

Seasonally Varying Flows Task Force Minutes

September 5, 2014, 8:00 am to 12:00 pm

Oregon Water Resources Department

North Mall Office Building

725 Summer St. NE

Salem, Oregon 97301

TASK FORCE ON SEASONALLY VARYING FLOWS (SVFS) MEMBERS

Leslie Bach, JR Cook (by phone), Katie Fast, Tim Hardin, Teresa Huntsinger, Bill Jaeger, Valerie Kelly, Richard Kosesan, Mark Landauer, Curtis Martin, Paul Matthews, Kimberley Priestley, Eric Quaempts, Gil Riddell, Tracy Rutten, April Snell, Jeff Stone. Absent: Joe Whitworth, represented by Joe Furia; Dawn Wiedmeier.

FACILITATION TEAM

Richard Whitman, Office of Governor John Kitzhaber, Convener; Brenda Bateman, Oregon Water Resources Department; Racquel Rancier, Oregon Water Resources Department; Nancy Salber, Governor’s Natural Resources Office; Ken Stahr, Water Resources Department (Presenter).

GOVERNANCE TASK FORCE MEMBERS IN ATTENDANCE

Amanda Rich

OBSERVERS

Tom Byler, Malia Kapillas, Rob Kirschner, Amber McKinney, Tom Paul, Mateusz Perkowski, Lauren Smith, Willie Tiffany.

Meeting Objectives:

- Build a consistent vocabulary / terminology for the group.
- Examine approaches to establishing seasonally varying flows for allocation purposes

Housekeeping Items and Meeting Outline for the Day

Richard reminded the group that meetings are open to public. Again encouraged group to bring issues to the table. When sending emails to entire group, send them through Brenda Bateman and she will forward to the entire group. Contact Brenda Bateman for travel reimbursement forms as well. Tentative Meeting Schedule: Next meeting for SVF is Sept. 19; Oct. 3 may hold both an SVF and Governance Task Force..

For today’s meeting we will divide questions into two pathways. Ones that can be answered right away and questions that require further work for future meetings.

Quick recap: SVF task force is integrating the work of the two subgroup reports, looking at methods to determine SVFs and also address economic feasibility of storage projects. Governance TF is dealing with process – who gets funded.

Introduction to Science Report by Brenda Bateman

Science Report – Science Subgroup was comprised of five members convened by Brett Brownscombe. Mandate for subgroup is spelled out in section 19 of SB 839. Problem to tackle: what is an effective and efficient way to define SVF flows for allocation purposes? Address functional needs of watersheds. The science subgroup was to make recommendations to the SVF Task Force. Group did literature review and colleague interviews. Group was looking for something relatively easy to implement and understand. Looking to protect ecosystems and aware of time and resources involved in study. Resulting recommendations focus on percent of flow approach or an in-depth assessment.

What Are We Trying to Protect...and Balance?

Dr. Valerie Kelly provided an introduction to Seasonally Varying Flows, focusing on definitions and parts of the hydrograph. Kelly noted the hydrograph is a time series perspective; a dynamic process.

Dr. Kelly stated base flow is flow in stream that is not derived from runoff, it is the flow that does not respond to precipitation. Tim Hardin uses the term differently in his biological studies; it is the flow needed to provide physical habitat for various life stages of fish. It was suggested for clarity purposes to distinguish between the terms: Hydrologic Base Flow and Biological / Administrative Base Flow.

She moved on to the explanation of ecosystem needs: timing, duration, magnitude/volume and frequency and the dynamics of how flow plays out. See handout.

The question was raised about access to floodplains. Important source of refuge to fish during high flows. It was noted that with declining snow pack and more rain events we can expect more flashy events. The group discussed the effect that flashy events have on watersheds.

Dr. Kelly reminded group that the field of ecological flows is a fairly new science. Selecting a percent of flow can provide ecosystem protection, even though we do not fully understand the relationships between flow and ecological health. A percent of flow approach protects the full range of ecosystem goods and services without the need to expend resources on studies. Percent of flow approach relies on natural variability, altered by specific percentage of deviation. Especially relevant when flow conditions are not static.

Approaches to Establishing Seasonally Varying Flows

Tim Hardin then provided a brief overview of the history of instream protection. See PowerPoint slides on-line

Dr. Hardin then gave an overview of the five components of stream system: geomorphology, biology, hydrology, water quality, and connectivity. Hydrology is at the center of the five parts - driver of the bus. The science team was looking for a way to protect these 5 functions.

Dr. Hardin then gave examples of flow study methods and Leslie Bach walked through the Florida and Texas studies.

He discussed channel maintenance flows and how high flows rearrange habitat. He talked about how to study a maintenance flow; a common way is to look at what kind of substrate there is and then look at: 1) flow recurrence, 2) hydraulic models, or 3) empirical data.

Moved to discussion about migration flows – most seasonal, moderately high flow. There is quite a bit of data on migration flows in some rivers. Richard would like a presentation at a future meeting on current practices to evaluate water rights for storage.

Richard reminded the group that any approach to SVF protection, whether it be percent of flow, in-depth analysis, or other, must use the Department's water availability analysis as a foundation (see Section 13(7) of the bill).

There was then discussion about percent of flow (POF) and in-depth analysis. It was noted that some support POF because it provides transparency. In depth analysis could be very time-consuming and very intense.

Percent of Flow Assessments

Ken Stahr gave a presentation on why some jurisdictions use a Percent of Flow Assessment instead of a full study. He gave a primer on the current method for assessing water availability for storage projects, and used examples from around the state.

POF thought process: Is water available? Requires a Water Availability Analysis. POF would be used by the Department as first line of analysis. Subgroup proposes using this analysis to help establish the allowable storage season. The model also helps determine downstream demands and can be used as an accounting tool.

What's out there right now: Majority of projects in Oregon are less than 10,000 acre feet. There was discussion that POF makes a sizable assumption – need to get balance between instream and out-of-stream needs. Clarification was requested on the relationship between POF and 50 percent exceedance standard.

The group discussed how the Department determines water availability for live flow projects compared to water storage projects. Whitman asked the Department to bring existing process back to the group, to have as documentation.

Stahr then gave a presentation on what it would take to fill reservoirs of different sizes, necessary fill rates and potential acres irrigated. Stahr encouraged the group to re-look at its terminology: storage season vs. non irrigation season vs. when water is available/allowable.

The group asked for presentations on the financial viability of water storage projects, “rules of thumb” for determining fill techniques, and other methods of water diversion in future meetings. Have Economic Subgroup members to present information.

Public Comment

Malia Kapillas shared a number of concerns about whether the state was focusing on above-ground storage projects to the exclusion of other types of storage, and whether instream water rights were in error.

To Be Answered or Addressed in Subsequent Meetings

Things to note

1. There are two different definitions of baseflow in our documents (hydrologic vs. biologic / administrative). For now, call them hydrologic baseflow and biologic / administrative baseflow until task force agrees upon something more clear.
2. Revisit terms “storage season,” vs. “non-irrigation season,” vs. “when water is available / allowable.”

Tasks

1. Post today’s powerpoints and materials. Done.
2. Provide current allocation rule language to the group: See attached appendix with excerpts from OAR 690-300-0010 (Definitions), 400-010 (Definitions), 410-070 (Water Allocation), and 410-080 (Water Storage).
3. Add more references / citations on-line, re: percent of flow and in-depth studies. (Include more documents focused on law, policy, and implementation, instead of the science)
4. Prepare a presentation on “Water Permitting 101” (tools to protect peak flows TODAY, when developing water storage projects).
5. Prepare a presentation on how projects would be permitted under percent of flow, or POF, approach.
6. Hear from Economic Subgroup
7. Prepare a presentation “How to Determine if Storage Projects Will Pencil Out.” (Compare techniques for diverting water for storage.)

Additional Questions from the Members

1. Could you clarify how SVFs will be used, once they are set for SB 839?
2. Could you describe how the POF approach would be managed on-the-ground?
(e.g., what would the interaction look like between a POF project and non-POF project?
What would the interaction look like between two POF projects?
How would a POF project be accounted for in WRD’s Water Availability Model?)
3. What’s the status of the measurement network / stream gage network in Oregon?
4. What’s the definition of “natural flow”? How far back in time does it go?
5. What studies are necessary in order to determine who and when to discharge 25% of the stored water back to the stream? (See Section 10 of the bill).
6. Is there a prioritized list of places that need improved floodplain connectivity?
7. Is there a prioritized list of place that need improved flood control?
8. How would communities prioritize which functions they need to protect during the development of a storage project?
9. What kind of diversion system is it possible for WRD to administer and for project owners to manage?
10. Looking at different diversion techniques...who will pay for any necessary studies?
11. Are there other diversion techniques the group should be considering?

12. Would it help to look at the circumstances/costs under which already-existing dams were built?
13. Is there a rule of thumb to determine the feasibility of a storage project?
(i.e., Will it fill to capacity;
Will it fill before the end of the storage season;
Will it fill reliably?)
14. When we talk about project “feasibility,” how much do projects cost and what are we buying?
15. What is the current status of water reservations throughout the state?

APPENDIX: EXCERPTS FROM OREGON ADMINISTRATIVE RULE

**DIVISION 300
DEFINITIONS – Excerpts Only**

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:

(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.

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

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

(a) The requested 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 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 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.

(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.

Stat. Auth.: ORS 536.027

Stats. Implemented: ORS 536, 537, 539, 540 & 541

Hist.: WRD 6-1987, f. & ef. 6-11-87; WRD 5-1988, f. & cert. ef. 6-28-88; WRD 12-1990, f. & cert. ef. 8-8-90; WRD 16-1990, f. & cert. ef. 8-23-90; WRD 9-1992, f. & cert. ef. 7-1-92; WRD 4-1993, f. & cert. ef. 10-7-93; WRD 6-1993, f. & cert. ef. 11-30-93; WRD 5-1994, f. & cert. ef. 4-13-94; WRD 7-1994, f. & cert. ef. 6-14-94; WRD 5-1995(Temp), f. & cert. ef. 8-4-95; WRD 1-1996, f. & cert. ef. 1-31-96, Renumbered from 690-011-0010; WRD 3-1996, f. & cert. ef. 3-15-96; WRD 2-1998, f. & cert. ef. 10-13-98; WRD 1-2012, f 1-31-12, cert. ef. 2-1-12

DIVISION 400 STATE WATER RESOURCES POLICY – Excerpts Only

690-400-0010

Definitions

As used in the rules contained in Divisions 400 and 410, unless the context requires 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.

(4) "Capacity of the Resource" means the ability of a surface water or groundwater resource to sustain a balance of public and private uses without causing over-appropriation or otherwise significantly impairing the function or character of the resource.

(11)(a) "Over-Appropriated" means a condition of water allocation in which:

(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) of this subsection shall apply to water availability determination for permit applications submitted after July 17, 1992.

Stat. Auth.: ORS 536.025, ORS 536.220 & ORS 536.300 - ORS 536.340

Stats. Implemented: ORS 536.025, ORS 536.220 & ORS 536.300 - ORS 536.340

Hist.: WRD 22-1990, f. & cert. ef. 12-14-90; WRD 10-1992, f. & cert. ef. 7-31-92; WRD 3-1993, f. & cert. ef. 7-27-93

DIVISION 410
STATEWIDE WATER RESOURCE MANAGEMENT – Excerpts Only

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 principle that water belongs to the public to be used beneficially 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 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 when 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;

(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;

Stat. Auth.: ORS 536.025, [ORS 536.220](#) & [ORS 536.300](#)

Stats. Implemented: [ORS 536.025](#), [ORS 536.220](#) & [ORS 536.300](#)

Hist.: WRD 10-1992, f. & cert. ef. 7-31-92

690-410-0080

Water Storage – Excerpts Only

(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.

Stat. Auth.: ORS 536.025, [ORS 536.220](#) & [ORS 536.300](#)

Stats. Implemented: [ORS 536.025](#), [ORS 536.220](#) & [ORS 536.300](#)

Hist.: WRD 10-1992, f. & cert. ef. 7-31-92