



10TH ANNUAL NORTH SANTIAM SUMMIT PARTNER UPDATE



April 30, 2020

Appendix C: 10th Annual North Santiam Basin Summit Report

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City of Salem

Contact Information

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2020 Update

What Everyone Should Know

The City of Salem's Geren Island Water Treatment Plant Improvements Project Continues to move forward with design having reached the 100% complete milestone. Groundbreaking for the new ozone contactor basin took place on April 13th which officially kicks off the ozone treatment construction project.

Startup of this new state of the art ozone facility is scheduled for late spring of 2021.

The City's near-term improvements which include powdered activated carbon, biological filtration and chlorination have proven successful with all cyanotoxins being eliminated. This treatment process will continue to be utilized through the 2020 cyanotoxin season.

The State of Oregon is providing \$20 million for this vital project. That accounts for almost half the costs for the ozone facility. We want to thank State leadership for making this critical investment in safe drinking water for our community.

Plans for the Future

Future water treatment projects will include a groundwater collection well system within the treatment facility. These wells will provide groundwater to supplement North Santiam river water. It is anticipated that construction of these wells will begin in the fall of 2020.

Confederated Tribes of Grand Ronde

Contact Information

Organization: Confederated Tribes of Grand Ronde(CTGR)
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2020 Update

What Everyone Should Know

The Tribe is an active partner in restoring rare historical habitats and traditional resources within the Tribe's ceded lands. The Tribe has been partnering with the Bonneville Power Administration to implement fish and wildlife mitigation measures that have been affected by the construction, inundation, and operation of the federal hydropower system.

The Tribe owns and manages approximately 850 acres of mitigation or conservation land along the North Santiam River. The goal on these conservation properties is to restore historical floodplain and oak/prairie habitats to benefit native focal species.

Plans for the Future

The Tribal Natural Resources Department have developed management plans for the Chahalpam and Chankawan properties. These plans outline restoration goals and objectives for floodplain, oak savanna/prairie, and oak woodland habitats once present in the local area.

Confederated Tribes of Warm Springs Reservation of Oregon

Contact Information

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2020 Update

What Everyone Should Know

The Tribes own a property named Little Sweden in the North Santiam Watershed. This property is 183 acres. Currently the tribes are working to finalize a land management plan for this property with 2020 management actions that include allowing public access, weed management, and public outreach to tribal members. The land management plan is in the final stages and is on track to be approved by the end of 2020 by Bonneville Power Administration and Oregon Department of Fish and Wildlife.

Plans for the Future

Future plans for this property include increasing an understanding of what fish and wildlife species utilize the property, protect and preserve the wetlands and rock outcrops, and increase public knowledge about the property.

Marion County Emergency Management

Contact Information

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Related	Website : Marion County Emergency Management
Materials:	This site will be revised this year. You can follow Emergency Management on Facebook, Twitter and Instagram.

2020 Update

What Everyone Should Know

Marion County Emergency Management operates an all hazard prevention, protection, response, mitigation, and recovery program. Partnering with the whole community; public-private, non-profit, and faith-based to meet the needs of our community. There are 20 cities in Marion County and our program has liaisons to assist the cities with emergency management planning such as, emergency operations plan and hazard mitigation plan. We are long term planners and depend on partners to strengthen our abilities to respond and recover.

Plans for the Future

Marion County updated our Emergency Operations Plan in March and in 2021 we will be starting the update of our Hazard Mitigation Plan due by August 2022. The plan is to add more city addendums to the county plan during this update and to evaluate and analyze water and communication critical infrastructure systems within Marion County.

In 2017, our plan identified four critical infrastructure systems: water, communication, transportation, and energy (utility and fuel). However, during the water crisis water systems identified gaps within prevention, protection, and mitigation missions. The hazard mitigation plan will work with water/special districts on long term, short term and ongoing action items that could enhance their critical infrastructure. Further it has been identified during day to day that our communications system for first responders and operations are deficient.

Oregon Department of Environmental Quality

Contact Information

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Links to Related Materials:	Water quality assessments relative to Willamette Basin mercury for DEQ's 2012 Integrated Report Oregon Health Authority fish consumption advisories Nov. 22 2019 DEQ Revised Willamette Basin Mercury TMDL disapproved by EPA on Nov 29, 2019 Dec 30 2019, EPA Willamette Basin Mercury TMDL

2020 Update

What Everyone Should Know

1. 1998: Starting in 1998 the Oregon Department of Environmental Quality identified that Willamette River water quality (from its mouth on the Columbia River southward to Eugene, and Coast Fork, Dorena Reservoir, and Cottage Grove Reservoir) is limited for Mercury and Oregon Health Authority advisories for fish consumption are in place because of high mercury levels in fish tissue.
2. 2006-2017: DEQ analysis of work, more stringent criterion changes in fish consumption, and U.S. District Court proceedings initiated by Northwest Environmental Advocates vs. USEPA between 2006 and 2017 resulted in a voluntary remand and revision of the 2006 Willamette Basin Total Maximum Daily Load (TMDL) for achieving Mercury targets based on revised fish consumption criterion: 1) 0.040 mg/kg (wet weight) MeHg (Oregon Administrative Rules [OAR] 340-041-8033, Table 40) and 2) water column criteria for the protection of aquatic life of 2.4 µg/L (acute) and 0.012 µg/L (chronic) total mercury (THg) (OAR 340-041-8033, Table 30).
3. 2018-Nov 2019: DEQ issued the Revised Willamette Basin Mercury TMDL on Nov 22, 2019 and EPA disapproved this DEQ TMDL on Nov 22, 2019.
4. Dec 2019: On Dec 30, 2019, EPA established the Willamette Basin Mercury TMDL, which utilized some of DEQ's Nov 2019 TMDL and established major changes to the DEQ load and waste load allocations (more stringent mercury reduction values).

Plans for the Future

1. Dec 2019: The 2006 Willamette Mercury TMDL based on past criterion and remanded in federal court for revision, was replaced when EPA established their TMDL on Dec 30, 2019.
2. Feb 2020: EPA identified DEQ's Nov 2019 Mercury TMDL Water Quality Management Plan as being sufficient to meet TMDL goals, and DEQ will directly contact Designated Management Agencies and responsible persons identified in the WQMP as having a role in reducing mercury once EPA finalizes the public comment information collected between Jan. 6, 2020 through Feb. 4, 2020 for their Dec 2019 TMDL.
3. DEQ is conducting TMDL implementation planning at this time, and will reach out directly to DMAs, RPs and other stakeholders required to implement the revised TMDL.
4. DEQ is working internally on stormwater strategies for nonpoint source and Municipal Separate Storm Sewer System (MS4) permits.

Oregon Department of Environmental Quality

Contact Information

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2020 Update

What Everyone Should Know

DEQ responds to fuel spills along Oregon's highways. In February we had a gasoline and diesel tanker truck crash a few miles east of Idanah, near the site of the 2017 spill. We conducted a large soil cleanup in February, removing over 6,200 tons of petroleum contaminated soil from the spill site. Unfortunately, some of the fuel reached the river, and continues to discharge to the river from the bedrock, in the form of a sheen along the bank at the crash site. The sheen has been steadily decreasing since the spill occurred but tends to bump up a little when there is a significant rain event. Petroleum was detected in river water at elevated concentrations along the crash site and at much lower concentrations downstream, decreasing with distance from the site. Levels of petroleum in the river are also decreasing through time. No contamination was ever detected beyond a few miles downstream of the spill location.

Plans for the Future

Surface water monitoring continues, as does boom and absorbent maintenance along the spill area to limit the amount of petroleum discharging to the river. These efforts will continue for the foreseeable future, until sheening is not consistently observed along the banks near the crash site, which will likely be through the summer and into the fall of 2020, and possibly beyond.

I have a lot of data on the site, which I am happy to share upon emailed request.

Oregon Department of Fish and Wildlife

Contact Information

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2020 Update

What Everyone Should Know

The winter steelhead run as of early April is stronger than we have seen in a few years. As of mid-April, more than 5,000 winter steelhead had crossed Willamette Falls.

In 2017 and 2018 sea surface temperatures seemed to gradually be reverting to their historical average, however subsurface temperatures were higher than average and indicated heat being stored in the ocean.

Plans for the Future

The Pacific Ocean looked to be improving last year then flipped back to poorer conditions. (See table)

The Willamette River Spring Chinook Forecast for 2020 is 40,750 adults.

Ocean Conditions for Salmon Growth and Survival (Source: National Marine Fisheries Service)

Ecosystem Indicators	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
PDO (Sum Dec-March)	19	6	3	13	7	21	12	17	14	9	5	1	16	4	2	8	10	22	20	18	11	15
PDO (Sum May-Sept)	10	4	6	5	11	17	16	18	12	14	2	9	7	3	1	8	20	22	21	15	13	19
ONI (Average Jan-June)	21	1	1	7	14	16	15	17	9	12	3	11	18	4	6	8	10	19	22	13	5	20
SST NDBC buoys (*C; May-Sept)	17	6	8	4	5	11	22	12	2	14	1	10	3	7	9	16	20	19	18	13	15	21
Upper 20 m T (*C; Nov-Mar)	21	11	8	10	6	15	16	13	12	5	1	9	18	4	3	7	2	22	20	19	14	17
Upper 20 m T (*C; May-Sept)	16	11	13	4	1	3	22	19	8	10	2	5	17	7	6	18	20	9	14	12	15	21
Deep temperature (*C; May-Sept)	22	6	8	4	1	10	12	16	11	5	2	7	14	9	3	15	21	19	13	18	20	17
Deep salinity (May-Sept)	21	3	11	4	5	18	19	12	7	1	2	16	20	15	14	13	22	17	9	8	6	10
Copepod richness anom. (no. species; May-Sept)	20	2	1	7	6	15	14	19	16	10	8	9	18	4	5	3	11	21	22	17	13	12
N. copepod biomass anom. (mgC m ⁻³ ; May-Sept)	20	15	11	12	4	17	14	21	16	13	7	10	9	1	3	5	6	18	22	19	8	2
S. copepod biomass anom. (mgC m ⁻³ ; May-Sept)	22	2	5	4	3	15	16	21	14	10	1	7	17	9	8	6	11	19	20	18	13	12
Biological transition (day of year)	19	11	6	7	8	15	12	20	14	3	1	2	17	4	9	5	10	21	21	18	13	15
Nearshore Ichthyoplankton Log(mgC 1,000 m ⁻³ ; Jan-Mar)	17	4	11	6	1	21	22	16	8	18	3	13	2	7	5	10	19	14	15	12	9	20
Nearshore & offshore Ichthyoplankton community index (PCO axis 1 scores; Jan-Mar)	11	6	5	9	8	13	16	20	1	14	3	12	15	4	2	7	10	18	21	22	17	19
Chinook salmon juvenile catches (no. km ⁻² ; June)	20	4	5	17	8	12	18	21	13	11	1	6	7	16	2	3	10	14	19	22	15	9
Coho salmon juvenile catches (no. km ⁻² ; June)	20	8	14	6	7	3	17	21	18	4	5	10	11	16	19	1	13	9	15	22	2	12
Mean of ranks	18.5	6.3	7.3	7.4	5.9	13.9	16.4	17.7	10.9	9.6	2.9	8.6	13.1	7.1	6.1	8.3	13.4	17.7	18.3	16.6	11.8	15.1
Rank of the mean rank	22	4	6	7	2	15	17	19	11	10	1	9	13	5	3	8	14	19	21	18	12	16
Ecosystem Indicators not included in the mean of ranks or statistical analyses																						
Physical Spring Trans. UI based (day of year)	3	7	21	18	4	13	16	22	13	1	6	2	8	11	19	9	20	10	5	17	11	13
Physical Spring Trans. Hydrographic (day of year)	21	3	13	8	5	12	15	22	6	9	1	9	19	3	11	2	17	7	18	20	15	14
Upwelling Anomaly (April-May)	11	3	18	7	10	15	14	22	11	5	8	9	16	18	16	13	20	1	2	21	6	4
Length of Upwelling Season UI based (days)	6	2	20	13	1	15	11	22	5	3	9	3	17	19	17	16	21	12	8	14	7	10
Copepod Community Index (MDS axis 1 scores; May-Sept)	21	3	5	8	2	16	14	20	17	10	1	7	13	9	6	4	11	19	22	18	12	15

Oregon Department of Forestry-Santiam Unit

Contact Information

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2020 Update

What Everyone Should Know

The Santiam Canyon Defensible Space and Prevention Education grant, funded by Western States Fire Managers (WSFM), has been well received within the Santiam Canyon. The project is on track to meet its fuel reduction goal of 175 acres, with over 100 acres in progress and over 90 acres completed with the help of rebates and cost-shares. Wildfire risk reduction outreach continues through prevention education, property risk assessments, and Firewise community projects.

Plans for the Future

A new WSFM grant proposal, Santiam Canyon Coffee Creek Defensible Space & Fuels Reduction, is currently being prepared for submittal. If funded, the proposal will provide fire prevention education, defensible space creation and fuels reduction, accomplished in coordination with Coffee Creek Correctional Facility.

This grant opportunity would have a high impact on those that need it most, allowing low-income, elderly and disabled landowners to increase the safety of their families and homes when they might otherwise be unable to participate.

Oregon State University

Contact Information

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2020 Update

What Everyone Should Know

This is an ongoing project in which we are modeling the North Santiam and McKenzie watersheds to investigate the effects of wildfire and climate change on source water quality. Specifically, we will run several wildfire and climate scenarios to quantify the range of potential effects on suspended sediment, organic carbon, nitrogen, and phosphorus. We will also try to quantify potential catchment characteristics (i.e., slope, aspect, topographic wetness, forest cover) that may drive differences in sub-watershed responses. Our model outputs will improve understanding of the range of potential water quality responses to wildfire, which should facilitate improved water and land management decisions.

Plans for the Future

As this is an ongoing project, we are nearing completion of collection and organization of the many necessary data sources. Over the next year we will calibrate and validate the model. We will then simulate different sizes and severities of wildfires spatially across both the North Santiam and McKenzie watersheds. This work will improve understanding of the vulnerability of source water catchments to effects of wildfire on source water quality, which can help inform forest and water management decisions.

Oregon Watershed Board

Contact Information

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Links to Related [Oregon Water Vision](#)

Materials: [OWEB COVID-19](#)

2020 Update

What Everyone Should Know

The Oregon Watershed Enhancement Board (OWEB) cares about and invests state funding in the health of the land in Oregon's watersheds and the water that flows through it. OWEB provides grants statewide, primarily funded by the Oregon Lottery, to help protect and restore healthy watersheds and natural habitats that support thriving communities and strong economies.

Current updates related to the North Santiam Summit:

1. **COVID-19 Information-** We are in an unprecedented situation with the COVID-19 outbreak and associated Stay at Home orders that are keeping our family, friends, and neighbors safe. As a part of those orders, in mid-March, Governor Brown worked with Oregon Lottery to power down all video lottery machines as bars and restaurants were closing. The estimated Lottery revenue impact of those closures is still unknown. As a result of budget uncertainties, OWEB is pausing financial awards and budget decisions. More information can be found [here](#).
2. **Oregon's 100-Year Water Vision-** In Fall 2019, OWEB led an effort on behalf of Governor Brown to gather feedback on the first draft of Oregon's 100-Year Water Vision, and to design a process for effectively engaging Oregonians. Water is one of the most complex issues in the state, and requires this level of engagement. A summary of the fall engagement can be found [here](#). Along with other initiatives, funding for Phase II of the Water Vision was not provided in the 2020 Legislative Session. Stay tuned for more information about this process through the summer and fall.

Plans for the Future

OWEB will provide updates on funding and grant programs as soon as information is available.

Santiam Water Control District

Contact Information

Organization: Santiam Water Control District

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Links to Related Materials: [System Demographic Map](#)

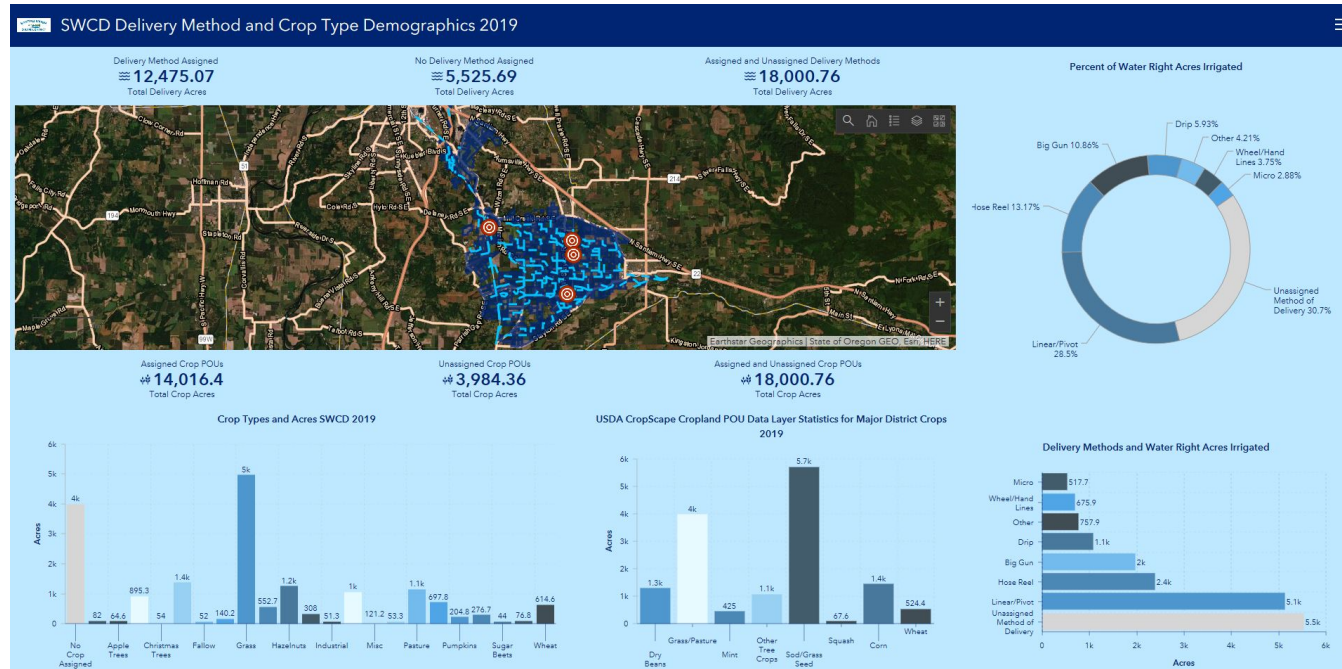
2020 Update

What Everyone Should Know

District has automated thirteen sites and the improved water management capabilities have saved water. Norpac cannery closing has had a negative impact on the farm community.

Plans for the Future

Irrigation system optimization planning is taking place, the District is planning to pipe our system ditches. System planning will identify the amount of water and electricity we can save by piping our system. 10% designs will be completed.



The Prediction Lab

Contact Information

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Links to Related Materials: [New HAB prediction website for Detroit Lake](#)
[Old HAB prediction website for Detroit Lake](#)
[The Prediction Lab's website](#)

2020 Update

What Everyone Should Know

The Prediction Lab has developed a Harmful Algal Bloom prediction system for Detroit Lake, working with the City of Salem: <https://detroitlake.thepredictionlab.com>. The prediction system uses novel machine learning methods that consume data provided by The City of Salem on water and weather conditions, as well as data from publicly available satellite imagery to provide estimates of the concentration of specific algal species and toxin levels at one- and two-week time horizons for three locations in Detroit Lake. The HAB prediction system was designed to transform data into actionable information for improved decision making and informed risk management.

Plans for the Future

The new prediction system will be operational for the 2020 HAB season. Looking to the future, we plan to develop seasonal /6-month forecasts for long-term planning, as well as a regional prediction product, where estimates of algal and toxin concentrations as well as other dimensions of water quality including temperature, turbidity and pH, are predicted for numerous waterbodies in the Willamette Valley.

USGS Oregon Water Science Center

Contact Information

Organization: USGS Oregon Water Science Center

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Links to Related [Project Web Site](#)

Materials: [Detroit Lake Water Quality Profiler](#)
[Niagara Water Quality Monitor](#) (via the Data Grapher)

2020 Update

What Everyone Should Know

Real time water quality data are now available for Detroit Lake and downstream in the North Santiam River at Niagara (links above) provides early warning of a bloom. A web-based tool that plots the time series by depth, and that has a slider button to quickly portray the profiles, allowing visualization of the bloom development and behavior over time and by depth, is close to public release. A similar network is operating in the McKenzie Basin's Cougar Reservoir, with downstream monitoring of Blue River and South Fork McKenzie River downstream of Cougar Reservoir.

Plans for the Future

Plans are to continue to maintain the network of monitors and conduct periodic surveys or sampling synoptics of the lake to complement the monitoring underway by Salem. Plans are to deploy passive samplers – Solid Phase Adsorption Toxin Trackers - to detect cyanotoxins (microcystins, cylindrospermopsins, saxitoxins, and anatoxins) in conjunction with EPA/ODEQ's Innovation Grant looking at discrete cyanotoxin and gene concentrations in Detroit Lake. Continue collecting cyanobacteria samples for advanced evaluation, including microscopic hyperspectral signatures (COVID aside) in collaborations with NIST and the USGS National Civil Applications Center in Reston, VA.

Exciting collaboration underway at Detroit Lake with NASA/Teledyne Brown, OSU, Gybe Inc., Salem, and EWEB to ground truth hyperspectral/"superspectral" signatures with the new DESIS camera onboard the International Space Station. Other even higher resolution HS imagery through the Civil Applications Center (CAC) and the US Army Corps of Engineers Research and Development Center is also being pursued. And Barry Rosen/Emeritus USGS and World Class Scholar and Phycologist in Fort Myers, FL is culturing samples to elucidate taxonomy, toxin gene production and expression. Exciting times for Detroit Lake!