

DEQ DIVISION 33 APPLICATION REVIEW SHEET

Recommendations for Water Right Applications that may affect the
Habitat of Sensitive, Threatened or Endangered Fish Species, OAR 690-33-310 through 340.

Application #: G 18441 **Applicant's Name:** Robert and Janet Bothwell

Application proposes the appropriation of 0.21 cubic foot per second (CFS) of water from Well 1 (JACK 61311/L109596) and Well 2 in Constance Creek Basin for irrigation of 16.5 acres March 1 through October 31 of each year.

1) Is there a connection to a 303(d) listed water quality limited water body? ☐ NO ☒ YES

Explain: Constance Creek and Snider Creek are tributaries to the Rogue River. Water quality data is not available for Constance or Snider Creek. The Rogue River is listed for fecal coliform, pH, dissolved oxygen, temperature, and mercury. A temperature and bacteria TMDL exists for the Rogue Basin.

Rogue 2008 TMDL Parameter Reductions

Temperature:

Beneficial uses impaired include fish and aquatic life, and fishing.

OAR 340, Division 41 provides numeric and narrative temperature criteria. Figures 271A, 271B specify where and when the criteria apply. Biologically based numeric criteria applicable to the Rogue Basin, as measured using the seven day average of the daily maximum stream temperature include:

13.0°C during times and at locations of salmonid and steelhead spawning.

16.0°C during times and at locations of salmon and trout rearing and migration designated as core cold water habitat

18.0°C during times and at locations of salmon and trout rearing and migration.

Human caused temperature increases from:

- (1) warm water discharge to surface waters
- (2) increased solar radiation loading, and
- (3) flow modification that affects natural thermal regimes.

Peak temperatures typically occur in mid-July through mid-August. On the Rogue River, the period of exceedance of the water quality standard and applicability of allocations is from April 1- October 31 but anthropogenic heat loads are of concern throughout the year.

Bacteria:

Beneficial uses impaired include water contact recreation

E. coli is used as an indicator of human pathogens for water recreational contact.

(A) A 30-day log mean of 126 E. coli organisms per 100 milliliters, based on a minimum of five samples;

(B) No single sample may exceed 406 E. coli organisms per 100 milliliters.

Fecal bacteria sources may include wildlife, livestock waste, failing septic systems, wastewater treatment plant malfunctions, rural residential runoff, and urban runoff. Seasonal variation is addressed using load duration curves which incorporate all observed flows from all seasons.

Allocations apply year-round and are based on stream flow.

303(d) 2012 Water Quality Limitations

Water Body (Stream/Lake)	River Miles	Parameter	Season	Criteria	Beneficial Uses	Status
Rogue River	68.3 to 94.9	pH	Summer	pH 6.5 to 8.5	Water contact recreation; Resident fish and aquatic life; Salmonid fish spawning; Salmonid fish rearing; Anadromous fish passage	Cat 5: Water quality limited, 303(d) list, TMDL needed
Rogue River	83.4 to 90.9	pH	FallWinterSpring	pH 6.5 to 8.5		Cat 5: Water quality limited, 303(d) list, TMDL needed

Rogue River	94.9 to 110.7	Fecal Coliform	Summer	Fecal coliform log mean of 200 organisms per 100 ml; no more than 10% > 400 per 100 ml	Water contact recreation	Cat 4A: Water quality limited, TMDL approved
Rogue River	33.8 to 131.8	Dissolved Oxygen	October 15 - May 15	Spawning: Not less than 11.0 mg/L or 95% of saturation	Salmon and steelhead spawning	Cat 5: Water quality limited, 303(d) list, TMDL needed
Rogue River	0 to 124.8	Temperature	Year Round (Non-spawning)	Salmon and trout rearing and migration: 18.0 degrees Celsius 7-day-average maximum	Salmon and trout rearing and migration	Cat 4A: Water quality limited, TMDL approved
Rogue River	132.2 to 156.8	pH	Summer	pH 6.5 to 8.5	Water contact recreation; Resident fish and aquatic life; Salmonid fish spawning; Salmonid fish rearing; Anadromous fish passage	Cat 5: Water quality limited, 303(d) list, TMDL needed
Rogue River	0 to 216.8	Mercury	Year Round	Table 40 Human Health Criteria for Toxic Pollutants	Human health	Cat 5: Water quality limited, 303(d) list, TMDL needed

2) What is the potential for this use to impact a water quality limited water body: ☐ HIGH ☒ MEDIUM ☐ LOW

Explain: The ground water review indicates that the proposed groundwater use is hydraulically connected to surface water. According to OWRD's Water Availability Model, surface water is not available at any time of the year, reduced groundwater recharge and resulting streamflow depletion could impact quantity and quality in critical summer months when temperatures are already too warm. Snider Creek and the Rogue River have ISWR. Based on water availability, the cumulative withdrawal in Snider Creek is likely to cause ecological harm June through October. Rogue River flows are artificially managed through water releases from Lost Creek Reservoir. Scientific literature have identified harm occurring when 6-35 percent or more of daily flow is withdrawn¹.

(Water Availability – SNIDER CR > ROGUE R - AT MOUTH ROGUE BASIN)

Watershed ID	Exceedance Level	Month	Natural Stream Flow	Proposed Consumptive Use	Expected Stream Flow	Instream Requirement	Net Water Available	Percent of Flow
71626	50	JAN	28.9	1.78	27.1	26	1.12	6
71626	50	FEB	33.2	2.05	31.1	26	5.15	6
71626	50	MAR	22.6	1.39	21.2	26	-4.79	6
71626	50	APR	11.8	0.51	11.3	11.8	-0.51	4
71626	50	MAY	4.98	0.81	4.17	4.98	-0.81	16
71626	50	JUN	4.92	1.13	3.79	4.92	-1.13	23
71626	50	JUL	2.58	1.51	1.07	2.58	-1.51	59
71626	50	AUG	1.6	1.25	0.35	1.6	-1.25	78
71626	50	SEP	0.96	0.82	0.14	0.96	-0.82	85
71626	50	OCT	1	0.27	0.73	1	-0.27	27
71626	50	NOV	2.55	0.18	2.37	2.55	-0.18	7
71626	50	DEC	14.7	0.91	13.8	14.7	-0.91	6
71626	50	ANN	7760	759	7000	7390	357	10

¹ Richter, B. D., Davis, M. M., Apse, C. and Konrad, C. (2012), A Presumptive Standard for Environmental Flow Protection. River Res. Applic., 28: 1312–1321. doi:10.1002/rra.1511

Monthly flow in Cubic Feet per Second (CFS). Annual flow in Acre Feet (AF).

3) If the answer to question (2) is HIGH or MEDIUM, will the proposed use still result in diminution of water quality for the habitat of sensitive, threatened, or endangered fish species? ☐ NO ☒ YES

If YES, how?

STATEWIDE, *Shady Cove-Rogue River*, Coho Salmon, Chinook Salmon, Steelhead

Constance Creek and Snider Creek are designated as core cold-water habitat. Temperature and dissolved oxygen are a flow-related parameter. When streamflow is reduced, assimilative capacity is reduced. As a waterbody heats up, dissolved oxygen concentrations decline. By reducing groundwater recharge and resulting streamflow, this use is likely to exacerbate the temperature and dissolved oxygen impairments. The assimilative capacity of a waterway is flow dependent. Reduced flows can increase the concentrations of phosphorous, bacteria, pesticides and metals.

Increases in temperature or a reduction in dissolved oxygen adversely impacts sensitive, threatened, and endangered fish. Fish require different temperature and concentrations of dissolved oxygen based on species and life history stage. Oregon's temperature and dissolved oxygen limits are based on the most sensitive species and the life history stage of those species at the location and season of concern. The temperature and dissolved oxygen concentrations of hydrologically connected waterbodies are known to be insufficient for the habitat of sensitive, threatened, and endangered fish. Additional heat or reduction in dissolved oxygen concentrations will further impact these species habitat.

4) Can conditions be applied to mitigate the impact of the use?

☐ NO ☒ YES; recommend from Menu of Conditions and skip to question 7.

DEQ recommends that the applicant shall mitigate anticipated impacts to water quality for the habitat of sensitive, threatened, or endangered fish species by providing suitable replacement water. Additional mitigation may be required from other IRT members (example: OWRD may require mitigation for periods when water is not available). Surface flow mitigation is unlikely to provide the same benefit groundwater provides to gaining stream reaches. However, if groundwater mitigation is unavailable within the same aquifer, surface water mitigation will provide suitable mitigation.

Mitigation obligation: Prior to water use under this permit, the applicant shall provide mitigation water that is of no less volume than the consumptive portion of the permitted use. Mitigation water shall be sourced upstream of the point of appropriation, or the uppermost point on the stream at which PSI occurs. If surface water is used for mitigation, it shall be instream for the June 1- October 31 time period. The applicant should contact their OWRD caseworker to discuss flow mitigation options.

Water Quality: The use may be restricted if the quality of the source stream or downstream waters decreases to the point that those waters no longer meet existing state or federal water-quality standards due to reduced flow.

Prohibited Activities: Permittee shall not cause pollution of any waters of the state, or place or cause to be placed any wastes in a location where such wastes are likely to escape or be carried into the waters of the state by any means, per ORS 468B.025(1). If the Department of Environmental Quality determines that pollution of waters of the state is occurring, the permit holder is not in compliance with ORS 468B.025(1), DEQ shall notify OWRD of the violation.

Agricultural Water Quality Management Area Rules: Permittee must comply with basin-specific Agricultural Water Quality Management Area Rules in OAR 603-095. Livestock management and cropping must protect riparian areas on the property, allowing site capable vegetation along streams to establish and grow to provide the following functions: shade (on perennial and some intermittent streams), bank stability, and infiltration or filtration of overland runoff.

Compliant Flow Restrictor: Applicant shall install an OWRD approved flow restrictor.

5) If conditions cannot be identified to offset impacts, would the proposed use affect the Habitat of Sensitive, Threatened, or Endangered Fish Species? ☐ NO ☐ YES

If YES, please explain:

6) If a permit is issued, are there any conditions you would like to see included in the permit?

Refer to conditions listed in question 4.

7) Your recommendation under OAR 690-033-0330 (2): ☐ Approval with conditions
☐ Approval without conditions
☒ Denial, unless conditions and mitigation are met

DEQ Representative Signature: Heather Tugaw Date: October 16, 2017

WRD Contact: **Caseworker:** Barbara Poage, Water Rights Division, 503-986-0808 / Fax 503-986-0901

MENU OF CONDITIONS FOR WRD, ODFW, DEQ AND AG

The following condition will be included in any permit issued unless ODFW explicitly requests that it be omitted:

The permittee shall not construct, operate or maintain any dam or artificial obstruction to fish passage in the channel of the subject stream without providing a fishway to ensure adequate upstream and downstream passage for fish, unless the permittee has requested and been granted a fish passage waiver or exemption through the Oregon Department of Fish and Wildlife. The permittee is hereby directed to contact an Oregon Department of Fish and Wildlife Fish Passage Coordinator before beginning construction of any in-channel obstruction.

- fishself** The permittee shall install, maintain, and operate fish screening and by-pass devices consistent with current Oregon Department of Fish and Wildlife (ODFW) standards. Fish screening is to prevent fish from entering the proposed diversion while by-pass devices provide adequate upstream and downstream passage for fish. The required screen and by-pass devices are to be in place and functional prior to diversion of any water. Permittee shall obtain written approval from ODFW that the installation of the required screen and by-pass devices meets the state's criteria or the permittee shall submit documentation that ODFW has determined screens and/or by-pass devices are not necessary.
- fishapprove** The permittee shall install, maintain, and operate fish screening and by-pass devices consistent with current Oregon Department of Fish and Wildlife (ODFW) standards. Fish screening is to prevent fish from entering the proposed diversion while by-pass devices provide adequate upstream and downstream passage for fish. The required screen and by-pass devices are to be in place and functional, and approved in writing by ODFW prior to diversion of any water. The permittee may submit evidence in writing that ODFW has determined screens and/or by-pass devices are not necessary.
- fishdiv33** If the riparian area is disturbed in the process of developing a point of diversion, the permittee shall be responsible for restoration and enhancement of such riparian area in accordance with ODFW's Fish and Wildlife Habitat Mitigation Policy OAR 635-415. For purposes of mitigation, the ODFW Fish and Wildlife Habitat Mitigation Goals and Standards, OAR 635-415, shall be followed.
- The use may be restricted if the quality of the source stream or downstream waters decrease to the point that those waters no longer meet existing state or federal water quality standards due to reduced flows.
- The permittee shall install, maintain, and operate fish screening and by-pass devices consistent with current Oregon Department of Fish and Wildlife (ODFW) standards. Fish screening is to prevent fish from entering the proposed diversion while by-pass devices provide adequate upstream and downstream passage for fish. The required screen and by-pass devices are to be in place and functional, and approved in writing by ODFW prior to diversion of any water. The permittee may submit evidence in writing that ODFW has determined screens and/or by-pass devices are not necessary.
- fishmay** Notwithstanding that ODFW has made a determination that fish screens and/or by-pass devices are not necessary at the time of permit issuance, the permittee may be required in the future to install, maintain, and operate fish screening and by-pass devices to prevent fish from entering the proposed diversion and to provide adequate upstream and downstream passage for fish.
- b52** Water may be diverted only when Department of Environmental Quality sediment standards are being met.
- b5** The water user shall install and maintain adequate treatment facilities meeting current DEQ requirements to remove sediment before returning the water to the stream.
- b51a** The period of use has been limited to _____ through _____.
- b57** Before water use may begin under this permit, a totalizing flow meter must be installed at each diversion point.
- b58** Before water use may begin under this permit, a staff gage that measures the entire range and stage between full reservoir level dead pool storage must be installed in the reservoir. The staff gage shall be United States Geological Survey style porcelain enamel iron staff gage style A, C, E or I. Additionally, before water use may begin under this permit, if the reservoir is located in channel then weirs or other suitable measuring devices must be installed upstream and downstream of the reservoir, and, a gated valve outlet must be installed. A written waiver may be obtained from the local Watermaster if in his judgment the installation of the weir(s) will provide no public benefit.
- futile call** The use of water allowed herein may be made only at times when waters from the (NAME OF SURFACE WATER) would not otherwise flow into a tributary of the _____ River or sufficient water is available to satisfy all prior rights, including rights for maintaining instream flows.
- riparian** If the riparian area is disturbed in the process of developing a point of diversion, the permittee shall be responsible for restoration and enhancement of such riparian area in accordance with ODFW's Fish and Wildlife Habitat Mitigation Policy OAR 635-415. For purposes of mitigation, the ODFW Fish and Wildlife Habitat Mitigation Goals and Standards, OAR 635-415, shall be followed.
- wq** The use may be restricted if the quality of the source stream or downstream waters decrease to the point that those waters no longer meet existing state or federal water quality standards due to reduced flows.
- fence** The stream and its adjacent riparian area shall be fenced to exclude livestock.
- blv** Water must be diverted to a trough or tank through an enclosed water delivery system. The delivery system must be equipped with an automatic shutoff or limiting flow control mechanism or include a means for returning water to the stream source through an enclosed delivery system. The use of water shall not exceed 0.10 cubic feet per second per 1000 head of livestock.