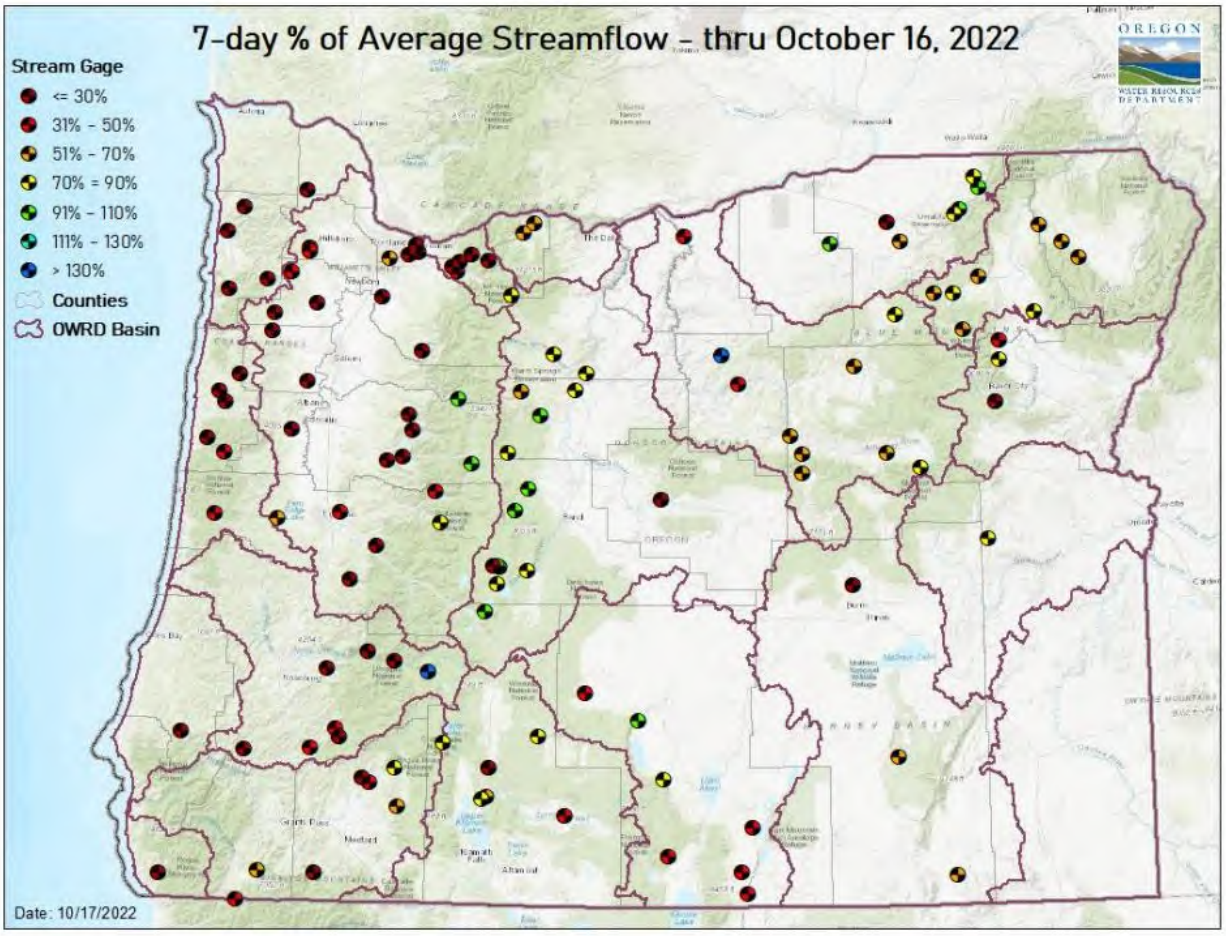
From John’s perspective, “... Not only do our communities benefit less from timber harvests, but they are at times adversely effected by some questionable practices. Nor does it seem that as things now stand, can the community expect much in the way of protection from the Oregon Department of Forestry or from the Legislature. It is time for a change.”

## Public awareness and understanding of the state's urgent water challenges must be enhanced

According to a statewide survey conducted by the Oregon Values and Beliefs Center in July 2022, almost half of respondents considered there to be "enough water in Oregon to meet current needs," while a third disagreed with that statement. Only 36% of respondents believed Oregon has enough water to meet future needs. The survey shows many Oregonians have some awareness of the state's perennial and growing water concerns; it also shows many Oregonians consider water security to be a problem for future generations, not necessarily a pressing concern, despite ample evidence showing water insecurity is here and already affects many people across the state.

Efforts on the part of state agencies to work with and educate the general public have largely been limited to participation in programs for school-age children, such as the Children's Clean Water Festival and Outdoor School, and direct interface between their staff and the public as part of other professional responsibilities. However, the IWRS acknowledges "education and outreach efforts by state agencies and their partners should be targeted to all age levels and should address water quality, water quantity, and ecological needs and issues."

**Figure 7: Information on stream flow in Oregon is available online. Most Oregon streams were running well below seasonal average in October 2022**




Source: WRD

WRD had little historic capacity to raise public awareness directly. According to agency leadership, WRD relied on its stakeholders and partners to raise awareness among their members. In 2021, the agency received funding for two additional staff to help build a communications program to bolster public awareness of drought and other water security concerns. Other agency representatives stated their work around public engagement was largely limited to their stakeholders. However, there is no comprehensive communication effort in place to educate the general public on water insecurity.

Lack of education and knowledge around water issues is a barrier to meaningful community involvement. Not everyone facing water insecurity is fully aware of the risks this presents to themselves and their communities. For instance, groundwater in parts of the Lower Umatilla Basin has been impacted by nitrates for over 30 years, yet many community members the Audits Division heard from were long unaware their well water could be compromised. The state has known this for decades. Many of these individuals only became aware when the county and Oregon Rural Action, a local community-based organization, began going door-to-door to conduct well testing and inviting community members to public meetings to discuss their findings and concerns. Residents in Oregon's North Coast region faced difficulties communicating with state agencies regarding their own water quality concerns, and even in identifying which state agencies they should communicate with. More information can be found in our local perspectives sections.

This gap in public knowledge is a dangerous shortcoming on the part of the state. Lack of public awareness creates avenues for special interest groups to push for policies and practices that benefit specific stakeholder groups and are not necessarily in the public's best interest. Inadequate state collaboration with communities also creates barriers to finding and applying innovative solutions to local and regional water security concerns. Enhancing public awareness can help the state more transparently engage with communities on water issues that impact them.

State leadership needs to explore options for creating a robust approach to raising public awareness. This could potentially include seeking funding for programs like OHA-PHD's Domestic Well Safety Program, creating or contributing to public awareness campaigns around community water security, and factoring public awareness needs into state and regional planning efforts.

### State leadership should adopt the human right to water into law and explore other policy changes that could help protect community and ecosystem health

The right of all people to access water to meet their basic needs is not clearly protected in Oregon law. The Water Code indicates, but does not state explicitly, the Oregon Water Commission can decide whether human and stock animal water needs take precedence in certain situations, and drought declarations through the Governor's Office can trigger decisions to protect those needs. Outside of these special circumstances, however, senior rights take precedence, no matter how the water gets used. Oregon water policy tends to lack some coherence; water laws are not necessarily aligned or fully supportive of sustainable outcomes.

Oregon has made some recent efforts to address water security and equity more systematically in state policy and practice. Even before the Environmental Justice Council was formalized in 2021, Oregon's natural resource agencies were required to draft annual environmental justice reports detailing their efforts to achieve environmental justice goals set by the Environmental Justice Task Force. Some agency programs are also designed to address water security concerns for specific

groups, such as the focus of the Oregon Health Authority's Drinking Water Services program on community water systems. However, these programs are not part of a broader initiative to enhance statewide water security and equity. This limits their overall effectiveness, as these programs are not always able to serve, or may only provide limited support to, Oregon's most vulnerable populations.

One policy option the state could consider now is to enshrine the human right to water in statute. This could help establish the Legislature's clear commitment to addressing water security and equity concerns in the long term. In 2010, the United Nations General Assembly formally recognized the human right to safe drinking water as part of binding international law. The right to water "entitles everyone to have access to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use."

In 2012, California became the first state to legislatively recognize the human right to water and declare that clean, safe, affordable and accessible drinking water was a fundamental right for all residents. While the law does not grant specific water rights to all residents, to help enact the new law, California developed a framework and tool to assess community water needs across the state and to monitor progress. In 2021, the state released a report quantifying which communities were struggling with water quality, accessibility, and affordability needs and which needed priority attention. California's framework lacks at least one important piece: rural domestic well owners and very small water systems are not included in the analysis. However, having this kind of information and tool available could provide Oregon with information critical to making important decisions about the allocation of water funding and state resources. It would also clearly demonstrate the state's commitment to pursuing long-term water security for all Oregonians.

Rivers and Trees in Oregon. | Source: CCO Public Domain

Areas of existing Oregon water policy may also need revisiting. For example, junior right holders and those without specific water rights may be adversely impacted by the water use of senior right holders who choose to use their full allotment without regard to other water users in a basin. As mentioned

previously, the state's administrative basin programs also have not been regularly updated in many years. This means that the state's water basin rules are dependent on decades' old basin studies that may not reflect current conditions. As much of the state's surface water has already been allocated, water rights transfer rules and processes must also take the public interest into consideration.

Oregon needs to explore ways to better incentivize the protection of water-based and water-dependent ecosystems. Some policies that could address some of these concerns have been proposed by policymakers at the federal level, such as the River Democracy Act that aims to expand Wild and Scenic Rivers protections to an additional 3,000 miles of Oregon rivers and streams. Similar or aligned efforts at the state level may enhance the protections promoted by such federal actions.

State leadership will need to proceed with caution and work closely with state agencies to ensure policy changes have the intended effect. Water efficiency efforts like installing pipes instead of canals are sometimes touted as an effective water conservation tool for farmers and may help reduce water loss during irrigation and increase water that stays instream. However, these activities could have unintended consequences that harm communities and ecosystems, like reducing aquifer and stream recharge from leaks in canals. According to WRD, the concept of conservation is sometimes oversimplified without considering the whole picture.

The 2021 funding package was criticized for failing to include more conservation funding opportunities. By creating thoughtful, evidence-based community and ecosystem protection incentives in policy, the state could help agricultural communities better adapt to diminishing water supplies without doing further harm to local ecosystems.

Additional policy changes that can strengthen some of the weaknesses in Oregon's water governance should be considered — such as policies that support integrated and reliable data, clear funding strategies, and better public representation in decision making around water. The Legislature must also account for the current and inevitable impacts of climate change in any future water resource decisions. Recent changes to Oregon's land-use and housing laws support reducing greenhouse gas emissions, sequestering carbon, increasing community resilience, and a more equitable distribution of environmental benefits and burdens; pursuing complementary water policies can strengthen the impacts of these legislative changes. Having a regional planning framework in place can support meaningful and effective policy decisions and create avenues for regional input into policy.

## Local Perspectives: Harney County

Harney County, where agriculture is the primary industry, has struggled with groundwater shortages for several years. In 2016, WRD began a groundwater study in the region with the assistance of the United States Geological Survey and found a substantial imbalance between available groundwater and water use by irrigated agriculture. The basin has also participated in WRD's place-based planning pilot program.

### Christine Bates

Christine has lived in rural Harney County with her family since 2009 when she became the fish and wildlife biologist at the Burns District Office of the Bureau of Land Management. She has been engaged in regional water management work and planning in the Harney basin for over a decade, including serving as chair of the Harney County Water Council, performing riparian work for the Bureau of Land Management, and participating in the region's place-based planning efforts with WRD.

When a large alfalfa farm moved in near their home, the operation began installing numerous irrigation pivots in their fields. Farms like this one can use a substantial amount of water from wells that are 300 to 400 feet deep. Christine and her neighbors on domestic wells cannot afford to go that deep to compete for water.

Burns Area Field | Source: Gary Halvorson, Oregon State Archives

Christine's home is served by a private well first dug in 1981. When they purchased the property in 2009, the water level in the well was at a depth of 14 feet, sufficient for her domestic water needs. In 2016, the water level had dropped to a depth of 33 feet and has been dropping since then. She has

since had to deepen her well to 160 feet (the water pump is now at 80 ft) to prevent losing water to their home. Before the new well was put in, they had to haul water for themselves and their livestock. To pay for the new well, the family sold their cattle. The water pump's depth also requires more electrical use, and their bills have gone up and put added pressure on her family as a result. Several local landowners also come to their well to fill up water tanks for their livestock since their own wells have gone dry.

Well owners in the area must be careful about putting in wells to the correct depth so they can preserve water quality, and many cannot afford to deepen their wells. Arsenic levels in some wells have risen above EPA safety limits in recent years. She has installed a reverse osmosis system for drinking water, but her household "bathes in arsenic." Her family cannot afford a full well filtration system for arsenic.

Christine has spoken with a number of people employed by the State of Oregon about the loss of water in her well. However, in Oregon, private well owners have little leverage to act. She is concerned that her lack of water rights mean she cannot protect her access to water.[30] She also watches for endangered fish in the streams, and notes that springs in Harney County are drying up. Wildlife are seeking water in stock tanks to stay alive.

Christine grew discouraged with the Harney Basin place-based planning efforts and in early 2021 she stopped attending meetings. "They weren't accomplishing anything… it turned into Groundhog's Day."

Christine shared some of her neighbors "saw the writing on the wall" and were leaving the area. However, families like hers do not necessarily have the resources to leave. The water loss in her well causes her great frustration and anxiety. "Water for domestic users should be a right and is our important requirement for life and overall happiness… Time is ticking, and we are rapidly draining the aquifer."

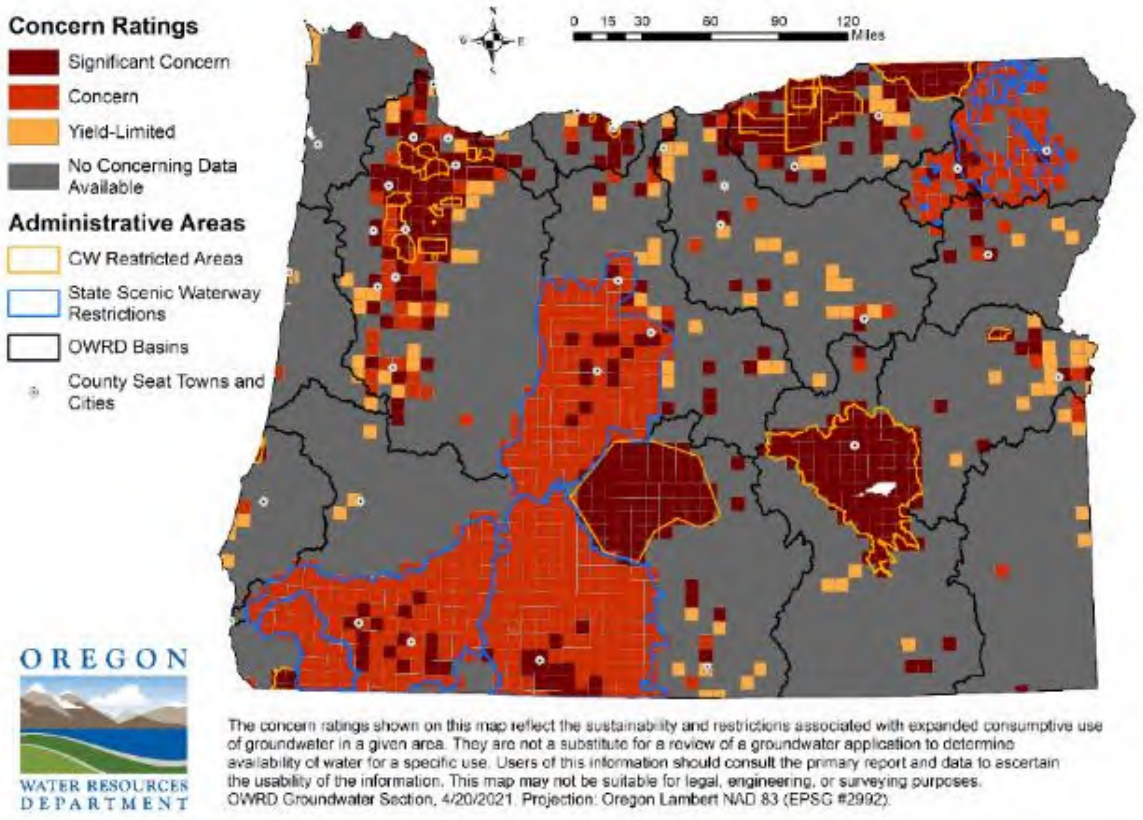
[30] Domestic well owners in Oregon have some protections under the law that can mimic a water right. However, most domestic wells have not fully developed an aquifer or other water source, an action that could allow the state to regulate other users and provide more proactive protections to the well owner.

## Improved water data can help Oregon agencies and communities better understand statewide and regional water needs

Having good water data is critical to supporting effective water planning and management decisions; however, this has been an ongoing challenge for decades in Oregon, in part owing to the lack of a state water management plan and de-centralized approach, and in part due to a lack of funding for data needs. Data is being collected and retained by different agencies for different purposes using different units of measure with gaps where agencies have not been authorized or funded to collect it. Efforts are underway to make progress toward addressing water data needs, but success will depend upon continued prioritization and funding by the Legislature.

The 2021 evaluation of the place-based planning pilot found critical data needed from the state was unavailable and delayed or hindered plan development, which took years longer than anticipated. According to the report, groups had difficulty determining which agencies have what data, where data are kept, and locating data among many agencies that do not share it. In some planning areas, the most up-to-date studies were from 1975. WRD does not regularly update basin studies, which were used to provide extensive data for each basin.

**Figure 8: Significant data gaps, depicted in the grey areas, leave Oregon with little understanding of available groundwater across most of the state[31]**




Source: 2021 WRD Groundwater Resources Concerns Assessment

[31] Not enough reliable data has been collected within most of the Townships in the graphic's gray areas to determine the level of groundwater concerns. However, 5% of those Townships are known to not have any current concerns, according to WRD.

Furthermore, the state's role for supporting place-based planning, including whether the state should help with data on planning, remains unclear, unlike some states like Colorado, where the state Water Conservation Board provides critical technical support to its regional and statewide planning efforts.

Colorado's Water Conservation Board, the state's water planning and policy agency, leads the state's supply and demand projection data and tools underpinning the state's water plan. The 2019 technical update built on 15 years of state supply planning initiatives, to support evaluating Colorado's future water needs. Their work provides tools and data for the state's nine regional Basin Roundtables to update their implementation plans and develop detailed local solutions to supply and demand gaps.

Oregon began a promising project in 2021 to address water data needs. The project was funded through June 2023 to accomplish three goals:

1. Begin initial scoping and design of a database framework of water and infrastructure data;
2. Develop a funding request for further development of this database framework; and
3. Position the participating agencies to immediately pursue project goals in the 2023-25 biennium, pending legislative approval.

The Department of Environmental Quality is coordinating the project and has secured the Oregon Institute for Natural Resources and Duke University's Internet of Water as full project partners. Both organizations have direct experience with water data systems. As reported by the Department of Environmental Quality, one of the most anticipated deliverables for the June 2023 final report will be a prioritized, working inventory of water datasets needed. Although past efforts have been made, they were incomplete for this inventory purpose and will be used to build upon in the current project.

The inventory will evaluate the status of each data set necessary to make water and water infrastructure decisions. Some data sets may need significant effort to make them available for a centralized water data framework, and some may be uncollected because no agency currently has authority or funding to do so, or they are not available for all parts of the state. The Legislature may need to provide authorization and funding for agencies to fill the identified gaps. The Department of Environmental Quality reports the intention to reach out to stakeholders for their input, both immediate and long-term — having a regional framework could help with this, both for deciding what data is needed and helping to collect data.

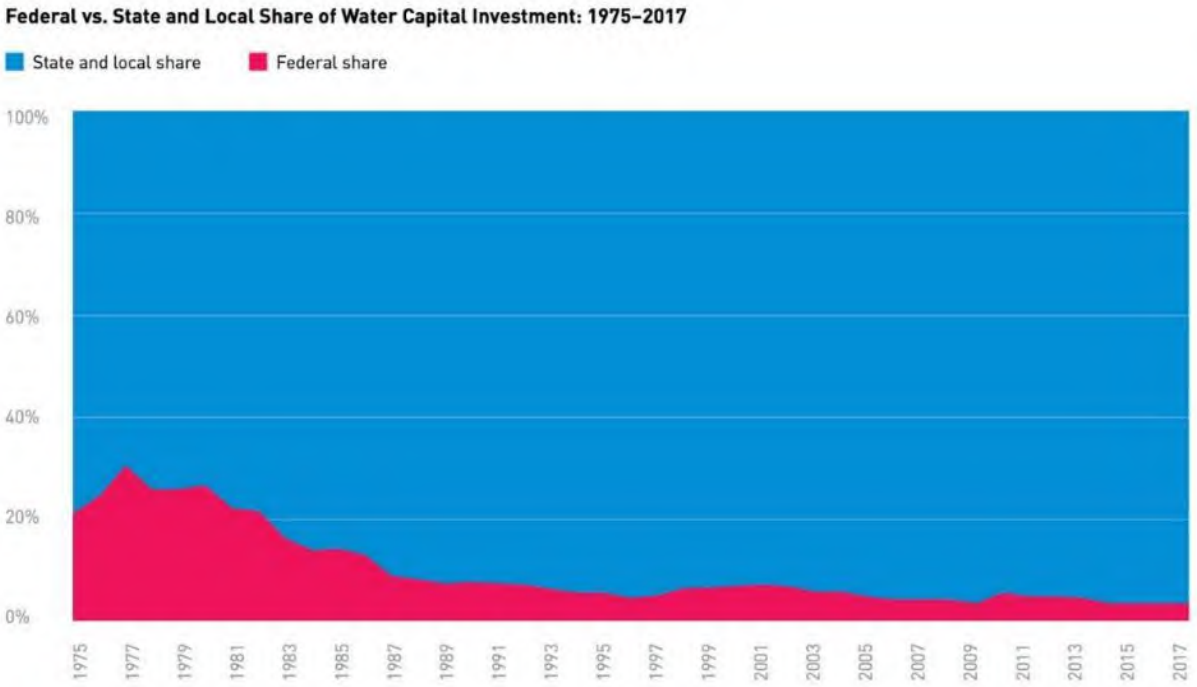
House Bill 5006 recognized that although this project was funded as a one-time appropriation, it is likely to become a significant information technology project. The Department of Environmental Quality will develop a policy option package placeholder in the 2023-25 Agency Request Budget with more recommendations on scope and location of resource needs to be detailed in the preliminary report to the Legislature in early 2023.

## Oregon urgently needs a strategic approach to water funding and a consistent funding base to support desired outcomes

One critical component of water security is affordability. Oregon, like other states, faces considerable water affordability and funding challenges that require strategic and coordinated state action to address. Since the 1970s, federal support for water infrastructure projects has declined and shifted

from grants to loans administered by the states as the need to fix and upgrade aging water infrastructure increases. Local governments and residents have had to bear the financial burden.

**Figure 9: The federal share of total investments in water infrastructure fell from 31% in 1977 to 4% in 2017**




Source: Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure, 1956 to 2017," in Value of Water Campaign and American Society of Civil Engineers (ASCE), "The Economic Benefits of Investing in Water Infrastructure: How a Failure to Act Would Affect the US Economic Recovery" (Value of Water Campaign, ASCE, 2020), http://uswateralliance.org/sites/uswateralliance.org/files/publications/VOW%20Economic%20Paper_1.pdf.

In response to national water infrastructure challenges, Congress has increased appropriations for federal financial assistance programs as the state has contributed additional funds. The 2021 state legislative session provided a historic investment in water, allocating $411.5 million in federal and state funding to local infrastructure projects. In November 2021, The U.S. President signed a new federal Bipartisan Infrastructure Law allocating $50 billion to improving the nation's drinking water, wastewater and stormwater infrastructure, the largest investment in water ever made by the federal government. Funding will be provided over five years through a combination of loans and subsidy or "forgivable loan" akin to a grant, with the bulk of subsidy targeted to disadvantaged communities. In 2022, Oregon received $92 million; the state is slated to receive similar amounts in the following four years.

While these investments are significant, they fall far short of meeting estimated national and state infrastructure needs. For example, the American Water Works Association has estimated $1 trillion in costs over 20 years to repair aging infrastructure for drinking water alone and expand water services to meet growing demand. Stakeholders also told auditors the 2021 legislative investment was not enough. A 2021 study published by Portland State University estimated $23.5 billion in long-term costs for maintaining and upgrading Oregon's city water and wastewater facilities.[32]

[32] 2021 Infrastructure Survey Report. Portland State University. January 2021.

Many communities also face challenges in accessing new and existing federal funding opportunities channeled through the state. A key priority under the law for the added federal funding is ensuring disadvantaged communities benefit equitably, recognizing low-income communities and communities of color experience disproportionate impacts of pollution, including through water. Concerns have been raised that local match requirements in the new law, which are cash or in-kind contributions that a grantee is required to contribute to project costs, could impose burdens on lower capacity communities seeking federal grant money.

Funding programs administered by the state of Oregon may not benefit communities unaware of opportunities and state requirements and processes. Rural Community Assistance Corporation, a nonprofit technical assistance provider working with rural and Indigenous communities, told auditors the demand for their assistance exceeds their available supply. Community needs cover the entire spectrum of technical, managerial, and financial aspects of running a community water or wastewater system. According to the nonprofit, most communities in Oregon they have worked with do not know how to apply for funding, especially smaller and low-income communities. Some smaller communities also lack the economic leverage or population size to be eligible for current grants and loans.

Outreach is required to disadvantaged communities who may not be aware of technical assistance programs and how to access them. A policy director for a national nonprofit focused on water sustainability told auditors no state is well prepared to handle the additional funding, with capacity challenges and broader systemic and structural barriers that prevent communities from applying. According to the Oregon Health Authority, smaller public drinking water systems generally face more water quality challenges and compliance issues due to a lack of financial, managerial, and operational capacity. Some of these systems do not possess the capacity to even apply for or borrow and repay the state revolving fund loans with significant principal forgiveness available for disadvantaged systems.

Some state agencies also face challenges in obtaining funding to support the capacity needed to carry out their main functions. About 2% of Oregon's legislatively approved budget goes to Oregon's 12 natural resource agencies. An even smaller proportion of state funds goes to agencies that regulate Oregon's water quantity and quality. Agencies must compete for funding and can struggle to fulfill their regulatory responsibilities important for water security.

According to natural resource agencies the team surveyed, agencies reported experiencing considerable funding challenges, including funding cuts and fluctuations resulting in reduced capacity and inadequate staffing. For example, the Oregon Department of Fish and Wildlife reports it lacks the resources to conduct the studies and to resolve protested instream water rights applications through settlements or contested case hearings, leaving many Oregon streams without legally protected instream flow rights. The Oregon Health Authority has told auditors the agency would need more funding to regulate and help small water systems, and more resources and assistance to smaller communities.

The 100-Year Water Vision recognized the need for a more strategic approach at the regional level to guide water investment decisions. Developing a more robust investment strategy would require extending beyond the substance and structure supporting the development of the IWRS, to determine and incorporate regional needs. Key water stakeholders told auditors that their perception was

decisions made by the Legislature in the 2021 session were not strategic or prioritized. They were concerned these decisions may have been skewed by individual relationships or agendas.

**Natural infrastructure** is the strategic use of natural lands, such as forests and wetlands, and working lands, such as farms and ranches, to meet infrastructure needs. As the 100-Year Water Vision recognized, natural infrastructure is under-utilized and is critical to incorporate into the state's water funding and management strategy. Oregon would benefit from more widespread adoption of natural infrastructure, which can cost less than built infrastructure, and provide multi-benefit solutions, supporting social, economic, and hydrological efficiency gains for communities.

In 2021, Willamette Partnership and the Oregon Environmental Council partnered to publish a report proposing a number of specific actions for the state's consideration around prioritization, funding, policy, and requirements for natural infrastructure. For example, state agencies should explicitly prioritize natural infrastructure, and require consideration of natural infrastructure alternatives as part of permit or funding applications.

Adopting a more strategic approach would allow for an equitable distribution of funds. It would also support transparency and legitimacy in legislative investment decisions and help ensure funds are invested in the areas of the state with the highest need. The urgency for developing such an approach is heightened as the state attempts to administer additional federal funding equitably. The federal government encourages states to use the influx as a catalyst for strengthening their project pipelines, building capacity for small and disadvantaged systems, encouraging integrated and regional approaches, and performing additional outreach on new funding opportunities.

Some other states have dedicated funding mechanisms to support plan implementation, such as a Texas fund created by the state legislature to provide affordable, ongoing state financial assistance for projects in the Texas water plan tied to regional planning. Through fiscal year 2021, the fund has committed approximately $9.2 billion for projects across Texas.

Several recent reports and key stakeholders have also discussed ways Oregon state leadership could better leverage existing federal infrastructure dollars, increase efficiency and effectiveness in the state's water spending, and improve equity in the state's access and funding process.[33] For example, a nonprofit technical assistance provider presented options to the Legislature in 2021 on ways the state could re-structure its process to reduce the burden from communities in applying for federal funding. Another nonprofit research group has recommended that state governments create funding to assist local governments with meeting federal match requirements. While agencies are taking steps to try addressing these challenges independently, having an actionable water plan tied to a water funding strategy would allow for more coordinated headway.

[33] Relevant reports: Natural Infrastructure in Oregon, Common Challenges, Opportunities for Action, and Case Studies. Willamette Partnership and Oregon Environmental Council. 2021; and Water Investment Ready Oregon, Accessing Federal Water Funding. Willamette Partnership. 2021: Willamette Partnership.

## Local Perspectives: Lower Umatilla Basin

In summer 2022, the Audits Division spoke with five Morrow County and City of Boardman community members with the assistance of Oregon Rural Action (ORA), a community-led organization based in Eastern Oregon. Nineteen community members also provided written statements with the assistance of ORA detailing their personal experiences and concerns with nitrate impacted groundwater. Most of their domestic wells that have recently tested above federal safe drinking water standards for nitrates.

ORA provided the following overview of the problem.

1. Community members whose wells have recently tested high for nitrates in the Lower Umatilla Basin were unaware they may have been exposed for decades to toxic drinking water and had little to no information to protect themselves and their families.
2. Community members identified health concerns related to exposure to nitrates.
3. Community members need access to safe drinking water for basic uses including drinking, cooking, and oral hygiene.
4. The scope and severity of the water insecurity problem in the Lower Umatilla Basin is unknown including the universe of domestic drinking water wells in the region, the number of wells and households impacted, and the efforts required to secure immediate and long-term access to safe drinking water in the region.

Rural Boardman neighborhood meeting and Morrow County's first emergency bottled water delivery, June 2022 | Source: Oregon Rural Action

Though the region's public water systems are regulated to meet federal safe drinking water standards, poor groundwater quality is an urgent concern to the portion of the population that relies on private or small community wells to provide water for domestic uses. The Lower Umatilla Basin, which includes parts of Umatilla and Morrow counties, is home to a large, growing, and diverse community of agricultural workers. Compared to the state as a whole, the demographics of Morrow and Umatilla Counties are more ethnically diverse with a higher representation of people who identify as Hispanic or Latino and a higher poverty rate. These communities have long lived in the area and work in agriculture - the region's economic engine and a primary source of the nitrate pollution. Access to information in culturally relevant languages and platforms is a barrier to addressing water insecurity.

Communities in the region have experienced groundwater degradation for decades. In 1990, the state established the Lower Umatilla Basin Groundwater Management Area (LUBGWMA) due to high concentrations of nitrates in the groundwater. The LUBGWMA committee is comprised mostly of representatives from cities, districts, and industry in the region. Two voluntary LUBGWMA action plans, released in 1997 and 2020, have failed to meet the state-required goal of less than 7 mg/L of nitrates (the EPA limit is 10 mg/L).

Community members shared they were largely unaware of the nitrate concerns with their groundwater until spring 2022. At that time, Morrow County partnered with ORA to begin testing domestic drinking wells, reporting the results back to communities, and providing factsheets on nitrates in English and Spanish. In June 2022 Morrow County declared an emergency based on the testing results and began free water distribution. As of September 2022, ORA and Morrow County had tested 485 household wells, with more than 200 wells testing above federal safe drinking water limits for nitrates. Well testing has since expanded to Umatilla County.

In 2020, the EPA encouraged the Oregon Health Authority, Department of Environmental Quality, and Oregon Department of Agriculture to develop and implement a workplan to protect residents from nitrate-contaminated water following a petition to take emergency action. The EPA requested a more detailed plan in 2022, clarifying that the plan must include "an adequate response plan to address the immediate health risks" in the Lower Umatilla Basin. Since then, roughly $882,000 has been allocated to the Oregon Health Authority by the state's Emergency Board to address health risks caused by excessive nitrate levels in domestic wells. A detailed plan is not yet available.

According to ORA, their organization and local community members urgently support implementing a workplan that addresses immediate community needs for safe water and the following minimum components outlined by the EPA: a coordinated plan among state and local governments and private entities; a hazard assessment identifying each impacted resident; public education and outreach; water testing at no cost; the provision of alternative water needed for drinking, cooking, oral hygiene and dishwashing through reverse osmosis filter systems and maintenance at no cost, water delivery or connecting to a public water system; and public records so the public can understand the scope and severity of the nitrate contamination in the Lower Umatilla Basin and measure Oregon's progress in implementing a response plan.

### Statements from community members

Community members shared a wide array of concerns about nitrate-contaminated groundwater and how it has impacted their families. Many knew the water in the area was not safe for drinking but had

not been heard or been provided with more specific information on the dangers of nitrates to community health. Most were using their well water for cooking and other domestic needs. Many people shared concerns about health problems such as cancer. They had difficulty finding information about wells and filtration systems, particularly in Spanish, but still took initiative to purchase and install filtration systems to improve their household water. Even so, many still saw their water test above federal safe drinking water levels.

Community members meet in Boardman to call for safe drinking water, September 2022. | Source: Oregon Rural Action

The following statements are printed verbatim to allow residents the opportunity to speak for themselves on urgent issues of water security.[34]

### A. Lopez

> "I have had my property in Boardman for the last 18 years. I have my own well here in the house that we live in. I share my testimony in hope that it will help me and my community to receive the necessary resources to ensure that we are a safe rural water community.
>
> The first time I noticed there was something wrong with the water quality was when we had to clean the water heater from all the corrosion buildup from the water. My mother has had her

[34] See Appendices C and D for full written statements from community members and Oregon Rural Action.

house for about 8 years now and every 3 to 4 months I help her clean the water heater... We have had to replace all the tubing in the house which was a pricey process.

About 2 years ago, I built a home on the property... However, before I was able to get a loan for the house, I had to install a pricey filtration system that was around $5000... I recently tested my water, and the nitrates were almost 4 times the contaminant level (39.4ppm). I quickly learned that to have an effective filtration system, I have to change the filters out every 4 months. It costs me about $280 each time I change the filters, so that totals to more than $1120 of unnecessary expense if I only had clean water out my well."

**M. Martinez**

"I have been living in Boardman for the past 36 years···Unfortunately, last year I had two miscarriages. Now, hindsight, I wonder if the nitrates in the water caused me to have this problem because I used to drink the water and even cooked with the water since living here···.No one had ever warned me about the danger that existed···Maybe if I knew the information, if I had had this information before, I wouldn't have done it··· My well tested at 26."

**M. Colin**

"My parents have a long history of working in agriculture and harvesting in these areas since they arrived in the 1980s···I can't say for sure if I suffer or if my family suffers from any symptoms related to the effects of high levels of water nitrates. But what I can say with certainty is that we felt fear and concern when we received the news··· Now I have to say (to my children), don't drink that water because it hurts you....My parents and neighbors have spent a lot of money on bottled water weekly,... installed expensive water filters that only worked a few years, this being the reason our water test resulted in a 36.5.···"

**M. Brandt**

"My name is M. Brandt and I have served in the Marine Corps. My wife and I have been residents of Morrow County for the last 25 years···. In order to get my mortgage, I had to install a water filtration··· It was a frustrating experience having to come up with an additional $1,500 to get a system···I recently had my water tested and the nitrate levels are at 34.5, which are more than 3 times the contaminant level···"

**C. Sanchez**

"My name is C. Sanchez and I live here in the town of Boardman, I have been living here for more than 20 years outside of the city limits and in fact, this was the first year that I learned that this water is not good to drink···I have a four-year-old son and a son that's two months old···"

### State leadership should provide clear support to state water agencies enacting regulations that protect water security for the public

Some of Oregon's agencies related to water have broad regulatory discretion but may be prevented from using that discretion for the benefit of the public by poorly written policies and external pressures. State regulation also supports local and regional planning, but agencies must first be allowed to enact those regulations. Ensuring agencies receive an appropriate level of support, particularly around resources, capacity, and clearly written policies, can help safeguard the integrity of the regulatory function.

One example is the ongoing and chronic overallocation of water in many areas of the state, a concern that began before the introduction of the Water Code. Regions like Harney County are confronting serious water shortage issues caused by overallocation and worsened by drought. Some rivers, streams, lakes, and aquifers have more water allocated from them than exists within them. Regardless of the sensibility of these allocation amounts, they are protected by the code. The state and many local players are engaged in ongoing discussions and agreements about how to share an increasingly scarce resource among right holders. However, when these discussions break down, the state has limited recourse to address the very serious water shortages that could result.

Another example is the lengthy regulatory and legal processes around both water quantity and quality that can prevent the state from acting swiftly when water users are out of compliance with existing rules (such as that illustrated on page 18 with the Klamath Tribes). The state prioritizes taking an educational approach to address compliance concerns, which can be effective and beneficial to small farms or organizations that need time to reach compliance. State laws are also set up to protect constitutional rights and due process of individuals that may be out of compliance. However, it can sometimes take the state years to enact a regulatory measure or issue a fine to an entity that cannot or will not comply with state regulations. Those actions can also be legally challenged. The fragmentation of agencies with similar and adjacent regulatory responsibilities may also lead to confusion on the ground when trying to report a compliance concern.

Water policy and policies that impact water encompass a vast field of laws, rules, and practices. To root out and address policies that may prevent the state from taking meaningful action on water security and equity, each agency may need to work with their individual board or commission to assess where there are gaps or barriers in policy, and how water security and equity can be more effectively carried out. It may also require legislative action in some cases.

Several stakeholders told the audit team external pressures put on some water agencies prevented them from effectively carrying out their regulatory duties, and some of the processes in place to ensure the public interest is considered in water decisions are not always being used. Water agencies may also be at risk of losing funding when they make decisions that run counter to the desires of powerful stakeholders. A robust state and regional framework built on shared priorities, and clear support from the Legislature and Governor's Office, can help regulatory water agencies carry out their most critical duties to the benefit of all Oregonians. These regulations, properly implemented, can help ensure Oregon has enough clean, safe, and accessible water to meet everyone's basic needs.

## Federally recognized Tribes must be integrated as full and equal partners and co-managers in state water decision-making

Oregon's nine federally recognized Tribes are sovereign nations with which Oregon has government-to-government agreements in place. However, the Tribes have historically been left out of water planning and water rights decisions in Oregon. Of the three Tribes the audit team met with for this report, only the Klamath Tribes have fully adjudicated senior water rights, decided in court after several decades of persistent work and advocacy. Termination has also influenced the Tribes' ability to participate in decision-making around water. Concerns remain about lingering prejudices on the part of some regional players, and the ongoing exclusion of Tribes in certain regional decisions.

The Tribes' water security concerns are pressing and tied in with matters of sovereignty, Tribal cultural identity, and long-term survival. Oregon Tribes are historically and culturally dependent on regional lakes and rivers and the Pacific Marine environment, which provide anadromous First Foods central to Tribal cultures. Their access and ability to interact with those water bodies has been curtailed by federal and state actions including treaty and water right decisions and over a century of water, economic, agricultural, and energy policies that have often not included the Tribes, but which have impacted water quantity and quality and have greatly reduced Tribal water security.

The Tribes have expressed their desire and right to be more directly involved in water decisions that impact their communities. In 2021, all of Oregon's nine federally recognized Tribes sent a formal request to the Governor's Office to establish a Tribal water task force that would include the nine Tribes and the state's core water agencies. The purpose of the task force would be to educate both parties: the Tribes wanted to learn more about which state agencies intersected with water and how, and in turn wanted to educate those agencies on the full complement of Tribal water interests and issues needing acknowledgment. The Tribes, as the first inhabitants of the state, requested their voices be included in the state's 100-Year Water Vision to "ensure its comprehensive commitment to our collective human and ecosystem resiliency needs." The task force began meeting in June 2022. Coordination, co-management, restoration, education, and the integration of cultural values were some of the themes covered.

In a discussion with the State Supported Regional Water Management Workgroup in May 2022, Tribal representatives shared they honored water in their ceremonies and considered how to balance their needs and care for water as a precious source of life.

Several Oregon Tribes are involved in regional and statewide water management discussions. However, direct involvement in numerous state processes can often be difficult for some small Tribal governments with limited capacity. The state must include the Tribes in a more meaningful way around water planning and high-level decision-making for the state as a whole and for their regions specifically. Incorporating Tribes that want to be involved as key players in a regional structure could help to address some of the needs they have voiced to the state.

Tribes that never had federal recognition, or did not regain it after termination, have been largely disenfranchised from land and water stewardship. In the state of Oregon, these unrecognized tribes include the Chinook Nation and the Clatsop-Nehalem Confederated Tribes of Oregon. Both Tribes have attempted to gain federal recognition.

Including the Tribes more directly in state and regional water decisions as co-managers would allow state leaders and agencies to learn more about their practices and begin to incorporate them more broadly and where appropriate for local ecosystems. It would also provide greater opportunity for Tribes to influence state and regional decisions that affect their communities.

**Tribal Termination and Restoration**

In the 1950s and 1960s, the federal government ended its recognition of the sovereignty of over 100 Tribes with the stated intent of assimilating their peoples into mainstream American society. Several Oregon Tribes were subject to termination in the 1950s, including the Coquille, Cow Creek, Coos, Lower Umpqua, Siuslaw, Grand Ronde, Siletz, and Klamath. For tribes like Cow Creek, termination "declared there were no more Indians left in western Oregon."

Termination had disastrous economic, environmental, cultural, and personal impacts on those targeted. Tribes like the Klamath lost their land almost overnight, in what they considered to be a bid to gain control over their remaining natural resources. Tribes lost federal support for health care and education programs, utilities, and other support services previously available to them on reservation lands. In all, about 2.5 million acres of land were taken by the federal government from Tribal holding nationwide. Termination also delayed Tribal access to full water rights and set back potential investments in water security measures.

Tribes petitioned and advocated for years to regain their recognized sovereign status, and several in Oregon succeeded. Some regained ownership of some of their historic lands after the restoration of federal recognition in the 1980s, though these tended to be small, noncontiguous parcels.

Tribes in Oregon seek to regain access and use of their ancestral lands and participate as leaders and equals in land and water stewardship efforts. Both recognized and non-recognized Tribes are actively buying back portions of their historic lands. For some, the goal is the full restoration of traditional, aboriginal lands to Tribal stewardship. Expanding upon their current land holdings would allow Tribes to more fully implement Tribal land and water management programs and practices.

Other states are beginning to include Tribes more directly in regional water and land management decisions. In 2020, California released a Statement of Administration Policy on Native American Ancestral Lands,[35] which encouraged California state entities to support Tribal co-management and access to natural lands within Tribal ancestral territory under the ownership or control of the state. Administration policy also encourages state entities to work cooperatively with California Tribes that seek to acquire natural lands "in excess of State needs."

In September 2022, the Yurok Tribe entered into a Memorandum of Agreement with California State Parks to support the integration of Yurok Traditional Ecological knowledge into their natural resource management practices in the Yurok Tribe's ancestral lands. Shortly after, five Tribes in the newly established Tribal Marine Stewards Network reached an agreement with the state of California to allow them to manage more than 200 miles of coastal lands. This will include monitoring salmon migrations, testing for toxins in shellfish, and providing cultural educational resources.

[35] Governor Newsom released the Statement of Administration Policy on Native American Ancestral Lands on September 25th, 2020. https://www.gov.ca.gov/wp-content/uploads/2020/09/9.25.20-Native-Ancestral-Lands-Policy.pdf

## Tribal land and water management practices acknowledge the human relationship to ecosystems and our role in maintaining ecological health

There is a clear recognition among Oregon Tribes of the close linkages between the ecosystems in which they live, their cultural expressions and traditions, and their well-being as a people. The Tribes tend to view water, land, and ecosystem and human needs as integrated and interrelated; humans are not separate from a functioning ecosystem but are instead part of it. They also use traditional and ecologically appropriate water, land, and ecosystem management practices.

For example, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) developed a mission for their Department of Natural Resources to "protect, restore, and enhance the First Foods — water, salmon, deer, cous, and huckleberry — for the perpetual cultural, economic, and sovereign benefit of the CTUIR." CTUIR proposed to accomplish this mission using "traditional ecological and cultural knowledge and science to inform… population and habitat management… natural resource policies and regulatory mechanisms" and subsequently created the Umatilla River Vision (2008) and Upland Vision (2019) to provide management guidance for water quality and habitat restoration in its areas of rights and interest.

The water vision introduced a framework that sought to "reflect the unique tribal values associated with natural resources and to emphasize ecological processes and services that are undervalued by westernized Euro-American natural resource strategies." CTUIR has engaged in many water planning and management actions in alignment with their River Vision and values.

Tribally managed forest land (center) withstood the destruction of the Bootleg Fire. | Source: Klamath Tribe

These practices may also be more resilient in the face of climate change. For example, the Klamath Tribes use a combination of thinning and prescribed fire treatment on their forestland. When the Bootleg Fire swept through Klamath County in 2021, it burned over 400,000 acres of forestland, with minimal damage to Tribally managed forest.

According to the Sixth Oregon Climate Assessment, "…tribal adaptation to environmental and social change over millennia can enable unusually high resilience." Tribal communities are responding to water insecurity and climate change with ceremony, political action, workforce development, environmental stewardship, and youth education and fellowship.

Bitterroot harvest in NE Oregon. | Source: CTUIR Upland Vision, 2019.

Though resilient, Tribal communities and culture are still distinctly at risk. State leadership has recently been more responsive to Tribal requests and concerns, but the Tribes do not consider the state's water management work to focus enough on integrated ecosystem health and recovering fisheries. The decline of such species as salmon, lamprey eels, and suckerfish represents not only the impending loss of critical first foods, but signals many of Oregon's ecosystems, and the cultures and communities they support, are under immediate and profound threat. This trend bears direct and devastating consequences for Tribes, neighboring communities, and ultimately for all the people of Oregon.

The state's natural resource agencies also tend to be chronically underfunded and understaffed to meet the array of responsibilities that they have. This contributes to agencies managing water in a reactive way, primarily responding to complaints, and failing to manage water proactively for long-term human and ecosystem needs. The state must pursue a fundamental shift in water resource management over the long term to better protect water security.

Tribal leadership of the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians shared, "The State of Oregon has a responsibility to all the people of Oregon to protect water, the life blood of Mother Earth. The water in Tenmile Lake being polluted six months of the year is not acceptable. The State of Oregon is not a third world country."[36]

[36] See Appendices A and B for written statements on water security prepared by the Confederated Tribes of the Umatilla Indian Reservation and the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians.

## Tribal Engagement in Local Water Solutions

Water is Life!

Oregon Tribes, as Oregon's original stewards, are actively engaged in seeking out and implementing solutions to water and ecological problems that impact their communities and local ecosystems and seek to expand on their efforts. As stated by the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians: "We would like to be at the table and help make decisions as it relates to water allocation and permitting within our ancestral territory."

### The Klamath Tribes

- Enacting a fully developed a forest management plan for their former reservation lands now part of the Winema and Fremont National Forests
- Working with some local landowners to apply traditional land, timber, and water management practices, like slash burning and building beaver analog dams
- Setting up a Tribal fish farm to raise young suckerfish to be reintroduced to the lake when the time is right
- Lobbying the state and federal government to review and change policies and practices that are detrimental to the ecosystem

### The Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians

- Envisioning the renaming of their waterways in local languages and considering Environmental Personhood[37]
- Working closely with the Oregon Department of Environmental Quality and EPA to develop their own Tribal Water Quality Standards, which are currently out for public comment
- Acting as stewards to all lands, plants, animals, and waters in and out of their ceded lands

### The Confederated Tribes of the Umatilla Indian Reservation

- Developing their own Water Code and water quality standards
- Developing the Umatilla River Vision and Uplands Vision that shares the Tribe's goals for water and local ecosystems in the Umatilla basin and acknowledges the complex and integral nature of water resources and First Foods
- Participating in a variety of efforts around strategic planning, regulation, research, river restoration and management, budget and decision support for Oregon's water agencies, water rights negotiations
- Committing to settling its Umatilla Basin water rights claims to the greater benefit of the Tribe and the region

[37] Environmental personhood is a legal concept that designates environmental entities the status of a legal person, with the same rights, protections, and privileges.

# What Are Our Recommended Actions?

The Oregon Legislature, Governor's Office, and relevant state agencies must adopt holistic and integrated policies and practices in line with good water governance principles. Oregon should build on previous and ongoing efforts to develop a state and regional water planning framework.

By adhering more closely to good governance principles and developing a regional framework set up to support water security and address water quality, quantity and ecosystems needs, the state can craft an approach to water governance that will benefit current and future generations. These principles and actions can support statewide water security and help balance the state's water needs.

As part of this work, state leadership needs to accomplish the following:

1. Sustain legislative commitment and develop shared priorities to guide Oregon in making holistic and inclusive water decisions promoting water security.
2. Connect a regional planning system with an integrated state water plan to guide water decisions and policy development.
3. Convene a formal planning and coordination body to guide the statewide plan and provide consistent support for regional governance needs.
4. Define and clearly establish agency roles and responsibilities in state and regional water plan development and implementation.
5. Take steps to balance interests and address high-priority water security needs by increasing public engagement in state and regional water management decisions.
6. Enhance public awareness and understanding of the state's urgent water challenges.
7. Explore opportunities to prioritize water security and equity more clearly in state policy, such as enshrining the human right to water in law and other policy changes that could expand protections for community and ecosystem health.
8. Improve water data to help Oregon agencies and communities better understand statewide and regional water needs and support strategic decision-making.
9. Adopt a strategic approach to water funding and a consistent funding base to support desired outcomes.
10. Show clear support for state water agencies tasked with carrying out regulatory responsibilities.
11. Integrate federally recognized Tribes as full and equal partners and co-managers in water decision-making.

This report is intended to promote the best possible management of public resources.
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