Attachments

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Attachment #1

The ODA Middle Deschutes Ag Water Quality Management Action Plan Pages 23-24

Attachment #1

5: VOLUNTARY MANAGEMENT PRACTICES

The following Recommended Management Practices address the objectives of the Area Plan and generally are accepted as effective, economical, practical, and they protect water quality. They are not required. Widespread adoption of these practices addresses the water quality parameters of concern in the Management Area. These practices should also maintain the economic viability of agriculture in the area.

Appropriate management practices for individual farms and ranches may vary with the specific cropping, topographical, environmental, and economic conditions that exist at a given site. Because of these variables it is not possible to recommend uniform management practices for all farms or ranches in the Management Area.

The Natural Resources Conservation Service's *Field Office Technical Guide* contains extensive lists of management practices as well. NRCS offices are in The Dalles and Redmond. The Jefferson and Wasco County SWCDs, Cooperative Extension Agents, and Oregon Department of Fish and Wildlife biologists can also recommend practices.

Streamside Management

Objectives: achieve adequate riparian vegetation, increase streambank stability, and filter out pollutants

- Minimize channelization.
- Stabilize streambanks without confining the channel over any significant length.
- Maintain vegetative buffer: CRP, Conservation Reserve Enhancement Program (CREP), riparian buffers, control weeds.
- Manage livestock (see below).
- Properly place, design, and maintain roads, culverts, bridges, and crossings.

Cropland Management

Objectives: reduce soil erosion, reduce and capture runoff, reduce potential pollutants in runoff

- Use conservation tillage: reduced tillage, direct seeding, subsoiling, and chemical fallow.
- Plant annual and perennial cover crops.
- Farm on the contour: strip cropping, divided slopes, terraces, contour tillage.
- Select crops that hold soil in place and enhance a crop rotation.
- Seed early or double in critical areas.
- Create and maintain sediment basins and vegetative buffer strips: riparian buffers, filter strips, grassed waterways, field borders, contour buffer strips, and interception ditches.
- Control weeds.

Upland Management:

Objectives: reduce soil erosion, improve infiltration of water into soil, and capture runoff

- Manage livestock (see below).
- Encourage vegetation that provides good ground cover and enhances water capture. Practices include: prescribed burning, range plantings, juniper control, weed control.
- Use sediment retention basins.
- Roads: close seasonally; properly maintain, design, and place.

Livestock Management:

Objectives: reduce soil erosion, manage manure, and achieve adequate riparian vegetation

- Manage grazing: livestock distribution; grazing intensity, duration, frequency, and season.
- Improve riparian buffers.
- Install fencing: temporary, cross, exclosure.
- Control livestock watering through spring developments and off-stream water.
- Provide salt, minerals, and shade away from streams.

- Install adequate waste management systems: clean water diversions; waste collection, storage, and utilization; properly operate and maintain facilities.
- Control runoff from concentrated feeding areas and irrigated pastures.

Irrigation Management

Objectives: reduce runoff, minimize potential pollutants, reduce soil erosion, improve fish habitat

- Schedule irrigation based on crop needs, soil type, climate, topography, and infiltration rates.
- Improve irrigation efficiency.
- Pipe or line mainline and delivery systems.
- Select, locate, maintain, and operate diversions to minimize effects on water quality; install fish screens. [Infiltration galleries have the potential to take more water out of streams during low flows than is taken via conventional methods. The LAC recommends that infiltration galleries be designed following the guidelines in the NRCS' *Infiltration Galleries of the Deschutes Basin*; June 1999.].
- Minimize return flows through the use of cover crops, straw mulch, and grass filter strips.
- Install backflow devices.
- Grade and slope property to retain runoff whenever possible.

Crop Nutrient and Farm Chemical Management

Objectives: reduce potential for pollution, reduce runoff

- Develop nutrient budgets based on water and soil testing, tissue testing, plant needs.
- Apply appropriate amounts at proper times; dispose of containers properly
- Potential spills: have cleanup plan, store tanks away from streams, check the valves on delivery trucks.
- Manage tailwater.
- Use Integrated Pest Management.
- Municipal sludge: keep on site and out of waters of the state. Preferably don't apply on agricultural lands at all.

Ditch Management:

Objectives: reduce erosion, filter out potential pollutants

- Manage vegetation: burning, chemical, clipping, and critical area planting.
- Stabilize banks (structural and bioengineering).
- Install outfall protection to reduce erosion at culverts.
- Pipe or line ditches.
- Construct offstream or headwater storage.
- Develop wetlands at end of line to filter and process drain water.
- Size ditches appropriately to handle maximum flows.

Attachment #2

Middle Deschutes Watershed Action Plan Page 37

Attachment #3

Key Factors and Threats Limiting Watershed Health

Problems that currently affect the health of both watersheds include habitat connectivity, modified disturbance regimes, altered upland and stream processes, and altered habitats. There are also emerging threats that, if not addressed, will impact the watersheds in the future. These emerging threats include a growing population and a limited understanding of watershed issues by local residents.

Key factors and threats that are limiting watershed health include:

- Impaired stream and riparian habitat connectivity from fish passage barriers and other factors;
- Altered stream and upland hydrology that affect low and high stream flows;
- Modified stream habitat;
- Impaired riparian and floodplain habitats and processes;
- Degraded water quality;
- Impaired upland habitats and processes; and
- A growing population and limited understanding of watershed issues and restoration opportunities by watershed residents

Significant progress has been made in restoring the health of streams, riparian areas, and uplands, particularly in the Trout Creek Watershed. Issues that need to be addressed in the Trout Creek Watershed include the remaining floodplain berms; lack of in-channel complexity; need for riparian restoration; invasive weed removal; upland actions, including Juniper removal; and other actions. Aging culverts should be addressed in the future, including replacing them with bridges where appropriate.

The key issue affecting the Willow Creek Watershed is stream connectivity. Changes in stream habitat, flows, and the presence of fish passage barriers have all contributed to isolating segments of stream and fragmenting redband trout populations into three disconnected habitats. There are also significant opportunities for public outreach and education because the area's largest population center, the City of Madras, is also located in the Willow Creek Watershed.

The tables on the next pages describe the key factors and threats that are affecting the health of the Willow Creek and Trout Creek Watersheds, the current status, and recommended actions.

Attachment #3

2008 Mid-Columbia Steelhead Recovery Plan Table 1-7

Attachment #3

Deschutes River Eastside Summer Steelhead Population

The Deschutes River Eastside summer steelhead population (Figure 1) is one of five extant populations in the Cascades Eastern Slope Tributaries MPG within the Mid-Columbia steelhead DPS.

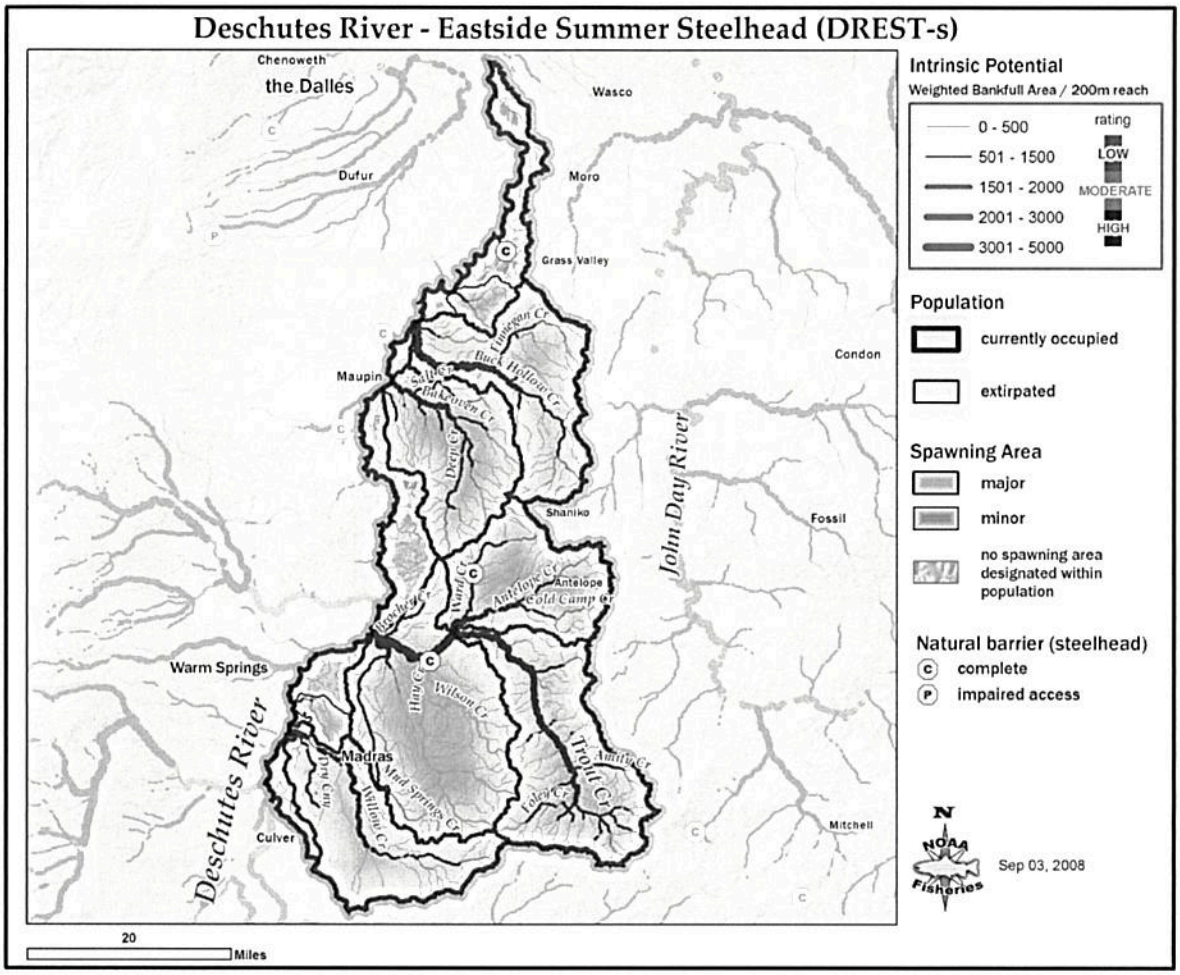


Figure 1. Deschutes River Eastside summer steelhead population boundary and major (MaSA) and minor (MiSA) spawning areas.

The Interior Columbia Technical Recovery Team (ICTRT) classified the Deschutes River Eastside population as "intermediate" in size and complexity (Table 1). A steelhead population classified as intermediate has a mean minimum abundance threshold of 1,000 natural-origin spawners with a sufficient intrinsic productivity (≥ 1.35 recruits per spawner at the abundance threshold level) to achieve a 5% or less risk ("low risk") of extinction over a 100-year timeframe. In order for the Deschutes River Eastside population to achieve a 1% or less risk ("very low risk") of extinction over 100 years, productivity would need to be at or greater than 1.64 recruits per spawner at the minimum abundance threshold.

Table 1. Deschutes River Eastside summer steelhead population basin statistics and intrinsic potential analysis summary.

Drainage area (km^2)	3,889
Stream lengths km (total) [a]	974
Stream lengths km (below natural barriers) [a]	884
Branched stream area weighted by intrinsic potential (km^2)	2.780
Branched stream area km^2 (weighted and temp. limited) [b]	1.772
Total stream area weighted by intrinsic potential (km^2)	4.082
Total stream area weighted by intrinsic potential (km^2) temp limited [b]	2.253
Size / Complexity category	Intermediate / "B" (dendritic structure)
Number of major spawning areas (MaSAs)	6
Number of minor spawning areas (MiSAs)	2

a. All stream segments ≥ 3.8m bankfull width were included.
b. Temperature limited areas were assessed by subtracting area where the mean weekly modeled water temperature was > 22°C.

Current Abundance and Productivity

Current (1990 to 2005) total spawner abundance (number of adult spawners in natural production areas) has ranged from 583 in 1993 to 9,801 in 2001 (Figure 2). Current abundance of natural-origin adult spawners ranged from 299 in 1993 to 8,274 in 2001 (Figure 2). We examined two approaches for estimating the abundance of natural-origin and hatchery-origin steelhead in the Deschutes River Eastside population and selected one for this viability assessment. The first approach is similar to that used by Chilcote (2001) who conducted stock recruitment analyses for the combined Deschutes River Eastside and Westside populations. This method used the following information: estimated number of steelhead that pass above Sherars Falls (from mark-recapture estimates); the number of fish recovered in fisheries and traps above Sherars Falls; and estimated fall back rate for hatchery fish. We conducted similar analyses for the Deschutes River Eastside population with the additional step of subtracting out the Westside population abundance estimates. We found that this approach yielded, what appeared to be, extremely high abundance estimates of both natural-origin and hatchery-origin spawners for the Deschutes River Eastside population. Using this method resulted in a high number of spawners in the mainstem Deschutes River that was not consistent with the two years of redd observations data. We were unable to adequately quantify Sherars Falls fallback rates for natural-origin and hatchery-origin fish. The Sherars Falls mark-recapture subtraction approach is very sensitive to the fall back estimates, so in the absence of accurate estimates, we chose to use an alternative approach.

We chose to assess abundance and productivity based on estimates of spawners in the tributary production areas including Buck Hollow, Bakeoven, and Trout creeks. We acknowledge that this approach does not account for mainstem abundance and productivity. However, we believe this approach provides a better representation of the abundance and productivity for the Deschutes River Eastside population.

Estimates of the abundance of steelhead in the tributary production areas of the Eastside population are based on single pass index spawning ground surveys in the major spawning areas (MaSAs) of Trout, Bakeoven, and Buck Hollow creeks. Annual observations of redds begin with the 1990 spawning year in Bakeoven and Buck Hollow creeks, and 1993 in Trout Creek (excluding 1994). Spawning also occurs in the mainstem, but only two surveys have been conducted in the mainstem downstream of Trout Creek and this portion of the Eastside population is not included in this assessment.

To estimate spawning abundance, observed redd densities (redds/m^2) were extrapolated to unsurveyed areas of currently occupied spawning habitat. Variability in spawning habitat quality and capacity are incorporated in the abundance estimate by using the ICTRT's historical intrinsic potential (ICTRT 2007) to expand redd observations per unit survey area to unsurveyed areas. The number of redds per weighted m^2 of intrinsic habitat in the index survey areas are multiplied by the total m^2 of weighed intrinsic habitat within each tributary production area. Total redds are determined as the sum of redds in Bakeoven, Buck Hollow, and Trout creeks. In Trout Creek in 1990-1992 and 1994, when surveys were not conducted, the Trout Creek abundance was assumed to be 1.44 times the sum of the Buck Hollow and Bakeoven Creek abundance estimates, based on the proportion of spawning habitat in Trout Creek relative to all three tributaries. Redds are expanded to fish by multiplying total redds by 2.1 fish per redd (R. Carmichael, Oregon Department of Fish & Wildlife, personal communication). This estimate was derived for summer steelhead in Deer Creek, a tributary of the Wallowa River.

Abundance of progeny by spawning year was estimated by apportioning the total spawning abundance estimate into hatchery and natural-origin fish. For years when at least ten fish were examined for the presence of adipose fins in each stream, the marked fish proportion was used for the hatchery fraction. Field observers believe that these estimates may be biased low because of difficulties observing adipose fins on live fish at a distance (R. French, Oregon Department of Fish & Wildlife, personal communication). For years when fewer than ten fish were observed, the hatchery fraction was estimated based on the average ratio of the percentage of hatchery fish at Sherars Falls and the percentage of hatchery fish on the spawning grounds in Buckhollow and Bakeoven Creeks across all years. For Trout Creek we used the relationship of hatchery fraction between Trout Creek and Warm Springs National Fish Hatchery.

Virtually no spawning steelhead in the Deschutes River Eastside population have been sampled for age-at-return and no population specific information exists to assign natural-origin spawning fish into cohorts to estimate the abundance of progeny (Anonymous 2004). Age structure information used to estimate progeny by brood year was based on the average of a two-year sample of scales from natural-origin adult steelhead (N=100) collected in the lower Deschutes River (Olsen et al. 1991).

Recent year natural spawners include returns originating from naturally spawning parents, strays from the Deschutes Subbasin Round Butte Hatchery program, and a significant number of out-of-DPS hatchery strays from the Snake River basin. Origin of strays is based on recovery of coded-wire tagged fish in fisheries and at traps in the Deschutes River subbasin. Spawners originating from naturally spawning parents have comprised an average of 66% of naturally spawning fish since 1990. The percentage of natural-origin spawners has ranged from 21% to 88%.

Abundance in recent years has been moderately variable. The 10-year (1996-2005) geometric mean abundance of natural-origin spawners was 1,599. During the period 1990-1999, recruits per spawner (R/S, in terms of spawner to spawner) for steelhead in the Deschutes River Eastside population ranged from 0.24 in 1991 to 3.97 in 1996. The annual R/S estimates were adjusted to reflect the average smolt-to-adult return rate (SAR). The 10-year (1990-1999) geometric mean productivity was 1.89 R/S, adjusted for SAR and delimited at the median number of spawners (1,312; Table 2).

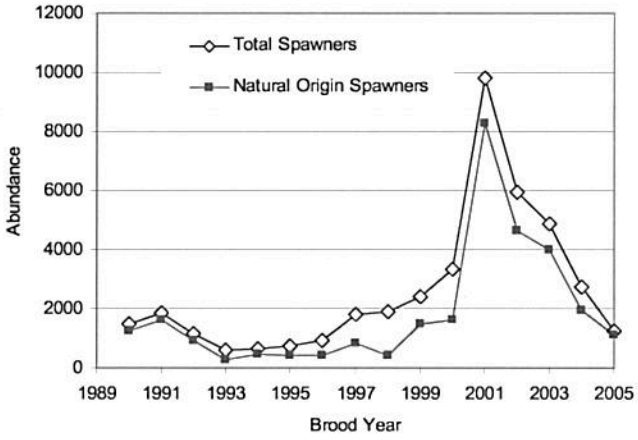


Figure 2. Deschutes River Eastside summer steelhead population spawner abundance estimates (1990-2005).

Table 2. Deschutes River Eastside summer steelhead population abundance and productivity estimates.

Abundance/Productivity Statistics	**Estimate**	**(Range)**	
Abundance: natural-origin spawners (10-year geometric mean, range)	1,599	(583-9,801)	
Proportion: natural-origin spawners (10-year geometric mean, range)	0.62	(0.21-0.88)	
	Estimate	**(90% CI)[b]**	**SE**
Intrinsic productivity (10-year R/S, SAR adjusted & delimited) [a]	1.88	(1.10-3.26)	0.24
Productivity (15-year Beverton-Holt fit, SAR adjusted)	3.94		3.83
Trend Statistics (1990-2005)	**Estimate**	**(95% CI)**	**P>1.0**
ln(natural-origin spawner abundance)	1.11	(1.01-1.23)	
Population growth rate (λ): Hatchery effectiveness = **1.0**	0.98	(0.53-1.79)	0.44
Population growth rate (λ): Hatchery effectiveness = **0.0**	1.09	(0.55-2.15)	0.68

a. Delimited productivity excludes any recruit/spawner pair where the spawner number exceeds the median escapement. This approach attempts to remove density dependence effects that may influence the productivity estimate.
b. Lower end of the 90% CI on productivity is used in evaluating the impact of parameter uncertainty on risk.

The Deschutes River Eastside population is at **Low Risk** based on current abundance and productivity. The point estimate for abundance and productivity resides above the 1% risk curve, but the population is not considered to be at very low risk since the lower end of the 98% confidence interval (CI) for productivity extends below the 25% risk curve. The 90% CI is above the 25% risk curve and the population is rated at low risk (Figure 3).

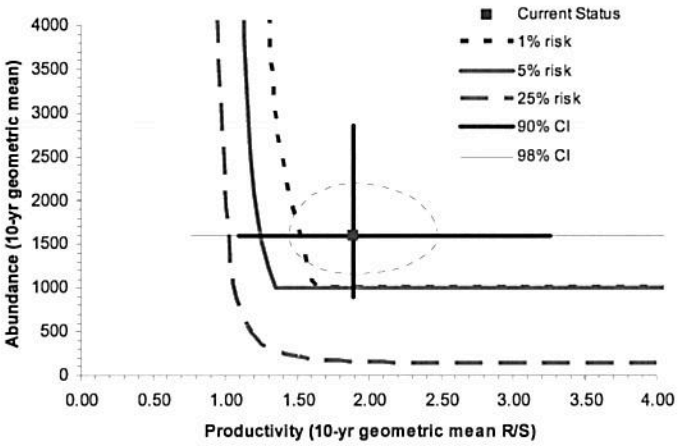


Figure 3. Deschutes River Eastside summer steelhead population current abundance/productivity (A/P) compared to the DPS viability curve. Ellipse = 1 SE about the point estimate. Error bars = 90% CI for A, 90% and 98% CIs for P (point estimate >1% risk curve, therefore the uncertainty test results in <1% probability the combined A/P is at high risk).

On average, the trend in annual spawners (Table 2) has been positive since 1990, the first year data were available to generate estimates for this population. Both hatchery-origin and natural-origin returns showed similar patterns over the time period (Figure 2). Relatively high numbers of spawners in return years 2001-2003 contributed significantly to the average trend. In more recent years, annual spawning estimates have generally been at the levels observed in the initial years of the series. Under the assumption that hatchery and natural-origin parents were equally effective in contributing to natural production for this population (hatchery effectiveness = 1.0), the point estimate of population growth rate (λ) was below 1.0, with a 40% chance that the actual estimate exceeded 1.0. The relative effectiveness of hatchery-origin spawners in the Deschutes River Eastside population is not known. An estimate of the population growth rate was calculated assuming that hatchery returns did not effectively contribute to natural production (hatchery effectiveness = 0.0; Table 2). The estimated population growth rate assuming that hatchery spawners are not contributing to natural production was 1.09 (78% probability of exceeding 1.0).

Spatial Structure and Diversity

The ICTRT has identified six major spawning areas (MaSAs) and two minor spawning areas (MiSAs) within the Deschutes River Eastside steelhead population (Figure 4). The population boundaries extend above the Pelton Reregulation Dam, and therefore include areas that are currently inaccessible. One MaSA (Willow Creek) and one MiSA (Campbell) exist in the inaccessible area. The intrinsic potential analysis rated most of the Deschutes River mainstem spawning habitat as low potential because of the width and confinement, although steelhead spawning has been observed in the mainstem. Spawning is distributed broadly throughout the population boundaries. Steelhead production is concentrated in Buck Hollow, Bakeoven and Trout creeks, with some spawning in the mainstem from Trout Creek to Buck Hollow Creek. Spawners within the Deschutes River Eastside population include natural-origin returns, hatchery returns from Deschutes River origin fish produced from Round Butte Hatchery, and out-of-DPS hatchery strays primarily from the Snake River basin. Hatchery-origin fish comprise a significant proportion of the natural spawners.

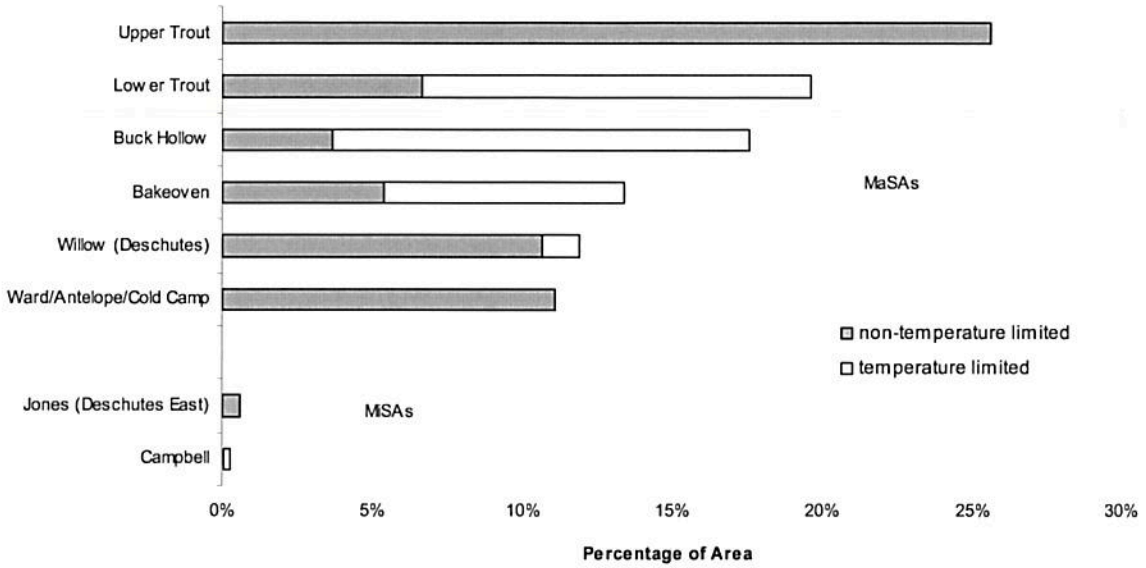


Figure 4. Deschutes River Eastside summer steelhead population distribution of intrinsic potential habitat across major and minor spawning areas. White bars represent current temperature limited areas that could potentially have had historical temperature limitations.

Factors and Metrics

A.1.a. Number and spatial arrangement of spawning areas

The Deschutes River Eastside population has six MaSAs and two MiSAs distributed in a dendritic pattern (Figure 5). The primary production areas include Buck Hollow, Bakeoven, and Trout creeks. Historically, Willow Creek was also a significant production area. Based on the Oregon Department of Fish and Wildlife (ODFW) current spawner distribution database, five of the six MaSAs and neither of the two MiSAs are currently occupied. The MaSA that does not meet the occupancy criteria is Willow Creek. This MaSA is unoccupied because it is inaccessible. The Deschutes River Eastside population rates at **very low risk** for this metric because it has five MaSAs occupied in a non-linear configuration.

A.l.b. Spatial extent or range of population

The current spawner distribution is restricted somewhat from the historical distribution. The Willow Creek MaSA is unoccupied because it is inaccessible. There is also loss of spawning in the Jones and Campbell MiSAs (Figure 5). The population is rated at **low risk** for this metric because greater than 75% (but less than 90%) of the historic MaSAs are currently occupied.

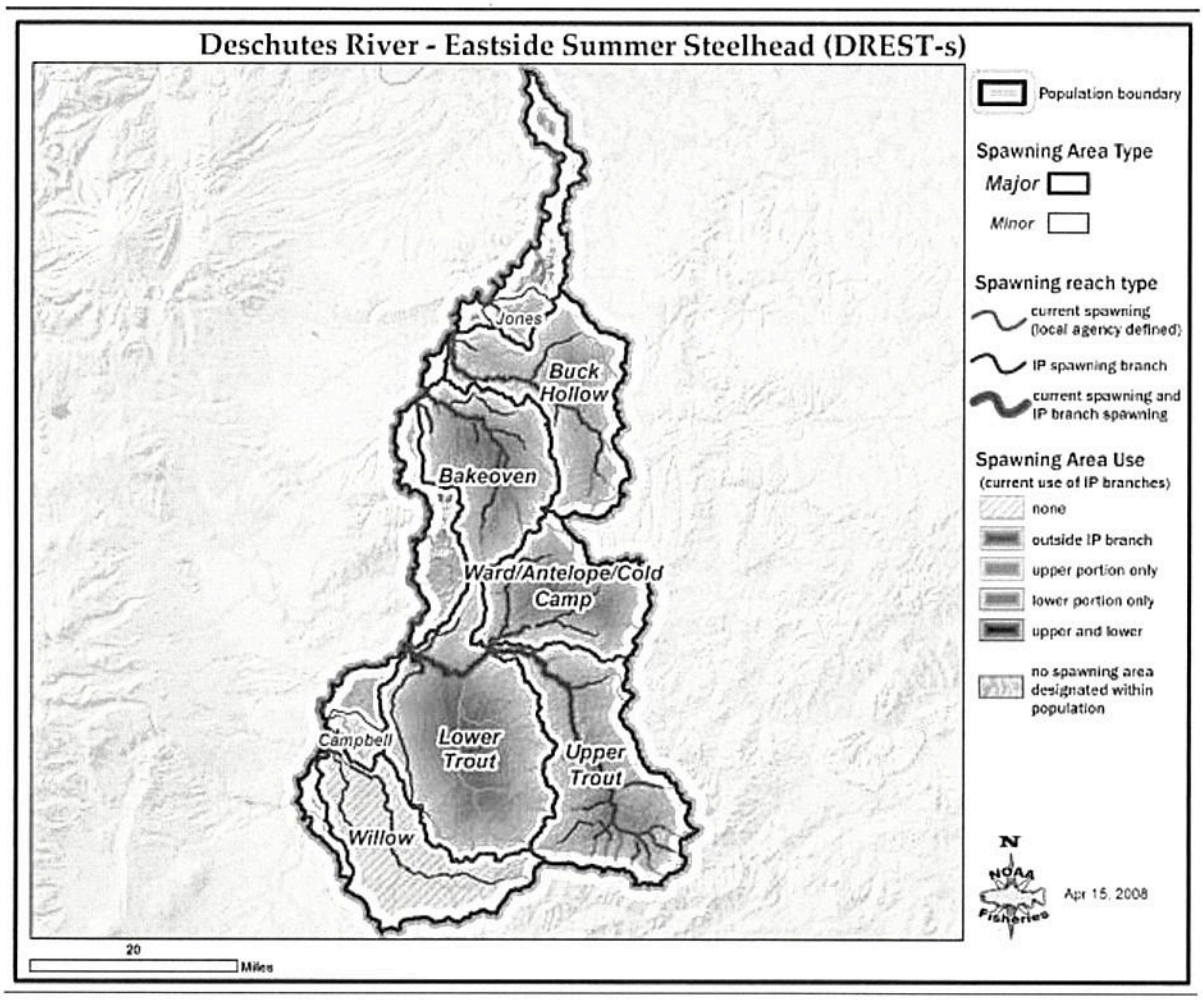


Figure 5. Deschutes River Eastside summer steelhead population current spawning distribution and spawning area occupancy designations.

A.1.c. Increase or decrease in gaps or continuities between spawning aggregates

The loss of spawning in the Willow Creek drainage has caused a significant increase in the gap distance between the uppermost spawning in the population and the middle production areas in Trout Creek. Currently, with the exception of the gap created by loss of spawning in Willow Creek, there is little difference in gaps and continuity between the historic and current distributions. We have rated the population at **low risk** for this metric.

B.1.a. Major life history strategies

There are no data to allow any direct comparison of historic and current major life history patterns, thus we must infer from habitat information. Flow and temperature changes within the major spawning tributaries have changed significantly relative to historic conditions with lower summer flows and higher temperatures. These changes have resulted in shifts in juvenile rearing patterns, with less summer rearing capacity in the tributaries and mandatory movement into either the mainstem or upper reaches for periods of summer rearing. Adult migration and spawn timing have likely been impacted by flow and temperature changes. Based on scale analyses of Deschutes River fish collected from the mainstem, the population demonstrates multiple ages at smolt migration and ocean residence time as well as repeat spawning. The habitat conditions, with mainstem rearing opportunities, do provide for opportunity for diverse life history strategies. We have rated the population at **low risk** for this metric.

B.1.b. Phenotypic variation

We have no direct observations to assess loss or substantial change in phenotypic traits, thus we must infer from habitat conditions and habitat changes through time. The flow and temperature changes in the tributaries have likely influenced both adult and juvenile migration timing and patterns. The loss of summer rearing opportunities forces juveniles to move downstream into the mainstem. Adult run-timing through the tributaries, as well as spawn timing, have likely been narrowed to some degree. We have rated this metric at **low risk** because two or more traits have likely changed and have reduced variability.

B.1.c. Genetic variation

There are limited genetics data for the Deschutes River Eastside population. The lower East Folley Creek samples were not significantly differentiated from other Eastside, Westside, or Round Butte Hatchery samples. However, the remaining samples from eastside tributaries show levels of differentiation between each other and between other populations that are consistent with a relatively unchanged structure. As a result of these data the population is rated at **low risk** for this metric. The ongoing genetics study that the U.S. Fish and Wildlife Service (USFWS) and co-managers are undertaking will yield additional and better information to assess this metric in the future.

B.2.a. Spawner composition

(1) *Out-of-DPS spawners*: There are a significant number of out-of-DPS strays spawning naturally in the Deschutes River Eastside population. Estimates for stray hatchery proportions are derived from observations in Buck Hollow, Bakeoven, and Trout creeks. Since 1990, we estimated that hatchery strays have comprised from 12-90% of the spawners in this population, with a mean of 34.4% annually. We have no direct estimate of the proportion of out-of-DPS and Round Butte Hatchery strays for this population. Assuming the same proportion of out-of-DPS strays as we did for the Deschutes River Westside population (based on observations at Warm Springs National Fish Hatchery), we estimate that an average of 29% of the spawners in the Deschutes River Eastside population were out-of-DPS strays. Given this proportion and the duration of the influence we have rated the population at **high risk** for this metric.

(2) *Out-of-MPG spawners from within the DPS*: There have been few out-of-MPG within-DPS strays recovered in the Deschutes River. The only source of this type of stray steelhead is from the Umatilla Hatchery program. We have rated this metric as **very low risk** due to the low proportion.

(3) *Out-of-population spawners from within the MPG*: Strays originating from the Round Butte Hatchery program are considered out-of-population within-MPG strays because their origin includes fish captured at the Pelton Reregulation Dam ladder and at Sherars Falls. The broodstock source likely includes both Westside and Eastside populations. Based on a total average hatchery proportion of 34.4% and the average proportion that Round Butte Hatchery strays make up of the total strays at Warm Springs National Fish Hatchery (15.5%), we estimated that Round Butte Hatchery strays comprise 5.4% of the naturally spawning fish annually. We have rated this metric as **moderate risk**.

(4) *Within-population hatchery spawners*: There are no within-population hatchery fish produced, thus we have rated this metric as **very low risk**.

The overall spawner composition rating is **high risk** due to the high proportion of out-of DPS strays that spawn naturally in this population.

B.3.a. Distribution of population across habitat types

The intrinsic potential distribution encompassed five ecoregions of which three accounted for greater than 10% of the distribution. The current distribution is not significantly reduced from the historic distribution (Figure 6, Table 3). We have rated this metric at **low risk** because there were three historic ecoregions occupied and no substantial reductions.

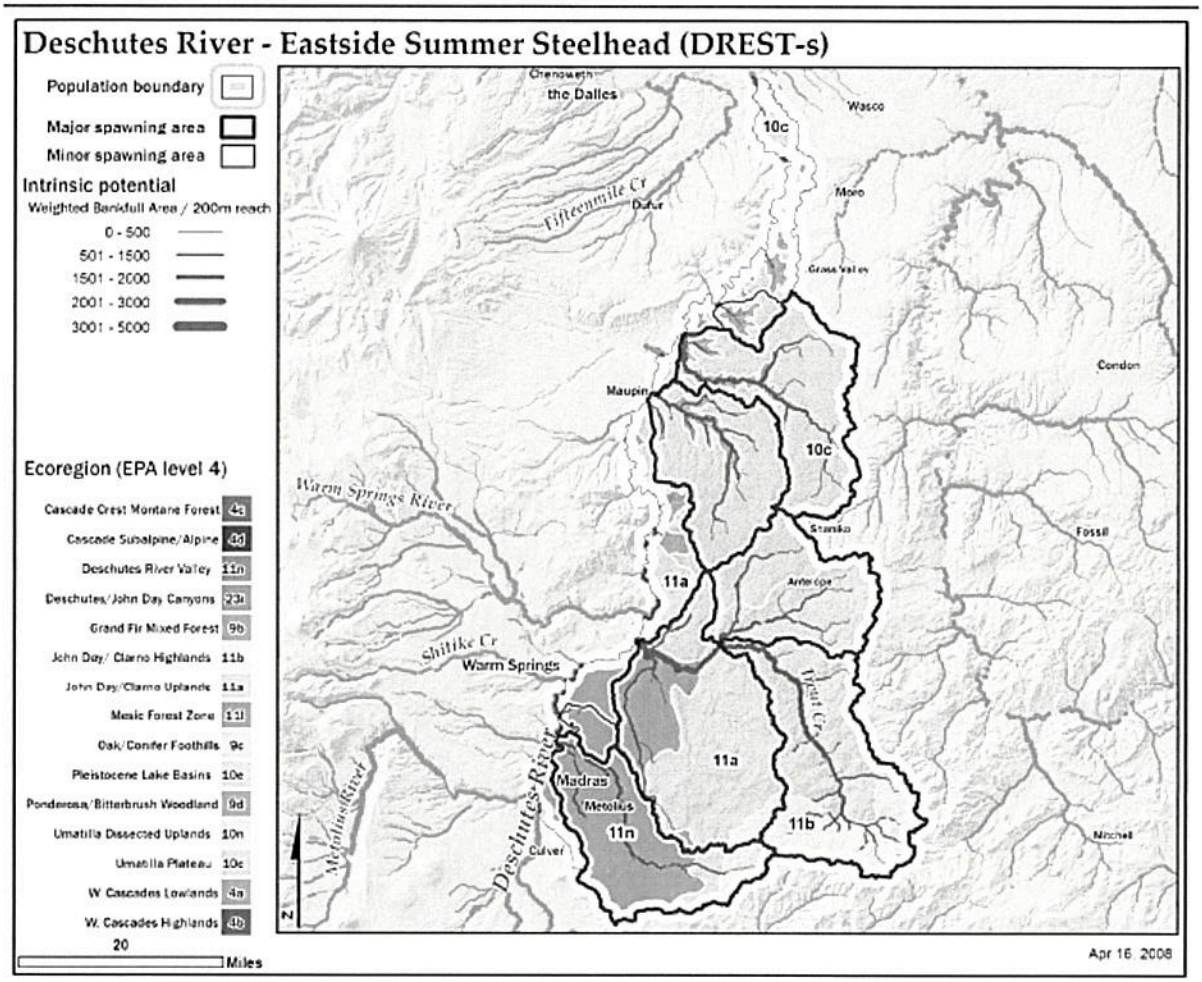


Figure 6. Deschutes River Eastside summer steelhead population spawning distribution across EPA level IV ecoregions.

Table 3. Deschutes River Eastside summer steelhead population proportion of current spawning areas across EPA level IV ecoregions.

Ecoregion	% of historical spawning area (non-temp. limited)	% of currently occupied spawning area (non-temp. limited)
Deschutes River Valley	23.5	10.4
Deschutes / John Day Canyons	35.0	42.3
John Day Clarno Highlands	4.2	4.2
John Day Clarno Uplands	28.4	34.3
Umatilla Plateau	9.0	8.8

B.4.a. Selective change in natural processes or selective impacts

Hydropower system: This population passes two dams in its seaward and spawning migrations, thus impacts on this population are relatively low. No traits are selectively affected by hydropower activity to the degree that they raise the risk level for this population. The hydropower rating is **low risk** for all traits.

Harvest: Harvest has the potential to affect migration timing, maturation timing and size. However, recent harvest rates for A-run steelhead in the Columbia River mainstem are generally less than 10% annually. Although some harvest may be size-selective for larger fish, the selective mortality would affect slightly more than 2% of the total population. There may be a very slight advantage for earlier returning fish as a result of the timing of the Chinook salmon fishery, and while heritability of adult migration timing is high, the impacts are slight enough to be negligible. There is no selective impact of the recreational fishery. No phenotypic traits appear to be at risk as a result of harvest activity and the rating is **low risk** for all traits.

Hatcheries: There are no steelhead hatchery programs operated within the population; therefore, the hatchery rating is **very low risk**.

Habitat: Altered flow profiles and increased temperatures in tributary spawning and rearing areas, which have been in place for many generations and are ongoing, likely impose some selection on juvenile and adult migration timing, as well as spawn timing. However, the magnitude of selective mortality is likely negligible; therefore the habitat rating for all traits is **low risk**.

Other: A population of Caspian terns in the estuary has been artificially enhanced by a combination of increased habitat (created by dredge spoils) and artificially increased food availability (large-scale releases of hatchery smolts). These terns appear to exert a size-selective predation pressure that primarily impacts the large steelhead smolts. The rate of predation is highest during tern nesting season in May. This pressure may affect smolt migration timing.

> *Juvenile migration timing:* Steelhead smolts pass through the estuary from April to June. The relatively high predation (10%) on smolts in May could select for earlier and later out-migrants. However, heritability of this trait has not been assessed, so we assume a moderate to low heritability. Because this predation occurs at the peak of migration, the impact of this selection is **low risk**.

No single trait has a moderate risk rating for any selective activity. Therefore, the overall selectivity rating for this population is **low risk.**

Spatial Structure and Diversity Summary

The integrated spatial structure/diversity rating is **Moderate Risk** for the Deschutes River Eastside population (Table 4). The rating for Goal A (allowing natural rates and levels of spatially mediated processes) was **low risk**. Although the overall rating for this goal was low, spawning distribution is reduced significantly from the historic distribution with loss of spawning in the Willow Creek drainage being the primary factor. The population remains broadly distributed with little change in gaps and good continuity within the currently accessible habitat.

The rating for Goal B (maintaining natural levels of variation) was **moderate risk**. Habitat changes in key tributary production areas have likely resulted in limitations to life history diversity and reduction in phenotypic expression. In addition, a significant proportion of natural spawners are out-of-DPS strays which resulted in a high risk rating for the spawner composition metric. Additional genetics information is needed to assess differentiation within and between populations, as well as to improve our understanding of the degree of introgression of out-of-DPS strays. The ongoing genetics work of the USFWS and co-managers will provide the information needed to better assess the genetic health of this population.

Table 4. Deschutes River Eastside summer steelhead population spatial structure and diversity risk rating.

Metric	Risk Assessment Scores				
	Metric	Factor	Mechanism	Goal	Population
A.1.a	VL (2)	VL (2)	Low Risk (Mean = 1.3)	Low Risk (Mean = 1.3)	**Moderate Risk**
A.1.b	L (1)	L (1)			
A.1.c	L (1)	L (1)			
B.1.a	L (1)	L (1)	Low Risk (1)	Moderate Risk (Mean = 0.5)	
B.1.b	L (1)	L (1)			
B.1.c	L (1)	L (1)			
B.2.a(1)	H (-1)	High Risk (-1)	High Risk (-1)		
B.2.a(2)	VL (2)				
B.2.a(3)	M (0)				
B.2.a(4)	VL (2)				
B.3.a	L (1)	L (1)	L (1)		
B.4.a	L (1)	L (1)	L (1)		

Overall Viability Rating

The overall rating for the Deschutes River Eastside summer steelhead population currently meets ICTRT viability criteria for **VIABLE** status (Figure 7). Overall abundance and productivity is rated at **Low Risk.** The 10-year geometric mean abundance of natural-origin spawners is 1,599, which is well above the minimum abundance threshold of 1,000. The 10-year geometric mean productivity (1.89 R/S; Table 6) exceeds the 1.35 R/S required at the minimum abundance threshold and puts the population into the very low risk region; however the 98% CI extends well below the 25% risk level. This wide standard error results in a low risk level for abundance/productivity. Overall spatial structure and diversity is rated at **Moderate Risk**. This is primarily a result of the influence of habitat changes on life history and phenotypic expression as well as the influence of out-of-DPS hatchery spawners.

Abundance/ Productivity Risk	Spatial Structure/Diversity Risk: Very Low	Low	Moderate	High
Very Low (<1%)	HV	HV	V	M
Low (1-5%)	V	V	V **Deschutes River Eastside**	M
Moderate (6 – 25%)	M	M	M	HR
High (>25%)	HR	HR	HR	HR

Figure 7. Deschutes River Eastside summer steelhead population risk ratings integrated across the four viable salmonid population (VSP) metrics. ***Viability Key: HV – Highly Viable; V – Viable; M - Maintained; HR – High Risk; Shaded cells - does not meet viability criteria (darkest cells are at greatest risk).***

Data Summary – Deschutes River Eastside Summer Steelhead Population

Data type: Expansions from single pass surveys in major tributary spawning reaches. Annual index area counts expanded to total population abundances using ratio of total to index area weighted intrinsic habitat (ICTRT 2007, Appendix C). Assumed 2.1 fish per redd.

SAR: Mid-Columbia steelhead composite series (see *Methods* section).

Table 5. Deschutes River Eastside summer steelhead population abundance and productivity data used for curve fits and R/S analysis. Bolded values were used in estimating the current productivity (Table 6).

Brood Year	Spawners	%Wild	Natural Run	Nat. Rtns	R/S	SAR Adj. Factor	Adj. Rtns	Adj. R/S
1990	1466	0.87	1270	432	0.29	2.83	1224	0.83
1991	1862	0.88	1640	447	0.24	2.33	1044	0.56
1992	**1158**	**0.82**	**948**	**549**	**0.47**	**1.88**	**1033**	**0.89**
1993	**583**	**0.51**	**299**	**718**	**1.23**	**1.18**	**848**	**1.46**
1994	**635**	**0.70**	**442**	**893**	**1.41**	**1.07**	**956**	**1.51**
1995	**740**	**0.59**	**436**	**1815**	**2.45**	**1.23**	**2224**	**3.01**
1996	**953**	**0.43**	**407**	**3786**	**3.97**	**1.03**	**3907**	**4.10**
1997	1829	0.46	841	6448	3.53	0.76	4922	2.69
1998	1921	0.21	401	4542	2.36	0.49	2227	1.16
1999	2397	0.61	1472	3236	1.35	0.52	1675	0.70
2000	3341	0.49	1627					
2001	9801	0.84	8274					
2002	5957	0.78	4665					
2003	4888	0.82	3984					
2004	2754	0.71	1945					
2005	1274	0.87	1114					

Table 6. Deschutes River Eastside summer steelhead population geometric mean abundance and productivity estimates (values used for current productivity and abundance are shown in boxes).

	R/S measures				Lambda measures		Abundance
	Not adjusted		SAR adjusted		Not adjusted	SAR adjusted	
delimited	median	75% threshold	median	75% threshold	1990-1999	1980-1999	Nat. origin geomean
Point Est.	1.52	1.62	1.89	1.88	1.10	n/a	1599
Std. Err.	0.36	0.21	0.27	0.24	0.11	n/a	0.32
count	5	3	5	3	10	n/a	10

Table 7. Deschutes River Eastside summer steelhead population stock-recruitment curve fit parameter estimates. Biologically unrealistic or highly uncertain values are highlighted in grey.

	Not adjusted for SAR							Adjusted for SAR						
SR Model	a	SE	b	SE	adj. var	auto	AICc	a	SE	b	SE	adj. var	auto	AICc
Rand-Walk	1.20	0.36	n/a	n/a	0.22	0.87	33.1	1.38	0.28	n/a	n/a	0.22	0.68	24.9
Const. Rec	1461	454	n/a	n/a	n/a	n/a	33.8	1672	307	n/a	n/a	n/a	n/a	23.2
Bev-Holt	1.92	2.00	4209	7419	0.16	0.91	37.1	3.94	3.83	2680	1554	0.15	0.72	26.4
Hock-Stk	1.20	0.21	19855	0	0.22	0.87	37.4	1.38	0.14	19729	0	0.22	0.68	29.2
Ricker	1.64	1.19	0.00023	0.00049	0.16	0.90	37.1	2.86	1.21	0.00054	0.00029	0.14	0.74	26.2

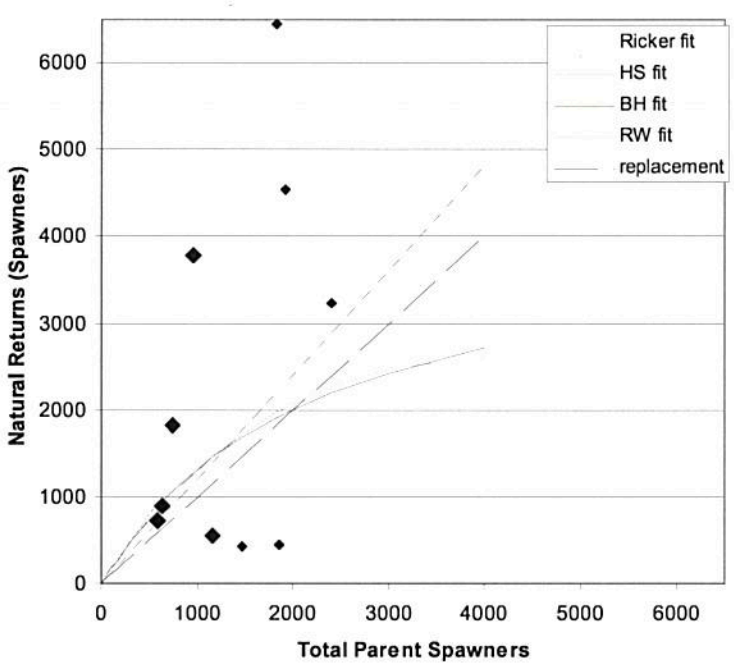


Figure 8. Deschutes River Eastside summer steelhead population stock recruitment curves. Bold points were used in estimating the current productivity. Data were not adjusted for marine survival.

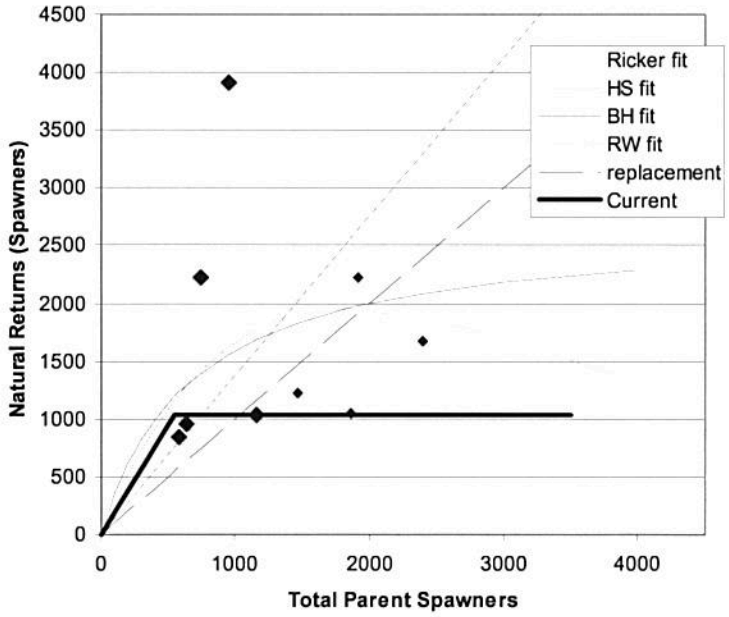


Figure 9. Deschutes River Eastside summer steelhead population stock recruitment curves. Bold points were used in estimating the current productivity. Data were adjusted for marine survival. Function labeled "Current" is a Hockey Stick function derived by fixing the slope of the ascending limb at the geometric mean productivity at low to moderate abundance (Table 2) and fitting a capacity estimate to the data series.

Attachment #4

Deschutes River Conservancy (DRC) article on the Warm Springs Tribe

Attachment #4

Archives : Warm Springs Tribes

The Deschutes River: what is valued most downstream?

May 30th, 2014

"Chuush" is the word you'll hear at the beginning and end of any ceremonial meal in Warm Springs. It means water in the Warm Springs language, Ichishkiin. Held in the highest regard by the Tribes, water is believed to be the first gift given by the Creator. Water is the giver of life.

The Warm Springs reservation is home to nearly five thousand tribal members and is downstream from the cities of Bend, Redmond and Madras. Unlike their neighbors upstream who draw their drinking water from other sources, the water in Warm Springs comes from the Deschutes River.

Because water plays such an important role in tribal culture and life, it is no wonder that the water quality of the Deschutes River is of the utmost importance to the Tribes. To ensure this precious resource was protected, the Tribes worked with local water interests to form the Deschutes River Conservancy in 1996.

"We need to be respectful of these resources," said Deanie Johnson, a life-long Warm Springs resident. "We need to be able to make future generations understand why the river is so important." While much work has gone into restoring flows in the Deschutes River, tribal members like Deanie would like to see more attention paid to water quality — a responsibility we all share.

"When you turn on the faucet in Warm Springs, you can smell the chlorine before the water pours out. It's really amplified here because our water comes straight from the Deschutes River and needs to be treated quite a bit before we can drink it. We need to be respectful of that water and I hope that the rest of the basin can be mindful that there are people living downstream from them."

Deanie Johnson is a Wasco tribal member living in Warm Springs along the Deschutes River. Water is the most important resource for the Warm Springs tribes and Deanie was kind enough to spend some time with us to share her perspective.

Attachment #5

2015 Middle Deschutes Watershed Council Action Plan Pages 45-48

Attachment #5

Middle Deschutes Watershed Council

Action Plan Structure

Purpose → Goals → Strategies → Actions

Purpose: Broad and visionary. The reason for the Action Plan and coordinated actions

Goals: Specific outcomes that will define success

Strategies: Overall approach used to achieve the goals in alignment with the purpose

Watershed Restoration Action Plan Purpose, Goals, Strategies, and Actions

The Middle Deschutes Watershed Council's Restoration Action Plan is a guide for the Council's activities and coordinated actions with landowners, watershed residents, and partner organizations. The Action Plan is organized around a framework that describes the overarching purpose of the plan, goals that define success, and the strategies and actions designed to achieve the goals.

Action Plan Purpose

Working in partnership with other organizations, individuals, and landowners, the Middle Deschutes Watershed Council's Restoration Action Plan will advance the Council's mission to improve the health of the Willow Creek and Trout Creek Watersheds and supporting a sustainable economy.

Goal 1: **Maintain high quality aquatic and floodplain habitats and their productive capacity to support healthy fish and wildlife populations, enhance watershed health, sustain agricultural production and the local economy, and foster thriving communities**

Strategy 1-A: Protect and conserve natural aquatic and floodplain ecological processes and habitats

Goal 2: Improve aquatic/riparian habitats, hydrologic processes, and stream connectivity to support healthy fish and wildlife populations, enhance watershed health, sustain agricultural production and the local economy, and foster thriving communities

Strategy 2-A: Restore fish passage and connectivity to habitats blocked or impaired by artificial barriers and maintain passage and connectivity

Strategy 2-B: Restore floodplain connectivity and function

Strategy 2-C: Restore and enhance channel structure and complexity

Strategy 2-D: Restore riparian and wetland habitats

Strategy 2-E: Restore stream flow, groundwater levels, and water quality to provide sustainable water sources

Strategy 2-F: Improve and maintain water quality

Goal 3: Protect, conserve, and restore groundwater function and levels to support healthy fish and wildlife populations, enhance watershed health, sustain agricultural production and the local economy, and foster thriving communities

Strategy 3-A: Study groundwater- and surface-water Interaction

Strategy 3-B: Identify actions to address stabilizing aquifers

Goal 4: Maintain high quality upland habitats and their productive capacity to support healthy fish and wildlife populations, enhance watershed health, sustain agricultural production and the local economy, and foster thriving communities

Strategy 4-A: Protect and conserve natural upland ecological processes and habitats

Goal 5: Improve upland ecosystem and hydrologic processes to support healthy fish and wildlife populations, enhance watershed health, sustain agricultural production and the local economy, and foster thriving communities

Strategy 5-A: Restore upland ecological processes and habitats

Strategy 5-B: Restore degraded areas and maintain upland processes to maximize soil productivity and minimize unnatural rates of erosion and runoff

Goal 6: Work collaboratively with organizations and residents on watershed restoration, research, education and outreach, and monitoring to promote understanding of watershed conditions, foster support for the Council's activities, and assure active and growing participation in actions to support healthy fish and wildlife populations, enhance watershed health, sustain agricultural production and the local economy, and foster thriving communities

Strategy 6-A: Recruit landowners for demonstration projects

Strategy 6-B: Provide landowners with information on Best Management Practices and watershed health issues

Strategy 6-C: Provide educational materials, workshops, and other forms of outreach and collaboration with landowners and organizations

Goal 7: Organize the Watershed Council and the Board of Directors to support full implementation of the Action Plan, increase organizational capacity, and improve and expand partnerships to support healthy fish and wildlife populations, enhance watershed health, sustain agricultural production and the local economy, and foster thriving communities

Strategy 7-A: Improve the Council's and Board's capacity to implement the Action Plan

Strategy 7-B: Improve the Council's capacity to implement the Action Plan through partnerships and collaboration

Goal 8:

Track and examine watershed conditions, assess restoration opportunities, and evaluate restoration outcomes through monitoring and assessment to determine if activities are achieving the goal of supporting healthy fish and wildlife populations, enhancing watershed health, sustaining agricultural production and the local economy, and fostering thriving communities

Strategy 8-A: Assess, track, and report on watershed conditions, including surface and groundwater water quality and quantity, fish populations, stream habitat, and riparian vegetation over time

Strategy 8-B: Evaluate restoration projects and programs

Strategy 8-C: Report on watershed monitoring results and restoration activities

Attachment #6

Madras Pioneer Public Notice of Meeting

Attachment #6

News Up Front

Health precautions needed during smoky conditions

County public health officials urge people in Jefferson to take precautions as smoke from wildfires affects the air quality.

Wildfire smoke area may increase the risk of illness especially for older adults, young children, and people with asthma, respiratory, or heart conditions.

The following precautions are recommended to avoid health problems during hot, smoky conditions:

. Reduce the amount of time spent outdoors. This can usually provide some protection,

especially in a tightly closed, air-conditioned house in which the air conditioner can be

set to re-circulate air instead of bringing in outdoor air.

. Reduce the amount of time engaged in vigorous outdoor physical activity. This can be an important and effective strategy to decrease exposure to inhaled air pollutants and

minimize health risks during a smoke event.

. Reduce other sources of indoor air pollution such as burning cigarettes and candles; using gas, propane, and wood burning stoves and furnaces; cooking; and vacuuming.

. Individuals with heart disease or lung diseases such as asthma should follow their health care providers' advice about prevention and treatment of symptoms.

Additional information is available through air quality monitors, which record hourly the amount of particles in the air around the detector, plus have a 24 hour accumulation index of the air.

Jefferson County has two, one in Madras and one in Warm Springs. Air quality monitors have been generally moderate, with some 24 hour readings in the unhealthy for sensitive zones.

To access the Madras monitor information go to www.co.jefferson.or.us/PublicMentalHealth/PublicHealthDepartment and scroll down to Central Oregon Weather and Air Quality, then click on DEQ air quality; then the Madras dot on the map.

To access Warm Springs monitor information go to www.warmsprings.com and click on air quality report.

Town hall on marijuana

MEETINGS & EVENTS

FREE SPORT PHYSICALS OFFERED

Madras Medical Group is partnering with local healthcare providers to offer free sport physicals to middle and high school students in Jefferson County at 5 p.m., Tuesday, Sept. 10, at the Madras United Methodist Church. Physicals performed after these dates will cost $21.

COMMUNITY ED NOW REGISTERING

Online registration for Central Oregon Community College's Community Learning fall classes is now open at www.cocc.edu/continuinged/full-class-listing. Class schedules will be mailed to residents who have taken classes, on Aug. 20, and be at library and chamber of commerce office.

TRY OUT FOR COMMUNITY PLAY

Auditions for the next High Desert Community Theater Guild's play "Wash Your Troubles Away" will be at 6:15 p.m., Tuesday, Aug. 25, and Wednesday, Aug. 26, at Culver City Hall.

SATURDAY MARKET AT SAHALEE

The Madras Saturday Market is open from 9 a.m. to 2 p.m., at Sahalee Park in Madras, with fresh produce, berries, arts and crafts. This week's entertainment, on Aug. 22, will be the Madras band Plays Well With Others.

COFFEE CUPPERS AT MID OREGON

The Chamber Coffee Cuppers will be hosted by Mid Oregon Credit Union, 395 S.E. Fifth St., Madras, at 8 a.m., Friday, Aug. 21. Everyone is invited.

PREVENTION BBQ COMING

The fourth annual Prevention Celebration, to honor the work of those bringing awareness of the issues of drug and alcohol abuse, will be held from 11:30 a.m. to 1:30 p.m., Aug. 19, at the prevention office at 242 S.W. Fourth St., Suite D, in Madras. RSVP to Cindy Brockett at 541-475-4884.

BLOODMOBILE IN TOWN

The Red Cross bloodmobile will be in Madras from 1-6 p.m., Wednesday, Aug. 19, at St. Patrick's Catholic Church, 341 S.W. J St. Call 1-800-733-2767 for an appointment.

TOUR MOUNTAINSTAR NURSERY

Tours of the MountainStar Relief Nursery at 122 N.E. 10th St., in Madras are being given the second Wednesday of each month, from 11:15 a.m. to 12:15 p.m. Anyone can join the tour. RSVPs are appreciated by calling 541-322-6820. Personal tours can also be set up.

DIVERSITY WORKSHOP SCHEDULED

Part 3 of the Let's Talk Diversity Coalitions trainings will be held Sept. 3, focusing on poverty and health equity. For information, call 541-475-4325.

REUNION FOR MHS CLASS OF 1965

The 50 year reunion for the Madras High School class of 1965 will be held Sept. 11 and 12. A no-host gathering will be held at Charlie's Pizza, at 4 p.m., Sept. 11; and catered dinner at 4 p.m., Sept. 12, at

SCHOLARSHIP DEADLINE NEARS

The St. Charles Foundation is offering scholarships worth $1,500 to students pursuing a career in the health care field. Applications are due Aug. 28. For information, call Rebecca Keegan at 541-460-4200.

PANCAKES FLIP IN METOLIUS

A pancake breakfast will be held at the Metolius Train Depot from 8-10 a.m., Aug. 22. The price is $3.50, adults and kids 12 and up; $3, seniors and kids ages 6-11; and kids 5 and under eat free with an adult.

W.S. YOUTH LEADERSHIP TRAINING SET

The Warm Springs Youth Council will host a free training, "Empowering Future Leaders," for indigenous youth, ages 14-24, on Aug. 26-27, at the Warm Springs Community Center. Register online at http://bit.ly/1ITikOf, and turn form into the KWSO office.

SOIL AND WATER BOARD MEETS

The Jefferson County Soil and Water Conservation District will meet at noon, Aug. 25, at the Central Oregon Ag Research Center in Madras to discuss financial statements and project updates. Call 541-923-4358, ext. 101 for more information.

CAN MEAT, FISH, POULTRY

An Extension workshop on safely canning meat, fish, poultry and vegetables will be held Sept. 9, from 8:30 a.m. to 2 p.m., in Redmond. The cost is $15. The deadline to register is Sept. 4, by calling 541-548-6088.

ART ASSOCIATION PLANS FUNDRAISER

The Jefferson County Arts Association will hold its annual fundraising dinner on Sept. 12, at Erickson Aircraft Collection Museum in Madras, with reception at 5 p.m., and dinner at 6 p.m. Tickets are $80 and must be purchased by Sept. 5, by calling Coralee Popp at 541-475-6317, or Joyce Edgemon at 541-408-0206.

ESD BOARD TO MEET

The Jefferson County Education Services District Board will meet at 6 p.m., Aug. 19, at the district office, 295 S.E. Buff St., Madras. The meeting is open to the public.

SCHOOL SUPPLIES COLLECTED

Mid Oregon Credit Union in Madras will have collection bins during the month of August for donations of school supplies. Everything collected here, will be distributed to students here.

FREE SUMMER MEALS FOR CHILDREN

Free breakfast and lunch are available to all children ages 1-18. They do not have to attend Jefferson County Schools. The meals run June 15 to Aug. 22. Meals are at Westside, Metolius, Madras elementary schools, Warm Springs Academy and Warm Springs Youth Center, and Jefferson County Middle School. Visit www.jcsd.k12.or.us/parents/summer-food-service for times.

Attachment #7

SWCD October 2015 Board Meeting Minutes

Attachment #7

Jefferson County SWCD Board Minutes ~ October 27, 2015

Jefferson County SWCD
625 SE Salmon Avenue ~ Suite 6
Redmond, OR 97756
541-923-4358 X 101

BOARD MEETING MINUTES
October 27, 2015
OSU Research Center ~ Madras, OR

Members Present:
Board:

Lloyd Forman (Zone 4)
Scott Samsel (At Large 1)
Rob Galyen (At Large 2)
Brad Klann (Zone 2)
Sean Vibbert (Zone 3)

Advisors:

Tom Bennett (NRCS)
Kirk Holcomb (NUID)
Mike Britton (NUID)

Staff:
Debbe Chadwick
Mark Goodwin
John Speece
Adam Haarberg

SUMMARY OF BOARD MOTIONS

Motion #1: ***Motion made by Brad Klann to approve the August 25, 2015 Board Minutes as presented. Second by Scott Samsel. The motion passed unanimously.***

Motion #2: ***Motion made by Rob Gaylen to approve the October 27, 2015 financial activity report with as submitted. Second by Brad Klann. Motion carried unanimously.***

Call to Order:

The October 27, 2015 Jefferson County SWCD Board meeting was called to order by Chair Lloyd Forman at 12:15 PM with a quorum in place.

Jefferson County SWCD Board Minutes ~ October 27, 2015

Approval of August 25, 2015 Board Minutes:

The board reviewed the August 25, 2015 board minutes as presented. No changes were noted during the meeting.

Motion #1: ***Motion made by Brad Klann to approve the August 25, 2015 Board Minutes as presented. Second by Scott Samsel. The motion passed unanimously.***

Approval of October 27, 2015 Financial Activity Report:

Debbe took the board through the check register from August 25, 2015 through October 27, 2015 and the report of missing checks, the balance sheet, income statement and job/vendor reports as of August. Debbe saw no immediate financial issues at this time that could be concerning to the board but again did caution that grant funds are getting tighter in their restrictions on use i.e. preferred on the ground spending of funds. Current active grants are reported on and balanced per grant requirements and all payroll taxes and reports are paid and current. As funding continues to flux, and grants focus more and more towards on the ground costs, it will be imperative that the District continue to seek out other possible sources of funding. There has been word that NRCS in their new lease agreement at the Service Center will be requiring SWCD's to begin paying for their space in lieu of assisting NRCS with their programs/public etc. The CREP cubicle will be allowed as well as the conservation tech cubicle. District Manager, Trout Creek Manager & Watershed Coordinator spaces could potentially be charged for. Debbe will keep the board notified as more information becomes available. Debbe also notified the board that she was able to secure the required 2014-2015 Audit through Barnett CPA's for $4,000.00 given the District Budget.

Motion #2: ***Motion made by Rob Galyen to approve the October 27, 2015 financial activity report with as submitted. Second by Rob Gaylen. Motion carried unanimously.***

Watershed Council Activities:

John Speece has begun to get to work in the Watershed and has an Action Plan to follow for the next few years. The District has a Fiscal Sponsor Agreement with the Watershed Council and will continue to collaborate and work closely with them. He is currently engaged in talks with the Children's Forest Grant through the EPA ~ on an educational grant in both Warm Springs and Madras doing some restoration work with the students, culminating in a video, and attendance at a Tri County Summit in both 2016 and 2017. He also did some work with the Culver Youth Watershed Council for an Educational Day along Willow Creek that was attended by the whole high school. John and Mark Goodwin, Tech for JSWCD assisted and at the end of the day 150 willows were put into the ground. John is looking for pictures for a new website. He is also working on some workshops that may include livestock watering, a PAM workshop that also folds in soil health. Bob Spatholz with PGE will be the speaker at the MDWC Council meeting today at 4:30 PM.

Conservation Technician Report:

Mark has been continuing to work with landowners in Jefferson County to provide technical assistance and seek out potential Projects. Mark is also working on the Lateral 58-11 and assisting NUID and NRCS as requested. Work has picked up on landowner calls requesting assistance. Mark is also going to begin working on some new grant projects up on Agency Plains regarding tailwater going over the rim. He spent time with Scott Samsel (landowner and board member) and identified potential grant opportunities regarding pond cleanout, building up points, piping to re-use tailwater etc. He also continues to market and work the Small Grant program as well as the water quality monitoring of Mud Springs and Rattlesnake and continued work on the Focus Area of Mud Springs. 3 small grants were funded the past few months: A fencing project, a permanent drip irrigation system

and a small piping project. The Small Grant on Campbell Creek will continue with staff eradicating as much blackberry bush as possible and then spraying them. The goal is to put this project into CREP.

Trout Creek Project Update:

Adam gave Plateau to Norton's (Trout Creek Landowner) so that they can spray for Medusahead. This will also be done via helicopter as well. He has been spending considerable time working on the design package for the Middle Trout Project/Stream Channel and will then move on to the design for Little Trout as well. They can start work on July 1 of next year as they now have cultural clearance. This project will eventually be put into CREP as well.

TRI COUNTY CREP:

Both John Speece (Crook/Deschutes) and Mark Goodwin (Jefferson) have been doing status reviews on existing CREP projects. This is a good start to get Mark up and trained with CREP. In Jefferson County Mark will be working on a CREP project on Campbell Creek and eventually Middle and Little Trout Creek will be put into CREP as well. At this time, CREP is shut down, waiting for the green light to begin signing contracts as well. The new grant application was submitted to OWEB for the 2016-2018 Biennium funding for this position. Contract should be in place by January 1, 2016.

ADVISOR REPORTS:

NRCS Report: Tom indicated he is working on the last 58-11 EQIP contracts when the lateral eventually gets to those landowners. Moving forward from 58-11 funds could be used on Agency Plains as in Rattlesnake Drainage (Top of Mud Springs to the River and Hwy 26.) Tom said that can be decided at the Strategic Implementation meeting this fall. He indicated that 2 Engineers will be based in the Redmond Service Center. Tom indicated that there was rumor of a general CRP signup for dryland cropping but didn't have a definitive on that. He also indicated that there is funding for emergency grazing because of the drought where a landowner could potentially put livestock on CRP land. There was discussion on Drone use and water use.

NUID: Irrigation water has been shut off for the winter. NUID is not doing maintenance on the ramp at Haystack Reservoir. They have put out a bid for 58-11 pipe and excavation for that work. They are also seeding on prior work/piping done. Hey continue to have a wait and see for the spotted frog and lawsuits. They are working on different strategies to come to some consensus in resolving the issue.

Meeting was adjourned at 1:40 PM.

SAFETY Meeting: SNOW conditions are coming! Please check your rigs for winter driving conditions and make sure maintenance is up to date.

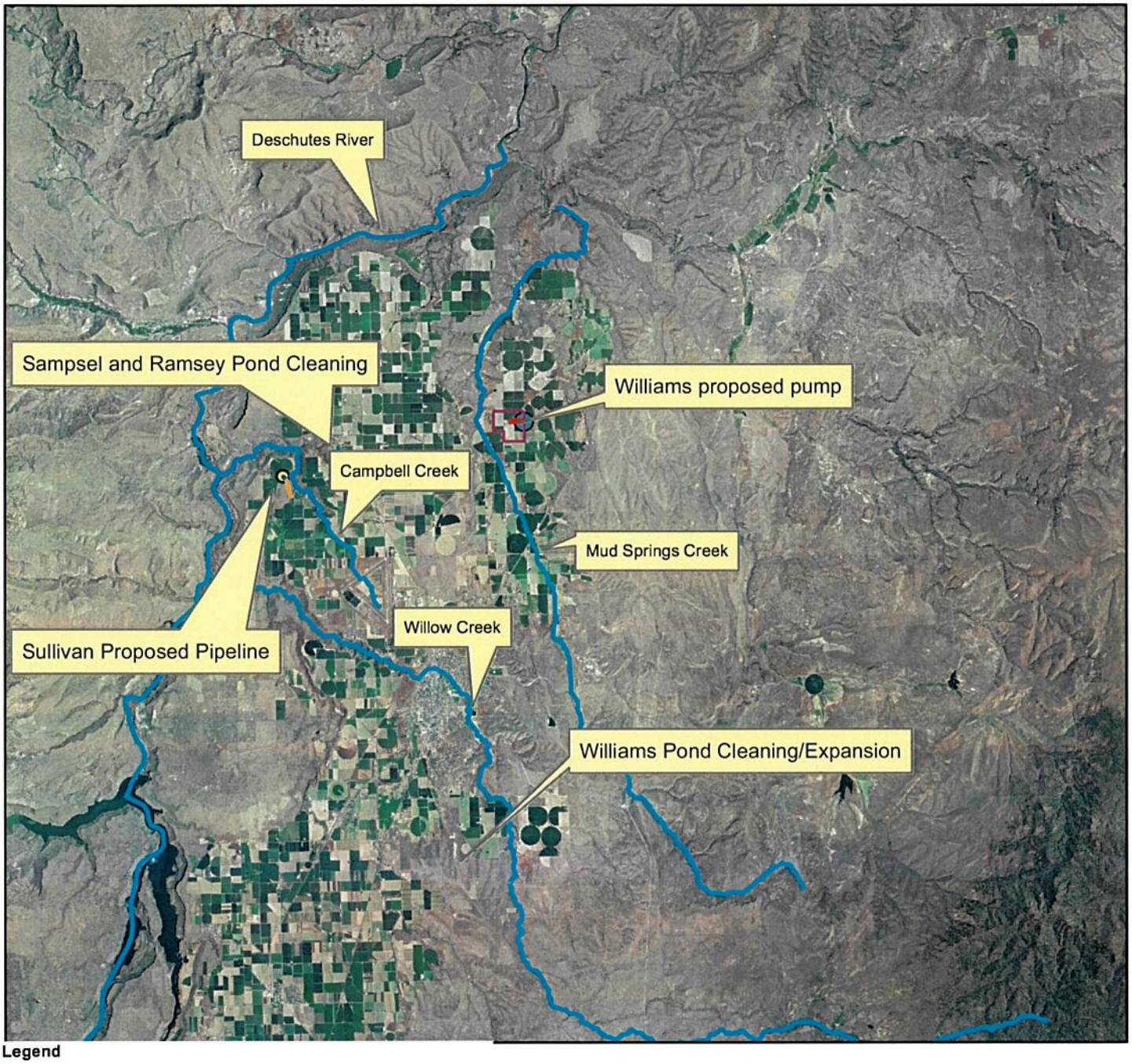
Attachment #8

Location Area Maps

Location Map of All Proposed Projects

District: JEFFERSON SOIL & WATER CONSERVATION DISTRICT

Field Office: REDMOND SERVICE CENTER
Agency: NRCS
Assisted By: Mark Goodwin



Legend

- proposed pond cleaning
- Proposed Above Ground Pipeline (~2,075 feet of 10 inch pipe)
- Proposed Underground Pipeline (~650 feet of 10 inch pipe)
- Proposed Pipeline Weir
- hydro_strmnet_or031
- Feilds the proposed Pump will serve
- existing pump back system
- Proposed Pump Location
- Pond Expansion/Cleaning

USDA

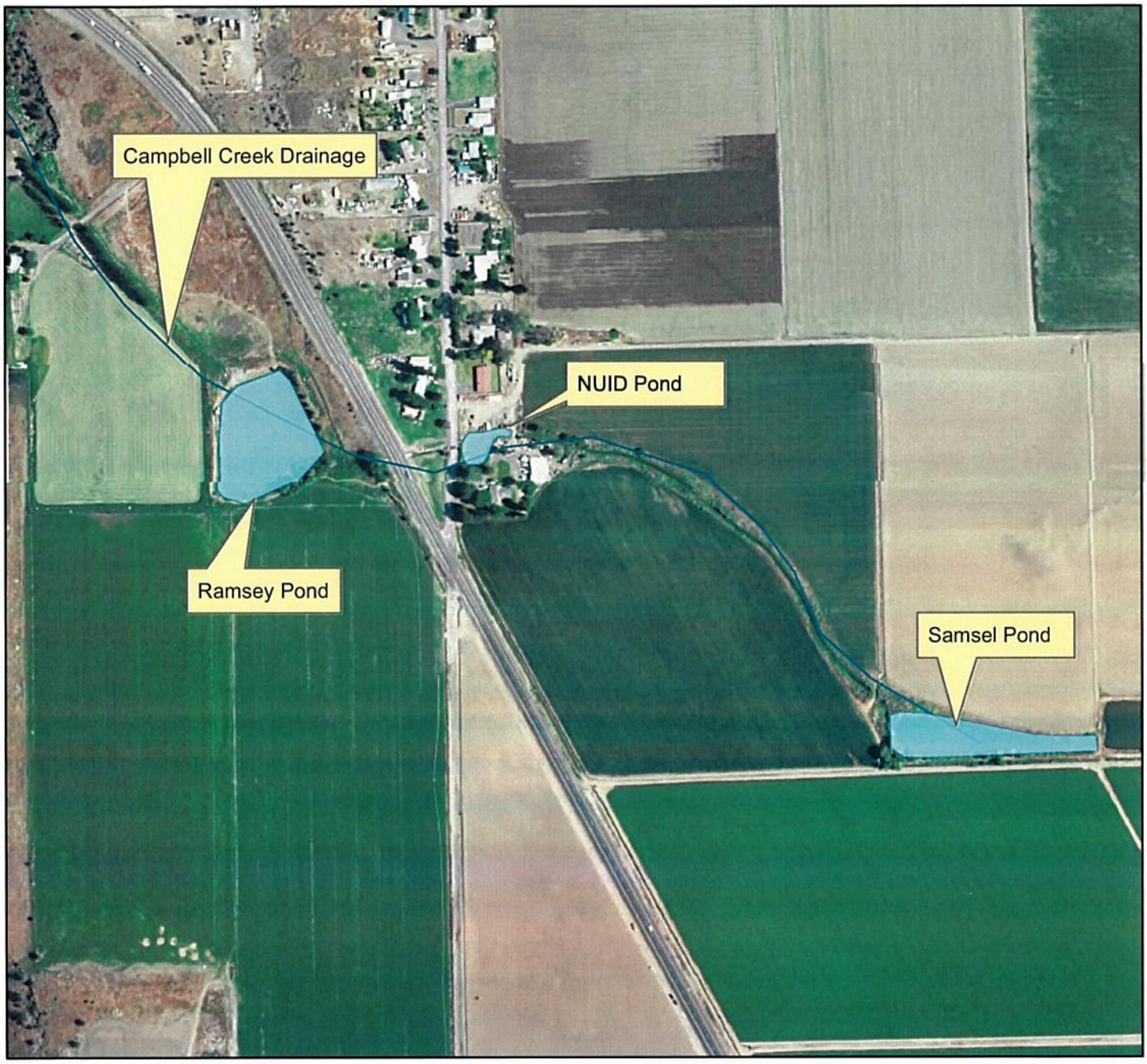
11,000 0 11,000 22,000 33,000 44,000
Feet

N

Ramsey and Samsel Pond Cleaning Proposal

District: JEFFERSON SOIL & WATER CONSERVATION DISTRICT

Field Office: REDMOND SERVICE CENTER
Agency: NRCS
Assisted By: Mark Goodwin



Legend

- proposed pond cleaning
- hydro_strmnet_or031

USDA

280 0 280 560 840 1,120 Feet

N

Sullivan Pipeline Proposal

District: JEFFERSON SOIL & WATER CONSERVATION DISTRICT

Field Office: REDMOND SERVICE CENTER
Agency: NRCS
Assisted By: Mark Goodwin

Legend

- Proposed Above Ground Pipeline (~2,075 feet of 10 inch pipe)
- Proposed Underground Pipeline (~650 feet of 10 inch pipe)
- Proposed Pipeline Weir
- hydro_strmnet_or031

USDA

470 0 470 940 1,410 1,880
Feet

N

Williams Proposed Pond Expansion

District: JEFFERSON SOIL & WATER CONSERVATION DISTRICT

Field Office: REDMOND SERVICE CENTER
Agency: NRCS
Assisted By: Mark Goodwin

USDA

Legend

- hydro_strmnet_or031
- Pond Expansion/Cleaning

280 0 280 560 840 1,120 Feet

N

Williams Proposed Pump

Customer(s):

District: JEFFERSON SOIL & WATER CONSERVATION DISTRICT

Field Office: REDMOND SERVICE CENTER

Assisted By: Mark Goodwin

Legend

- Feilds the proposed Pump will serve (~300 Acres)
- existing pump back system
- Proposed Pump Location
- street_dm_l_or_east

0 730 1,460 2,190 2,920 Feet

N

Attachment #9

Township, Section and Range

Township Range and Sections Attachment

Project Specifics	Township	Range	Section	Quarter-Quarter Section
Williams Pond Expansion	11	14E	32	SW, SW
Williams Pump	10	14E	5	NE, NE
Ramsey and Samsel Pond Cleaning Project	10	13E	9,10	S9: NE, NW S10: NW, SW
Sullivan Pipeline Project	10	13E	8,17	S8: SW,SW S17: NW, SE

Attachment #10

Cooperators Agreement

Cooperative Agreement

Project Name: Madras Agricultural Water Efficiency and Reuse Project

Purpose: The purpose of this cooperative agreement is to clarify that the participating landowners and partners understand the project proposal, Individual requirements, and are willing to participate and work with the Jefferson County SWCD to accomplish the proposed tasks. Participating landowners and partners also understand through this agreement that the project information will be available to the public.

Participating Landowners and Partners Agreement Signatures:

Print Name of Cooperator	Signature	Date
Scott M Samsel	Scott M Samsel	8-12-15
Jarold W. Ramsey	Jarold W. Ramsey	12-29-15
[illegible]	[illegible]	12/29/15
Gregory T. Williams	[illegible]	12/29/15
Kirk Holcomb NUID	Kirk Holcomb	1-5-15

Attachment #11

Letters of Support

United States Department of Agriculture

NRCS Natural Resources Conservation Service

Thomas J. Bennett
District Conservationist

625 SE Salmon Ave. Ste. 4
Redmond, OR 97756

Phone: (541) 923-4358 ex. 123

Fax: (541) 923-4713

January 5, 2016

To: Debbe Chadwick, Manager
Jefferson County Soil and Water Conservation District
625 SE Salmon Ave
Redmond, Oregon 97756

Re: ORWD Water Supply Development grant

As District Conservationist for USDA's Natural Resources Conservation Service in Deschutes and Jefferson counties, I offer my support to your request for assistance to obtain funding to capture and more effectively reuse tailwater. Reduction of irrigation runoff and operational spill at the end of the NUID and private laterals will provide some water quality benefit to Trout Creek and other Deschutes tributaries through reduced sediment delivery. NRCS in Oregon is making a strong effort to coordinate and focus our resources on priorities identified in a strategic planning process. Runoff from irrigated land and irrigation efficiency are issues we have been working on. NRCS has a Conservation Implementation Strategy area on North Agency Plains to address water lost over the rim to the Deschutes that might carry sediment. More efficient irrigation systems and capture and reuse of tailwater are techniques that we are promoting. This proposal complements that and expands it with pilot projects in other drainages.

I look forward to continuing our partnership with the JSWCD as we strive to protect and restore our watershed resources.

If you have any questions, please call me at **923-4358 ext.123**

Sincerely,

Thomas J. Bennett
District Conservationist
Natural Resource Conservation Service

Oregon
Kate Brown, Governor

Department of Agriculture
635 Capitol St NE
Salem, OR 97301-2532

December 31, 2015

Mark Goodwin
Jefferson SWCD
625 SE Salmon Ave, Suite 6
Redmond, OR 97756

Dear Mark:

This letter is in support of Madras, OR Agricultural Water Efficiency and Reuse Project proposed by the Jefferson SWCD. This project will result in efficient use of irrigation water and reduce the amount of agricultural runoff entering the Deschutes River via its major tributaries in this area.

I participated in three years of water quality sampling with the SWCD to identify sources of sediment and nutrients in the Agency Plains area. The lower portion of Trout Creek consists almost solely of Mud Springs water in the summer; any water quality issues in Mud Springs Creek can drastically impair fish habitat in Trout Creek. Extra irrigation water flowing over bluffs into the Deschutes River or its tributaries erodes the bank on its way down and supplies sediment to these waters.

This project fully supports the Middle Deschutes Agricultural Water Quality Management Area Plan, which promotes "cost-effective agricultural activities that improve and protect water quality". I have worked with all of the landowners participating in this project; they are all progressive and will look forward to having their efforts used to encourage others to do similar projects.

ODA applauds the North Unit Irrigation District, the Jefferson County SWCD, landowners, and all other partners for working together on this complex and beneficial project.

Sincerely,

Ellen L Hammond

Ellen Hammond, AgWQ Monitoring and Implementation Lead
Oregon Department of Agriculture
475 NE Bellevue Drive, Suite 110
Bend, OR 97701

625 SE Salmon Ave. # 6
Redmond, Oregon 97756

Phone: (541) 923-4358 X. 139
johnathan.speece@or.nacdnet.net

December 28, 2015

Dear Oregon Water Resources Department,

I am writing this letter on behalf of the Middle Deschutes Watershed Council (MDWC) to express support for the Agricultural Water Efficiency and Reuse Project that is proposed by the Jefferson County Soil and Water Conservation District (JCSWCD). The purpose of the project is to promote agricultural water reuse, efficiency, and improved water quality. The geographic scope of the project lies within the service area of the MDWC.

This project is aligned with the strategies outlined in the Middle Deschutes Water Quality Management Plan, 2014, among other area planning documents, aimed at reducing water pollution from agricultural lands. Furthermore this project compliments actions the MDWC is planning that intend to outreach to, and educate, community members on irrigation water management. Collaborative partnerships such as this prove to be critical in addressing current and future water conservation and efficiency needs.

I strongly encourage you to consider fully funding this project during your review process. If you have specific questions or concerns and would like to speak with in person please feel free to contact me at any time. Thank you, and I appreciate your time to read this letter of support.

Sincerely,

John Speece

Middle Deschutes Watershed Council Coordinator
Tri-County CREP Planner
Crook, Deschutes and Jefferson Counties

Involving local people to enhance and protect the natural resources of the Middle Deschutes Watershed

Attachment #12

Email from LCIS

Goodwin, Mark - NRCS, Redmond, OR

From: Goodwin, Mark - NRCS, Redmond, OR
Sent: Monday, December 28, 2015 10:22 AM
To: 'karen.m.quigley@state.or.us'
Subject: consultation for grant project in Jefferson County
Attachments: proposal and maps for OWRD grant1.pdf

Hello Karen,

I have attached an Oregon Water Resource Grant proposal with maps for a project we are planning in Jefferson County. As specified on page 10, question 10, I need to request a list of tribes affected by the project. I believe the Confederated Tribes of Warm Springs will but wanted to confirm. Thank you.

Mark Goodwin

Conservation Technician
Jefferson County SWCD
625 SE Salmon Ave. Suite 6
Redmond, OR 97756

541.923.4358 x128
Mark.Goodwin@or.nacdnet.net

Goodwin, Mark - NRCS, Redmond, OR

Subject: FW: consultation for grant project in Jefferson County

From: Quigley Karen M [mailto:karen.m.quigley@state.or.us]
Sent: Monday, December 28, 2015 11:41 AM
To: Goodwin, Mark - NRCS, Redmond, OR <Mark.Goodwin@or.nacdnet.net>
Subject: RE: consultation for grant project in Jefferson County

Hello Mark,
Thank you for asking.
Like you, I assume CTWS is the Tribe with primary interests in the area, but you may also want to touch base with Burns Pauite (Diane Teeman is head of cultural resources). Email addresses on our website. www.oregonlegislature.gov/cis
Click on Contacts and then Cultural resources contacts
Karen

Karen Quigley, Executive Director
karen.m.quigley@state.or.us
Legislative Commission on Indian Services

Attachment #13

Email to Bobby Brunoe CTWS

Goodwin, Mark - NRCS, Redmond, OR

From: Goodwin, Mark - NRCS, Redmond, OR
Sent: Monday, December 28, 2015 12:46 PM
To: 'robert.brunoe@ctwsbnr.org'
Subject: OWRD grant Proposal (Jefferson County SWCD)
Attachments: proposal and maps for OWRD grant1.pdf

Hello Bobby,

I wanted to let you know that the Jefferson SWCD is working on a grant proposal through the Oregon Water Resources department to do some pond cleaning/expansion and water reuse piping in the Madras Area. The grant we are applying for requires consultation with tribes per page 10, question 10. The project will reduce sediment input from Tailwater in the Deschutes River from agency plains. I have attached a draft application and maps to this email. I just wanted to keep you all in loop on this proposed project. Thanks.

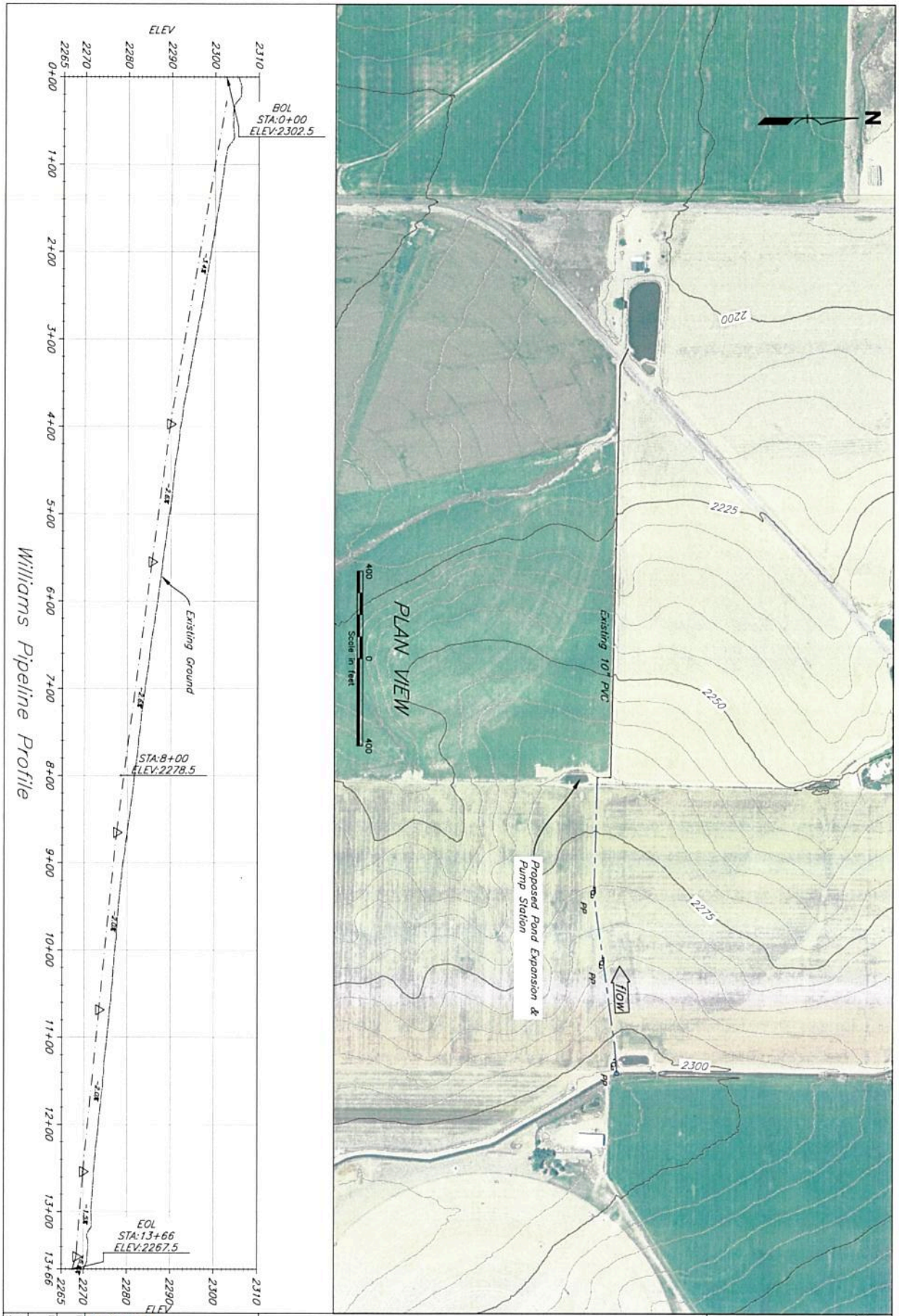
Mark Goodwin

Conservation Technician
Jefferson County SWCD
625 SE Salmon Ave. Suite 6
Redmond, OR 97756

541.923.4358 x128
Mark.Goodwin@or.nacdnet.net

Attachment #14

Lidar map



12/10/2015 2:45 PM Sheet of	Drawing No.	File Name	USDA United States Department of Agriculture Natural Resources Conservation Service

PLAN & PROFILE VIEW

Williams Land and Livestock

PRACTICE STANDARD(S): 430, 587

BASIN: HDDB

JOB CLASS:

JEFFERSON COUNTY, OREGON

		Date
Designed	NK	11/2015
Drawn	NK	11/2015
Checked		
Approved		
Title		

Attachment #15

Detailed Project Budget

Project Budget						
Line Items	**Number of Units**	**Unit Cost**	**In-Kind Match**	**Cash Match Funds**	**OWRD Funds**	**Total Cost**
Materials:						
10 inch Pipe (Sullivan)	2,725 feet	6.50/ft		$3,500.00	$14,212.50	$17,712.50
Weir (Sullivan)	1 Unit	$500.00			$500.00	$500.00
Irrigation Pump (Williams)	1 Unit	$30,000.00		$7,500.00	$22,500.00	$30,000.00
Contractural/Services: "Contractor in perenthesis"						
Ramsey Pond Cleaning (NUID)	2.17 acres	$2,500.00		$1,350.00	$4,075.00	$5,425.00
Sampsel Pond Cleaning "2 ponds" (NUID/Scott Sampsel)	1.5 acres	$2,500.00		$900.00	$2,850.00	$3,750.00
Williams Pond Cleaning/Expansion (Greg Williams)	4 acres	$2,500.00		$2,500.00	$7,500.00	$10,000.00
Engineering Designs for Williams Pond Expansion/Sullivan Pipeline (NRCS)	40 hours	$50.00	$2,000.00			$2,000.00
Sullivan Pipe Installation (Stan Sullivan)	80 hours	$20.00	$1,600.00			$1,600.00
Staff Salary/ Benefits:						
Debbe Chadwick (Administration)	80 hours	$30.00	$600.00		$1,800.00	$2,400.00
Mark Goodwin (Project Management)	100 hours	$25.00	$500.00		$2,000.00	$2,500.00
Equipment:						
Supplies:						
Other:						
Total Costs:			$4,700.00	15,750.00	$55,437.50	$75,887.50
			Inkind=	$20,450.00		
			OWRD Funds=	$55,437.50		
			Match=	27.60%		

Attachment #16

Additionally Involved Landowners

Additionally Involved Landowners:

Involved Landowner #3: Stan Sullivan	**Involved Landowner #4: Jerald Ramsey**
Address: 3738 NW DOGWOOD LN MADRAS, OR 97741	Address: 5884 Hwy 26 MADRAS, OR 97741
Phone: 541-325-6316	Phone: 541-475-5390
Fax: N/A	Fax: N/A
Email: N/A	Email: N/A