DESCHUTES RIVER
CONSERVANCY

August 11, 2023

Oregon Water Resources Department
Laura Hartt - Water Policy Analyst / Rules Coordinator
725 Summer St. NE, Suite A
Salem, OR 97301

via email to: Laura.A.Hartt@water.oregon.gov

RE: Groundwater Allocation Rules Advisory Committee meeting comments for the August 2nd, 2023 RAC

Ms. Hartt:

The Deschutes River Conservancy is a non-profit based in Bend, Oregon. The Deschutes River Conservancy (DRC) restores streamflow and improves water quality in the Deschutes Basin using a coordinated, collaborative and voluntary approach. Founded in 1996 as a consensus-based, multi-stakeholder organization, the DRC's Board of Directors includes diverse representation from tribal, environmental, irrigated agriculture, and hydropower interests as well as federal, state and local government.

Thank you for the opportunity to participate in and provide comment on the Groundwater Allocation Rulemaking with a seat on the Rules Advisory Committee (RAC). The Deschutes Basin, like many throughout the state, faces unique challenges and barriers in its effort to balance water needs to support agriculture, rivers and communities while maintaining resiliency. A changing climate and growing populations only increase the urgency of this work.

We, with our partners, in the Deschutes Basin have a long history of collaborative success developing and implementing water conservation and water marketing projects that restore streamflows, support agriculture and help meet the needs of growing cities. We recently completed the Upper Deschutes River Basin Study, in partnership with the state and the Bureau of Reclamation, which quantified current and future water supply and demand, analyzed tools for addressing shortages, and evaluated scenarios for meeting long-term needs. These studies have left us data-rich. The Basin Study is succeeded by the Deschutes Basin Water Collaborative, a group of 46 stakeholders currently working to use this information to develop a comprehensive Deschutes Basin Water Plan that prioritizes integrated implementation strategies. The group will look to support policies that advance these strategies. In the Deschutes, we believe we are on track to be a model for how we can solve water issues for rivers, aquifers and communities at the basin level through close collaboration.

We appreciate rules that are protective of existing water right holders, both in and out of stream, and the forward-looking sustainability approach to reviewing groundwater allocations and are committed to work in a collaborative space to find creative solutions to water supply issues in the Deschutes Basin. DRC appreciates the recent edit to 690-008-0001(9)(d) which now reads - *Part (a) of this definition may be superseded by a basin program rule adopted pursuant to the Commission's authority in ORS 536.300 and 536.310… The Deschutes Basin program rule(s) is noted in 690-400-000(3).*

This allows for more data to be collected or supplied within a basin and supports the decades of efforts in the Deschutes Basin to find creative and collaborative solutions that have multiple benefits and involve stakeholder participation.

The DRC works diligently to help move water from areas of excess to areas of need. Looking to the future, with rapidly growing cities and limited water supplies, we understand the cautious review of new groundwater allocations is necessary. We would also like to suggest that supporting growing communities with *established* population centers (quasi-municipal or municipal) should be of priority over issuance of new groundwater rights to small irrigation uses or undeveloped or not-yet-developed quasi-municipal uses.

The impact of these rules on our growing central Oregon cities will affect current and future water use. State funding is available for irrigation conservation efforts – it makes sense to also have funding available to improve and expand conservation efforts within urban areas to help these growth centers meet new demands.

While these rules do not apply to exempt well uses, these should also remain on the radar of the state. Water uses that might best be served with a group domestic or small quasi-municipal water right could evade the requirements of a permit by installing clustered exempt domestic wells which are not subject to the same rules.

Thank you for your consideration of these comments and for allowing the DRC the opportunity to participate and comment during this rulemaking process.

With sincere appreciation,

Genevieve Hubert
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11 August 2023

Laura Hartt, Water Policy Analyst & Rules Coordinator
Oregon Water Resources Department

Ms. Hartt,

OEC is grateful to have been engaged with the Department and other stakeholders on the 2023 Groundwater Allocation Rulemaking Advisory Committee. OEC is strongly committed to ensuring a sustainable, coordinated and science-based approach to allocating and managing Oregon's groundwater resources. In the Department's draft revised rules for Divisions 8, 9, 300, 400 and 410, we see definite progress towards those management goals, which we support and appreciate. We also acknowledge the Department's clear commitment to protecting senior water rights holders.

We offer the following comments on specific issues for your consideration:

Strong and reliable data is the basis for a science-based approach to resource management. However, in the face of climate change-induced changes to global, regional and local precipitation patterns as well as shifts in agricultural practices, statewide demographics and economic priorities, we consider it unwise and impractical to not include a significant level of caution in allocation decisions. Erring on the side of caution rather than on the side of overconfidence is the best approach, and that will require flexibility and adaptation in the face of new data. We must continue to incorporate future climate predictions into our water management decision-making approach.

We strongly disagree with comments from the last RAC meeting that suggest that sustainability is in the eye of the beholder, and likely a myth, at best. Taken at its most simple, sustainability can be seen as not living beyond one's means, in this case, not using more groundwater than we are confident can be replaced on a timescale commensurate with human and ecosystem needs.

Any protections provided to out-or-stream water rights should be expanded to explicitly include in-stream rights as well.

Addressing impacts to surface water from groundwater withdrawals should not require a critical groundwater designation. Any impacts to surface water, including in-stream water rights should be taken into account when determining whether further groundwater allocation is appropriate.

We do not support any changes to the rules that will allow basin program rules to be less stringent than the statewide standard contained in the rule.

Provide a definition or point to a definition of the term “economic level of the senior appropriators.”

Incorporate the flow chart (or better yet, a written description of how the new process works and its relationship to other rules and definitions as well as the flow chart) into the rules.

Throughout the RAC’s discussions, the Department’s staff have been responsive, transparent and open to input from RAC members. As a result, these draft rules are moving Oregon towards a better management approach to the state’s groundwater resources. Thanks to all Department staff for their commitment to this process.

Karen Lewotsky
Water Program Director & Rural Partnerships Lead

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August 11, 2023

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RE: Comments on Proposed Groundwater Allocation Rules

Dear Ms. Hartt:

On behalf of the Oregon Ground Water Association, I am providing the following comments in response to the proposed draft rules presented and other topics discussed in the fifth RAC meeting on August 2, 2023.

Economic Impacts to Well Construction Industry

The implementation of the proposed rules will result in negative economic impacts to the well construction industry from lost revenues resulting from a significant reduction in the number of wells drilled for new groundwater permits. I have assumed that the rules will result in a 90% reduction in the number of new groundwater permits being issued, resulting in a similar reduction in the number of wells drilled for new permitted uses. This may be underestimating the impacts, as it could be more like a 95%, or greater, reduction in the number of wells drilled for new permits.

Travis Kelly, Well Construction Program Coordinator, Oregon Water Resources Department (OWRD), has provided me with data indicating that the average number of irrigation wells drilled per year in the last five years leading up to 2020 (i.e., post pandemic) was about 166. I did not get any data for commercial use permits, but it is probably reasonable to estimate that the average number of permitted wells drilled each year, including for irrigation and commercial/industrial uses, is about 180.

I contacted a well constructor who drills many wells every year throughout the Willamette Valley to get an idea of the proportion of permitted wells that are drilled for new permits, as opposed to wells drilled for transfers or replacement wells. Based on the information from this driller, I have estimated that about 65% of permitted wells drilled each year are constructed for new groundwater permits. Accordingly, about 117 wells (65% of 180) are drilled each year in Oregon for permitted uses. A 90% reduction in this number results in 105 fewer permitted wells being drilled each year as a result of the proposed rules.

I contacted three drillers who operate in different regions to make an estimate of the average cost of a permitted well. One was the aforementioned driller in the Willamette Valley; one works primarily in southeastern Oregon; and one constructs high-capacity wells in eastern Oregon. Costs for irrigation wells range widely from less than $50,000 for relatively shallow, small diameter wells, up to $1 million for a deep (1,000 feet or more), large diameter well (16-inch or larger casing). Relatively few of the deep, large diameter wells are drilled each year, so the average cost is skewed by the larger number of shallower, smaller diameter wells. Based on the information

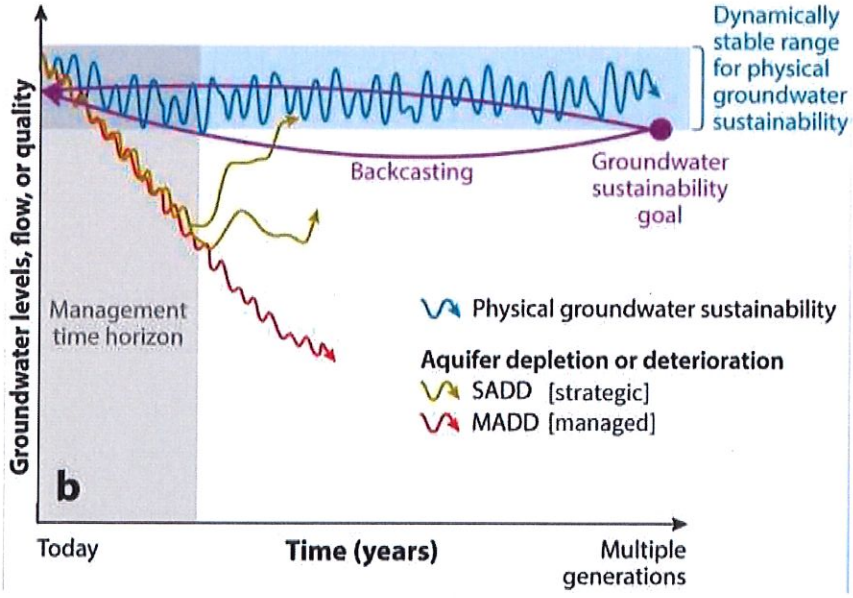
obtained from the three drillers, I estimate the average cost for a permitted well in Oregon is about $140,000 (including well construction, pump installation, controls, and power connection).

At an average cost of $140,000 per well, constructing 105 fewer permitted wells in a year will result in a potential loss of revenues of $14.7 million. While my estimates are somewhat rough, and rely on some assumptions that are difficult to verify at this point, I think it is reasonable to say that the proposed rules will result in annual losses of potential revenue to the well construction industry of $10 million to $15 million.

Use of WARS in Determination of Groundwater Availability

I also want to comment about our concerns with the Department relying on the current surface water availability data (Water Availability Reporting System, or WARS) for determining if a proposed new use will have the potential for substantial interference with a nearby stream. According to proposed OAR 690-008-001(10)(a)(A), a proposed new use of groundwater will be found by the Department to cause "Substantial Interference" with a nearby surface water source if the proposed, hydraulically connected well will contribute to depletion of the surface water source that is already over-appropriated during any period of the year. Further, under the Division 9 rules, a finding of the potential for substantial interference with a surface water source may mean that water is not available for the proposed groundwater use if the use will substantially interfere with the surface water source according to the definitions in OAR 690-008-0001. The WARS data will be used to determine if the surface water source in question is already over-appropriated during any period of the year. The list of surface water sources in the State that are not "already over-appropriated" according to WARS is very short. It includes the Willamette River, the Columbia River, and I suppose a few others that I am not aware of. But needless to say, except for the Willamette and Columbia Rivers, practically all surface water in the State is "already over-appropriated" according to WARS.

I would like to direct our attention for a moment to a figure from the Meeting 5 presentation, shown below.



According to the above figure adapted from Gleeson et al. (2020), groundwater sustainability is demonstrated when groundwater levels and flows are maintained within a normal range of seasonal variability. This definition of groundwater sustainability is, nevertheless, rendered irrelevant by the proposed rules. According to the rules cited above, it doesn't matter if a new groundwater permit application is in an area where water levels are demonstrably stable. This is because whenever the Department uses an analytical model to estimate surface water depletion, and runs that model "over the full term of the proposed or authorized groundwater use" (OAR

690-009-0040(5) as proposed), there is no question that the model results will show some depletion if the application is for a permanent water right. That is how these simple analytical models are programmed to operate. There is, in fact, no way to run such a model and have absolutely no depletion in the results. And since there are no provisions in the rules to qualify such results as negligible, or de minimls, or to evaluate whether the estimated depletion will actually cause injury, then the outcome will be a finding of "Substantial Interference," practically every time, regardless of the amount of depletion, because pretty much every surface water source in the State is "already over-appropriated" according to WARS.

This is why we think that reliance on WARS is one of the most glaring flaws in the current proposed rules. Under WARS, the amount of water available for appropriation is calculated by starting with an estimated natural stream flow (at 80% exceedance, or what can be expected 80% of the time) in a given month, subtracting out the known consumptive uses and storages, and then subtracting the instream flow requirements. Consumptive surface water uses are estimated based on the full paper rights, which as I have argued before, grossly overestimate the consumptive use. In the Willamette Valley, water rights are issued for a maximum annual volume of 2 ½ acre-feet per acre. There is an AG opinion issued February 15, 1994 (attached), that states the full duty of a water right does not need to be used in order to preserve the right. OAR 690-250-001(3) defines "Beneficial Use" as "Reasonably efficient use of water without waste for a purpose consistent with the laws and the best interests of the people of the State." When OWRD advised Marion County for adoption of guidelines for preparing Hydrogeology Reviews for proposed new developments, they informed the County that irrigators do not use the full duty, and set the limit of use at 1 ½ acre-feet per acre for irrigation and 1 acre-foot per acre for supplemental use and drip irrigation for the purposes of performing water balance calculations. In addition, many if not all, of the recently issued groundwater use permits contain the condition that best management practices are to be followed to maximize efficiency. Therefore, irrigators are required by State rules and permit conditions to not waste water and use the least amount of water for irrigation.

So, on one hand the OWRD is telling irrigators they don't need to use the full allowed duty and should, in fact, minimize their use by maximizing efficiency, while on the other hand, the Department assumes for their purposes that irrigators are using their full duty. This means that actual consumptive uses are likely less than 60% of the values used in WARS. On top of that, we have the instream flow requirements that are determined according to the amount of water available on a 50% exceedance (i.e., what can be expected 50% of the time), which is a lower bar than 80% exceedance, but are nevertheless subtracted from the amount of stream flow availability at 80% exceedance.

There is also the issue of cumulative effects from groundwater pumping on streams. It is my understanding that WARS does not account for these impacts. However, the Department presumably has methods for estimating stream depletion resulting from cumulative consumptive uses of groundwater for the purposes of administering the Scenic Waterways rules. Basically, the State Scenic Waterways rules (OAR 690-310-0260) call for withdrawal of an area from new groundwater appropriations if the cumulative consumptive uses from groundwater pumping in the area surrounding the designated Scenic Waterway exceed one cubic foot per second (cfs). It was our experience that when OWRD determined around 2006 or 2007 that cumulative impacts from groundwater use in the Grand Ronde River basin had met the one cfs criterion, they were unable to provide documentation to support that finding.

Recently, in 2020, the Department withdrew one of the Scenic Waterways in the Rogue River basin (SWW Rogue R – Applegate R to Lobster Ck) from further groundwater appropriation because supposedly the one cfs criterion was triggered. We would like to see the documentation and studies completed by the Department to reach that conclusion. Assuming that the Department has the ability to estimate cumulative impacts from pumping groundwater, it is interesting that only recently those impacts to the Rogue River exceeded one cfs after decades of groundwater use in the area. It is also worth noting that one cfs represents 0.09% of the minimum natural flow of the Rogue River above the Applegate River (Water Availability Basin Rogue R > Pacific Ocean - AB Applegate R) at 80% exceedance (1,140 cfs in September), and is well below the flow measurement error (i.e., is not measurable). This also suggests that cumulative impacts from groundwater pumping are generally very small.

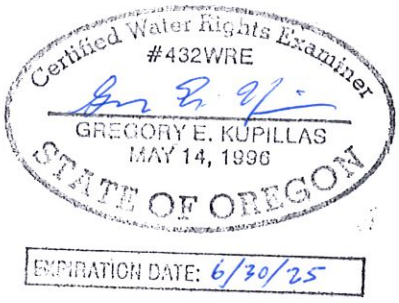
Thus, if we could use more realistic estimates of consumptive surface water use, and if the added cumulative impacts from pumping groundwater are relatively small, we would likely find that our estimates of available surface water would be significantly higher than currently reported in WARS. In fact, more realistic estimates of

consumptive water use for estimating surface water availability could be made using the vast database of actual reported water use available to the OWRD. These data could be evaluated to determine the upper range (to be conservative) of average seasonal uses in acre-feet per acre within a given area, and applied to the water availability calculation. Similarly, the Department could use the methods applied to regulating groundwater in the areas surrounding the scenic waterways to estimate cumulative impacts from groundwater pumping.

There has been a lot of talk about how these rules are based on good science, but we should really ask ourselves: is it good science to base a determination solely on the affirmative results of a computer model that by design cannot give anything but an affirmative result? Is it good science to assume consumptive use based on the maximum paper water rights when we know those values overestimate actual use? Is it good science to establish instream water rights based on water availability at 50% exceedance and then subtract those values from stream flows calculated at 80% exceedance? If you ask me, I will answer all three of those questions with a resounding NO! These approaches result from the application of policy decisions that have not been part of the discussion. As a result, we have a set of proposed rules which are arbitrary and not based in sound science, which is why I stand by my conviction that we need to take a pause in this rulemaking process to allow for the time we really need to develop a truly scientific approach that will be in the best interests of all water users in Oregon.

Respectfully,

Expiration Date: 1/1/24



Gregory E. Kupillas, R.G., C.W.R.E.
Pacific Hydro-Geology Inc.
Chair, Government Affairs Committee
Oregon Ground Water Association

Attachments

AG Opinion dated February 15, 1994, re: Forfeiture of Rate and Duty, DOJ File No. 690-001-NR001-94

References

Gleeson and others, 2002, Annual Review of Earth and Planetary Science, Volume 48, 2020, pp 431-463 (Figure 2b). Available at: https://www.annualreviews.org/doi/10.1146/annurev-earth-071719-055251

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DEPARTMENT OF JUSTICE
GENERAL COUNSEL DIVISION

February 15, 1994

Water Resources Commission
3850 Portland Road, N.E.
Salem, OR 97310

Re: Forfeiture of Rate and Duty
DOJ File No. 690-001-NR002-94

Dear Commission Members:

This letter addresses whether a water right is subject to forfeiture if a user fails to use the entire rate or duty[1/] for the non-use period. I conclude that a user who uses the amount of water necessary to accomplish the purpose for which the water right is granted does not forfeit any of the right, even if the user did not use the maximum amount allowed by the right.

The answer depends on how a water right is viewed. A water right may either 1) authorize a beneficial use, capped by a rate and duty, or 2) authorize use of a rate and duty, capped by beneficial use. Although these seem to be the same expression of the nature of a water right, the difference is important. If a water right is viewed as the right to make a particular beneficial use of water on a certain place, so long as the duty and rate limitations are not exceeded (the first interpretation), if less than the upper-limit rate and duty is used for five successive years, but enough water is used to grow the crop or otherwise accomplish the beneficial purpose for which the right was granted, the right has been completely exercised and none of the right is subject to forfeiture for non-use. If, on the other hand, a water right is viewed as a rate and duty, subject to an upper limit of what can be beneficially used (the second interpretation), then if a user does not divert the maximum amount allowed for five years, the right has not been completely exercised and a part of the right would be subject to forfeiture.

[1/] Rate is the volume of water per unit of time allowed by a right, typically expressed as cubic feet per second (cfs) or gallons per minute; duty is the total volume of water that can be used, typically expressed as acre feet (the volume of water necessary to cover one acre to the depth of one foot).

An analysis properly begins with the statutes, case law and the right (i.e., the certificate) itself. The forfeiture statute is premised on the legal foundation that "[b]eneficial use shall be the basis, the measure and the limit of all rights to the use of water in this state." ORS 540.610(1). But water rights also include specific limitations as to rate, duty and season which restrict the right's exercise.[2/]

While a number of cases support the proposition that a portion of a water right can be subject to forfeiture for non-use,[3/] no case squarely answers the commission's question. Case law establishes that a user must be ready, willing and able to use the water (Day v. Hill, 241 Or 507 (1965)), but is not subject to forfeiture if water is unavailable for the proposed use, either because senior rights claim all available water[4/] or because another has unlawfully prevented water from reaching a user's point of diversion. Tudor v. Jaca, 178 Or 126 (1945). Use of water outside the terms of the right does not constitute "use" to avoid forfeiture.[5/]

[2/] A typical water right certificate reads: "the amount of water to which such right is entitled * * * is limited to an amount actually beneficially used for said purposes, and shall not exceed 0.38 cubic feet per second or its equivalent in case of rotation, measured at the point of diversion from the stream. * * * The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, shall be limited to one-eightieth of one cubic foot per second per acre, or its equivalent for each acre irrigated and shall be further limited to a diversion of not to exceed 2 1/2 acre feet per acre for each acre irrigated during the irrigation season of each year." Certificate No. 34953.

[3/] See, e.g., Crandall v. WRD, 290 Or 771 (1981) (15.6 cfs of a 40 cfs right for power production forfeited for non-use, since turbines had only been able to accommodate 24.4 cfs for the forfeiture period); Crumpton v. Dept of Water Resources, 28 Or App 413 (1977) (5.2 acres of water right canceled, 2.8 acres not; rate and duty reduced to amount necessary to serve remaining acres); In Re North Powder River, 75 Or 83, 94 (1915)(water right existed only for those months when actual use was made), Hutchinson v. Stricklin, 146 Or 285, 301-2, 28 P2d 255 (1934) (non-use during part of each year, for statutory period would support loss of right for that period of the year).

[4/] But see Crandall v. WRD, 290 Or 771 (1981)(court finds water was available to satisfy use, but implies that if it had not been, some of the right would have been forfeited for non-use).

[5/] See, e.g., Hennings v. WRD, 50 Or App 121 (1981)(diversion of water to moisten the soil for plowing did not constitute use of the water for irrigation); Rencken v. Young, 300 Or 352 (1985) (use of water outside the irrigation season did not constitute use of the irrigation right); but see Crumpton v. WRD, 28 Or App 423 (1977)(taking water from an

(continued...)

Some support is found in both the case law and the statute for the first interpretation, that a water right's limit is the beneficial use that can be made of the water, but that in no case can that amount exceed the rate and duty limitations. See, e.g., Broughton v. Stricklin, 146 Or 259, 273 (1934): "the amount to which the [users] are presently entitled for irrigation purposes is governed by the amount of water necessary for the land cultivated, not exceeding the amount awarded [in the decree]" and, "[b]eneficial use shall be the basis, the measure and the limit of all rights to the use of water in this state." ORS 540.610(1)(emphasis added). If viewed from this perspective, irrigators who apply that amount of water necessary to grow their crops cannot forfeit any of their right, since although they did not exercise their right to the full extent of the allowed rate and duty, they used the amount necessary to accomplish the authorized beneficial use and did not exceed the allowed rate and duty. As a result, even with rights which authorized a three acre foot duty that had never been used, users wishing to change cropping patterns would be entitled to use a three acre foot duty, if their system had been capable of diverting the full amount had it been necessary.[6/]

It could be argued that requiring users to exercise the full rate and duty of their right at least once in five years is consistent with the underlying general principles of the cases cited above requiring users to "use it or lose it" by diligently exercising their right to the full extent authorized. Changes in irrigation practices are allowed to address changes in cropping patterns, however. See, e.g., Sears v. Orchards Water Co., 115 Or 291, 298, 236 P 502 (1925). Thus, an interpretation of the forfeiture law which would penalize growers who grew low water-use crops would need clear statutory language to overcome the Supreme Court's recognition of the flexible nature of a water right. A requirement to use the maximum rate and duty would presumably require irrigators to shift to high water-use crops (or wastefully irrigate a low water-use crop) to maintain their full water right. No statutory language or case holding supports such a result.

I conclude, therefore, that as long as a user has a facility capable handling the full allowed rate and duty, and is otherwise ready, willing and able to make full use of the right, using less water to accomplish the beneficial use allowed by the right does not subject the right to forfeiture for non-use.

[5/] (...continued)
unauthorized point of diversion still constituted use, but would not allow the user to call for the water.)

[6/] See Crandall, fn 4, which forfeited part of a right's rate because the user could not have physically used the entire amount of the right for the forfeiture period.

If you have further questions about this advice, please do not hesitate to call.

Sincerely,

Steve Sanders

Stephen E.A. Sanders
Assistant Attorney General
Natural Resources Section

SEA:sea:tmt/JGG08B0E
c: Martha Pagel, WRD

To: Laura Hartt, Justin Iverson and Annette Liebe, Oregon Water Resources Department

From: Tamara Wood, PhD, for Oregon Lakes Association

Date: August 11, 2023

Subject: Comments Following August 2 Meeting of RAC

Hello Laura, Justin and Annette,

I am providing these comments on behalf of the Oregon Lakes Association. OLA appreciates the opportunity to participate in the Rules Advisory Committee, and as I have said during the meetings, we agree with the general direction the Department is taking with the rule changes. OLA advocates for the lakes of Oregon, and therefore is particularly interested in the Division 9 rules that define interference with lake tributaries and the potential for over-appropriation of those tributaries, and the Division 400 rules concerning capacity of the resource. The new rules are based on a more solid scientific understanding of the interaction between groundwater and surface water sources. The combined system is, after all, one resource (Winter et al. 1998).

We believe that it would be consistent with the guidance provided by the Commission and the rulemaking objectives—to protect existing instream and out-of-stream users, to manage a finite resource sustainably for the benefit of future Oregonians—for the Department to incorporate a forward-looking assessment when determining whether a surface water source, for which the potential for substantial interference exists, has water available for capture.

We propose the following language modification to Division 410-0070, item 2 (b), previously proposed changes in red, proposed additions in blue:

(b) The groundwater of the state shall be allocated to new beneficial uses only when water is available for a proposed use, as per the definitions in OAR 690-300-0010, OAR 690-008-0001, OAR 690-009-0010, and 690-400-0010, under current and future hydrologic conditions~~the allocations will not contribute to the over-appropriation of groundwater sources~~. The best estimate and appropriate time extent of future conditions will be determined by the Department based on the best available science. Restrictions on allocations of water for exempt groundwater uses may be considered when a groundwater source is over-~~appropriated~~drawn;

We envision this assessment as based on an estimate of the expected changes in streamflow through the end of this century. Regarding implementation, we offer the following suggestion: The WARS system needs updating, and the most straightforward way to incorporate projections of streamflow change would be to add a column (ΔQ_{2100} or ΔQ_{2050}) to the water availability calculation table labeled approximately "Late-Century Projected Change" or "Mid-Century Projected Change." The "Net Water Available" calculation would subtract projected negative changes or add projected gains, by month:

$$WA = Q_{NSF} - ST - CU - IS + \Delta Q_{2100}$$

The choice of whether to use late- or mid-century and the RCP4.5 or RCP8.5 calculations is a value-laden one, but we prefer using the RCP8.5 calculation because it is the most protective of

the resource. Recent literature suggests that RCP8.5 is the most appropriate emissions scenario to use for policy-relevant time horizons and tracks current emissions most effectively (Schwalm et al. 2020). The values to populate the projected change column could be obtained from the same kind of model infrastructure that provides data for the National Climate Change Viewer, or some similar tool. Incorporating future projections in this way has the advantage of being both completely transparent and easily updated if/when an updated set of calculations becomes available.

We argue that sufficient knowledge exists to make such an estimate, based on several considerations that were not fully discussed at the August 2 meeting. First, even though global circulation models do not generally agree on precipitation changes in the State, there is quite good agreement among regional and basin-scale hydrologic models that use those GCMs as boundary conditions regarding the sign and approximate magnitude of change in seasonal hydrographs. Second, there is convergence in the literature with regard to the magnitude and direction of the modification that the land surface vegetation response makes to calculation of runoff over the American West, particularly during the summer. Third, even an eventually updated WARS in its current form cannot be a forward-looking tool for evaluating water availability because it is based on past measurements. Because the need to update WARS is recognized, this may be the time to add additional, forward-looking information. The following comments expand on the above three statements.

Trends in Direction and Magnitude of Seasonal Hydrographs, and Agreement Among Hydrologic Models

Global circulation models are ambiguous in predictions of changes in annual precipitation in the Pacific Northwest (PNW), with some predicting higher and some lower annual precipitation and the changes in either case being rather small. They are not, however, ambiguous in the prediction of higher temperatures, on which all models agree. Higher temperatures result in higher evapotranspiration. Other things being equal, therefore, large-scale studies that partition precipitation into ET and runoff without accounting for a dynamic vegetation response to rising CO_2 show a slight decrease in annual runoff by mid-century regionally in the PNW. This happens even as precipitation increases, because the proportion of precipitation allocated to ET increases (e.g. Abatzoglou and Ficklin 2017; Yang et al. 2018). The annual response is asymmetrical, however, being the net result of large decreases in summer and smaller increases in winter, as shown by Ban et al. 2020 for the Columbia River Basin.

An ensemble of GCMs can be downscaled to the sub-basin scale to use as boundary conditions in hydrologic models. The USFS provides downloadable maps based on the Variable Infiltration Capacity model (VIC; https://storymaps.arcgis.com/stories/6a6be7d624db41638a24b659305af522) and the USGS provides downloadable data, graphs and reports based on the Monthly Water Balance Model (MWBM) at the National Climate Change Viewer (NCCV; https://www.usgs.gov/tools/national-climate-change-viewer-nccv). These hydrologic models are in broad agreement that 1) more precipitation will fall as rain, resulting in 2) less overall accumulation of snowpack, 3) earlier melt-off of snowpack, and 4) a shift in hydrographs such that winter flows peak earlier in the

year, often at higher values, followed by lower summer flows. Thus the ambiguity in annual precipitation in GCMs resolves into consistent hydrograph changes across hydrologic models that use output from the GCMs as boundary conditions. These hydrograph changes are directly relevant to water availability—in particular lower summer flows.

OLA is particularly interested currently in the closed-basin lakes of Eastern Oregon, of which Lake Abert, the terminus of the Chewaucan basin, is a prime example. The following figures for the Lake Abert basin, downloaded from the NCCV, are included to illustrate the changes in seasonal hydrographs and consistency among models. Figure 1 shows the expected mid-century changes in the Lake Abert basin runoff, based on an ensemble of 20 GCMs and 2 RCPs. Figures 2-4 show that the agreement among models is good during summer and winter months, even though the agreement is not great for annual values:

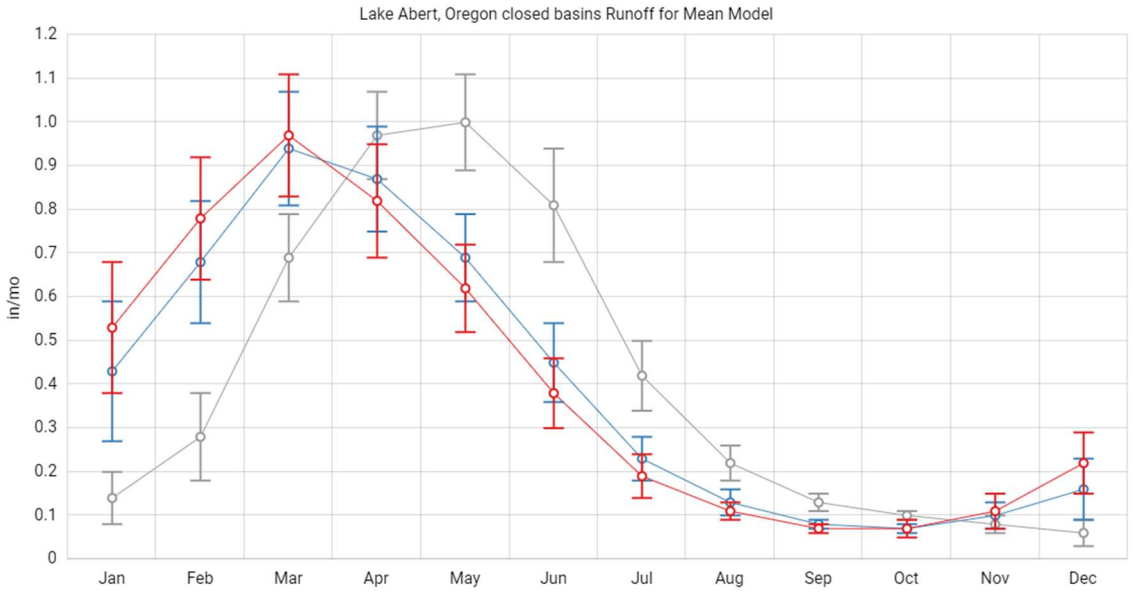

Figure 1.

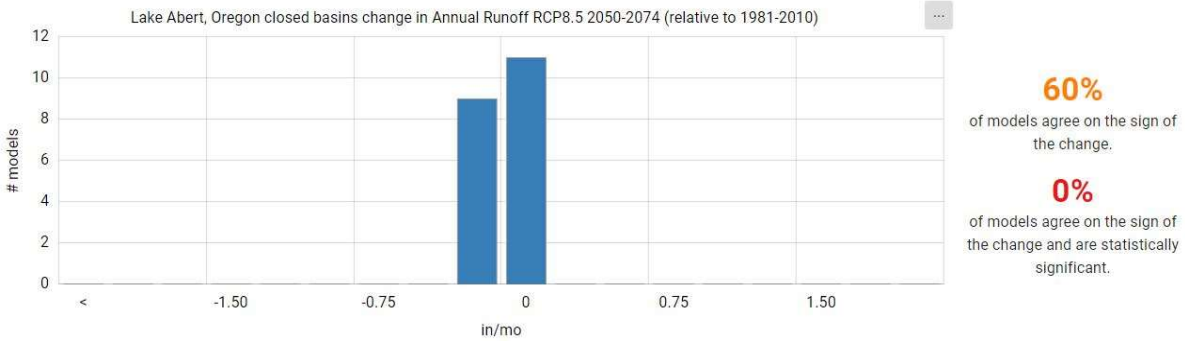

Figure 2. Agreement among GCMs, annual runoff.

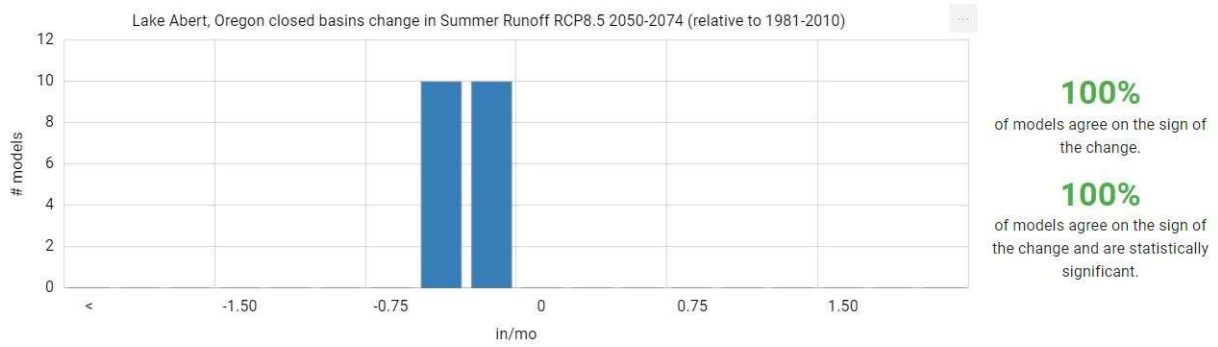

Figure 3. Agreement among GCMs, summer runoff.

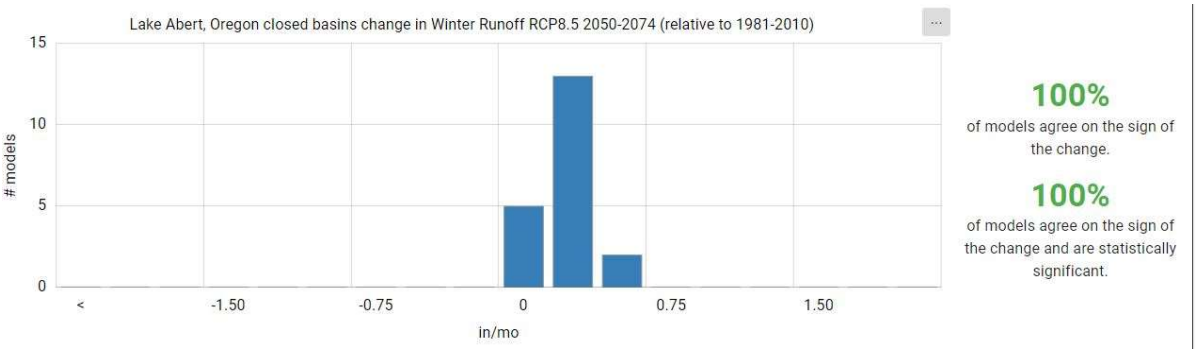

Figure 4. Agreement among GCMs, winter runoff.

The general features of the changes to hydrographs are ubiquitous across Oregon, but the magnitude of the changes vary quite a bit. The changes to hydrographs in the Coast Range, for example, are relatively small (and agreement among models is correspondingly degraded). The increase in peak winter flows is much greater in the Cascades than in the High Desert, but in both places the peaks occur earlier.

Modifications to Runoff Partitioning by Vegetation Response

Physiological changes to vegetation in response to increased CO_2 concentrations increase stomatal resistance, reducing transpiration, while concurrently increasing temperatures increase evaporation. Land surface models that incorporate a dynamic vegetation response tend to produce runoff estimates that are higher than hydrologic models that calculate basin runoff as a difference between precipitation and evapotranspiration based on static vegetation. Further complicating things, increasing vapor pressure deficits (VPD) drive competing processes of stomata closure and increased atmospheric demand (Massmann et al. 2019). Also worth noting, Scheff et al. (2022) found that increased flashiness in precipitation was more important than either VPD or CO_2 concentrations in modifying basin runoff based on precipitation minus evapotranspiration, and generally increased runoff by small amounts in the PNW.

This is an area of active research, but there seems to be some convergence to an understanding that increased stomatal resistance at the plant level is largely offset by an overall increase in the number of plants, at least in the American West (Mankin et al. 2017). The findings of Mankin et al. (2017) are particularly relevant and helpful to understanding competing processes. Using an ensemble of 35 GCMs, they found a “robust” drying signal in soil moisture in the Northwest

Coast (an area in their study that included all of Oregon, most of Washington, northern California and western Nevada) that corresponded to a 15% decline in summer runoff through the end of the 21st century (RCP8.5). Soil drying was induced in part by snow declines from warming (Mote et al. 2018), despite increases in precipitation, because spring recharge of soil moisture was reduced. Less snowpack, earlier melt-off, and warmer temperatures all contributed to a longer, earlier growing season, and added to the fertilization effects of increased CO_2. The resulting greater leaf areas led to greater transpiration in spite of the effect of increased CO_2 on stomatal resistance. They summarize their results as: "*Together, these results suggest that in the American West, additional vegetation growth, brought on by a mix of radiative forcing (reduced snowpack, warmer temperatures) and CO_2 fertilization, dries out the soil column and reduces summer water availability, despite physiological forcing of the land surface."* In a subsequent global study Mankin et al. (2018) found that the "blue water tradeoff" was largely positive in the interior of North America, reflecting a partitioning of precipitation to the canopy at the expense of runoff. Notably, however, in their global maps it appears that the "blue water tradeoff" is largely insignificant over the coastal NW, including western Oregon (Mankin et al. 2018), indicating little positive or negative effect of vegetation on runoff in those regions. Mankin et al. (2019) showed that "*projected plant responses directly reduce future runoff across vast swaths of North America, Europe and Asia because bulk canopy water demands increase with additional vegetation growth and longer and warmer growing seasons. These runoff declines occur despite increased surface resistance to evapotranspiration and vegetation total water use efficiency, even in regions with increasing or unchanging precipitation*."

Other articles addressing the same competing "greening" and "drying" phenomena have reached similar conclusions. Zhang et al. (2022b) concluded that in the western United States the CO_2 fertilization effects and the CO_2 effects on stomatal resistance were 1) secondary to the effect of increasing temperature on evaporation, and also 2) roughly equal and opposite. They found projected annual runoff declines (attributable primarily to the increase of evapotranspiration over increase in precipitation) of 11% out to the end of the 21st century for the Pacific Northwest, which they defined as roughly Oregon, Washington, and Idaho (3 GCMs, RCP8.5). Notably, in the same study, the runoff declines in the Great Basin were much larger at 52%. Much of Eastern Oregon might logically have a response closer to that of the Great Basin. Zhang et al. (2022a) concluded that in drylands specifically, which would apply to Eastern Oregon, "leaf-level transpiration reduction is overridden at the canopy scale by a large proportional increase in leaf area" (Zhang et al. 2022a).

A last article worth mentioning is a recent study of the aridification of the Colorado River Basin (Bass et al. 2023), particularly because it is not based on projecting into the future, but rather on understanding changes that have *already occurred*. The authors used carefully designed experiments to parse the contribution of the vegetation response to CO_2, and concluded that, between 1880 and 2021, the Colorado Basin's runoff declined by 6.8% per degree Celsius of anthropogenic warming. Without a vegetation response, that rate would have been 8.1% per degree Celsius, so including a vegetation response decreased the rate at which runoff declined by about 15%, not a big effect. Notably, the sensitivity of high-elevation sub-basins with declining snowpack showed much greater change in runoff than sub-basins without snowpack, which they

attribute to winter warming and loss of albedo. The authors included in this study a brief comparison to the Columbia River Basin, for which they present an overall 1880–2021 decrease in runoff slightly less than half of the 10.3% decrease in the Colorado River Basin, or about 5%.

Incorporation of a Forward-Looking Assessment of Water Availability and Updating WARS

Overall, we conclude that there is enough confidence in the basin-scale runoff projections found in tools like the National Climate Change Viewer or the USFS' Streamflow in a Changing Climate to use this information to add a forward-looking assessment to the water availability calculations. We base this on 1) the general agreement regarding future changes to basin-scale hydrographs among hydrologic models, and 2) the fact that vegetation responses not included in those models appear to modify runoff in the PNW by only a small amount or, as appears likely at least in the drier part of the State, vegetation may reduce runoff more, not less, than current hydrologic models predict.

Resource managers are always working with imperfect knowledge, but it is incorrect to say that we don't know enough about projected long-term changes in streamflow to incorporate the information we have into decisions about water availability. We do know with a high probability the direction of change and the approximate magnitude of change that we can expect to see in mid- to late-century in summer and winter streamflows. Given that most pumping permits are granted in perpetuity, it would conflict with the goals of sustainability and being protective of existing users to simply ignore the information that the scientific community has accumulated regarding the trajectory of climate in Oregon's varied landscapes.

Thank you for your consideration of these comments.

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August 11, 2023

Laura Hartt – Water Policy Analyst and Rules Coordinator

Submitted by: Zach Freed, Sustainable Water Program Director

Laura,

Thank you for the opportunity to comment on proposed rule changes to Divisions 8, 9, 300, 400, and 410. The Nature Conservancy supports many of the proposed changes to rules and agrees with the need to responsibly allocate groundwater rights to avoid injuring senior water right holders and to prevent further unsustainable groundwater use. Over-extraction of groundwater is a substantial threat to Oregon's rivers, secure access to drinking water, and economy. However, we recommend three opportunities to strengthen the rules as written.

Although not a direct suggestion related to rule text, The Nature Conservancy reiterates our support of using well-vetted concepts of dynamic sustainability as a framework for determining groundwater level trends—and therefore sustainable water use—in Oregon. During the August 2 Rule Advisory Committee meeting, a member of the Committee cited Alley and Leake (2004)[1] as a reference to support the idea that the concept of sustainability is "in the eye of the beholder." Although the framework of dynamic sustainability following Gleeson and others (2022)[2] is a more modern and relevant perspective to this rulemaking, we note that further reading of Alley and Leake (2004) actually provides support for resource managers to use groundwater levels as a key indicator of sustainability. The authors write: "Key information in this case includes measures of water level (head) decline, which can help assess consequences of removal of water from storage..."[1].

The Nature Conservancy supports the science-based approach to establishing standards of "reasonably stable" (690-008-0010(9)), which is intended to detect acute declines in groundwater level trends through a rate of decline threshold (>0.5 feet per year of annual high water levels [690-008-0010(9)(a)(A)]) and chronic, shallow declines in groundwater level trends through a magnitude threshold cutoff (the lowest of 25 feet or 8% of known saturated thickness between highest and lowest annual high water level [690-008-0010(9)(a)(B)]). However, newly added text to 690-008-0010(9)(a)(A) indicates that "Two measurements are sufficient to calculate the rate of change." Best practices for determining a trend in time series data is to use many more than two observations to determine a rate of change[3]. It is well-established in hydrologic literature that trend analysis is affected by serial correlation[4,5]. For serially correlated data such as groundwater levels in wells, the *effective* sample size for trend detection is lower than the number of measurements[6]. Therefore, although two serially independent observations may be technically sufficient to construct a trend line, the amount of serially correlated observations needed to construct a trend line is greater and depends on the magnitude of the autocorrelation[6]. Although the Oregon Water Resources Department is not

attempting a finding of statistical significance, these principles are relevant to the minimum sample size needed to identify a 0.5 feet per year decline in annual high water levels. The Nature Conservancy suggests maintaining the rigorous approach used by Oregon Water Resources Department to develop these rules. Specifically, we recommend that the rules should avoid prescribing the number of measurements needed, which should be determined by hydrogeologists within the Department. Instead, we suggest a reversion to prior text for 690-008-0010(9)(a)(A):

(A) Indicate no decline or an average rate of decline of less than 0.5 feet per year over any immediately preceding averaging period with duration between 5 and 20 years. If data are insufficient to perform this test, ~~Two measurements are sufficient to calculate the rate of change, but if there is not at least one annual high water level (OAR 690-008-001(1)) between 5 and 20 years before the year under evaluation,~~ then the department will presume that water levels are not reasonably stable.

Changes to 690-008-0010(9)(d) undermine the rigorous science-based standards found throughout the rest of the proposed rules. The Nature Conservancy does not support allowing basin program rules to be weaker than the statewide standard being proposed. We strongly recommend reinstating the prior text to read:

(d) Part (a) of this definition may be superseded by a basin program rule adopted pursuant to the Commission's authority in ORS 536.300 and 536.310, but such a definition may not be less stringent than OAR 690-008-0010(9).

Finally, The Nature Conservancy understands that hydro-climate projections have uncertainty. However, products developed by the Oregon Water Resources Department itself suggest that "Oregon's water resources challenges are expected to intensify over time, driven by increases in population, changes in the climate, and responsive shifts in land uses and technologies"[7] and "the shift in timing and availability of water as a result of climate change may affect whether or not water users are able to utilize their water rights as authorized."[8] These comments by the Department are consistent with abundant literature on hydro-climate projections in Oregon and the Pacific Northwest. The 2017 Integrated Water Resources Strategy calls upon state agencies to *"incorporate climate change impacts into their planning decisions*" and to "*analyze how instream and out-of-stream water rights will fare with hydrologic changes*" (Recommended Action 5.B). The Nature Conservancy supports the suggestion from a Committee member during the August 2 Rule Advisory Committee meeting to incorporate the best available science related to future projected climate conditions when making resource allocation decisions. Minor text changes to authorize the Oregon Water Resources Department to incorporate best available science could be made in OAR 690-410-0070(2)(b) or in OAR 690-400-0010(4).

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HARTT Laura A * WRD

From: Lisa Brown <lisa@waterwatch.org>
Sent: Tuesday, August 8, 2023 1:26 PM
To: HARTT Laura A * WRD; IVERSON Justin T * WRD; LIEBE Annette I * WRD
Cc: Kimberley Priestley
Subject: GW Allocation RAC - WaterWatch comments
Attachments: Div 9-RAC5_WW comments (8-08-2023).docx; Div 300-RAC5_WW comments (8-08-2023).docx; Div 400-RAC5_WW comments (8-08-2023).docx; Div 410-RAC5_WW comments (8-08-2023).docx; Div 8-RAC5 (080223)_WW comments (8-08-2023).docx

Hi Laura, Justin and Annette,
Thank you for the opportunity to submit comments on the rules discussed at the 8-02-2023 Groundwater Allocation RAC meeting. We are very supportive of this rulemaking and appreciative of all of the work that the Department is doing to improve Oregon's groundwater allocation system. WaterWatch submits the comments below, and the suggested edits and comments in the attached documents, highlighting areas where we think the draft rules need to be improved or made more clear.

General comments:

1. As discussed at the 8-02 RAC meeting, we think the rules would benefit greatly from a section or a new rule division outlining the steps of the process for evaluating new groundwater applications and referencing the other rule sections and definitions. The flow chart is helpful, but a written roadmap describing the steps, including how the various rule provisions would be applied and in what order, would make things more clear and ensure that the process is workable and will be followed as intended.
2. The flow chart has Division 33 analysis under "water availability." That does not seem correct – doesn't the Division 33 review happen after a determination that water is available has been made (*i.e.* after an Initial Review is issued)? If the flow chart is revised, this should be addressed.
3. We have made several comments on "over-appropriated" and "overdrawn." We think the draft definition of "overdrawn" should be modified to include the streamflow capture component. We also emphasize here the need for a thorough review of the rules and statutes for reference to the term(s) to ensure that the appropriate standard is being achieved.
4. At the beginning of the 8-02-2023 RAC meeting - in response to the definition of sustainable groundwater management included in WRD's PowerPoint presentation - if we heard the comment correctly - one RAC member suggested that 'sustainability is a myth' and that USGS hydrologists are in disagreement regarding sustainable groundwater use. We disagree with that characterization. The paper referenced in the comment, Alley and Leake (2004), The Journey From Safe Yield to Sustainability, doesn't say that. It describes some of the evolution and considerations that have occurred in the transition from thinking about groundwater management in terms of "Safe Yield" to considering "Sustainability," but we read it as consistent with and supporting - not disputing - the definition shown in WRD's PowerPoint.

Thank you for considering these comments.

Best,
Lisa Brown
Staff Attorney
WaterWatch of Oregon

Water Resources Department
Chapter 690
Division 8

STATUTORY GROUND-WATER TERMS

690-008-0001
Definition and Policy Statements

A number of terms are used in the statutes, ORS 537.505–537.795, prescribing the management of ground-water in Oregon. These rules define terms to qualify and clarify thosee statutory provisions. es. In all statutes and rules employed in the management of ground-water by the Water Resources Department and Commission, the following definitions shall apply, unless the context requires otherwise:

(1) "Annual high water level" in a groundwater reservoir or part thereof means the highest elevation (shallowest depth) static groundwater level that exists in a year. In the absence of detailed analysis, the annual high water level may be assumed to be represented by the highest water level measured during the period from January through April. For some purposes and in some cases the annual high may be estimated using measurements made during other parts of the year.

(12) "Aquifer" means a geologic formation, group of formations, or part of a formation that contains saturated and permeable material capable of transmitting water in sufficient quantity to supply wells or springs and that contains water that is similar throughout or varies gradually with location with respect to in characteristics such as potentiometric head, chemistry, and temperaturea water-bearing body of naturally occurring earth materials that is sufficiently permeable to yield useable quantities of water to wells and/or springs.

(23) "Critical Groundw-Water Area Boundary" means a line established in a critical ground-water area order on a map that surrounds an area in which one or more of the statutory criteria for critical area declaration are met and which is located either:

(a) Physically by coincidence with natural features such as ground-water reservoir boundaries, hydrologic barriers, or recharge or discharge boundaries; or

(b) Administratively by surrounding an affected area when that area does not coincide with an area bounded by natural features.

(34) "Customary Quantity" means the rate or annual amount of appropriation or diversion of water ordinarily used by an appropriator within the terms of that appropriator's water right.

(45) "Declined Excessively" means any cumulative lowering of the annual high water levels (OAR 690008-0001(1)) in a ground-water reservoir or a part thereof which:

(a) Precludes, or could preclude, the perpetual use of the reservoir; or

(b) Exceeds the economic pumping level (OAR 690-008-0001(6)); or

(c) Constitutes a decline determined to ~~be interfering with:~~ substantially interfere with a surface water source as defined in OAR 690-008-0001(8).

~~(A) A surface water diversion having a priority date senior to the priority dates of the causative ground water appropriations; or~~

~~(B) A surface water body that has been administratively withdrawn with an effective date senior to the priority dates of the causative ground water appropriations unless the causative ground water appropriations are for uses that are exceptions to the withdrawals; or~~

~~(C) An adopted minimum stream flow or instream water right, or closure having an effective date senior to the priority dates of the causative ground water appropriations; or~~

~~(D) A surface water body source which has a classification that is senior to the priority date of the causative ground water appropriation(s) and the use or uses to which the ground water is being put are not included in the classification.~~

(d) Constitutes a lowering of the annual high water level (OAR 690-008-0001(1)) within a ground-water reservoir, or part thereof, greater than 50 feet below the highest known static water level; or

(e) Results in ground-water pollution; or

(f) Constitutes a lowering of the annual high water level (OAR 690-008-0001(1)) greater than 15% of the greatest known saturated thickness of the ground-water reservoir. T~~t~~he saturated thickness shall be calculated using pre-development water levels and the bottom of the ground-water reservoir, or the economic pumping level (OAR 690-008-0001(6)), whichever is shallower.

(~~5~~6) "Economic Pumping Level" means the level below land surface at which the per-acre cost of pumping equals 70 percent of the net increase in annual per-acre value derived by irrigating. (The value is to be calculated on a five year running average of the per-acre value of the three, if there are that many, prevalent irrigated crops in the region minus the five year running average of the per-acre value of the three, if there are that many, prevalent regional non-irrigated crops.)

(~~6~~7) "Excessively Declining Water Levels" (Note: "Excessively" as used in ORS 537.730(1)(a) is taken to modify both "are declining" and "have declined") means any ongoing lowering of the annual high water level (OAR 690-008-0001(1)) in a ground-water reservoir or part thereof which:

(a) Precludes, or could preclude, the perpetual use of the reservoir; or

(b) Represents an average downward trend of three or more feet per year for at least 10 years; or

(c) Represents, over a five year period, an average annual lowering of the water level by 1% or more of the initial saturated thickness as determined by observation or investigation in the affected area; or

(d) Results in water quality deterioration.

(10) ~~(8) "Impairment", "impair",~~ "S~~s~~ubstantial interference", "substantially interfere", "undue interference", or "unduly interfere" ~~"Substantial or Undue Interference"~~ means the spreading of the cone of depression of a well from a groundwater appropriation, or the anticipated spreading of a cone of depression of a well from a proposed groundwater appropriation, to intersect a surface water ~~body~~ source or another well, or the reduction of the ground-water ~~gradient and flow~~levels as a result of pumping or otherwise extracting groundwater from an aquifer~~l~~, which contributes to:

(a) Depletion of a surface water source with which the groundwater ~~use~~ appropriation(s) or proposed groundwater appropriation(s) has the Potential for Substantial Interference (OAR 690-009-0020(4)) and ~~A reduction in surface water availability to an extent~~ that:

(A) is already over-appropriated, or would become over-appropriated, during any period of the year ~~and is the source for a surface water right having a priority date senior to the priority date(s) of the contributive groundwater appropriation(s);~~ or

(B) is administratively or statutorily withdrawn with an effective date senior to the priority date(s) of the ~~contributive~~ groundwater use or proposed groundwater appropriation(s); or

(C) is restrictively classified with an effective date senior to the priority date(s) of the ~~contributive~~ groundwater appropriation(s) or proposed groundwater appropriation(s); or

(D) is the source for o~~O~~ne or more ~~senior~~ existing surface water ~~appropriators~~ rights ~~are unable to use either their permitted or customary quantity of water, whichever is less~~ that have been regulated off due to insufficient supply to satisfy senior surface water rights and ~~which~~ that have priority dates senior to the priority date(s) of the ~~contributive~~ groundwater appropriation(s) or proposed groundwater appropriation(s) or is subject to a rotation agreement to address limited surface water supplies~~;~~ among surface water rights ~~which~~ that have ~~a~~ priority dates senior to the priority date(s) of the ~~contributive~~ groundwater appropriation(s) or proposed groundwater appropriation(s); or

(~~E~~B) ~~An adopted~~ has a minimum perennial streamflow or instream water right ~~with an effective date senior to the causative ground water appropriation(s) cannot be satisfied~~ that is unmet during any period of the year and has an effective date or priority date that is senior to the priority date(s) of the ~~contributive~~ groundwater appropriation(s) or proposed groundwater appropriation(s).

(b) The ground-water level being drawn down to the eco~~-~~nomic pumping level (OAR 690-008-0001(6)) of the senior appropriator(s); or

(c) One or more of the senior ground-water appropriators being unable to obtain either the permitted or the customary quantity of ground-water, whichever is less, from a reasonably efficient well

Commented [LB1]: This needs to be written to explicitly include proposed groundwater use (ie review of applications) to ensure it is not interpreted to include only situations where the described impacts are already occurring. While we suggest one approach to achieve this, there may be clearer language.

Commented [LB2]: Given the references below stating that this only applies to senior uses, it will be important to state somewhere that this does not apply to transfers (which prohibit impacts to junior and senior uses alike).

Commented [LB3]: We need to make sure that all of these definitions work with the Critical Groundwater Area statute (for example, any stated limitations on which groundwater rights can be affected).

Commented [LB4]: Should this prescribe 80% exceedance?

Commented [LB5]: Unclear what would be required, or asserted to be necessary, for determining whether a groundwater appropriation is "the source" of a surface water right. If any language regarding being "the source" of a surface water right is to remain in the rules, the process and standard to be well-defined.

If, as discussed at the RAC, if this would be based on a SWARS WAB level analysis, that needs to be stated AND the rules need to also include a process/standard for the many areas of the state lacking a WAB (e.g. many parts of the Harney Basin).

Commented [LB6]: Would a groundwater application, or proposed groundwater use, be considered an "appropriation", or it is more accurate to say "proposed appropriation"?

Commented [LB7]: Delete this undefined term "contributive groundwater use" and rephrase to avoid using an undefined term.

Commented [LB8]: Same comment as above. What does it mean to "the source"? Needs to be defined.

that fully penetrates the aquifer where the aquifer is relatively uniformly permeable. However, in aquifers where flow is predominantly through fractures, full penetration may not be required as a condition of substantial or undue interference.

(~~7~~98) "Overdrawn" or "Overdrawing" means to issue groundwater rights ~~artificially produce water, in any one year period,~~ from a ground-water reservoir, or part thereof, ~~at~~ with a~~n~~ combined annual ~~rate~~ volume that ~~:~~

~~(a)~~ e~~E~~xceeds the average annual recharge to that ground-water reservoir. ~~supply over the period of record; or,(b) Reduces surface water availability resulting in:~~

~~(A) One or more senior appropriators being unable to use either their permitted or customary quantity of surface water, whichever is less; or~~

~~(B) Failure to satisfy an adopted minimum streamflow or instream water right with an effective date senior to the causative ground water appropriation(s).~~

~~(c) Reduces the availability of surface waters that have been:~~

~~(A) Withdrawn with an effective date senior to the priority dates of the causative ground water appropriations; or~~

~~(B) Restrictively classified with an effective date senior to the priority date(s) of the causative ground water appropriations.~~

(~~10~~9) "Reasonably Stable Groundwater Levels" means:

(a) The~~-~~ annual high water levels (OAR 690-008-0001(1)) as measured at one or more representative wells in a ground-water reservoir or part thereof:

(A) indicate~~s~~ no decline or an average rate of decline of less than 0.5 feet per year over any immediately preceding averaging period with duration between 5 and 20 years. ~~If data are insufficient to perform this test~~ All conforming available annual high water level measurements must be used in this determination. If only t~~T~~wo annual high water level measurements are available, those two measurements are sufficient to calculate the rate of change~~, but if there is not~~only if there is at least one annual high water level (OAR 690-008-0001(1)) between 5 and 20 years before the year under evaluation. , if not, then the Department will presume that water levels are not reasonably stable; and

(B) compared with the highest known static water level, have not declined or have declined by less than the smaller of 25 feet and 8% of the greatest known saturated thickness of the ground-water reservoir.

Commented [LB9]: Same comment as before on need to delete this "Race to the Bottom" language

Commented [LB10]: We don't support omitting the streamflow capture portion of groundwater over-allocation/sustainable groundwater management from this definition.

This definition ONLY addresses the groundwater level/storage part of the issue (it is basically the old "equilibrium" concept) and doesn't protect discharge to streams and other groundwater dependent ecosystems, or senior surface water rights or MPS.

We don't think "overdrawn" is the right word for what is described in this definition as it only pertains to the storage component.

Commented [KP11]: Sentence structure doesn't make sense in the context of "overdrawn", which should describe the state of the aquifer. Problem is with "to issue".

Also, as noted in previous comment, SW protections need to be included. This rulemaking proposes deletion of important language in Div 400 with regards to over-allocation of GW, so the protections that have existed there since the 1990's need to carry forward, namely that over-appropriation of GW included further depletion of already over-appropriated surface waters under existing 400-0010-11(B), .

Commented [LB12R11]: Suggest splitting in to two definitions to make the sentence structure work.

Commented [LB13]: I think this needs to be clear that a subset of measurements won't suffice (ie no cherry picking)

(b) Water level data must be available in the year under evaluation to perform the tests in (a). However, in the absence of current data, a finding of reasonable stability may be presumed to persist for a maximum of 5 years beyond the most recent ~~ground~~annual high water level (OAR 690-008-0001(1)) ~~measurement in the record~~.

(c) If groundwater has not yet been extracted or authorized for extraction from the groundwater reservoir, then water levels may be presumed to be reasonably stable.

(d~~e~~) Part (a) of ~~T~~this definition may be superseded by a basin program rule adopted pursuant to the Commission's authority in ORS 536.300 and 536.310, but such a definition may not be less stringent than OAR 690-008-0010(10). ~~, but such a definition may not be less stringent than OAR 690-008-0010(10).~~

(e) Notwithstanding other components of this definition, groundwater levels may not be reasonably stable if they are either "declined excessively" ~~(~~ by OAR 690-008-0001(5)~~)~~ (a), (b), (d), or (f), or "excessively declining~~.~~" ~~(~~ by OAR 690-008-0001(7) (a), (b), or (c).

Commented [LB14]: We do not support opening all the basins up for attempts to weaken the standard. That seems extremely inefficient and wasteful of the time and resources of the Department and interested entities.

(~~9~~11) "Substantial Thermal Alteration" means any change in water temperature of a groundwater reservoir, or a part thereof, which:

(a) Precludes, or could preclude, the perpetual heating or cooling use of the groundwater reservoir; or

(b) Constitutes a change in the mean annual temperature within a groundwater reservoir, or part thereof, greater than 25 percent of the highest recorded naturally occurring Celsius (C) temperature.

(~~10~~12) "Substantial Thermal Interference" means the spreading of the radius of thermal impact of a lowtemperature geothermal production well or low-temperature geothermal injection well to intersect a surface water ~~body~~ source or another well, or the reduction of temperature or heat flow as a result of pumping or injection, which contributes to change in groundwater or surface water temperature to an extent that one or more senior appropriators of the low-temperature resource are unable to use water for the purpose(s) designated in the associated water right.

(~~11~~13) "Wasteful Use (of ground-water)" means any artificial discharge or withdrawal~~n~~ of ground-water from an aquifer that is not put to a beneficial use described in a permit or water right, including leakage from one aquifer to another aquifer within a well bore.

Statutory/Other Authority: ORS 537 History:

WRD 18-1990, f. & cert. ef. 12-14-90

WRD 21-1988, f. & cert. ef. 12-14-88

Water Resources Department
Chapter 690
Division 9

GROUND-WATER INTERFERENCE WITH SURFACE WATER

690-009-0010
Basis for Regulatory Authority, and Purpose, and Applicability

(1)The right to reasonable control of the ground-watergroundwater of the State of Oregon has been declared to belong to the public. Through the provisions of the Ground Water Act of 1955, ORS 537.505 to 537.795, the Water Resources Commission has been charged with administration of the rights of appropriation and use of the ground water resources of the state. These rules govern the use of ground waters, pursuant to 537.730 and 537.775, where the ground water is hydraulically connected to, and the use interferes with, surface waters.

(2)These rules establish criteria to guide the Department in determining whether a proposed or existing groundwater use will impair, substantially interfere, or unduly interfere with a surface water source. These rules apply to all wells, as defined in ORS 537.515 (9), and to all proposed and existing appropriations of groundwater except the exempt uses under ORS 537.545. The authority under these rules may be locally superseded where more specific direction is provided by the Commission after the effective date of adoption of these rules.

Commented [KP1]: Existing wells can be regulated under ORS 537.545(4)

Commented [LB2]: The mechanism/rule for regulating exempt wells, if not these rules, should be referred to here.

Statutory/Other Authority: ORS 537
History:
WRD 17-1988, f. & cert. ef. 11-4-88

690-009-0020
Definitions

Unless the context requires stated otherwise, as used in these rules:

(1) "Confined Aquifer" means an aquifer in which ground water is under sufficient hydrostatic head to rise above the bottom of the overlying confining bed, whether or not the water rises above land surface.

(2) "Commission" means the Water Resources Commission.

(3) "Confining Bed": means a layer of low permeability material immediately overlying a confined aquifer.

(41) "Department" means the Water Resources Department , its Director, and all personnel employed by the Department., and consists of the Director of the Department and all personnel employed in the Department including but not limited to all watermasters appointed under ORS 540.020 (536.039).

(2) "Effective and timely manner" is a determination made on a case-by-case basis considering the best available information and reasonably accepted hydrogeologic methods and taking into consideration whether regulation will result in the addition of any water to the surface water source during the relevant time period.

~~(5) "Director" means the Water Resources Director.~~

(3~~6~~) "Hydraulic Connection" or "Hydraulic Interconnection" means saturated conditions exist that allow water to move between two or more sources of water, either between groundwater and surface water or between groundwater sources.~~means that water can move between a surface water source and an adjacent aquifer.~~

(4)"Potential for Substantial Interference", or "PSI", means ~~that substantial evidence exists to determine~~ that a groundwater use will cause streamflow depletion based on the assessments described in OAR 690-009-0040, and therefore may cause or has caused impairm~~ent~~tial interference with or undue interference with a surface water source, based on the definitions in OAR 690-008-0001.

(5)"Proposed groundwater use" means an application to appropriate groundwater pursuant to ORS 537.621 that is under consideration with the Department.

(6) "Streamflow depletion" means a reduction in the flow of a surface water source due to pumping a hydraulically connected groundwater source. Streamflow depletion encompasses both:

(a)captured groundwater that would otherwise discharge to a surface water source; and,

(b)induced infiltration from a surface water source to recharge the hydraulically connected groundwater source.

~~(7) "Unconfined Aquifer" means an aquifer in which the hydrostatic head at the upper surface of the ground water is atmospheric.~~

Statutory/Other Authority: ORS 537
History:
WRD 17-1988, f. & cert. ef. 11-4-88

~~690-009-0030~~
~~General Policy~~

~~The following rules establish criteria to guide the Department in making determinations whether wells have the potential to cause substantial interference with surface water supplies and in controlling such interference. The rules apply to all wells, as defined in ORS 537.515 (7), and to all existing and proposed appropriations of ground water except the exempt uses under 537.545. The authority under these rules may be locally superseded where more specific direction is provided by the Commission after the effective date of adoption of these rules.~~

~~Statutory/Other Authority: ORS 537~~
~~History:~~
~~WRD 17-1988, f. & cert. ef. 11-4-88~~

690-009-0040
Determination of Hydraulic Connection and Potential for Substantial Interference

(1)Hydraulic connection and the potential for substantial interference with a surface water source shall be determined by the Department according to these rules. These determinations shall be based upon the application of generally accepted hydrogeologic ~~principals~~principles using best available information concerning the hydrologic system of interest and the well(s) under consideration.

(a) Appropriate linformation that is provided in the application or in the public comment period for the shall be considered in the process of making these determinations.

(b) Best available information includes, but is not limited to, pertinent water well reports, aquifer test analyses, hydrologic and geologic studies and reports, groundwater and surface water elevation data, available numerical and analytical groundwater flow models, and any other information that is used in applying generally accepted hydrogeologic principals and methodologies.

(2)A determination of hydraulic connection is a prerequisite for a determination of the potential for substantial interference.

(3)A determination of the potential for substantial interference with a surface water source shall at a minimum include application of the generally accepted hydrogeological principles described in the following subsections to the specific use and wells under consideration:

(a)"The Source of Water Derived from Wells: Essential Factors Controlling the Response of an Aquifer to Development" by C. V. Theis, 1940; and,

(b)"Streamflow Depletion by Wells – Understanding and Managing the Effects of Groundwater Pumping on Streamflow" by P. M. Barlow and S. A. Leake, 2012.

(4)The potential for substantial interference with a surface water source exists if ~~substantial evidence indicates~~ the well(s) under consideration will, over the full term of the proposed or authorized groundwater use, obtain water from streamflow depletion.

(5)For the purposes of issuing a permit for a proposed groundwater use, a finding of potential for substantial interference with a surface water source ~~may~~ will mean that water is not available for the proposed groundwater use if the use will impair, substantially interfere, or unduly interfere with a surface water source as per the definitions in OAR 690-008-0001 and OAR 690-300-0010.~~, and 690-400-0010.~~

(6)For the purposes of groundwater controls in OAR 690-009-0050, a finding of potential for substantial interference with a surface water source may precede the control actions described in that rule.

~~For the purposes of permitting and distributing ground water, the potential for substantial interference with surface water supplies shall be determined by the Department.~~

~~(1)The Department shall determine whether wells produce water from an unconfined or confined aquifer. Except for wells that satisfy the conditions in section (2) of this rule the Department shall further determine whether the aquifer is hydraulically connected to the surface water source. The basis of the determination shall be information provided on the Water Well Report for any well in question. If there is no Water Well Report available or if the information provided is inadequate, the Department~~

shall make the determination on the basis of the best available information. Such information may include other Water Well Reports, topographic maps, hydrogeologic maps or reports, water level and other pertinent data collected during a field inspection, or any other available data or information that is appropriate, including any that is provided by potentially affected parties.

(2)All wells located a horizontal distance less than one-fourth mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source, unless the applicant or appropriator provides satisfactory information or demonstration to the contrary. Department staff may provide reasonable assistance to the applicant or appropriator in acquiring the satisfactory information.

(3)The Department shall determine the horizontal distance between any well in question and the nearest surface water source on the basis of the edge of the surface water source as also determined by the Department.

(4)All wells that produce water from an aquifer that is determined to be hydraulically connected to a surface water source shall be assumed to have the potential to cause substantial interference with the surface water source if the existing or proposed ground water appropriation is within one of the following categories:

(a)The point of appropriation is a horizontal distance less than one-fourth mile from the surface water source; or

(b)The rate of appropriation is greater than five cubic feet per second, if the point of appropriation is a horizontal distance less than one mile from the surface water source; or

(c)The rate of appropriation is greater than one percent of the pertinent adopted minimum perennial streamflow or instream water right with a senior priority date, if one is applicable, or of the discharge that is equaled or exceeded 80 percent of time, as determined or estimated by the Department, and if the point of appropriation is a horizontal distance less than one mile from the surface water source; or

(d)The ground water appropriation, if continued for a period of 30 days, would result in stream depletion greater than 25 percent of the rate of appropriation, if the point of appropriation is a horizontal distance less than one mile from the surface water source. Using the best available information, stream depletion shall be determined or estimated by the Department, employing at least one of the following methods:

(A)Suitable equations and graphical techniques that are described in pertinent publications (such as "Computation of Rate and Volume of Stream Depletion by Wells," by C.T. Jenkins, in Techniques of Water-Resources Investigations of the United States Geological Survey: Book 4, Chapter D1);

(B)A computer program or ground-water model that is based on such or similar equations or techniques.

(5)Any wells, other than those covered in section (4) of this rule, that produce water from an aquifer that is determined to be hydraulically connected to the surface water source may be determined by the Department to have the potential to cause substantial interference with the surface water source. In making this determination, the Department shall consider at least the following factors:

~~(a)The potential for a reduction in streamflow or surface water supply; or~~

~~(b)The potential to impair or detrimentally affect the public interest as expressed by an applicable closure on surface water appropriation, minimum perennial streamflow, or instream water right with a senior priority date; or~~

~~(c)The percentage of the ground water appropriation that was, or would have become, surface water; or~~

~~(d)Whether the potential interference would be immediate or delayed; or~~

~~(e)The potential for a cumulative adverse impact on streamflow or surface water supply.~~

~~(6)All wells that produce water from an aquifer that is not hydraulically connected to a surface water source shall be assumed not to interfere with the surface water source.~~

~~[Publications: Publications referenced are available from the agency.]~~

Statutory/Other Authority: ORS 537
History:
WRD 17-1988, f. & cert. ef. 11-4-88

690-009-0050
Ground Water Controls

These rules apply to the control or regulation of groundwater where it is determined that an existing groundwater appropriation will cause or has caused substantial or undue interference with a surface water source as described in OAR 690-009-0040.

(1) The Department shall review existing ~~ground water~~groundwater appropriations to determine the potential to cause substantial interference with a surface water source on a case-by-case basis, in accordance with OAR 690-009-0040, whenever the Department has cause to believe that substantial interference with a surface water source ~~is suspected to exist by the Department~~may exist.

(2) Whenever the Department determines that substantial interference with a surface water supply exists, the Department shall control those groundwater appropriations that have been determined under section (1) of this rule to have the potential to cause substantial interference. The controls shall be similar to or compatible with, but not more restrictive than controls on the affected surface water source, in accordance with the relative dates of priorities of the ground water and surface water appropriations:

(a) Prior to controlling the use of any well greater than 500 feet from a surface water source, the Department shall determine whether any control would provide relief to the surface water supply in an effective and timely manner. The Department shall make the determination on the basis of the best available information, employing at least one of the following methods: ~~set forth in OAR 690-009-0040(4)(d);~~

(A)Suitable equations and graphical techniques that are described in pertinent publications (such as "Computation of Rate and Volume of Stream Depletion by Wells," by C.T. Jenkins, in Techniques of Water-Resources Investigations of the United States Geological Survey: Book 4, Chapter D1);

(B)A computer program or groundwater model that is based on such or similar equations or techniques

(b) The Department shall control the use of wells greater than one mile from a surface water source only through a critical ~~ground water~~groundwater area determination in accordance with ORS 537.730 through 537.740.

(3)As necessary, the Department shall determine the horizontal distance between any well in question and the nearest surface water source on the basis of the edge of the surface water source as also determined by the Department.

Statutory/Other Authority: ORS 537
History:
WRD 17-1988, f. & cert. ef. 11-4-88

Water Resources Department
Chapter 690
Division 300

DEFINITIONS

690-300-0010
Definitions

The following definitions apply in OAR chapter 690, divisions 15, 310, 320, 330, 340, and 350 and to any permits, certificates or transfers issued under these rules:

(1) "Affected Local Government" means any local government as defined in OAR 690-005-0015 within whose jurisdiction water is or would be diverted, conveyed, or used under a proposed or approved permit, water right transfer, or certificate.

(2) "Agricultural Water Use" means the use of water related to the production of agricultural products. These uses include, but are not limited to, construction, operation and maintenance of agricultural facilities and livestock sanitation at farms, ranches, dairies and nurseries. Examples of these uses include, but are not limited to, dust control, temperature control, animal waste management, barn or farm sanitation, dairy operation, and fire control. Such use shall not include irrigation.

(3) "Aquatic Life Water Use" means the use of water to support natural or artificial propagation and sustenance of fish and other aquatic life.

(4) "Artificial Groundwater Recharge" means the intentional addition of water to a groundwater reservoir by diversion from another source.

(5) "Beneficial Use" means the reasonably efficient use of water without waste for a purpose consistent with the laws, rules and the best interests of the people of the state.

(6) "Commercial Water Use" means use of water related to the production, sale or delivery of goods, services or commodities by a public or private entity. These uses include, but are not limited to, construction, operation and maintenance of commercial facilities. Examples of commercial facilities include, but are not limited to, an office, resort, recreational facility, motel, hotel, gas station, kennel, store, medical facility, and veterinary hospital. Examples of water uses in such facilities include, but are not limited to, human consumption, sanitation, food processing, and fire protection. Such uses shall not include irrigation or landscape maintenance of more than 1/2 acre. Notwithstanding this definition, exempt commercial water use under Division 340 does not include irrigation or landscape maintenance.

(7) "Comment" means a written statement concerning a particular proposed water use. The comment may identify elements of the application which, in the opinion of the commenter, would conflict with an existing water right or would impair or be detrimental to the public interest.

(8) "Commission" means the Water Resources Commission.

(9) "Contested Case" means a hearing before the Department or Commission as defined in ORS 183.310(2) and conducted according to the procedures described in ORS Chapter 53, ORS 183.413 - 183.497 and OAR chapter 690, division 2.

(10) "Cranberry Use" means all necessary beneficial uses of water for growing, protecting and harvesting cranberries. Examples of these uses include, but are not limited to, irrigation of cranberries or other crops in rotation, chemical application, flooding for harvesting or pest control, and temperature control.

(11) "Deficiency of Rate Right" means an additional right allowed from the same source for the same use at the same place of use when an earlier right does not allow a full duty or rate of flow of water.

(12) "Department" means the Water Resources Department.

(13) "Director" means the Director of the Department.

(14) "Domestic Water Use" means the use of water for human consumption, household purposes, domestic animal consumption that is ancillary to residential use of the property or related accessory uses.

(15) "Domestic Use Expanded" means the use of water, in addition to that allowed for domestic use, for watering up to 1/2-acre of lawn or noncommercial garden.

(16) "Drainage Basin", as used in OAR 690-340-0020, 690-340-0030 and 690-340-0050, means hydrologic unit delineated as a cataloging unit by the US geological Survey Office of Water Data Coordination on the State Hydrologic Unit map.

(17) "Fire Protection Water Use" means the use and storage of water for the purpose of extinguishing fires or reducing the potential outbreak of fires.

(18) "Fish Bypass Structure", as used in OAR 690-340-0010, means any pipe, flume, open channel or other means of conveyance that transports fish that have entered a water diversion structure back to the body of water from which the fish were diverted.

(19) "Fish Screen", as used in OAR 690-340-0010, means a screen, bar, rack trap or other barrier at a water diversion to entrap or provide adequate protection for fish populations, including related improvements necessary to insure its effective operation.

(20) "Fishway," as used in OAR 690-340-0010, means any structure, facility or device used to facilitate upstream or downstream passage of fish through, over or around any man-made or natural barrier to free movement.

(21) "Forestland and Rangeland Management," as used in Chapter 595, Oregon Laws 1993, means water used for operations conducted on or pertaining to forestlands and rangelands. Such uses may include, but are not limited to, reforestation, road construction and maintenance, harvesting, vegetation management, and disposal of slash. Such use shall not include irrigation.

(22) "Groundwater Reservoir" means a designated body of standing or moving groundwater as defined in ORS 537.515(5).

(23) "Group Domestic Water Use" means the use of water for domestic water use by more than one residence or dwelling unit.

(24) "Human Consumption" means the use of water for the purposes of drinking, cooking, and sanitation.

(25) "Industrial Water Use" means the use of water associated with the processing or manufacture of a product. These uses include, but are not limited to, construction, operation and maintenance of an industrial site, facilities and buildings and related uses. Examples of these uses include, but are not limited to, general construction; road construction; non-hydroelectric power production, including down-hole heat exchange and geothermal; agricultural or forest product processing; and fire protection. Such use shall not include irrigation or landscape maintenance of more than 1/2 acre. Notwithstanding this definition, exempt industrial water use under Division 340 does not include irrigation or landscape maintenance.

(26) "Irrigation" means the artificial application of water to crops or plants by controlled means to promote growth or nourish crops or plants. Examples of these uses include, but are not limited to, watering of an agricultural crop, commercial garden, tree farm, orchard, park, golf course, play field or vineyard and alkali abatement.

(27) "Mining Water Use" means the use of water for extraction, preliminary grading, or processing of minerals or aggregate at a mining site or construction, operation and maintenance of a mining site. These uses include, but are not limited to, general construction, road construction, and dust control. Examples of mining include, but are not limited to, aggregate, hard rock, heap leach and placer mining.

(28) "Municipal Corporation" means any county, city, town or district as defined in ORS 198.010 or 198.180(5) that is authorized by law to supply water for usual and ordinary municipal water uses.

(29) "Municipal Water Use" means the delivery and use of water through the water service system of a municipal corporation for all water uses usual and ordinary to such systems. Examples of these water uses shall include but are not limited to domestic water use, irrigation of lawns and gardens, commercial water use, industrial water use, fire protection, irrigation and other water uses in park and recreation facilities, and street washing. Such uses shall not include generation of hydroelectric power.

(30) "Nursery Operations Use" means the use of water for operation of a commercial nursery which may include temperature control, watering of containerized stock, soil preparation, application of chemicals or fertilizers, watering within greenhouses and uses to construct, operate and maintain nursery facilities. The use of water within plant nursery operations constitutes a different use from field irrigation, although that may be a part of nursery use. If used for field irrigation for nursery stock, such use is not restricted to the defined agricultural irrigation season.

(31) "Off-Channel" means outside a natural waterway of perceptible extent which, during average water years, seasonally or continuously contains moving water that flows off the property owned by the applicant and has a definite bed and banks which serve to confine the water. "Off-channel" may include the collection of storm water run-off, snow melt or seepage which, during average water years, does not flow through a defined channel and does not flow off the property owned by the applicant.

(32) "Planned" means a determination has been made for a specific course of action either by a legislative, administrative or budgetary action of a public body, or by engineering, design work, or other investment toward approved construction by both the public and private sector.

(33) "Planned Uses" means the use or uses of water or land which has/have been planned as defined in this section. Such uses include, but are not limited to, the uses approved in the policies, provisions, and maps contained in acknowledged city and county comprehensive plans and land use regulations.

(34) "Pollution Abatement or Pollution Prevention Water Use" means the use of water to dilute, transport or prevent pollution.

(35) "Power Development Water Use" means the use of the flow of water to develop electrical or mechanical power. Examples of these uses include, but are not limited to, the use of water for the operation of a hydraulic ram or water wheel and hydroelectric power production.

(36) "Primary Right" means the right to store water in a reservoir or the water right designated by the commission as the principle water supply for the authorized use, or if no designation has been made, the first in time or initial appropriation.

(37) "Proposed Certificate" means a draft version of a water right certificate describing the elements and extent of the water right developed under the terms of a permit or transfer approval order, as determined by field investigation.

(38) "Protest" means a written statement expressing disagreement with a proposed final order that is filed in the manner and has the content described in ORS 537.145 to 537.240.

(39) "Public Corporation" means a corporation which operates subject to control by a local government entity or officers of a local government and which, at least in part, is organized to serve a public purpose of, and receives public funds or other support having monetary value, from such government.

(40) "Quasi-Municipal Water Use" means the delivery and use of water through the water service system of a corporation other than a public corporation created for the purpose of operating a water supply system, for those uses usual and ordinary to municipal water use, or a federally recognized Indian tribe that operates a water supply system for uses usual and ordinary to a municipal water use. A quasi-municipal water right shall not be granted the statutory municipal preferences given to a municipality under ORS 537.190(2), 537.230(1), 537.352, 537.410(2), 540.510(3), 540.610(2), (3), or those preferences over minimum streamflows designated in a basin program.

(41) "Rate and Duty of Water for Irrigation" means the maximum flow of water in cubic feet per second or gallons per minute (instantaneous rate) and the total volume of water in acre-feet per acre per year that may be diverted for irrigation.

(42) "Recharge Permit" means a permit for the appropriation of water for the purpose of artificial groundwater recharge.

(43) "Recreation Water Use" means the use of water for play, relaxation or amusement. Examples of these uses include, but are not limited to boating, fishing, wading, swimming, and scenic values. (44) "Riparian Area" means a zone of transition from an aquatic ecosystem to a terrestrial ecosystem,

dependent upon surface or subsurface water, that reveals through the zone's existing or potential soil-vegetation complex, the influence of such surface or subsurface water. A riparian area may be located adjacent to a lake, reservoir, estuary, pothole, spring, bog, wet meadow, or ephemeral, intermittent or perennial stream.

(45) "Secondary Groundwater Permit" means a permit for the appropriation of groundwater which was stored through the exercise of a recharge permit or certificate.

(46) "Stockwater Use" means the use of water for consumption by domesticated animals and wild animals held in captivity as pets or for profit.

(47) "Storage" means the retention or impoundment of surface or groundwater by artificial means for public or private uses and benefits.

(48) "Stored Recharge Water" means groundwater which results from artificial groundwater recharge.

(49) "Storage Account" means a net volume of artificially recharged groundwater which is calculated for a single recharge activity from a formula specified in a single recharge permit which records additions to a groundwater reservoir by artificial recharge and depletions from a groundwater reservoir by pumping and natural losses.

(50) "Storm Water Management Water Use" means the use or storage of water in any structure or drainage way that is designed, constructed and maintained to collect and filter, retain or detain surface water runoff during and after a storm event for the purpose of water quality improvement, flood control or property protection. It may also include, but is not limited to, existing features such as wetlands, water quality swales, and ponds which are maintained as storm water quality facilities.

(51) "Stream or Riparian Area Enhancement Water Use" means the use of water to restore or enhance a stream or riparian area.

(52) "Supplemental Water Right or Supplemental Water Use Permit" means an additional appropriation of water to make up a deficiency in supply from an existing water right. A supplemental water right is used in conjunction with a primary water right.

(53) "Surplus Waters" means all waters in excess of those needed to satisfy current existing rights and minimum streamflows established by the Commission.

(54) "Temperature Control" means the use of water to protect a growing crop from damage from extreme temperatures.

(55) "Transfer" means a change of use or place of use or point of diversion of a water right.

(56) "Wastewater" means water that has been diverted under an authorized water right after it is beyond the control of the owner or that right but has not yet returned to the channel of a natural stream. In an irrigation district, the wastewater of an individual user is not subject to appropriation until it leaves the boundaries of the district. Wastewater abandoned to the channel of a natural stream becomes a part of that stream and is subject to appropriation.

(57) "Water is Available," when used in OAR 690-310-0080, 690-310-0110 and 690-310-0130, means:

(a) The requested surface water source is not over-appropriated under OAR 690-400-0010 and 690-410-0070 during any period of the proposed use; or

(b) If the requested surface water source is already over-appropriated for any portion of the period of use proposed in a new application:

(A) The applicant can show the proposed use requires surface water only during the period of time in which the requested source is not already over-appropriated;

(B) The applicant has obtained or has shown the applicant can obtain authorization to use water from an alternate source to provide water needed during any period of use in which the source is over-appropriated; or

(C) If the applicant has shown they can obtain authorization to use water from an alternate source during the time water is unavailable, the department conditions the approval of the application to require that prior to diversion of water the applicant obtains authorization for use of water from the alternate source.

(c) For surface water applications received before July 17, 1992, the provisions of subsection (a) of this section shall apply except that the determination of whether a requested source is over-appropriated under OAR 690-400-0010 and 690-410-0070 shall be based upon whether the quantity of water available during a specified period is not sufficient to meet the expected demands for all water rights at least 50 percent of the time during that period.

(d)The requested groundwater source exhibits reasonably stable water levels, as defined in OAR 690-008-0001(X); and

(e) The proposed groundwater ~~use will~~ not impair or substantially interfere with existing rights to appropriate surface water, as per the rules governing groundwater interference with surface water in OAR 690-009-0010 through 0040; and

(f)The proposed surface use or groundwater use is available within the capacity of the resource as defined in OAR 690-400-0010(4).

(58) "Water Availability Analysis" means the investigation of stream flow or groundwater measurement records, watermaster distribution records, flow requirements of existing water rights, stream flow modeling in ungauged basins, minimum perennial streamflows, or scenic waterway flow requirements to determine if water is available to support the proposed water use.

(59) "Water Right Subject to a Transfer" means a right established by a court decree or evidenced by a valid water right certificate, or a right for which proof of beneficial use of water under a water right permit or transfer has been submitted to and approved by the Director but for which a certificate has not yet been issued.

(60) "Wetland" means an area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

(61) "Wetland Enhancement Water Use" means the use of water to restore, create, or enhance or maintain wetland resources.

(62) "Wildlife Water Use" means the use of water by or for sustaining wildlife species and their habitat.

Statutory/Other Authority: ORS 536.027
Statutes/Other Implemented: ORS 536, 537, 539, 540 & 541
History:
WRD 1-2012, f 1-31-12, cert. ef. 2-1-12
WRD 2-1998, f. & cert. ef. 10-13-98
WRD 3-1996, f. & cert. ef. 3-15-96
WRD 1-1996, f. & cert. ef. 1-31-96, Renumbered from 690-011-0010
WRD 5-1995(Temp), f. & cert. ef. 8-4-95
WRD 7-1994, f. & cert. ef. 6-14-94
WRD 5-1994, f. & cert. ef. 4-13-94
WRD 6-1993, f. & cert. ef. 11-30-93
WRD 4-1993, f. & cert. ef. 10-7-93
WRD 9-1992, f. & cert. ef. 7-1-92
WRD 16-1990, f. & cert. ef. 8-23-90
WRD 12-1990, f. & cert. ef. 8-8-90
WRD 5-1988, f. & cert. ef. 6-28-88
WRD 6-1987, f. & ef. 6-11-87

Water Resources Department
Chapter 690
Division 300

DEFINITIONS

690-300-0010
Definitions

The following definitions apply in OAR chapter 690, divisions 15, 310, 320, 330, 340, and 350 and to any permits, certificates or transfers issued under these rules:

(1) "Affected Local Government" means any local government as defined in OAR 690-005-0015 within whose jurisdiction water is or would be diverted, conveyed, or used under a proposed or approved permit, water right transfer, or certificate.

(2) "Agricultural Water Use" means the use of water related to the production of agricultural products. These uses include, but are not limited to, construction, operation and maintenance of agricultural facilities and livestock sanitation at farms, ranches, dairies and nurseries. Examples of these uses include, but are not limited to, dust control, temperature control, animal waste management, barn or farm sanitation, dairy operation, and fire control. Such use shall not include irrigation.

(3) "Aquatic Life Water Use" means the use of water to support natural or artificial propagation and sustenance of fish and other aquatic life.

(4) "Artificial Groundwater Recharge" means the intentional addition of water to a groundwater reservoir by diversion from another source.

(5) "Beneficial Use" means the reasonably efficient use of water without waste for a purpose consistent with the laws, rules and the best interests of the people of the state.

(6) "Commercial Water Use" means use of water related to the production, sale or delivery of goods, services or commodities by a public or private entity. These uses include, but are not limited to, construction, operation and maintenance of commercial facilities. Examples of commercial facilities include, but are not limited to, an office, resort, recreational facility, motel, hotel, gas station, kennel, store, medical facility, and veterinary hospital. Examples of water uses in such facilities include, but are not limited to, human consumption, sanitation, food processing, and fire protection. Such uses shall not include irrigation or landscape maintenance of more than 1/2 acre. Notwithstanding this definition, exempt commercial water use under Division 340 does not include irrigation or landscape maintenance.

(7) "Comment" means a written statement concerning a particular proposed water use. The comment may identify elements of the application which, in the opinion of the commenter, would conflict with an existing water right or would impair or be detrimental to the public interest.

(8) "Commission" means the Water Resources Commission.

(9) "Contested Case" means a hearing before the Department or Commission as defined in ORS 183.310(2) and conducted according to the procedures described in ORS Chapter 53, ORS 183.413 - 183.497 and OAR chapter 690, division 2.

(10) "Cranberry Use" means all necessary beneficial uses of water for growing, protecting and harvesting cranberries. Examples of these uses include, but are not limited to, irrigation of cranberries or other crops in rotation, chemical application, flooding for harvesting or pest control, and temperature control.

(11) "Deficiency of Rate Right" means an additional right allowed from the same source for the same use at the same place of use when an earlier right does not allow a full duty or rate of flow of water.

(12) "Department" means the Water Resources Department.

(13) "Director" means the Director of the Department.

(14) "Domestic Water Use" means the use of water for human consumption, household purposes, domestic animal consumption that is ancillary to residential use of the property or related accessory uses.

(15) "Domestic Use Expanded" means the use of water, in addition to that allowed for domestic use, for watering up to 1/2-acre of lawn or noncommercial garden.

(16) "Drainage Basin", as used in OAR 690-340-0020, 690-340-0030 and 690-340-0050, means hydrologic unit delineated as a cataloging unit by the US geological Survey Office of Water Data Coordination on the State Hydrologic Unit map.

(17) "Fire Protection Water Use" means the use and storage of water for the purpose of extinguishing fires or reducing the potential outbreak of fires.

(18) "Fish Bypass Structure", as used in OAR 690-340-0010, means any pipe, flume, open channel or other means of conveyance that transports fish that have entered a water diversion structure back to the body of water from which the fish were diverted.

(19) "Fish Screen", as used in OAR 690-340-0010, means a screen, bar, rack trap or other barrier at a water diversion to entrap or provide adequate protection for fish populations, including related improvements necessary to insure its effective operation.

(20) "Fishway," as used in OAR 690-340-0010, means any structure, facility or device used to facilitate upstream or downstream passage of fish through, over or around any man-made or natural barrier to free movement.

(21) "Forestland and Rangeland Management," as used in Chapter 595, Oregon Laws 1993, means water used for operations conducted on or pertaining to forestlands and rangelands. Such uses may include, but are not limited to, reforestation, road construction and maintenance, harvesting, vegetation management, and disposal of slash. Such use shall not include irrigation.

(22) "Groundwater Reservoir" means a designated body of standing or moving groundwater as defined in ORS 537.515(5).

(23) "Group Domestic Water Use" means the use of water for domestic water use by more than one residence or dwelling unit.

(24) "Human Consumption" means the use of water for the purposes of drinking, cooking, and sanitation.

(25) "Industrial Water Use" means the use of water associated with the processing or manufacture of a product. These uses include, but are not limited to, construction, operation and maintenance of an industrial site, facilities and buildings and related uses. Examples of these uses include, but are not limited to, general construction; road construction; non-hydroelectric power production, including down-hole heat exchange and geothermal; agricultural or forest product processing; and fire protection. Such use shall not include irrigation or landscape maintenance of more than 1/2 acre. Notwithstanding this definition, exempt industrial water use under Division 340 does not include irrigation or landscape maintenance.

(26) "Irrigation" means the artificial application of water to crops or plants by controlled means to promote growth or nourish crops or plants. Examples of these uses include, but are not limited to, watering of an agricultural crop, commercial garden, tree farm, orchard, park, golf course, play field or vineyard and alkali abatement.

(27) "Mining Water Use" means the use of water for extraction, preliminary grading, or processing of minerals or aggregate at a mining site or construction, operation and maintenance of a mining site. These uses include, but are not limited to, general construction, road construction, and dust control. Examples of mining include, but are not limited to, aggregate, hard rock, heap leach and placer mining.

(28) "Municipal Corporation" means any county, city, town or district as defined in ORS 198.010 or 198.180(5) that is authorized by law to supply water for usual and ordinary municipal water uses.

(29) "Municipal Water Use" means the delivery and use of water through the water service system of a municipal corporation for all water uses usual and ordinary to such systems. Examples of these water uses shall include but are not limited to domestic water use, irrigation of lawns and gardens, commercial water use, industrial water use, fire protection, irrigation and other water uses in park and recreation facilities, and street washing. Such uses shall not include generation of hydroelectric power.

(30) "Nursery Operations Use" means the use of water for operation of a commercial nursery which may include temperature control, watering of containerized stock, soil preparation, application of chemicals or fertilizers, watering within greenhouses and uses to construct, operate and maintain nursery facilities. The use of water within plant nursery operations constitutes a different use from field irrigation, although that may be a part of nursery use. If used for field irrigation for nursery stock, such use is not restricted to the defined agricultural irrigation season.

(31) "Off-Channel" means outside a natural waterway of perceptible extent which, during average water years, seasonally or continuously contains moving water that flows off the property owned by the applicant and has a definite bed and banks which serve to confine the water. "Off-channel" may include the collection of storm water run-off, snow melt or seepage which, during average water years, does not flow through a defined channel and does not flow off the property owned by the applicant.

(32) "Planned" means a determination has been made for a specific course of action either by a legislative, administrative or budgetary action of a public body, or by engineering, design work, or other investment toward approved construction by both the public and private sector.

(33) "Planned Uses" means the use or uses of water or land which has/have been planned as defined in this section. Such uses include, but are not limited to, the uses approved in the policies, provisions, and maps contained in acknowledged city and county comprehensive plans and land use regulations.

(34) "Pollution Abatement or Pollution Prevention Water Use" means the use of water to dilute, transport or prevent pollution.

(35) "Power Development Water Use" means the use of the flow of water to develop electrical or mechanical power. Examples of these uses include, but are not limited to, the use of water for the operation of a hydraulic ram or water wheel and hydroelectric power production.

(36) "Primary Right" means the right to store water in a reservoir or the water right designated by the commission as the principle water supply for the authorized use, or if no designation has been made, the first in time or initial appropriation.

(37) "Proposed Certificate" means a draft version of a water right certificate describing the elements and extent of the water right developed under the terms of a permit or transfer approval order, as determined by field investigation.

(38) "Protest" means a written statement expressing disagreement with a proposed final order that is filed in the manner and has the content described in ORS 537.145 to 537.240.

(39) "Public Corporation" means a corporation which operates subject to control by a local government entity or officers of a local government and which, at least in part, is organized to serve a public purpose of, and receives public funds or other support having monetary value, from such government.

(40) "Quasi-Municipal Water Use" means the delivery and use of water through the water service system of a corporation other than a public corporation created for the purpose of operating a water supply system, for those uses usual and ordinary to municipal water use, or a federally recognized Indian tribe that operates a water supply system for uses usual and ordinary to a municipal water use. A quasi-municipal water right shall not be granted the statutory municipal preferences given to a municipality under ORS 537.190(2), 537.230(1), 537.352, 537.410(2), 540.510(3), 540.610(2), (3), or those preferences over minimum streamflows designated in a basin program.

(41) "Rate and Duty of Water for Irrigation" means the maximum flow of water in cubic feet per second or gallons per minute (instantaneous rate) and the total volume of water in acre-feet per acre per year that may be diverted for irrigation.

(42) "Recharge Permit" means a permit for the appropriation of water for the purpose of artificial groundwater recharge.

(43) "Recreation Water Use" means the use of water for play, relaxation or amusement. Examples of these uses include, but are not limited to boating, fishing, wading, swimming, and scenic values. (44) "Riparian Area" means a zone of transition from an aquatic ecosystem to a terrestrial ecosystem,

dependent upon surface or subsurface water, that reveals through the zone's existing or potential soil-vegetation complex, the influence of such surface or subsurface water. A riparian area may be located adjacent to a lake, reservoir, estuary, pothole, spring, bog, wet meadow, or ephemeral, intermittent or perennial stream.

(45) "Secondary Groundwater Permit" means a permit for the appropriation of groundwater which was stored through the exercise of a recharge permit or certificate.

(46) "Stockwater Use" means the use of water for consumption by domesticated animals and wild animals held in captivity as pets or for profit.

(47) "Storage" means the retention or impoundment of surface or groundwater by artificial means for public or private uses and benefits.

(48) "Stored Recharge Water" means groundwater which results from artificial groundwater recharge.

(49) "Storage Account" means a net volume of artificially recharged groundwater which is calculated for a single recharge activity from a formula specified in a single recharge permit which records additions to a groundwater reservoir by artificial recharge and depletions from a groundwater reservoir by pumping and natural losses.

(50) "Storm Water Management Water Use" means the use or storage of water in any structure or drainage way that is designed, constructed and maintained to collect and filter, retain or detain surface water runoff during and after a storm event for the purpose of water quality improvement, flood control or property protection. It may also include, but is not limited to, existing features such as wetlands, water quality swales, and ponds which are maintained as storm water quality facilities.

(51) "Stream or Riparian Area Enhancement Water Use" means the use of water to restore or enhance a stream or riparian area.

(52) "Supplemental Water Right or Supplemental Water Use Permit" means an additional appropriation of water to make up a deficiency in supply from an existing water right. A supplemental water right is used in conjunction with a primary water right.

(53) "Surplus Waters" means all waters in excess of those needed to satisfy current existing rights and minimum streamflows established by the Commission.

(54) "Temperature Control" means the use of water to protect a growing crop from damage from extreme temperatures.

(55) "Transfer" means a change of use or place of use or point of diversion of a water right.

(56) "Wastewater" means water that has been diverted under an authorized water right after it is beyond the control of the owner or that right but has not yet returned to the channel of a natural stream. In an irrigation district, the wastewater of an individual user is not subject to appropriation until it leaves the boundaries of the district. Wastewater abandoned to the channel of a natural stream becomes a part of that stream and is subject to appropriation.

(57) "Water is Available," when used in OAR 690-310-0080, 690-310-0110 and 690-310-0130, means:

(a) The requested surface water source is not over-appropriated under OAR 690-400-0010 and 690-410-0070 during any period of the proposed use; or

(b) If the requested surface water source is already over-appropriated for any portion of the period of use proposed in a new application:

(A) The applicant can show the proposed use requires surface water only during the period of time in which the requested source is not already over-appropriated;

(B) The applicant has obtained or has shown the applicant can obtain authorization to use water from an alternate source to provide water needed during any period of use in which the source is over-appropriated; or

(C) If the applicant has shown they can obtain authorization to use water from an alternate source during the time water is unavailable, the department conditions the approval of the application to require that prior to diversion of water the applicant obtains authorization for use of water from the alternate source.

(c) For surface water applications received before July 17, 1992, the provisions of subsection (a) of this section shall apply except that the determination of whether a requested source is over-appropriated under OAR 690-400-0010 and 690-410-0070 shall be based upon whether the quantity of water available during a specified period is not sufficient to meet the expected demands for all water rights at least 50 percent of the time during that period.

(d)The requested groundwater source exhibits reasonably stable water levels, as defined in OAR 690-008-0001(X); and

(e) The proposed groundwater ~~use will~~ not impair or substantially interfere with existing rights to appropriate surface water, as per the rules governing groundwater interference with surface water in OAR 690-009-0010 through 0040; and

(f)The proposed surface use or groundwater use is available within the capacity of the resource as defined in OAR 690-400-0010(4).

(58) "Water Availability Analysis" means the investigation of stream flow or groundwater measurement records, watermaster distribution records, flow requirements of existing water rights, stream flow modeling in ungauged basins, minimum perennial streamflows, or scenic waterway flow requirements to determine if water is available to support the proposed water use.

(59) "Water Right Subject to a Transfer" means a right established by a court decree or evidenced by a valid water right certificate, or a right for which proof of beneficial use of water under a water right permit or transfer has been submitted to and approved by the Director but for which a certificate has not yet been issued.

(60) "Wetland" means an area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

(61) "Wetland Enhancement Water Use" means the use of water to restore, create, or enhance or maintain wetland resources.

(62) "Wildlife Water Use" means the use of water by or for sustaining wildlife species and their habitat.

Statutory/Other Authority: ORS 536.027
Statutes/Other Implemented: ORS 536, 537, 539, 540 & 541
History:
WRD 1-2012, f 1-31-12, cert. ef. 2-1-12
WRD 2-1998, f. & cert. ef. 10-13-98
WRD 3-1996, f. & cert. ef. 3-15-96
WRD 1-1996, f. & cert. ef. 1-31-96, Renumbered from 690-011-0010
WRD 5-1995(Temp), f. & cert. ef. 8-4-95
WRD 7-1994, f. & cert. ef. 6-14-94
WRD 5-1994, f. & cert. ef. 4-13-94
WRD 6-1993, f. & cert. ef. 11-30-93
WRD 4-1993, f. & cert. ef. 10-7-93
WRD 9-1992, f. & cert. ef. 7-1-92
WRD 16-1990, f. & cert. ef. 8-23-90
WRD 12-1990, f. & cert. ef. 8-8-90
WRD 5-1988, f. & cert. ef. 6-28-88
WRD 6-1987, f. & ef. 6-11-87

Water Resources Department
Chapter 690
Division 400

STATE WATER RESOURCES POLICY

690-400-0000
Purpose and Authorization

(1) These rules, and those contained in division 410, establish statewide policies and principles pertaining to a wide range of water-related topics. All Water Resources Commission and Department activities, including but not limited to:

(a) Basin planning;

(b) Interagency coordination; and

(c) Development and adoption of rules, standards, and implementing strategies to govern Department programs and activities, shall be compatible with these rules and those contained in division 410.

(2) ORS 536.220 authorizes a single state agency, the Water Resources Commission, to formulate and implement an integrated, coordinated state water resources policy. The Water Resources Commission shall progressively formulate plans and programs to develop the water resources of the state and provide for the enforcement of state water policy. State water resources policy must promote the maximum beneficial use of the waters of the state. Multiple water uses shall be preferred over single-purpose uses. Existing water rights shall be protected in accordance with relative priority dates except as they may be temporarily modified under emergency drought circumstances. The Commission shall, in adopting polices that affect the appropriation and control of water resources, design those policies to best protect and promote the general public welfare.

(3) The Water Resources Commission is required by ORS 536.300(2) to develop a state program for managing Oregon's water. The Commission has established the Oregon Water Management Program which consists of statewide policies (OAR 690, divisions 400 and 410), basin programs (OAR 690, divisions 500 to 520) and non-rule program direction for implementing statewide policies and basin level actions (ORS 536.430).

(4) In formulating the Oregon Water Management Program, the Commission shall consider declarations of policy provided in ORS 536.310. These declarations mandate the consideration of existing rights, economic development, human consumptive needs, multiple uses, groundwater quality, protection of wildlife, recreation, watershed management, and other priorities outlined by the Legislature. These rules, and those contained in division 410, are adopted as statements for inclusion in the integrated, coordinated state water resources policy required under ORS 536.300.

(5) The programs and plans of the Commission are to reflect all laws that relate to or affect the use and control of the water resources of the state (ORS 536.330). The Legislature, in ORS 536.360, directs every state agency and public corporation to conform to statements of state water resources policy as adopted by the Water Resources Commission.

Statutory/Other Authority: ORS 536
Statutes/Other Implemented: ORS 536
History:
WRD 8-1990, f. & cert. ef. 6-25-90

690-400-0010
Definitions

As used in the rules contained in divisions 400 and 410, unless ~~the context requires~~stated otherwise:

(1) "Allocate" means to determine allowable new uses by classifying waters through basin program rules, withdrawing waters, reserving water for future economic development by order, or issuing water rights for waters of the state.

(2) "Artificial Groundwater Recharge" means the intentional addition of water to a groundwater reservoir by diversion from another source (OAR 690-011-0010(2)).

(3) "Beneficial Use" means an instream public use or a use of water for the benefit of an appropriator for a purpose consistent with the laws and the economic and general welfare of the people of the state and includes, but is not limited to, domestic, fish life, industrial, irrigation, mining, municipal, pollution abatement, power development, recreation, stockwater and wildlife uses.

(4) "Capacity of the Resource" means the ability of a surface water or groundwater resource to sustain a balance of public and private uses. A use is not within the capacity of the resource if best available science indicates that the use ~~it without causing~~ contribute~~sing~~ to, or a proposed use would contribute to, any of the following negative impacts:
(a) for a surface water right: over-appropriation of the surface water source as defined in OAR 690-400-0010, or
(b) ~~overdrawing of the groundwater source as defined in OAR 690-008-0001, f~~or a groundwater right: negative impacts as defined in OAR 690-008-0001: (5)((a), (b), (d), (e), or (f)) "Declined Excessively", (7) "Excessively Declining Water Levels", (8) "Overdraw", (11) "Substantial Thermal Alteration", (12) "Substantial Thermal Interference", or (13) "Wasteful Use"; or,
(c) for any application: other~~wise~~ significant~~ly~~ impair~~menting~~ of the function or character of the resource.

(5) "Conservation" means eliminating waste or otherwise improving efficiency in the use of water while satisfying beneficial uses by modifying the technology or method for diverting, transporting, applying or recovering the water, by changing management of water use, or by implementing other measures.

(6) "Customary Quantity" means the rate or annual amount of appropriation or diversion of water ordinarily used by an appropriator within the terms of that appropriator's water right (OAR 690-008-0001(3)).

(7) "Emergencies" means situations, including but not limited to wildfire, flooding, and toxic spills, which pose an immediate and significant threat to life, health, property, or water or riparian resources.

(8) “Management Activity” means an activity in a riparian area which is planned and undertaken to extract, manipulate, or control natural resources or natural processes. Management activities include but are not limited to timber harvest, reforestation, road construction or reconstruction, spraying of herbicides or pesticides, grazing, mining, or cultivation.

(9) “Mitigation” means the reduction of adverse effects of a proposed project or activity by considering, in the following order:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action;

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation;

(c) Rectifying the impact by repairing, rehabilitating or restoring the affected environments;

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action by monitoring and taking appropriate corrective measures; and

(e) Compensating for the impact by replacing or providing conditions of comparable substitute value.

(10) “Non-Structural” refers to processes that primarily utilize the natural watershed or natural aquifer storage, rather than structural means.

(11)~~(a)~~ “Over-Appropriated” means a condition of water allocation in which:

(~~A~~a) The quantity of surface water available during a specified period is not sufficient to meet the expected demands from all water rights at least 80 percent of the time during that period~~; or~~

~~(B) The appropriation of groundwater resources by all water rights exceeds the average annual recharge to a groundwater source over the period of record or results in the further depletion of already over-appropriated surface waters~~

.

(b) The standards for determining over-appropriation described in paragraph (~~A~~a) of this subsection shall apply to water availability determination for permit applications submitted after July 17, 1992.

X – “Overdrawn” means a condition of groundwater allocation which XXXX.

(12) “Public Interest,” as a standard for reviewing new uses of water, means a beneficial use which is consistent with state law and includes providing the greatest good for the people of the state based on current values, protecting water rights and conserving water resources for present and future generations.

(13) “Public Use” means an instream use of water that is available to the public at large. It includes but is not limited to:

(a) Recreation;

Commented [KP1]: If this is going to be deleted here, OWRD needs to make certain this important existing restriction carries forward to ALL relevant new rule sections, including the definition of "overdrawn". As currently proposed, that definition omits the SW piece of the exiting definition.

Commented [LB2]: If the definition of over-appropriated is being edited to delete (B), then suggest adding the definition of Overdrawn for groundwater here (and/or in Div 410)
AND broadening that proposed definition to include the streamflow capture portion that is part of "over-appropriated groundwater resources" currently (see comments on that definition in Div 8).

(Overdrawn is used in Div 410, but only defined in Div 8)

(b) Protection and enhancement of fish life, wildlife, fish and wildlife habitat and any other ecological values;

(c) Pollution abatement;

(d) Navigation;

(e) Scenic attraction; and

(f) Any other similar or related use.

(14) “Riparian Area” means the zone of transition from an aquatic ecosystem to a terrestrial ecosystem, dependent upon surface or subsurface water, that reveals through the zone’s existing or potential soil-vegetation complex, the influence of such surface or subsurface water. A riparian area may be located adjacent to a lake, reservoir, estuary, pothole, bog, wet meadow, muskeg, or ephemeral, intermittent or perennial stream.

(15) “Storage” means the retention or impoundment of surface or groundwater by natural and/or artificial means for public or private uses and benefits.

(16) “Waste” means the continued use of more water than is needed to satisfy the specific beneficial uses for which a right was granted. The need for water shall be based on using the technology and management practices that provide for the efficient use of water considering:

(a) The economic feasibility of use of the technology and management practices by the water user;

(b) The environmental impacts of making modifications;

(c) The available proven technology;

(d) The time needed to make modifications;

(e) Local variations in soil type and weather; and

(f) Relevant water management plans and subbasin conservation plans.

(17) “Watershed” means the entire land area drained by a stream or system of connected streams such that all stream flow originating in the area is discharged through a single outlet.

Statutory/Other Authority: ORS 536.025, 536.220 & 536.300 - 536.340, ORS 537.505 - 537.795
Statutes/Other Implemented: ORS 536.025, 536.220 & 536.300 - 536.340, ORS 537.535 - 537.629, ORS 537.775 - 537.780
History:
WRD 3-1993, f. & cert. ef. 7-27-93
WRD 10-1992, f. & cert. ef. 7-31-92
WRD 22-1990, f. & cert. ef. 12-14-90

Water Resources Department
Chapter 690
Division 410

STATEWIDE WATER RESOURCE MANAGEMENT

690-410-0010
Groundwater Management

(1) Policy — The groundwaters of the State of Oregon belong to the public. The reasonable control, protection, and use of groundwater is governed by the state on behalf of the public. Groundwater shall be managed to promote efficient and sustainable use for multiple purposes. Groundwater overdraft and contamination shall be prevented to avoid health hazards, environmental damage, and costly correction programs. Interference between groundwater uses and competing groundwater and surface water uses shall be prevented and/or controlled to protect the water resource and existing rights. The state shall pursue restoration of contaminated groundwaters to protect present and future uses. Coordinated action by federal, state and local agencies, Indian tribes, and special districts, along with public education, shall be fostered to promote the effective management, protection and beneficial use of groundwater.

(2) Principles — Programs to achieve the policy in section (1) of this rule shall be guided by the following principles:

(a) Groundwater and surface water shall be managed conjunctively where to do so will protect water resources, existing water rights, and the public interest;

(b) Rules governing well construction, maintenance, and abandonment shall provide minimum standards for protection of the public welfare, safety, and health and the groundwaters of the state;

(c) Water well constructors, owners, and operators are responsible to construct, alter, maintain, operate, and abandon wells, and any holes through which the groundwater may be contaminated, in accordance with minimum statewide standards and shall undertake measures necessary to prevent waste, undue interference, contamination, or harm to the groundwater;

(d) Low-temperature geothermal fluids are part of the groundwater resources of the state and are subject to applicable laws and plans. These fluids are developed primarily for thermal characteristics and may require special management approaches to promote beneficial use, protect the environment and achieve other policy directives;

(e) Special-area designations (i.e., critical groundwater management areas, serious water management areas, basin plan restriction areas) may be warranted under conditions such as:

(A) Past, existing or probable excessive groundwater level declines or overdraft;

(B) Substantial interference between two or more wells or between groundwater and surface water uses (including public instream uses), or between groundwater appropriation and geothermal appropriation under ORS Chapter 522; and

(C) Groundwater contamination.

(f) Special-area designations shall be invoked when site-specific standards and regulations are no longer sufficient to solve or prevent the problem(s). The invoking of special-area designations shall be accompanied by recommended monitoring, reporting, or regulating activities to prevent, correct or control existing or potential declines, overdraft, interference or contamination. Existing groundwater appropriations, which are generally protected from infringement, may be controlled if any of the conditions listed in subsection (2)(e) of this rule are found to exist;

(g) Groundwater appropriation for artificial recharge is a beneficial use and can be approved if such action will not:

(A) Cause significant adverse effects on the quantity or quality of the supplying and receiving water sources; or

(B) Harm the public interest.

(h) Ongoing collection, analysis, and distri-bution of hydrogeologic information are necessary to manage groundwater for maximum beneficial use and to protect the public welfare, safety, and health;

(i) Public education programs, research, and demonstration projects are needed to increase citizen awareness of groundwater issues in this state; and

(j) Adequate and safe supplies of groundwater for human and livestock consumption are given priority over other uses during times of shortage.

Statutory/Other Authority: ORS 536
Statutes/Other Implemented: ORS 536
History:
WRD 12-1992, f. & cert. ef. 9-9-92
WRC 6-1992(Temp), f. & cert. ef. 3-19-92
WRD 8-1990, f. & cert. ef. 6-25-90

690-410-0020
Hydroelectric Power Development

(1) Policy — Development and production of hydroelectric power is a beneficial use. However, construction and operation of hydroelectric facilities have had significant adverse impacts on the state's natural resources. New hydroelectric development shall be permitted if it can be demonstrated that there will be no harm to the state's anadromous salmon and steelhead fish resource and habitat, and no net loss of the state's other natural resources. Relicensing of existing facilities, which have adversely impacted, or may preclude the recovery of, anadromous fish resources shall include measures to restore, enhance or improve the anadromous fish resource. The relicensing of any facility shall include measures to prevent the net loss of other natural resources resulting from future operation of the facility.

(2) Principles — Programs to achieve the policy in section (1) of this rule shall be guided by the following principles:

(a) Hydroelectric power can provide valuable economic and social benefits when the natural resources of the state are protected from potential adverse impacts;

(b) Proposed or relicensed projects that can be developed consistent with Oregon's resource protection standards should be encouraged. New development shall be consistent with the provisions of the Columbia River Basin Fish and Wildlife Program as adopted by the Northwest Power Planning Council pursuant to PL 96-501;

(c) Mitigation shall be required for harm to Oregon's natural resources caused or likely to be caused by new permitted hydroelectric power development. These natural resources include but are not limited to anadromous fish, wildlife, water quality, scenic and aesthetic values, historic, cultural and archeological sites;

(d) On relicensing of existing facilities, measures for restoration, enhancement or improvement for past harms to Oregon's anadromous and steelhead resource shall be considered and implemented; and

(e) The state shall ensure that the laws of the state and the rules of the Commission concerning hydroelectric power development are satisfied at every stage of any hydroelectric power project. The state shall assert these laws and rules when participating in federal proceedings involving hydroelectric power. Participation in these proceedings by state agencies shall be fostered through the Strategic Water Management Group (SWMG).

Statutory/Other Authority: ORS 536
Statutes/Other Implemented: ORS 536
History:
WRD 8-1990, f. & cert. ef. 6-25-90

690-410-0030
Instream Flow Protection

(1) Policy — Benefits are provided by water remaining where it naturally occurs. Protecting streamflows which are needed to support public uses is a high priority for the state. The long term goal of this policy shall be to establish an instream water right on every stream, river and lake which can provide significant public benefits. Where streamflows have been depleted to the point that public uses have been impaired, methods to restore the flows are to be developed and implemented. These activities shall be consistent with the preservation of existing rights, established duties of water, and priority dates, and with the principle that all of the waters within the state belong to the public to be used beneficially without waste.

(2) Principles — Programs to achieve the policy in section (1) of this rule shall be guided by the following principles:

(a) The Commission shall consider the needs of both instream and out-of-stream uses when reviewing future appropriations and developing streamflow restoration programs;

(b) Preservation of instream flows needed to support the purposes of State Scenic Waterways is a high priority for the state;

(c) Statewide and local programs should be implemented to restore and enhance streamflow and lake levels to provide public uses. Priority of restoration shall be established by the Water Resources Commission. The Commission shall consult with the Department of Fish and Wildlife, Environmental Quality, Parks and Recreation and the public, to identify those waterways where the greater public benefit could be obtained from additional streamflow restoration;

(d) The Department shall actively encourage the purchase, lease and gift of existing water rights for transfer to instream water rights, and the construction of environmentally sound multi-purpose storage projects;

(e) Streamflow restoration programs shall be designed to encourage cooperation and coordination between instream water interests and out-of-stream water users; and

(f) Instream water rights are preferred, over the establishment of new minimum perennial stream-flows, to protect instream public uses.

Statutory/Other Authority: ORS 536
Statutes/Other Implemented: ORS 536
History:
WRD 13-1990, f. & cert. ef. 8-8-90

690-410-0040
Interstate Cooperation

(1) Policy — The state will seek to cooperate with other states in planning, developing, managing, and resolving conflicts involving surface or groundwater resources. Interstate cooperation shall be actively pursued to benefit the public interest, welfare, health, economy and safety of Oregon's citizens.

(2) Principles — Programs to achieve the policy in section (1) of this rule shall be guided by the following principles:

(a) Existing laws, agreements, water rights, individual state interests and resource conditions shall guide and limit interstate cooperation in order to protect the public interest;

(b) Cooperation is preferred, but not required, over unilateral action, litigation, arbitration, or adjudication;

(c) The meaning, intent and purpose of interstate cooperation as embodied in this policy also applies to federally recognized Indian Tribes, and their governments, located wholly or partially within this state.

Statutory/Other Authority: ORS 536
Statutes/Other Implemented: ORS 536
History:
WRD 8-1990, f. & cert. ef. 6-25-90

690-410-0050
Water Resources Protection on Public Riparian Lands

(1) Policy — The water-related functions of riparian areas on public lands shall be protected. On public lands, management activities in riparian areas shall be planned to maintain or improve riparian conditions that support water-related functions, consistent with the constitutional or statutory purposes of the public land.

(2) Principles:

(a) The policy in section (1) of this rule is established based on the following principles:

(A) Land and water management are integrally related;

(B) Proper land management can provide for many commodity uses for riparian areas while protecting water resources;

(C) The Legislature has made it a goal of the people of the state to enhance Oregon's waters through the management of riparian areas and associated uplands;

(D) The state's integrated, coordinated water policy needs to address water-related aspects of land management; and

(E) Implementation will be through the programs of public land management agencies having responsibility over riparian lands.

(b) To implement the policy in section (1) of this rule, public land management agencies shall be advised to consider and accommodate the following principles.

(A) Protect water-related riparian functions through public land management plans and practices. Water-related riparian area functions include any or all of the following as applicable to the specific water body segment: providing streambank stability; contributing coarse woody debris to dissipate flood energy and create aquatic habitat; maintaining water tables in relatively close proximity to the ground surface; carrying and storing flood flows; filtering runoff waters of sediment and potential pollutants; insulating streams from summer and winter temperature extremes; and supporting the ecosystem of the adjacent water resource;

(B) Build databases of riparian area condition, by watershed, sufficient to make the planning and management decisions to implement this policy. The condition of riparian areas shall be determined on the basis of the types of functions listed in paragraph (2)(a)(A) of this rule as known from the best scientific information available;

(C) Monitor the effectiveness of riparian area management and rehabilitation activities within a watershed in accordance with land management plans or programs;

(D) Evaluate the effects of proposed management or rehabilitation activities, taking into account known conditions or riparian areas and uplands within the whole watershed and, to the extent practical, the cumulative impacts of ongoing and proposed management activities;

(E) Mitigate activities in riparian areas which are undertaken in accordance with land management plans. In mitigating activities, actions which avoid and minimize impacts as described in the mitigation definition found in OAR 690-400-0010(9)(a) and (b) are preferred;

(F) Undertake mitigation when emergencies require action that damages riparian areas;

(G) Schedule, implement and monitor efforts to improve impaired water-related functions of riparian areas, considering the natural recovery potential of affected resources and the benefits expected from the recovery. Give preference to improvement strategies which take advantage of natural processes; and

(H) Enforce statutes, rules, and regulations that require federal land management agencies to exercise their management and trustee responsibilities to restore, maintain and enhance the riparian areas of the state. (ORS 541.355(2)(b)(C)).

(3) Applicability:

(a) The policy and principles in sections (1) and (2) of this rule shall not apply to:

(A) Privately-owned lands, including those served by a public corporation, such as an irrigation district; or

(B) Facilities constructed for the conveyance of water, including but not limited to irrigation ditches or canals.

(b) Nothing in the policy and principles in sections (1) and (2) of this rule shall preclude operating or using reservoirs, ponds, wetlands created for treating water, or other water facilities in accordance with the purposes for which they were authorized, built or permitted.

Statutory/Other Authority: ORS 536
Statutes/Other Implemented: ORS 536
History:
WRD 22-1990, f. & cert. ef. 12-14-90

690-410-0060
Conservation and Efficient Water Use

(1) Policy — The elimination of waste and improving the efficiency of water use are high priorities. Use of water without waste is required by state statute and the prior appropriation doctrine. Programs to eliminate waste shall be implemented. In addition, improving the efficiency of water use through implementation of voluntary conservation measures can help restores instream flows and provide for future needs including public uses and continued economic development. Priority shall be given to developing subbasin conservation plans and providing public assistance in areas of known over-appropriation of surface water, ~~and~~ o areas where groundwater has been overdrawn or where permit issuance has exceeded or would exceed the capacity of the resource~~groundwater~~, and of water quality problems.

Commented [LB1]: WRD's draft definition of "overdrawn" is not broad enough as it is not protective of discharges to streams or other GDEs.

(2) Principles — Programs to achieve the policy in section (1) of this rule shall be guided by the following principles:

(a) Water users shall construct, operate and maintain their water systems in a manner which prevents waste and minimizes harm to the waters of the state and injury to other water rights;

(b) Major water users and suppliers shall prepare water management plans under the guidance of schedules, criteria and procedures which shall be adopted by rule. The plans shall evaluate opportunities for conservation and include a quantification of losses of water from the systems, an evaluation of the effectiveness and costs of alternative measures to reduce losses, and an implementation schedule for all feasible measures. During the planning processes, consideration shall be given to the environmental impacts from and time needed for implementation of system modifications. The Department shall assist water users and suppliers in the preparation of the water management plans;

(c) The Commission shall encourage and facilitate the development of subbasin conservation plans throughout the state by local advisory committees. Subbasin conservation plans shall include measures to assist water users in eliminating waste, other methods to improve water use efficiency in the subbasin, funding proposals to implement the measures and procedures to protect water dedicated to instream uses from further diversion. Priority shall be given to development of subbasin conservation plans in serious water management problem areas, critical groundwater areas and other areas where water supplies are not sufficient to meet demands. The Commission shall adopt rules to guide formation of broad-based committees, the preparation of subbasin plans, and the submittal of plans to the Commission for approval;

(d) When wasteful practices are identified in water management plans and subbasin conservation plans, the Commission shall adopt rules prescribing statewide and subbasin standards and practices that ensure beneficial use without waste. The rules shall recognize that conditions vary for different parts of the state and for different uses;

(e) A conservation element shall be developed and included in each basin plan when a major plan review and update is performed;

(f) The collection, analysis and distribution of information on water use and availability are necessary to ensure that the waters of the state are managed for maximum beneficial use and to protect the public welfare, safety and health. The ability to measure flows at authorized points of diversion is essential to the management of water and the elimination of waste;

(g) The Commission shall support public education programs, research and demonstration projects to increase citizen and water user awareness of water conservation issues and measures in the state; and

(h) The Commission shall support programs to provide economic assistance to water users to implement desired conservation measures, particularly where the benefits of implementing the measures are high.

Statutory/Other Authority: ORS 536
Statutes/Other Implemented: ORS 536
History:
WRD 22-1990, f. & cert. ef. 12-14-90

690-410-0070
Water Allocation

(1) Policy. The waters of the state shall be allocated within the capacity of the resource and consistent with the principles that water belongs to the public and that any use must be ~~to be used~~ beneficial~~ly~~ and without waste. Water shall be allocated among a broad range of beneficial uses to provide environmental, economic, and social benefits. The waters of the state shall be protected from over-appropriation by new out-of-stream uses of surface water or from being overdrawn by new uses of groundwater.

(2) Principles. Programs to achieve the policy in section (1) of this rule shall be guided by the following principles:

(a) The surface waters of the state shall be allocated to new out-of-stream uses only during months or half-month periods when the allocations will not contribute to over-appropriation. However, when a stream is over-appropriated, some additional uses may be allowed where public interest in those uses is high and uses are conditioned to protect instream values;

(b) The groundwater of the state shall be allocated to new beneficial uses only when water is available for a proposed use as per the definitions in OAR 690-300-0010, OAR 690-008-0001, OAR 690-009-0010, and 690-400-0010 ~~the allocations will not contribute to the over-appropriation of groundwater sources~~. Restrictions on allocations of water for exempt groundwater uses may be considered when a groundwater source is over-~~appropriated~~drawn or where groundwater permit issuance has exceeded or would exceed the capacity of the resource;

(c) New allocations of water for the purpose of filling storage facilities may be allowed notwithstanding subsection (a) of this section. Protection may be afforded to all water rights and instream uses by establishing storage filling seasons in basin rules, by considering the need for minimum pass-through flows on water rights, or establishing by rule other conditions consistent with the state policy on water storage as a prerequisite for allocation. In setting a storage season, consideration shall be given to avoiding periods of the year when flows are low and seldom exceed the needs of water rights and when additional flows are needed to support public uses;

(d) A determination that a stream is over-appropriated does not affect the allocation of legally stored water from existing or future facilities;

(e) When surface water or groundwater is known to be contaminated, it may be allocated to new uses only if the Commission determines, after consultation with the Department of Environmental Quality (DEQ) or the Oregon State Health Division (OSHD), that the use does not pose a significant hazard to human health or the environment. Groundwater allocation may be restricted if the Department determines that use would likely result in the spread of existing groundwater contamination;

(f) Water shall not be allocated if the proposed use would injure the exercise of existing water rights or permits;

(g) The Scenic Waterways Act declares that the highest and best uses of the waters within State Scenic Waterways are fish, wildlife, and recreation. Allocations to new out-of-stream uses in State Scenic Waterways shall be consistent with the Scenic Waterways Act. Allocations to new out-of-stream uses in and above State Scenic Waterways shall not interfere with the maintenance of flow levels necessary for the purposes of Scenic Waterways;

(h) When instream flow needs are not protected by instream water rights, new out-of-stream

Commented [LB2]: These are different principles (and different statutory provisions) and should not be conflated.

Commented [LB3]: Same comment as above - "overdrawn" is not broad enough.

allocations may be limited or conditioned to protect public uses;

(i) When allocating water for new uses, the Commission shall assure compliance with the Statewide Planning Goals and compatibility with local comprehensive plans in accordance with the Department's certified State Agency Coordination Program;

(j) When classifying allowable new uses of water or establishing reservations, the Commission shall seek consistency with management plans for public lands and resources, and with state, regional, and local resource management and economic plans;

(k) Conservation, storage development, water right transfers, and leases are means to maximize beneficial uses and to meet the changing needs of society and shall be encouraged and facilitated;

(l) Future allocation of water for out-of-basin diversions shall be allowed only if consistent with this policy and the conditions specified in existing statute and rule.

Statutory/Other Authority: ORS 536.025, 536.220 & 536.300
Statutes/Other Implemented: ORS 536.025, 536.220 & 536.300
History:
WRD 10-1992, f. & cert. ef. 7-31-92

690-410-0080
Water Storage

(1) Policy. Water storage options are an integral part of Oregon's strategy to enhance the public and private benefits derived from the instream and out-of-stream uses of the state's water resources. Storage can provide increased water management flexibility and control. Storage can be enhanced through means ranging from natural processes to engineered structures. The state shall facilitate and support project planning and development. The state shall actively pursue funding when storage is determined to be a preferred alternative to meet the water needs of instream and out-of-stream beneficial uses.

(2) Principles. Programs to achieve the policy in section (1) of this rule shall be guided by the following principles:

(a) Water resource planning in the state shall consider storage along with other available alternatives to meet water management goals;

(b) When determining whether storage is a preferred alternative, due regard shall be given to public interest, needs and priorities, and legal, social, economic and environmental factors;

(c) The state shall encourage high priority storage projects and facilities through the reservation of unappropriated water for future economic development;

(d) Storage shall be planned and implemented in a manner to protect and enhance the public health, safety and welfare, and the state's natural resources;

(e) The state shall encourage enhancement of watershed storage capacity through natural processes using non-structural means;

(f) The state shall promote the maximization of benefits derived from storage facilities by evaluating existing and potential storage capacities, authorized uses and operational practices;

(g) Criteria for evaluating impacts of storage projects shall include the following factors:

(A) Purpose (e.g., type, location and extent of use, benefits);

(B) Legal (e.g., state, federal and local legal requirements);

(C) Social (e.g., recreational, public support, cultural, historic);

(D) Technical (e.g., siting issues, public safety and structural integrity);

(E) Financial (e.g., project financing including site costs, cost sharing and repayment, and operating, maintenance and rehabilitation costs);

(F) Economic (e.g., project benefit/cost analysis);

(G) Land use (e.g., ownership, comprehensive plans, coordination);

(H) Environmental (e.g., impacts on streamflows, fisheries, wildlife, wetlands, habitat, biological diversity, water quality and opportunities for mitigation);

(I) Other (e.g., direct and indirect impacts).

(h) The state shall encourage and give high priority to storage that optimizes instream and out-of-stream public benefits and beneficial uses. Multi-purpose storage is to be preferred over single-purpose storage and upstream storage is to be preferred over downstream storage;

(i) The state shall cooperate with federal agencies, local governments and private entities in identifying and protecting high priority storage sites for development of projects. The state shall promote appropriate land use protection for high priority storage sites;

(j) The state shall support and participate in programs to finance planning and development of high priority storage;

(k) The Water Resources Department shall coordinate interagency recommendations to sponsors, developers or operators of high priority storage projects.

Statutory/Other Authority: ORS 536.025, 536.220 & 536.300
Statutes/Other Implemented: ORS 536.025, 536.220 & 536.300
History:
WRD 10-1992, f. & cert. ef. 7-31-92