

The McKenzie Watershed Council

“..fostering better stewardship of McKenzie Watershed resources through voluntary partnerships and collaboration”

PO Box 70166, Springfield, OR 97475 • 458-201-8150 (office) • 458-201-8152 (fax)

www.mckenzienc.org

Oregon Watershed Enhancement Board
c/o Linda Burnett
775 Summer St. NE
Salem, OR 97301

Re: Proposed Focused Investment Partnership Priority Response

Dear OWEB Board:

A Focused Investment in the McKenzie River Sub-basin would provide OWEB with a large return on investment. The McKenzie River is the backbone of the Willamette Basin because it: 1) accounts for a disproportionate amount of flow during the dry season due to the large spring-fed system in the upper watershed; 2) is one of the last remaining strongholds for Endangered Species Act (ESA) Threatened spring Chinook salmon and bull trout; 3) has some of the best water quality in Oregon which provides dilution for downstream impacts, and 4) is a hub for innovation and collaboration that can be used as a model to transfer to other watersheds. It may seem counter-intuitive to invest in an area that has some of the cleanest water in the world and is a stronghold for ESA-listed species, but as the Eugene Water & Electric Board (EWEB) discovered long ago with its drinking water source protection program, it is a much better return on investment to protect and maintain high quality resources while minimizing threats to these resources. The McKenzie River is showing signs of degradation in water quality and habitat quality, loss of riparian forest, and disconnection from its floodplain. These downward trends are primarily a result of dams, lack of in-stream wood, development pressures, septic systems, revetments, and urban runoff. Now is the time to invest in the McKenzie River Sub-basin as the foundation from which ecological uplift can occur in the Willamette Basin over time.



Photo by David Donahue

Roaring Spring, McKenzie River Watershed

1. Proposed Priority Description

a. What is the native fish or wildlife habitat to be conserved or other natural resource issue to be addressed? The overall goal is to maintain and fortify the McKenzie River Sub-basin as the Willamette Basin's ecological stronghold for key species of fish and wildlife and to protect the quality and quantity of drinking water. The focus is on aquatic, riparian and floodplain habitats. Key species include ESA-Threatened spring Chinook salmon, bull trout, Oregon chub (delisting pending), and Oregon spotted frog (listing pending); Oregon Sensitive Pacific lamprey and western pond turtle; and Pacific brook lamprey, rainbow trout, and coastal cutthroat trout. The McKenzie River is the sole source of drinking water for the City of Eugene, and while threats exist, water quality continues to be very high. Protection of water quality and quantity is a high priority for agencies and organizations in the watershed

b. What are the specific expected ecological outcomes to be achieved after this priority is addressed? The expected ecological outcomes include:

- Maintained or improved status of ESA-listed and Oregon Sensitive fish and wildlife species;
- Protection of drinking water quality;
- Conservation of high quality riparian habitat;
- Restoration of degraded riparian habitat;
- Improved aquatic habitat quality and complexity;

- Improved floodplain and side channel connectivity;
- Improved fish passage;
- Improved delivery of large wood, gravel and sediment to Critical Habitat;
- Reduced negative impacts of roads on aquatic habitat;
- Improved water storage in floodplains; and
- Resiliency to climate change.

c. What is the defined geographic location within which this proposed priority can be successfully addressed? The geographic location is the McKenzie River (4th Field HUC) Sub-basin. Conservation and restoration actions will be focused in habitats of overlapping key species (Figure 1). Monitoring, assessment, education and outreach activities occur throughout the Sub-basin.

2. Significance to the State

a. Why is this proposed priority of ecological significance to the state, even though it may not be present everywhere in the state? Recovery of species listed under the federal Endangered Species Act is a national priority and therefore a state priority. Upper Willamette spring Chinook salmon, bull trout and Oregon chub are currently listed as Threatened, and Oregon spotted frog is soon to be listed. In the Willamette Basin, the McKenzie watershed is a stronghold for wild spring Chinook salmon and bull trout. The McKenzie River population of spring Chinook has a low risk of extinction and is considered a genetic legacy population for the upper Willamette unit, but current run sizes are a fraction of historical levels. The McKenzie River bull trout population is the only remaining endemic population in the Willamette Recovery Unit due to the presence of cold water and relatively high-quality habitat. Bull trout from the McKenzie have been reintroduced into the Upper Middle Fork Willamette Watershed. Recovery of these species within their respective units will require recovery of the McKenzie population. Due in part to habitat in the McKenzie River Sub-basin, the status of Oregon chub is improving, and the U.S. Fish and Wildlife Service has proposed to delist them.



Photo by Vince Tranquilli

South Fork McKenzie bull trout

Conservation of key Oregon Conservation Strategy species is a state-wide priority. Pacific lamprey, Pacific brook lamprey, rainbow trout, cutthroat trout, western pond turtles and Oregon spotted frogs are Strategy species. Strategy species are at low levels or declining and include rare and/or at-risk fish and wildlife.

McKenzie River flows are large contributors to Willamette River flows, especially in the summer, when the McKenzie historically accounted for over 40% of the flow in Portland Harbor prior to dam construction (Tague and Grant, 2004). The McKenzie River is one of the few rivers in the state that still has available water rights during summer low flows.

b. Are there any social and/or economic considerations that the Board should understand regarding this proposed priority? The McKenzie River is the sole source of drinking water for Oregon's second largest urban area (nearly 200,000 people). Protection of drinking water quality is cheaper than treatment of degraded water quality (US EPA, 2012). In a recent University of Oregon (UO) survey of EWEB customers, McKenzie water quality and watershed protection were listed as the #1 and #4 priorities for rate payers, respectively, above utility rate control. A majority of EWEB customers indicated the McKenzie River has special significance for them beyond recreation and source of drinking water (UO, 2013). This connection with the McKenzie River plays out on state and national levels with its designation of certain river segments as a state and federal Wild and Scenic River.

The McKenzie watershed is a noted tourist destination for hikers, bikers, rafters, wildlife viewers and fishermen. Results from a recent recreational economic impact analysis showed that the combined recreational users of the McKenzie River Trail and the McKenzie River from May through September add \$5.1 million in recreation tourism dollars per year to Lane County (Lindberg and Hall, 2014). The McKenzie has an active recreational fishery which supports local guides and businesses. Oregon Department of Fish and Wildlife (ODFW) estimated fishing effort for trout at 90,000 – 120,000 angler hours per year during 2009-2010 in the middle and upper McKenzie. In 2012, EWEB funded a watershed valuation in the McKenzie to gain a better understanding of the economic value that is provided to society with a healthy watershed. Results show that McKenzie watershed ecosystems provide at least \$248 million in benefits to the regional economy each year (Earth Economics, 2012).

There are strong partnerships in the watershed, and the timing of a possible Focused Investment fits well with the launching of the Volunteer Incentive Program (VIP), the new McKenzie Stewardship Group and proposed plans to restore habitat on the South Fork McKenzie River, Horse Creek, Quartz Creek, and other areas in the Willamette National Forest. Large investments have been made by numerous partners in the basin. Notably, the Army Corps of Engineers (USACE) has constructed a temperature control tower and an adult fish trap and haul facility at Cougar Dam on the South Fork, and is testing a system to improve downstream migration of juvenile fish through the Project. These investments, in excess of \$60 million, will enhance survival of spring Chinook salmon and bull trout. The Willamette National Forest and various partners have spent over \$1 million in habitat enhancement and monitoring since 2005.

Development in the McKenzie River Sub-basin is projected to increase by 730 to 980 new homes over the next 30 years (Lane Council of Governments (LCOG), 2010). Nearly 60% of this development will occur in the lower McKenzie. The majority of future development will occur on tax lots within 300 feet of the river or other water bodies. More than 200 structures currently exist within the floodway, and over 1,100 structures are within the 100-year floodplain, with many requiring revetments for protection. Development in the floodway and floodplain poses an ecological threat to the river by restricting channel migration, creating flood hazards and increasing the risk of pollution from degraded riparian habitat and faulty septic systems.

c. In addition to its significance to the state, identify how the proposed priority fits within regional and local ecological priorities. Recovery of listed species and conservation of Strategy species is a high priority for agencies, organizations and individuals in the watershed. The USACE is working on improved passage of key species at Cougar Dam. The McKenzie Watershed Council's (MWC) conservation, restoration and education projects are focused on the key fish species and water quality. The Forest Service's (USFS) Watershed Condition Framework prioritizes restoration needs on the McKenzie River Ranger District to improve watershed function. EWEB has multiple programs aimed at water quality protection and fish habitat enhancement. ODFW plays a lead role in recovery of listed species and conservation of Strategy species through its Native Fish Policy, hatchery management plans and fish harvest restrictions. The McKenzie River Trust (MRT) conserves high quality riparian and floodplain habitat that benefits key species and water quality in the area. Additional organizations working on the proposed priority include Bureau of Land Management (BLM), City of Springfield, Metropolitan Wastewater Management Commission, The Weyerhaeuser Company and Springfield Utility Board.

3. Limiting Factors

a. What ecological limiting factors exist that relate to the proposed priority identified? Limiting factors include the following:

- Barriers and limitations to fish passage;
- Changes to the natural thermograph, hydrograph, and sediment, nutrient and wood supply due to presence of dams. Reduced productivity due to: 1) riparian conversion from hardwoods to conifers or non-forest, 2) lack of nutrient/detrital delivery below dams, 3) lack of nutrient/detrital storage due to lack of wood, and 4) reduced delivery of marine derived nutrients from anadromous fish runs;
- Lack of aquatic habitat quality and complexity;

- Compromised riparian habitat;
- Declining water quality resulting from development, septic systems, urban runoff and other sources;
- Lack of floodplain and side channel connectivity;
- Reduction in floodplain water storage
- Climate change impacts on timing and quantity of flows and water temperature;
- Lack of understanding of the limiting factors contributing to the recent decline in wild McKenzie spring Chinook; and
- Lack of understanding of the status of Pacific lamprey, Pacific brook lamprey and western pond turtle.

b. Reference any frameworks that exist. There are numerous action plans by McKenzie River Sub-basin partners and other organizations that relate to the proposed priority. These plans are referenced in the attached list. The McKenzie Watershed Council expects to receive an OWEB grant late this year to develop a new strategic action plan for the entire Sub-basin. We anticipate combining this planning effort with the development of a FIP action plan, should we be invited to submit a proposal.

4. Threats and Benefits

a. What overall threats exist to the proposed priority identified? Threats are numerous and include the following:

- **Dams:** Dams limit or block upstream and downstream passage of some key species, alter the natural thermograph below the facilities, limit the frequency and amplitude of peak flows that help to restore aquatic ecosystems, and block recruitment of large wood, nutrients, and sediment to downstream areas thus limiting aquatic habitat quality and complexity. There are five dams in the Sub-basin which have varying impacts on key species.
- **Hatchery/wild fish interactions:** The upper Willamette recovery plan for spring Chinook salmon and steelhead characterizes the risk of genetic introgression from hatchery fish interbreeding with wild fish as a key threat to McKenzie Chinook. The number of hatchery Chinook released into the McKenzie River is the subject of current litigation.
- **Fish harvest:** McKenzie origin spring Chinook salmon are caught in the ocean, Columbia River, Willamette River and the McKenzie River. In-river fisheries must release wild (unclipped) fish, although there is some hook-and-release mortality. Salmon fisheries are tightly regulated by National Marine Fisheries Service (NMFS), Columbia River Compact and ODFW. Bull trout are caught in the McKenzie and must be released unharmed, but direct fishing mortality continues to occur. Hook-and-release mortality likely occurs as well.
- **Development, septic systems, storm water and reventments:** Based on LiDAR analysis of riparian forest canopy cover as part of the VIP pilot project, approximately 21% of riparian forests appear intact and healthy on private lands, while 57% is clearly degraded from development, and past forestry and agricultural activities. Water quality samples are now showing increasing trends for some contaminants including E. coli and nitrates. Chemical use on farms, forests and residences poses a threat as storm runoff can mobilize chemicals.
- **Roads and culverts:** There are over 1,900 miles of roads in the McKenzie River Sub-basin. When roads are not maintained or upgraded, or when stream crossing infrastructure is undersized for a given stream, road failures can cause chronic or catastrophic failures that input unnatural amounts of fine sediment into streams. While downstream movement of coarse and fine sediment is natural, road failures can produce excess amounts of fine sediment that can smother spawning redds, detrimentally affect macro-invertebrate populations and decrease water quality. Undersized culverts also restrict aquatic organism passage, reducing the habitat available to these species, and can also restrict movement of wood and sediment that are vital to replenishing habitat in main stem channels. Road impacts can affect fish populations as well as aesthetic qualities of an iconic river like the McKenzie.
- **Hazardous material spills:** Trucks carrying hazardous materials travel Highway 126 next to the river.
- **Climate change** Recent Oregon State University (OSU) research indicates loss of snowpack with 2° C increase in temperature will potentially lead to 56% more runoff during winter, instead of being slowly

released during snowmelt. This indicates a trend toward more frequent winter flooding and longer summer dry seasons (Sproles et. al., 2013). Dry seasons exacerbate wildfire as well as erosion and reduce flows and increase temperatures adversely affecting salmonids.

b. What will happen if the threats aren't addressed? Current trends and studies indicate the beginning of declining water quality, low levels of key species, the significant loss of riparian forest, the increasing use of revetments to protect homes, increasing harmful algal blooms, and the recognition that climate change signals of decreasing snowpack, earlier spring runoff, higher temperatures, lower summer flows, and increased wildfires are becoming more apparent. If these threats are not addressed or mitigated over the next ten years, Oregon stands to see the decline of one of the last strongholds for fish, water flows and water quality in the Willamette Basin.

c. Describe the economic, social, iconic and cultural benefits of addressing the outcome and impacts of not addressing it. Investment in addressing the outcomes will provide regional economic stimulus from restoration and conservation jobs, and conservation and restoration of a key economic engine for the region around drinking water, recreation, fisheries, tourism and research (see question 2b). Based on EWEB surveys of customers and McKenzie landowners, the McKenzie River has a special connection with people (see question 2b). The river provides one of the last strongholds for iconic native species of the Pacific Northwest (Chinook salmon and bull trout). There are many celebrations and cultural events that happen in the McKenzie each year that draw people together. This is reflected in a partnership that has formed to plan, finance and build a McKenzie Interpretive Center that is expected to rival the High Desert Museum. The Center will showcase the fish, the fishermen, the origin of the McKenzie drift boat and the unique hydrogeology of the river. The impacts of not addressing the outcomes discussed in questions 1a and 1b include the continued degradation of key habitat and water quality, reduction of native fish populations and loss of a stronghold for the Willamette basin, loss of reliance on the McKenzie as a clean source of drinking water, the increased economic costs associated with treatment of degraded water quality and restoration of riparian forests, the economic impacts to recreation, fishing, and tourism, and the social and cultural loss of an iconic river that is rich with history. It is the latter that will have greatest impact on the region if we fail to maintain something that was special and largely healthy.

d. Briefly summarize how much has been done already, how much is remaining. Because of the importance of the McKenzie River to the region, agencies and organizations have been actively working together for years to leverage resources, focus investments, share information and data, and work together to develop solutions with landowners. The following is a brief summary of these investments and actions.

- ***Fish passage improvements related to dams:*** Construction/operation of a temperature control tower and adult trap and haul facility at Cougar Dam (USACE, \$41 million and \$11 million), construction/operation of fish passage and fish screens at Leaburg/Walterville hydroelectric facilities (EWEB, \$25 million), and planned construction/operation of adult fish passage facility at Trail Bridge hydroelectric facility once the FERC license is issued (EWEB, \$60 million).
- ***In-stream restoration of side channels and main stems:*** Since 2005, MWC/USFS have placed large wood in 15.5 stream miles with an investment of \$800,000 from OWEB, EWEB USFWS and USFS. Over the same period, the USFS, EWEB and OSU spent \$543,000 to monitor water quality, ESA-listed fish populations and habitat restoration sites in the upper watershed. MRT has restored aquatic habitat on 2 miles of side channels on Green Island.
- ***Riparian restoration:*** Over 700 acres of private land riparian and floodplain habitat have been restored since 2005, most of that occurring at Green Island. Approximately 4,000 acres of privately owned riparian land remain to be restored.
- ***Fish passage enhancements on roads:*** Since 2005, MWC/USFS have fixed three major fish passage barriers to listed fish in upper McKenzie River with an investment of \$660,000 from OWEB and USFS.
- ***Land acquisition/conservation easements:*** MRT has acquired 1,424 acres and placed 130 acres in conservation easements with an investment of \$4.6 million from BPA, EWEB and OWEB. About 1,700 acres of healthy riparian forest, islands and side channels remain to be conserved.

- **Water quality monitoring:** EWEB conducts monitoring with the USGS associated with land use impacts, harmful algal blooms, long-term trends (1993-2014), macro-invertebrate populations, and organic contaminants in the river (EWEB invests \$175,000 annually with \$45,000 from USGS). EWEB built a website for public to access the large volume of water quality data.
- **Watershed monitoring:** EWEB funds 7 USGS gage stations in the McKenzie (\$110,000 annually), EWEB and partners recently invested \$125,000 in collection of aerial photography and LiDAR that is used to monitor impacts and opportunities and anticipate collection every 3-5 years to measure changes.
- **Watershed Protection:** EWEB invests \$720,000 annually in programs like the McKenzie Watershed Emergency Response System, Septic System Assistance Program, urban storm water treatment, Healthy Farms Clean Water, Voluntary Incentives Program, Berggren Demonstration Farm, landowner education, and university research. These efforts work directly with over 700 landowners that have been involved in one or more of these programs.
- **Voluntary Incentives Program:** A collaborative of EWEB, MWC, MRT, Cascade Pacific Resource Conservation and Development (CPRCD), UO, OSU, Upper Willamette Soil and Water Conservation District (UWSWCD), LCOG, TFT, USFS, OWEB, and 16 landowners have designed and are implementing a pilot project to protect healthy riparian forests through incentives and long-term agreements while restoring degraded riparian forests.
- **USFS Stewardship Contracting:** EWEB is facilitating a stewardship contracting group that consists of VIP partners plus Oregon Wild, Cascadia Wildlands, BLM, ODFW, Oregon Department of Forestry, and timber industry representatives to advise the USFS around use of retained receipts and design of restorative harvests and restoration projects. The entire McKenzie Sub-basin is a designated Stewardship area, allowing receipts generated by Stewardship to be leveraged with other projects that can demonstrate benefit to National Forest lands.
- **Water Quality Trading:** In partnership with MWC and The Freshwater Trust, Metro Wastewater Management Commission (MWMC) has started pilot projects in the McKenzie to assess feasibility of using shade credits to reduce thermal impacts. EWEB is entering an MOU with MWMC to align this program with VIP investments.
- **Watershed Education & Research:** MWC has worked with Springfield & McKenzie school districts, USFS, EWEB, MRT to develop outdoor education programs which provide hands-on field- and inquiry-based activities through active restoration and monitoring. The McKenzie attracts extensive university research due to presence of HJ Andrews Experimental Forest and EWEB investments in research around climate change, ecosystem services and watershed health.

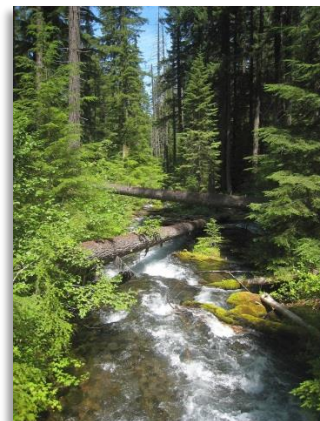


Photo by Johan Hogenorst

Healthy headwater stream, McKenzie River watershed

e. What is your best estimate of cost to address the priority, and as a result, how economically feasible do you believe it is to address this priority over time? We roughly estimate total cost at \$170 million in the long term based on the cost of restoration for riparian forests, land acquisition of key islands and floodplain reconnection properties, conservation easements, placement of large wood in priority streams, removal of levees, mitigation of dam impacts and hatchery fish, monitoring and research to inform watershed restoration priorities and direction, education and outreach to gain landowner and public support, and long-term assessment of climate change impacts to inform the future trajectory of watershed protection investments. Feasibility is difficult to assess over the long term. Large investments have already been made and we expect large investments to continue.

5. Opportunities

a. Ecological:

1. What are the measures of ecological success? What's the likelihood of ecological success in the short (6-year), medium and long term (define the term lengths)? Water quality parameters, such as E. coli, nutrients, metals and

pesticides, would continue to be monitored by EWEB and compared to safe drinking water quality and aquatic health standards published by EPA and DEQ. Aquatic habitat quality and complexity measures would include area of floodplain inundation, area of secondary channel habitat, large wood frequency per mile, pool area in main and side channels, and particle size in pool tailouts for spawning. Aerial photography and/or LiDAR could be used to measure increases in floodplain inundation and secondary channel habitat. Reference sites for high quality habitat, such as some reaches of Horse Creek, would be selected to develop targets. Frequency and amplitude of peak flows are measured by USACE and USGS at gauge stations. Improvements in riparian habitat condition would be measured by LiDAR flights every 3-5 years. Habitat conservation is measured by the number of acres acquired and placed in conservation easements. Trends in spring Chinook abundance are measured by counts at Leaburg Dam and number of redds. Redd counts serve as a relative measure of abundance of bull trout. Other measures of ecological success include miles of roads improved or decommissioned and number of culverts replaced. Success would also include increased knowledge of the status of Pacific lamprey, Pacific brook lamprey and western pond turtles.

In the short and medium terms (0-10 years), there is a good likelihood that high quality drinking water quality will be maintained and that measurable progress will be made in conserving and restoring riparian and aquatic habitat and improving roads and culverts. Significant improvements to and/or recovery of spring Chinook and bull trout populations are long-term endeavors.

2. What types of voluntary conservation actions could be undertaken to address the proposed priority?

- Pay landowners to conserve high-quality riparian habitat (EWEB). The proposed VIP Program, which currently is in a pilot stage, would pay riparian landowners who have high-quality riparian habitat an annual amount and require them to maintain the habitat in that condition.
- Acquire high-quality habitat and establish conservation easements (MRT). Efforts by the MRT would continue and expand as willing landowners are identified.
- Restore riparian habitat (MWC, MRT, USFS). Remove invasive species and establish site-appropriate vegetation on private and public land.
- Add complexity to aquatic habitat (MWC, USFS, BLM). Add large wood and gravel to create pool habitat and improve spawning, rearing and refuge habitat.
- Remove revetments where possible. Allow the river channel to migrate and restore connections to the floodplain and side channels, which are important off-channel winter rearing habitat for key species (MRT, MWC, USFS).
- Replace inadequate culverts to improve fish passage and allow recruitment of large wood, gravel and sediment to downstream areas (MWC, USFS, BLM).
- Invest in a sustainable road system and decommission unneeded roads (USFS).
- Replace or upgrade failing septic systems. EWEB has already inspected nearly 600 septic systems, of which 95 are failing, and offers 0% interest loans for homeowners to repair systems
- Reduce chemical use on farms. EWEB has removed 44 tons of old agricultural chemicals and has established programs with hazelnut and blueberry growers to reduce use of pesticides.

3. Should the proposed priority be divided into geographic areas that are appropriate for partners to address? The proposed priority area should not be divided into discreet geographic areas, instead partners will take a comprehensive and holistic approach, working collaboratively to address priority habitat restoration areas. These areas include the Voluntary Incentives Program boundary that includes 8,200 acres of privately-owned riparian area along the McKenzie River and its tributaries, water quality shade credit priority areas for restoration, Stewardship Contracting boundary and priorities, and five key areas for land acquisition investments. The USFS has already prioritized and is beginning work in the South Fork McKenzie River watershed, and BLM is beginning to focus on Gate Creek. These different priorities are used by the McKenzie Collaborative to focus investments and coordinate watershed protection and restoration efforts.

b. Social:

1. Do partnerships exist to address the proposed priority? If so, briefly describe. Yes, there are high-performing partnerships in the McKenzie River Sub-basin addressing the priorities. These include:

- **McKenzie Collaborative:** This group was formed to develop new programs that protect water quality and protect and restore habitat. The Voluntary Incentive Program (VIP) and the McKenzie Stewardship Group are products of the Collaborative. Member organizations are EWEB, MRT, MWC, USFS, UWSWCD, CPRCD, UO, OSU and LCOG. When fully implemented, the VIP will pay riverside landowners for keeping their riparian habitat in good condition. Participation is voluntary. OWEB has provided funding for the pilot VIP in 2014.
- **McKenzie Stewardship Group:** This new group signed an operating agreement in 2014 and serves to advise the McKenzie River Ranger District on restoration projects funded by stewardship contracting revenues and other sources of restoration dollars. Members are USFS, EWEB, MRT, MWC, BLM, ODFW, UWSWCD, Oregon Wild, Cascadia Wildlands, Forest 2 Markets, UO, OSU, ODF and CPRCD.
- **Shade Credit Partnership:** The Metropolitan Wastewater Management Commission (MWMC) for the Cities of Eugene and Springfield and Lane County is funding an initial shade credit project involving The Freshwater Trust and MWC targeting Cedar Creek in the McKenzie Sub-basin. EWEB and MWMC are in process of entering an MOU to align the investments with VIP landowner opportunities.
- **Lower McKenzie Fish Habitat Enhancement:** This is a partnership involving EWEB, ODFW, MRT and MWC to conserve and restore high-quality riparian habitat in five priority areas in the lower watershed. This partnership started in 2005 and is expected to continue for 20 years. Annual funding is provided by EWEB and is used to match grants for acquisitions, easements and restoration projects. This program is similar to the Willamette SIP in terms of expected outcomes and habitat types.
- **Berggren Watershed Conservation Area:** MRT, EWEB, CPRCD and MWC collaborate to restore floodplain forest and operate a sustainable demonstration farm on 92 acres in the lower watershed.
- **McKenzie Watershed Emergency Response System:** EWEB, ACOE, Region 2 HazMat, McKenzie Fire, Springfield Fire and Public Works, Eugene Fire, Lane County Sheriff and Public Works, ODOT, USFS, Weyerhaeuser and SUB collaborate to maintain a GIS system, spill response trailers, and conduct annual drills to test pre-determined response strategies.
- **Healthy Farms Clean Water Program:** OSU, OSU Extension, UWSWCD, CPRCD, WFFC, LCC, Oregon Tilth, Hazelnut Commission, hazelnut growers, blueberry growers and other farmers collaborate to reduce chemical use on farms, establish local food markets, obtain organic certification, assist with nutrient management, and remove old ag chemicals from farms.
- **South Fork McKenzie Floodplain Enhancement:** The USFS and MWC are facilitating a partnership to restore 700 acres of historically high value fish and wildlife habitat along 4.5 miles of the South Fork McKenzie River below Cougar Dam. The design for this project, funded by OWEB and USFS, is currently being done by a USFS enterprise team that specializes in large-scale restoration. Initial cost estimates are \$2-4 million and the habitat benefits will be substantial. Partners include USFWS, NOAA, EWEB, Trout Unlimited, MWC and USACE.
- **Horse Creek culvert replacements for fish and water quality:** There are five main tributary culverts to Horse Creek that restrict wood and gravel movement that would benefit fish habitat in the mainstem and pose water quality risks to municipal water. Trout Unlimited, USFWS and EWEB would like to pool funding and partner with the USFS to address these culverts. The Forest Service recently paid for a LiDAR flight of this area in support of this partnership. Culvert replacement on Horse Creek could serve as a model for other upper and middle river tributaries like Quartz, Ennis and Deer Creeks.
- **Water Quality Monitoring:** Water quality monitoring is occurring throughout the Sub-basin by EWEB, SUB, USFS, BLM, MWC, SPS, McKenzie Schools and Marcola Schools.



South Fork McKenzie
Floodplain Design Team

Photo by Johan Hogenmost

- **Pollution Prevention Coalition:** This partnership consists of EWEB, SUB, DEQ, Lane County Waste Management, City of Springfield, City of Eugene, MWMC, and LRAPA to implement education and business programs that reduce use of toxics. This has led to the Eco Business certification program for auto repair and landscaping services to show they use nontoxic chemicals as part of their business.
- **Field-based Education:** The fundamental focus of the MWC education program is the direct involvement of students in hands-on, inquiry- and field-based education centered in watershed assessment, monitoring and enhancement projects. The MWC partners with the following agencies, utilities and organizations: USFS, BLM, ODFW, EWEB, SUB, UO and MRT. The partnering school districts include Springfield Public, McKenzie, Marcola, Eugene-4J, Bethel and South Lane School Districts, as well as Lane Community College and University of Oregon.
- **Mohawk Watershed Partnership:** The Mohawk is the major tributary in the lower McKenzie. The Partnership was created in 1999, and its members are landowners and citizens in the Mohawk watershed interested in habitat restoration and community outreach.
- **Cedar Creek Partnership:** This partnership was created in 2010 to restore flows, water quality and habitat in Cedar Creek, a lower river tributary. Members include MWC, SUB, City of Springfield, Lane County, Springfield Schools, Willamalane Parks, Cedar Creek Irrigation Association, EWEB, Oregon Water Resources Department and landowners.
- **HJ Andrews Experimental Forest:** The Forest, created in 1948, is a 16,000-acre ecological research site located in the Blue River Watershed of the McKenzie Sub-basin. Research is administered cooperatively by the USFS's Pacific Northwest Research Station, Oregon State University and the Willamette National Forest.
- **McKenzie Interpretive Center:** A partnership has formed to plan, finance and build a McKenzie Interpretive Center that is expected to rival the High Desert Museum near Bend, OR. The Center will showcase the fish, the fishermen, and the origin of the McKenzie drift boat and the unique hydrogeology of the watershed.



McKenzie River Wooden Boat Festival

2. What social opportunities exist to address the proposed priority? Is there momentum built? As indicated in questions 2(b), 4(c), 4(d), and 5(b)(1), there are numerous connections among partner agencies and organizations, landowners, farmers and utility rate payers that provide a ripe environment for social engagement and support around the proposed priorities. As the VIP finishes the pilot stage and moves toward full implementation in 2016, there will be extensive public engagement and marketing around the priorities listed in this proposal and the solutions to these problems that increases economic and ecological health. There is significant momentum building right now associated with the VIP pilot project that is engaging 16 landowners and EWEB rate payers, planning and financing efforts around the McKenzie Interpretive Center, annual McKenzie River cleanup, and support from local breweries promoting the importance of McKenzie River clean water to their beers (Ninkasi and Oakshire). In addition, recent connections with farmers through EWEB and CPRCD sponsored Local Food Connection events, Berggren Demonstration farm workshops and dinners, and Healthy Farms Clean Water Programs has touched hundreds of farmers in the region and nearly 70 farms in the McKenzie Sub-basin. The South Fork McKenzie Floodplain Enhancement Project is also gaining momentum and broad partner support due to its large scale and potential to make substantial habitat improvements for a variety of key species. There is talk of this potentially being a renowned project in the northwest, if not the country. All of these connections, conversations and collaborations with landowners, farmers, rate payers, students, and the public have set the stage for social support to address these proposed priorities.

3. Describe the educational benefits, if any The MWC education program has established projects with Springfield Public, McKenzie, and Marcola School Districts, as well as the University of Oregon Environmental Leadership Program, which directly involve students in multiple aspects of watershed monitoring and enhancement. High school and college student teams take an active role in helping monitor water quality, stream

habitat and riparian enhancement projects. Middle school teams participate through hands-on involvement in riparian enhancement projects. The proposed FIP in the McKenzie Sub-basin would enhance these existing partnerships by providing additional field-based opportunities and creating opportunities for more students to participate in aspects of projects including baseline monitoring, implementation and post-project monitoring.

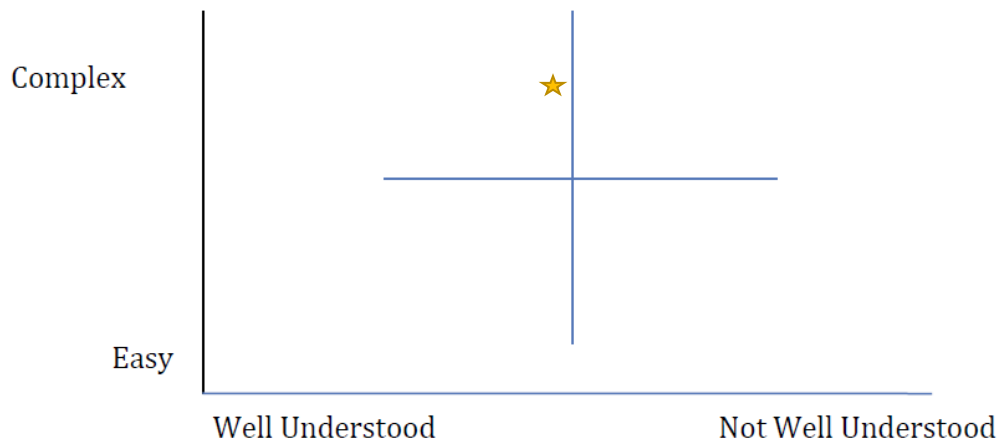
4. Summarize the social, community, political, regulatory or other factors that will help lead to the success of this proposed priority. Based on answers to previous questions, the social and community engagement on various coordinated levels has established a public dialogue that is rich and interactive. This social engagement will be a key factor in providing the support and community understanding around the issues, threats and solutions for a successful project that safeguards the McKenzie Sub-basin as a key stronghold for fish, flows and water quality. The recent success with Stewardship Contracting in the McKenzie, resulting from the political shift that has happened over the last four years, demonstrates that social and community engagement can be powerful and dynamic forces that allow restoration and protection to happen at a meaningful landscape scale. Some of the key regulatory factors that will shape the success of this proposal include water quality trading (MWMC), regulatory flexibility around mitigation projects (ODOT), and floodplain insurance and regulatory issues associated with recent FEMA lawsuits.

5. What can be leveraged to address the proposed priority (funding, acreage impacts, other resources)? As indicated in Questions 4(d) and 5(b)(1), there is: significant collaboration among agencies, organizations and landowners; large current and ongoing investments from local, state and federal agencies, foundations and private businesses; mapping of priority areas in the watershed to focus investments and resources; monitoring to collect necessary metrics and data to assess trends and movement toward outcomes; and MOUs, IGAs and long-term landowner agreements to ensure protection and restoration happens at a scale that makes a difference and is lasting over time.

c. Economic Benefits

1. Describe the economic benefits of addressing the ecological proposed priority, including ecosystem services. As indicated in questions 2(b) and 2(c), the McKenzie watershed has a large positive regional economic impact due to its clean water, popular fisheries and sustained healthy flows. Addressing the ecological priorities outlined in this proposal will continue to build on these economic benefits and highlight the importance of the ecosystem services provided by a healthy watershed. Clean water reduces drinking water treatment costs, has an indirect impact on community health care costs, and attracts businesses like breweries that look for clean water. Investments in protecting healthy riparian forests under the VIP helps educate landowners and the public about the value of these forests in filtering pollutants, controlling erosion, reducing flooding, and increasing river flows during the dry season. The Earth Economics Watershed Valuation study funded by EWEB indicates an acre of riparian forest provides up to \$6,700/year of services that directly benefit society and the region. The combination of all the efforts listed in question 4(d) summarizes the restoration/protection economy that can be a significant driver for jobs in this region and begins to make the case about the value of clean water and healthy watersheds that our current economic indicators fail to capture.

6. Complexity, Understanding of Proposed Priority. Assess the proposed priority by locating the proposed priority in one of the quadrants below. Describe why the proposed priority falls in this quadrant.



The complexity of the proposed priority is relatively high. There are multiple key fish and wildlife species with complex life histories and habitat needs and there are multiple limiting factors, threats and potential solutions. Protection of drinking water quality adds to the complexity. Also, there are numerous stakeholders, partners and private landowners.

The priority is moderately understood. Threats and solutions are largely known, but we need more information on the causes of recent declines in wild Chinook and status information for Pacific lamprey, Pacific brook lamprey and western pond turtles.

7. Is there other information the Board should know regarding this priority? No.

8. Submit a list of other supporting individuals or organizations.

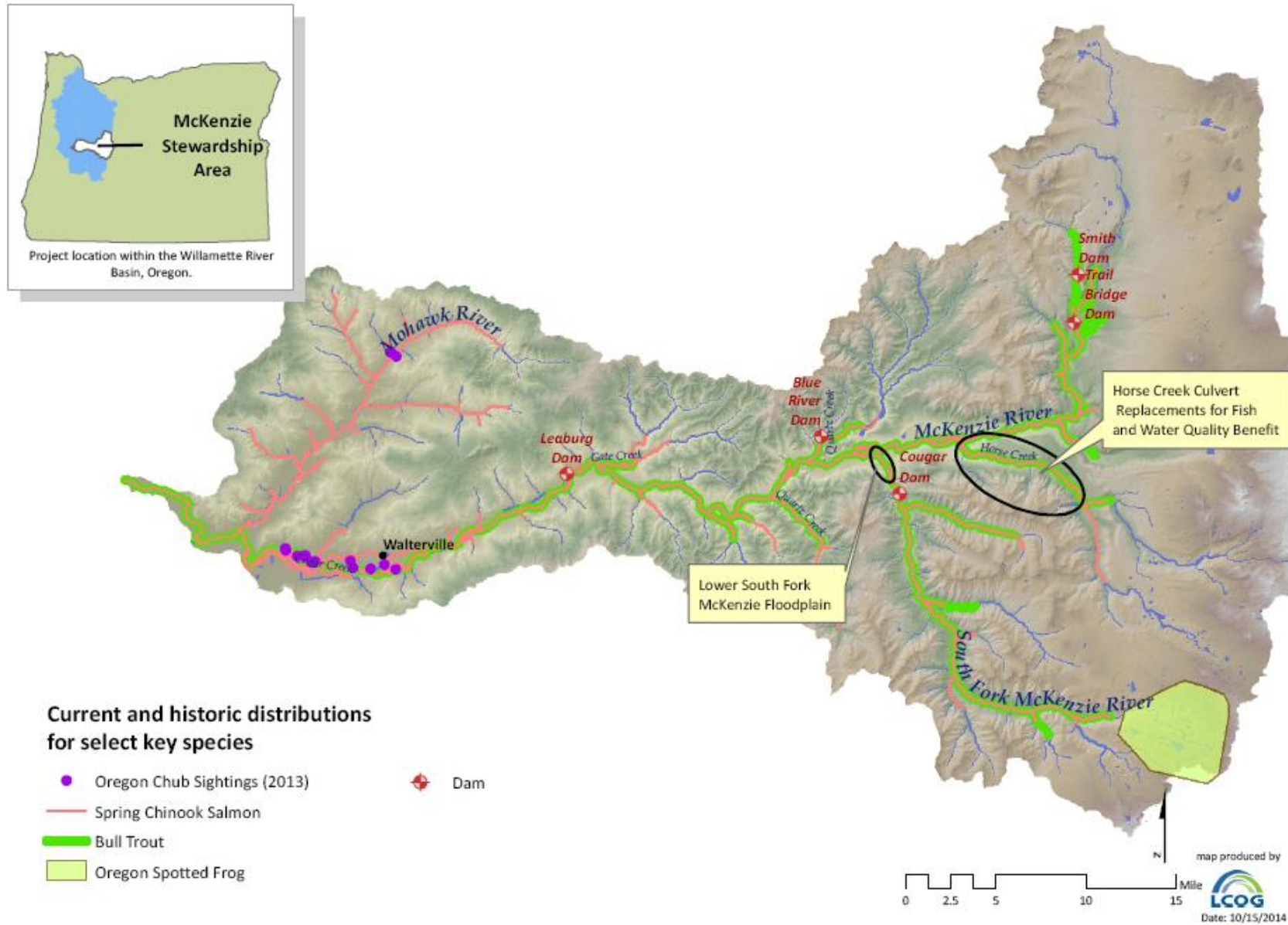
- Bureau of Land Management – Eugene District
- Cascade Pacific Resource Conservation and Development
- Eugene Water and Electric Board
- McKenzie River Trust
- Oregon Department of Fish and Wildlife – South Willamette Watershed District – Springfield Field Office
- Trout Unlimited
- University of Oregon Community Service Center
- Upper Willamette Soil and Water Conservation District
- U.S. Army Corps of Engineers – Willamette Project
- USDA Forest Service
- Weyerhaeuser Company
- Chandra LeGue, Western Oregon Field Coordinator, Oregon Wild

Thank you for this opportunity to recommend state-wide priorities for the Focused Investment Partnership Program.

Sincerely,

Larry Six
Coordinator/Director

Figure 1



Literature Cited

Lane Council of Governments. *Future Residential Development Study for the McKenzie Watershed*, February 2010. Available at: <http://eweb.org/public/documents/water/McKenzieBuildoutMethodologyResults.pdf>

Lindberg K. and Hall T. E. March 2014. Draft McKenzie River Corridor Recreation Economic Impact Analysis. 8 pp.

Oregon Department of Transportation, 1998. *Interim Corridor Strategy, Highway 126 East*. May 1998.

Schmidt, Rowan and David Batker. *Nature's Value in the McKenzie Watershed*, prepared by Earth Economics, Tacoma, WA, May 2012. Available at: <http://eweb.org/public/documents/water/EarthEconomics.pdf>.

Sproles et al 2013. *Climate change impacts on maritime mountain snowpack in the Oregon Cascades*, Hydrology and Earth System Sciences, 17, 2581-2597, 2013.

Tague, C. L., and G. E. Grant, 2004. *A geological framework for interpreting the low-flow regimes of Cascade streams, Willamette River Basin, Oregon*. Water Resources Research, 40, W04303, doi: 10.1029/2003WR002629.

U.S. Environmental Protection Agency (EPA), 2012. *The Economic Benefits of Protecting Healthy Watersheds*. EPA 841-N-12-004. Available at: www.epa.gov/healthywatersheds

University of Oregon and Oregon State University. *An Evaluation of Utility Ratepayer and Landowner Perceptions of a Payment for Ecosystem Services Program in the McKenzie River Basin*. June 2013. Available at: <https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/13567/NIFA%20Survey%20Report.pdf?sequence=1>

List of References for Action Plans
In the McKenzie Watershed

- Bureau of Land Management. 1995. Record of Decision and Resource Management Plan. Eugene District.
- Bureau of Land Management. 2010. Environmental Assessment for Eugene District Aquatic and Riparian Restoration Activities.
- City of Springfield. 2010. Springfield Stormwater Management Plan.
- Lane Council of Governments and Springfield Utility Board. 1999. Springfield Drinking Water Protection Plan.
- Eugene Water & Electric Board. 2000. Drinking Water Source Protection Plan.
- Eugene Water & Electric Board. 2011. McKenzie River Watershed Baseline Monitoring Report, 2000 to 2009.
- Eugene Water & Electric Board. Water Quality Monitoring Program.
- Eugene Water & Electric Board. McKenzie Watershed Emergency Response System.
- Eugene Water & Electric Board. Septic System Assistance Program.
- Eugene Water & Electric Board. Healthy Farms – Clean Water Program.
- Eugene Water & Electric Board. Voluntary Incentive Program.
- Federal Energy Regulatory Commission. 2001. Biological Assessment for the Eugene Water and Electric Board's McKenzie River Hydroelectric Projects.
- Federal Energy Regulatory Commission. 2003. Biological Assessment for Eugene Water and Electric Board's Carmen Smith Hydroelectric Project.
- McKenzie River Trust. 2010. Conservation Plan, 2010-2015.
- McKenzie Watershed Council. 2000. McKenzie River Sub-basin Assessment. Summary Report.
- McKenzie Watershed Council. 2002. The McKenzie River Watershed Conservation Strategy.
- McKenzie-Willamette Confluence Project Steering Committee. 2001. Land Use, Flood Control and Habitat Enhancement Guidelines for the Confluence Area of the McKenzie and Willamette Rivers.
- Metropolitan Wastewater Management Commission. Shade Credit Program.
- National Marine Fisheries Service (NMFS). 2008. Biological opinion for continued operation of 13 dams and maintenance of 43 miles of revetments in the Willamette Basin, Oregon.
- NMFS. 2000. Biological Opinion on the impacts from the collection, rearing, and release of listed and non-listed salmonids associated with artificial propagation programs in the Upper Willamette CHS and winter steelhead evolutionarily significant units.
- NMFS and US Fish and Wildlife Service (USFWS). 2001. Biological Opinion on the effects of the relicensing of Eugene Water and Electric Board's (EWEB) Leaburg-Walterville hydroelectric project in the McKenzie sub-basin, Oregon, on Upper Willamette River Chinook Salmon, Columbia River bull trout, Canada Lynx, Bald Eagle, Northern Spotted Owl, Bradshaw's Lomatium, and Kincaids' Lupine.
- NMFS. 2003. Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Consultation on the effects of EWEB's Carmen-Smith Part 12 Submittal to FERC for Trail Bridge Dam Emergency Spillway Expansion, and Continued Operation of the Carmen-Smith Hydroelectric Project in the McKenzie Sub-basin, Oregon on: Upper Willamette River Chinook salmon.
- NMFS. 2007. Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Consultation Construction and Operation of the Army Corps of Engineers Fish Trap at Cougar Dam South Fork McKenzie River, HUC 1709000403; Lane County, Oregon.
- Oregon Department of Environmental Quality. 2006. Willamette Basin Total Maximum Daily Load, approved by the Environmental Protection Agency, Sept 29, 2006.
- Oregon Department of Fish and Wildlife. 2006. The Oregon Conservation Strategy.
- Oregon Department of Fish and Wildlife and NMFS. 2011. Upper Willamette River Conservation and Recovery Plan for Chinook Salmon and Steelhead.
- Springfield Utility Board. 2013. Springfield Drinking Water Protection Plan Recertification Request.
- U. S. Army Corps of Engineers (USACE). 2000. Biological Assessment of the effects of the Willamette River Basin flood control projects on species listed under the Endangered Species Act.

- USACE, Bonneville Power Administration and Bureau of Reclamation. 2007. Supplemental Biological Assessment of the Effects of the Willamette River Basin Flood Control Project on Species Listed Under the Endangered Species Act.
- USFWS. 1998. Oregon Chub Recovery Plan.
- USFWS. 2002. Chapter 5, Willamette River Recovery Unit, Oregon. 96 p. *In*: U.S. Fish and Wildlife Service. Bull Trout (*Salvelinus confluentus*) Draft Recovery Plan.
- USFWS. 2008. Biological opinion on the continued operation and maintenance of the Willamette River Basin Project and effects to Oregon chub, bull trout, and bull trout critical habitat designated under the Endangered Species Act.
- USDA Forest Service, 2012. Cougar Creek Action Plan - Essential Projects Identified for the Cougar Creek Sub-watershed as required by the Watershed Condition Framework, McKenzie River Ranger District, Willamette National Forest.
- USDA Forest Service, 2010. South Fork McKenzie Watershed Action Plan – Aquatic and Terrestrial Restoration Needs Identified for the Regional Focus 5th Field Watershed, McKenzie River Ranger District, Willamette National Forest.
- USDA Forest Service, Umpqua and Willamette National Forests, April 2008. Willamette Basin Water Quality Restoration Plan for North Santiam, South Santiam, McKenzie, Middle Fork and Coast Fork Sub-basins. 144 pp.
- Upper Willamette Bull Trout Working Group. 2010. Upper Willamette Basin Bull Trout Action Plan, 2010.