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# GENETIC STOCK IDENTIFICATION AND RELATIVE NATURAL PRODUCTION OF WILLAMETTE RIVER STEELHEAD

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## Abstract

We used genotypic data from 15 microsatellite loci to characterize the stock structure of *Oncorhynchus mykiss* in the upper Willamette River basin. We then used two analytical approaches, implemented in the programs ONCOR and STRUCTURE, to assign (presumably) natural-origin, unmarked fish to their most likely reporting group or hybrid class. We investigated sibling relationships among unknown samples with the program ML RELATE. In the upper Willamette River, *O. mykiss* genetic structure can be characterized by four principal groups: summer steelhead of Skamania stock ancestry, eastern tributaries winter steelhead, western tributaries winter steelhead and resident rainbow trout. We found that about 10% of unmarked juvenile *O. mykiss* sampled at Willamette Falls in 2009-2011 were summer steelhead and that an additional 10% of samples were summer x winter steelhead hybrids. Most *O. mykiss* sampled from the McKenzie River were either summer steelhead or summer x winter steelhead hybrids. Natural production of pure summer steelhead appeared to be very low in the North and South Santiam rivers, though summer steelhead hybrids represented 11.1% and 14.8% of samples. Results from ML RELATE analyses appeared unreliable and inconclusive, and may have been limited by low genetic diversity among summer steelhead samples. We provide several recommendations to better understand and reduce potentially negative interactions between hatchery summer steelhead and native upper Willamette River *O. mykiss* populations. These include reductions in adult steelhead on natural spawning grounds, improved reproductive isolation between hatchery and native populations and additional research to evaluate genetic integrity within and among *O. mykiss* populations.

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## Introduction

In the upper Willamette River (UWR) basin, *Oncorhynchus mykiss* is represented by both resident rainbow trout and anadromous steelhead. Native winter steelhead typically return to the Willamette River from the ocean between February and May, then spawn (March-June) in the Molalla, North Santiam, South Santiam, and Calapooia rivers (Figure 1; ODFW and NMFS 2011). Some winter steelhead also spawn in westside tributaries of the Willamette River, such as the Tualatin, Yamhill, and Luckiamute rivers. Winter steelhead are rarely observed in the McKenzie or Middle Fork Willamette rivers and these subbasins are not considered to be critical habitat for the UWR steelhead distinct population segment (DPS) (NMFS 2012; ODFW and NMFS 2011). Much of the historic spawning habitat for UWR winter steelhead became inaccessible to the species in the mid-1960s, with the construction of high-head Willamette Project dams on the North and South Santiam rivers (NMFS 2008).

In 1966, the Oregon Department of Fish and Wildlife (ODFW) initiated a summer steelhead hatchery program to mitigate for winter steelhead habitat losses caused by Willamette Project dams and to provide an enhanced sport fishery in the Willamette River basin. Summer steelhead are not native to the Willamette basin, and Skamania stock steelhead from Washington State were used to found hatchery broodstocks. Adult summer steelhead typically return to the UWR basin between March and October, and spawn timing can overlap with native winter steelhead that typically spawn in March and April (Firman et al. 2004).

Since 1984, all juvenile hatchery summer steelhead released into the Willamette River have been marked by removing the adipose fin to distinguish them from natural origin steelhead. Marked summer steelhead have been observed on spawning grounds (Schroeder et al. 2006), raising concerns about negative ecological interactions and genetic introgression with native winter steelhead in the upper Willamette River Evolutionarily Significant Unit, which are listed as Threatened under the Federal Endangered Species Act (NMFS 1999). These concerns prompted development of Reasonable and Prudent Alternative (RPA) 9.5.2.1 (NMFS 2008), which recommended implementation of a study to "*determine the extent of summer steelhead reproduction in the wild*" by collecting "*tissue samples from juvenile steelhead for genetic analysis to determine if offspring are of winter- or summer-run origin*." In addition, RPA 6.1.9 (Future Summer Steelhead Management Actions) states that, "*The Action Agencies, in cooperation with ODFW, will implement future management actions aimed at reducing the impacts of the summer steelhead hatchery program on ESA-listed species.*" Finally, the Upper Willamette River Conservation and Recovery Plan for Chinook Salmon and Steelhead (ODFW and NOAA 2011) listed interbreeding with summer steelhead as a key threat for winter steelhead in the North and South Santiam rivers (among others) and noted that the impact of genetic introgression and past or current hatchery practices is largely unknown.

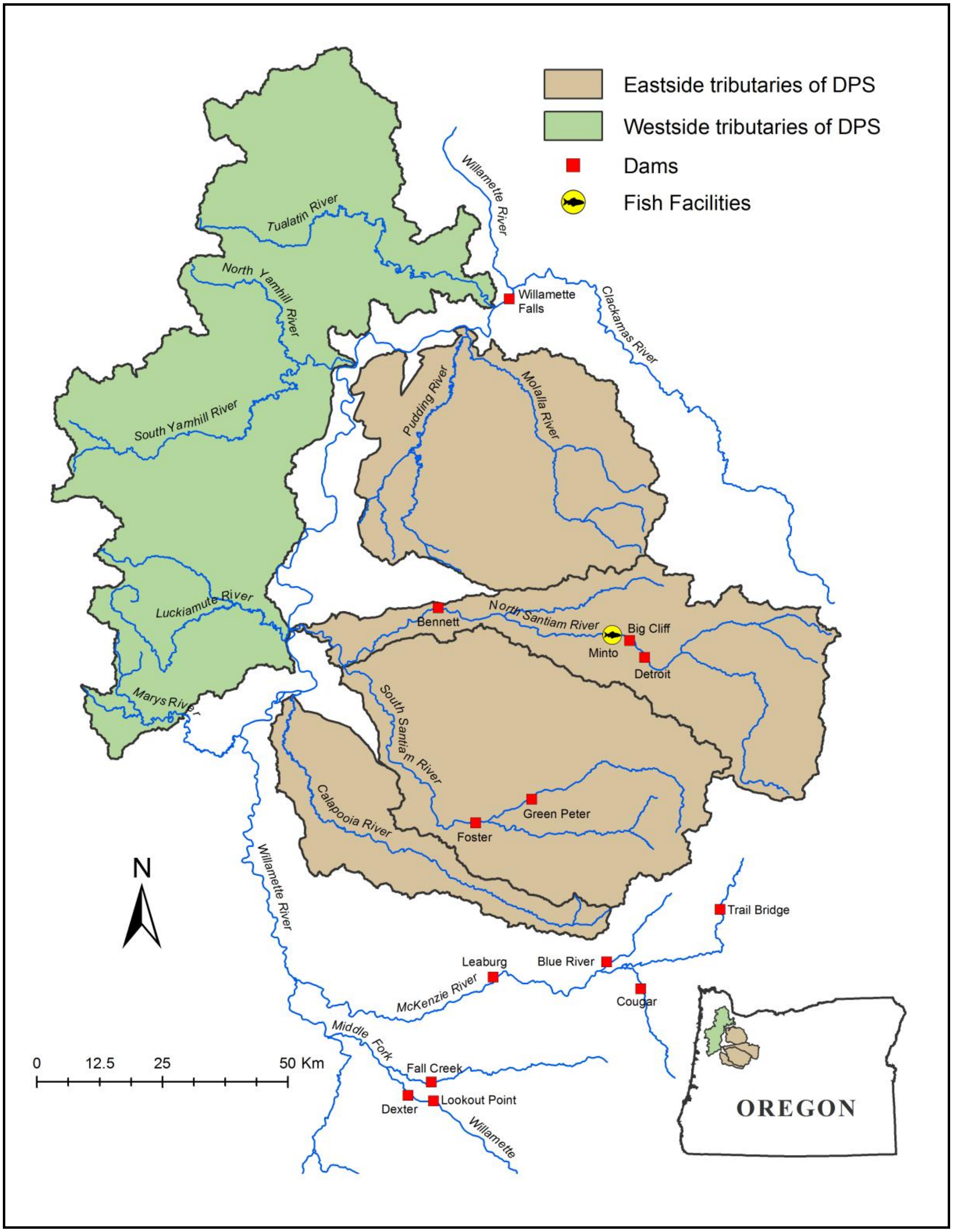



Figure 1. The Willamette River and designated habitats of the upper Willamette River steelhead distinct population segment.

To evaluate the level of natural production by summer steelhead in the upper Willamette River basin, ODFW collected tissue samples from unmarked juvenile *O. mykiss* in 2009-2011. These tissue samples and others that had been collected in previous years were provided to the NOAA Fisheries Manchester Research Laboratory for genetic analyses. Results from those analyses indicated that naturally produced upper Willamette River *O. mykiss* could be described as four genetically distinct groups: 1) Skamania stock summer steelhead (S); 2) eastside tributary Willamette winter steelhead (EW); 3) westside tributary Willamette winter steelhead (WW); and 4) resident rainbow trout (RB) (Figure 2; Van Doornik and Teel 2010). Moreover, significant genetic structure among these groups (Table 1) conferred high accuracy for genetic stock identification (GSI), which was used to assign samples of unknown origin to their mostly likely source population complex (i.e., reporting group; Van Doornik and Teel 2010).

Using GSI, Van Doornik and Teel (2010, 2011, 2012) estimated that 5.4-13.2% of unmarked juvenile steelhead sampled at Willamette Falls (2009-2011) were Skamania summer steelhead. However, samples collected at Willamette Falls could not be used to identify which subbasin(s) supported natural production of summer steelhead. In 2011, ODFW collected samples of unmarked juvenile *O. mykiss* from sites in the McKenzie, North Santiam, South Santiam and various locations of the mainstem Willamette rivers to address this information need. Analyses of these samples suggested that the stock structures of naturally produced *O. mykiss* differed among Willamette River subbasins, explained in part through higher natural production of summer steelhead in the McKenzie River (Van Doornik and Teel 2012).

In this report, we have summarized and expanded upon the work of Van Doornik and Teel (2010, 2011, 2012) by addressing the following research objectives: (1) further explore the genotypic data for evidence of introgression and relatedness among individuals; (2) identify which upper Willamette River subbasins support the natural production of summer steelhead; (3) determine the proportion of natural steelhead production that is represented by summer-run stock within each subbasin; (4) describe differences in the proportion of naturally-produced summer steelhead among subbasins, and (5) summarize the results to date from recent Willamette basin steelhead genetics research.

Our findings provide novel information related to the natural production of non-native summer steelhead in the Willamette River basin and introgression of summer steelhead with native *O. mykiss* populations. We discuss our findings in the context of previous results and provide recommendations for management.

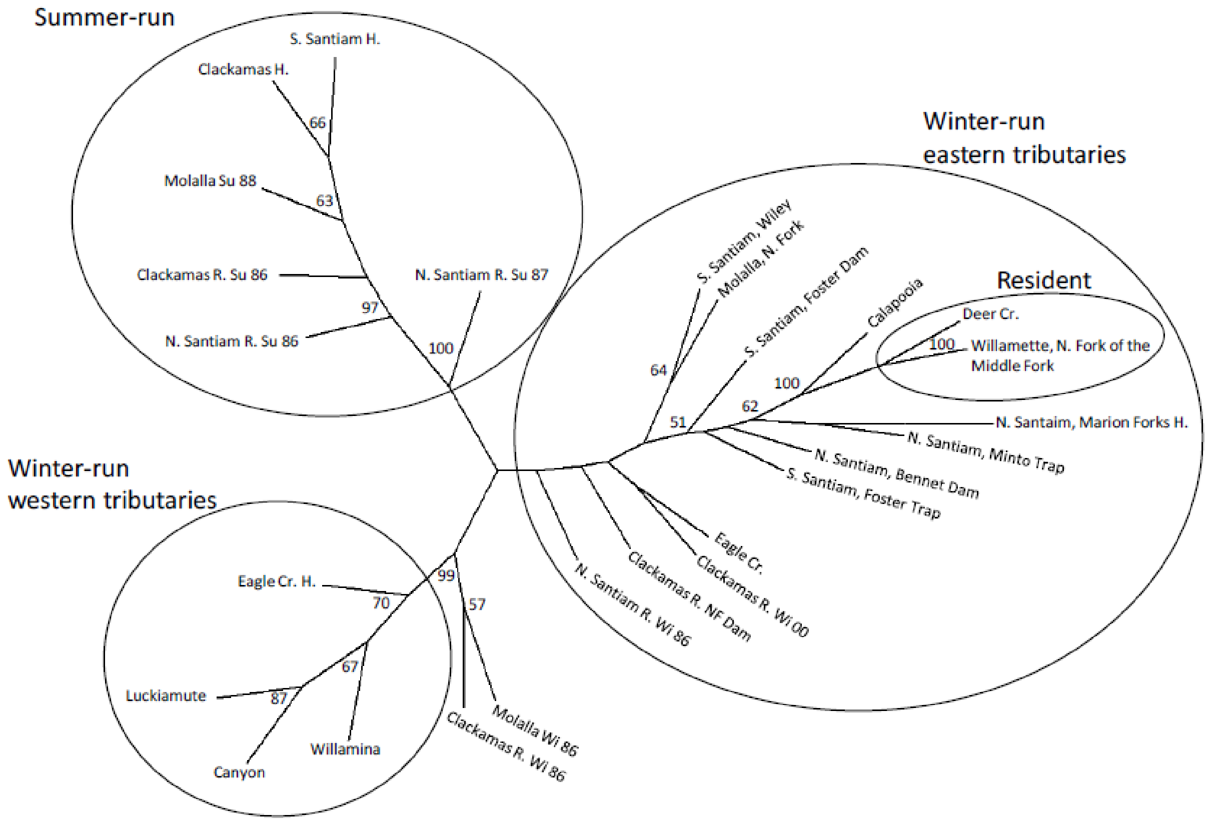



Figure 2. Neighbor-joining dendrogram of Cavalli-Sforza Edwards genetic distances among Willamette River steelhead populations. Bootstrap values (%) greater than 50% are shown. The last two digits of the brood year for the earliest samples are included in the sample names. Major groupings, which also correspond to the reporting groups used for GSI analyses, are circled. Figure is from Van Doornik and Teel (2010).

Table 1. Pairwise $\theta$ values (Weir and Cockerham 1984) among major Willamette River *O. mykiss* groups. All values are significant ($P$ <0.01).

| | Resident rainbow trout | Summer steelhead | Western winter steelhead |
|---|---|---|---|
| Eastern winter steelhead | 0.06727 | 0.03922 | 0.03697 |
| Resident rainbow trout | --------- | 0.10294 | 0.12737 |
| Summer steelhead | --------- | --------- | 0.04257 |
| Western winter steelhead | --------- | --------- | --------- |

## Methods

We performed statistical analyses with existing genotypic data for Willamette *O. mykiss* and synthesized results from previous reports. We analyzed data from "known" samples, obtained primarily from adult fish that had been classified in the field (S, EW, WW, RB) from morphology, collection date and location, and mark status. Data from these samples were used to establish baseline allele frequencies for each group and evaluate the accuracy of results from GSI and other analyses. Some of the baseline genetic data used in this study were compiled from Blankenship et al. (2011) and supplemented with additional samples and microsatellite loci. We also analyzed data from "unknown" samples collected from unmarked, naturally produced, adult and juvenile fish. Detailed methods for sample collections, DNA isolation, microsatellite genotyping and GSI analyses are described in Van Doornik and Teel (2010, 2011, 2012).

### Genetic introgression and relatedness

*Genetic introgression – STRUCTURE analyses*

Using the software ONCOR (Kalinowski 2007) to perform GSI, Van Doornik and Teel (2010, 2011, 2012) found that most of the Willamette *O. mykiss* that they examined could be assigned with high probability to one of four reporting groups (S, EW, WW, and RB). Yet some samples assigned with low probability, possibly because they were hybrids. Although ONCOR is widely recognized as a powerful GSI tool, it is not particularly well suited to quantify genetic introgression. However, the methods of Pritchard et al. (2000), implemented in the program STRUCTURE, were developed to detect cryptic genetic structure and estimate the ancestral lineages of individual genomes. This program has been used to describe patterns of hybridization between fall and spring run Chinook salmon (Kinziger et al. 2008) and several trout species (e.g., Boyer et al. 2008; Pritchard et al. 2007; Pritchard et al. 2009; Sanz et al. 2009; Simmons et al. 2009).

In brief, STRUCTURE (Pritchard et al. 2000) employs Bayesian clustering algorithms to allow the user to infer the most likely number of groups (*K*) present within a set of genotypic data and the proportion of each constituent genome (*q*) descended from each of the *K* groups. Threshold values for *q* can then be used to classify individuals as pure or hybrid samples (see Sanz et al. 2009).

A critical first step when performing STRUCTURE analyses is to identify an appropriate value for the parameter *K*, the maximum number of populations present in the data. Samples will be partitioned among too few populations if *K* is set too low, ignoring real population structure, and the model will effectively overfit the data if *K* is set too high. Pritchard et al. (2000) suggested that STRUCTURE analyses should be performed with a range of values for *K*. The optimal value could then be selected through examination of posterior probabilities for the data under models that differed by *K*. However, Evanno et al. (2005) found that the value of posterior probabilities often increased slightly (yet with greater variance) even as *K* exceeded the real number of groups present in the data. They recommended that *K* be selected through examination of an ad hoc statistic, $\Delta K$, which is based on the second order rate of change in posterior probabilities for models with successive values of *K* (Evanno et al. 2005). In hierarchically structured (nested) populations, $\Delta K$ will identify the number of groups at the highest level of the hierarchy, and subsequent analyses may be required to resolve population substructure.

We used STRUCTURE to analyze genotypic data for 15 microsatellites from 2,082 Willamette River basin *O. mykiss* samples. Of these samples, 780 were from known groups (e.g., summer steelhead) and were used by Van Doornik and Teel (2010, 2011, 2012) as baseline samples to perform GSI assignments for unknown samples (see Table 2). By including these baseline samples in our analyses, we were able to evaluate the program's ability to partition samples among known groups, while providing the software with additional linkage disequilibrium information to improve accuracy of assignment for unknown samples. We used STRUCTURE to examine the data under models that contained a wide range of *K* values (1-8), with three replicates performed for each value. We performed 100,000 Markov chain Monte Carlo repetitions (initial burn in of 20,000), used an admixture model with sampling locations specified as a prior[1] (Hubisz et al. 2009), inferred $\alpha$ from the data[2], assumed $F_{ST}$ to be different among subpopulations (prior for mean $F_{ST} = 0.01$) and maintained $\lambda$ constant at one[3]. Detailed parameter descriptions are provided in Pritchard et al. (2000) and the STRUCTURE software

[1] This prior provided information of ancestry for some samples (e.g. adult hatchery summer steelhead) included in our analysis and thereby assisted with clustering of unknown samples

[2] Here, $\alpha$ represents the degree of admixture, which can be set by the user or inferred from the data

[3] Under this parameter setting, the model specifies that allele frequencies are expected to be different among populations, thereby reducing the risk of overestimating *K*

documentation (Pritchard et al. 2010). We used STRUCTURE HARVESTER (Earl and vonHoldt 2012) to examine STRUCTURE output and assessed alternate model likelihoods through an analysis of Δ*K* (Evanno et al. 2005).

After establishing the most appropriate value for *K*, we used an approach similar to that of Burgarella et al. (2009), whereby individual samples were classified by *q* values into the following general categories:

1) **Pure**: $q > 0.50$ for a single population and $q < 0.20$ for all other populations

2) **Two-way hybrid**: $0.20 < q < 0.80$ for exactly two populations

3) **Three-way hybrid**: $0.20 < q < 0.80$ for exactly three populations

We then evaluated consistency of our results across replicate simulations and calculated the proportion of individuals that assigned to each class for each collection site and year. See Vähä and Primmer (2006) and Sanz et al. (2009) for more information on *q*-value criteria in hybridization studies.

*Relatedness – ML RELATE analyses*

Information on the relatedness among juvenile steelhead could help to characterize the demographics of naturally reproducing summer steelhead in the upper Willamette River. For example, if a high proportion of juvenile summer steelhead were found to be full siblings, we might infer that natural production was the result of a relatively small number of highly successful parents. Inversely, if juvenile summer steelhead were found to have very low pairwise genetic relatedness, we might infer that natural production was supported by a greater number of parents with low reproductive success.

We used the program ML RELATE (Kalinowski et al. 2006) to infer pairwise relationships between all juvenile *O. mykiss* samples identified as summer-run steelhead with the program ONCOR (Van Doornik and Teel 2010, 2011, 2012). We performed 1,000 random genotype simulations for likelihood ratio tests and identified plausible relationships (full-sibling, half-sibling, parent-offspring, unrelated) from a 99% confidence interval (see Kalinowski et al. 2006). We estimated the percentage of sample pairs identified to be plausibly related as full-siblings, half-siblings or (ambiguously) either. We included adult summer steelhead samples collected in 1986-1988 together with juvenile *O. mykiss* samples collected in 2005 and 2009-2011 for our analyses to evaluate the logical accuracy of results, recognizing that sibling relationships between these adult and juvenile samples would be impossible.

**Natural production of summer steelhead by subbasin**

To identify which upper Willamette River subbasins support the natural production of summer steelhead, we first reviewed GSI results provided by Van Doornik and Teel (2012) that related the percentage of unmarked juvenile samples from the McKenzie, North Santiam, South Santiam and mainstem Willamette rivers that assigned as summer-run steelhead. We then compared those results to our classifications made with STRUCTURE analyses of the same data.

**Differences among subbasins for summer steelhead production**

We used two-sided Fisher's exact tests to compare the frequencies of summer steelhead present among juvenile samples collected from the McKenzie, North Santiam and South Santiam subbasins in 2011. We performed pairwise tests between the ONCOR class assignment counts for each subbasin and used a Bonferoni corrected critical value of $\alpha = 0.017$ to assess statistical significance (Holm 1979).

We repeated these tests using class assignment counts from STRUCTURE analyses. For this analysis we considered EW, S, WW, RB classes and all hybrid classes that involved S, pooled. That is, counts for SxEW, SxWW, SxRB were pooled for each subbasin and counts of other hybrid classes (e.g., EWxWW) were ignored. This approach ignored few samples and provided a contingency table of acceptable size for pairwise exact tests. As before, we used $\alpha = 0.017$ to assess significance.

Table 2. The number of adult and juvenile *O. mykiss* samples, collected in different years from various locations of the Willamette River basin, genotyped at 15 microsatellite loci and analyzed with the program STRUCTURE (Pritchard et al. 2000). Group is indicated for baseline samples used in the GSI analyses of Van Doornik and Teel (2010, 2011, 2012) and for samples that were classified in the field. Baseline samples are indicated by an asterisk; H = hatchery.

| Subbasin or river | Collection location(s) | Group | Life stage | Collection year | *n* |
|---|---|---|---|---|---|
| Clackamas | Clackamas H. | Summer-run* | Adult | 2006 | 50 |
| South Santiam | South Santiam H. | Summer-run* | Adult | 2007 | 47 |
| Calapooia | various | Winter-run East tributaries* | Juvenile | 1997 | 38 |
| Clackamas | North Fork Dam | Winter-run East tributaries* | Adult | 2005 | 42 |
| Clackamas | various | Winter-run East tributaries* | Juvenile | 2000 | 80 |
| Eagle Creek | various (wild) | Winter-run East tributaries* | Adult | 2000 | 63 |
| Molalla | North Fork | Winter-run East tributaries* | Juvenile | 1996 | 50 |
| North Santiam | Bennett Dam | Winter-run East tributaries* | Adult | 2005 | 45 |
| North Santiam | various | Winter-run East tributaries* | Juvenile | 1998 | 45 |
| South Santiam | Foster Dam | Winter-run East tributaries* | Adult | 2005 | 49 |
| South Santiam | Wiley Creek | Winter-run East tributaries* | Juvenile | 1997 | 39 |
| Canyon Creek | Canyon Creek | Winter-run West tributaries* | Juvenile | 1997 | 34 |
| Eagle Creek | Eagle Creek H. | Winter-run West tributaries* | Juvenile | 2000 | 62 |
| Luckiamute | various | Winter-run West tributaries* | Juvenile | 1997 | 31 |
| Willamina | various | Winter-run West tributaries* | Juvenile | 1997 | 34 |
| Deer Creek | various | Resident rainbow* | Juvenile | 1998 | 40 |
| Willamette | N. Fork of Middle Fork | Resident rainbow* | Juvenile | 1998 | 31 |
| Clackamas | various | Summer-run | Adult | 1986 | 84 |
| Molalla | various | Summer-run | Adult | 1988 | 46 |
| North Santiam | various | Summer-run | Adult | 1986 | 23 |
| Clackamas | various | Winter-run | Adult | 1986 | 40 |
| Molalla | various | Winter-run | Adult | 1986 | 65 |
| North Santiam | various | Winter-run | Adult | 1986 | 39 |
| North Santiam | various | Summer-run | Adult | 1987 | 16 |
| Willamette | Upper Mainstem | Unknown | Juvenile | 2010 | 6 |
| Willamette | Upper Mainstem | Unknown | Juvenile | 2011 | 30 |

Table 2 (*continued*).

| Subbasin or river | Collection location | Group | Life stage | Collection year | *n* |
|---|---|---|---|---|---|
| Willamette | Willamette Falls | Unknown | Juvenile | 2009 | 240 |
| Willamette | Willamette Falls | Unknown | Juvenile | 2010 | 287 |
| Willamette | Willamette Falls | Unknown | Juvenile | 2011 | 56 |
| McKenzie | Leaburg bypass | Unknown | Juvenile | 2005 | 72 |
| McKenzie | Leaburg bypass | Unknown | Juvenile | 2011 | 91 |
| North Santiam | Upper North Santiam | Unknown | Juvenile | 2011 | 36 |
| Santiam | Mouth of Santiam | Unknown | Juvenile | 2011 | 11 |
| South Santiam | Upper South Santiam | Unknown | Juvenile | 2011 | 27 |
| South Santiam | Foster Trap | Unknown | Adult | 2009 | 50 |
| North Santiam | Minto Ponds | Unknown | Adult | 2009 | 11 |
| North Santiam | Bennett Trap | Unknown | Adult | 2003 | 28 |
| North Santiam | Minto Ponds | Unknown | Adult | 2010 | 1 |
| Willamette | Mainstem | Unknown | Adult | 2005 | 1 |
| McKenzie | Mohawk River | Unknown | Adult | 2005 | 1 |
| McKenzie | Leaburg bypass | Unknown | Adult | 2011 | 6 |
| Middle Fork Willamette | Fall Creek | Unknown | Adult | 2010 | 19 |
| Middle Fork Willamette | Fall Creek | Unknown | Adult | 2011 | 16 |
| | | | | Total | 2,082 |

# Results

## Genetic introgression and relatedness

*Genetic introgression – STRUCTURE results*

We found that the posterior probability of the data increased sharply as the model parameter *K* was increased from 1 to 3, and continued to increase (albeit at a lesser rate) until reaching a plateau at about *K* = 7 (Figure 3). However, examination of Δ*K* suggested that only two groups, *K*, were present in our data (Figure 4). We suspected that these Δ*K* results were strongly influenced by the nested structure of our data[4]. To address this issue, we examined individual STRUCTURE assignments for samples (including baseline samples) under models with different *K* values, as suggested by Evanno et al. (2005).

We found that for *K* = 4, strong partitioning of *q* values could be observed between samples of known life history type, corroborating the four reporting group genetic structure identified by Van Doornik and Teel (2010). Figure 5 presents an excerpt of graphically depicted *q* values for samples of known type and all *q* values for *K* = 4 are provided in the Appendix. When *K* was increased to five, results among replicate runs were inconsistent[5] and no evidence for additional substructure was apparent when the data were modeled with *K* values greater than four.

STRUCTURE results were highly consistent among replicate simulations with *K* = 4; the difference between individual sample *q* values was a mean 0.003 between runs and exceeded 0.05 for only 25 of 2,082 samples. For 21 of these, differences between replicate *q* value estimates had no influence on sample classification. We used the consensus classification for the four ambiguous samples (samples 412, 1452, 1810 and 2081), provided in the Appendix.

By parsing results for replicate models with *K* = 4 by collection year and location, we found that STRUCTURE identified a mean 10.5% of the juvenile *O. mykiss* sampled at Willamette Falls (2009-2011) as "pure" summer steelhead. An additional mean 10.6% of juveniles sampled at this location appeared to be the offspring of summer steelhead that hybridized with a native *O. mykiss*, most frequently eastern tributary winter steelhead (Table 3).

Although sample sizes were small, we found no evidence for pure juvenile summer steelhead in the North, South or lower mainstem Santiam rivers. However, hybrids of summer

[4] Willamette *O. mykiss* population structure is nested as: {*O. mykiss*{native Willamette{Eastern tributaries{resident rainbow trout}}}}

[5] Results from one *K* = 5 run suggested that some EW samples from the Clackamas comprised a distinct group, whereas in another *K* = 5 run all EW samples formed a single group but WW samples parsed into two groups.

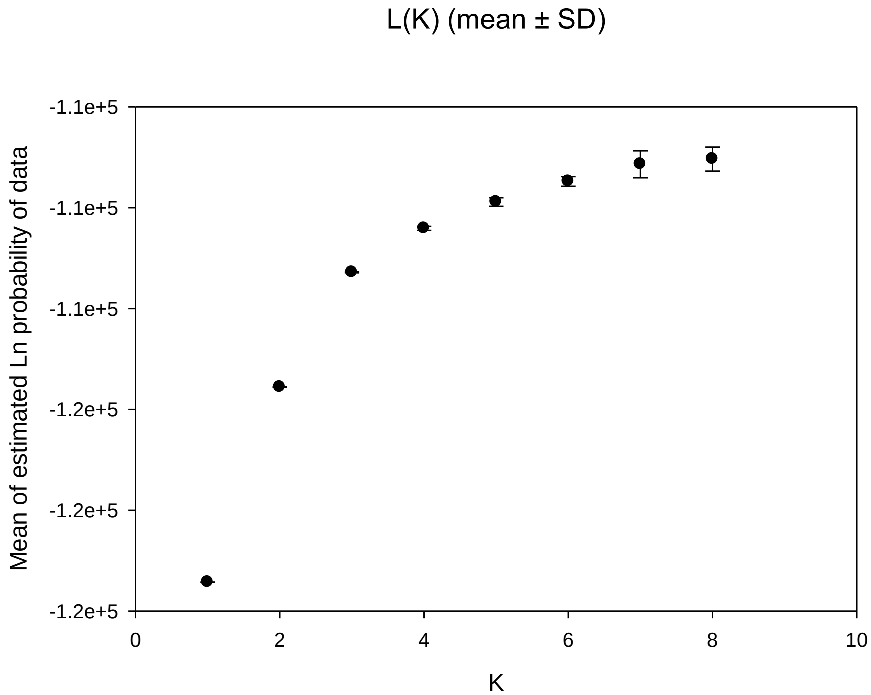



Figure 3. Posterior probabilities of Willamette *O. mykiss* genotypic data in function of model values for *K*, the maximum number of groups assumed to occur within the data (Pritchard et al. 2000). Data are mean values ± SD over 3 replicates.

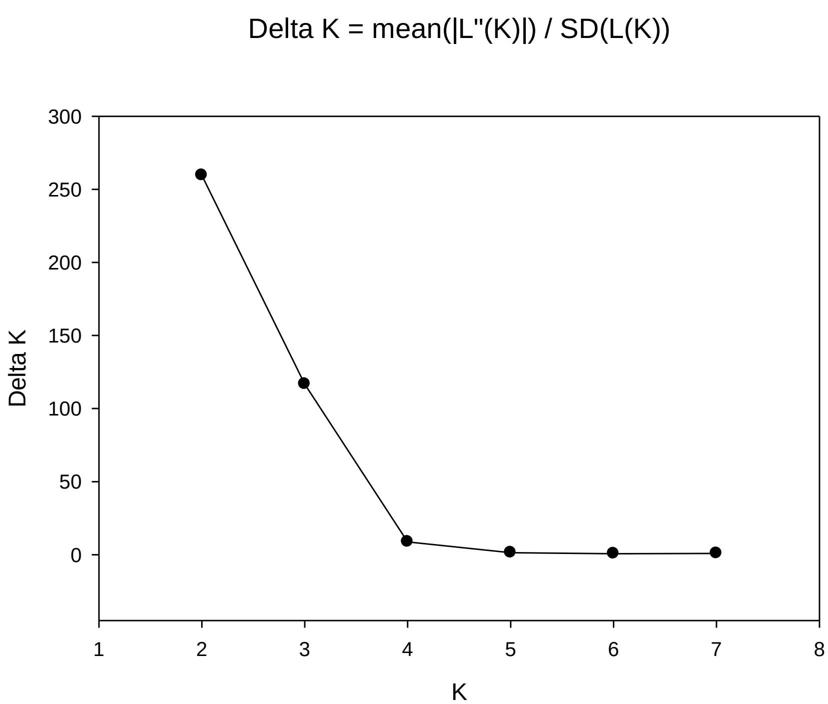



Figure 4. Magnitude of $\Delta K$ as a function of $K$ (mean $\Delta K$ ± SD over 3 replicates) for STRUCTURE (Pritchard et al. 2000) analyses of Willamette *O. mykiss* microsatellite data.

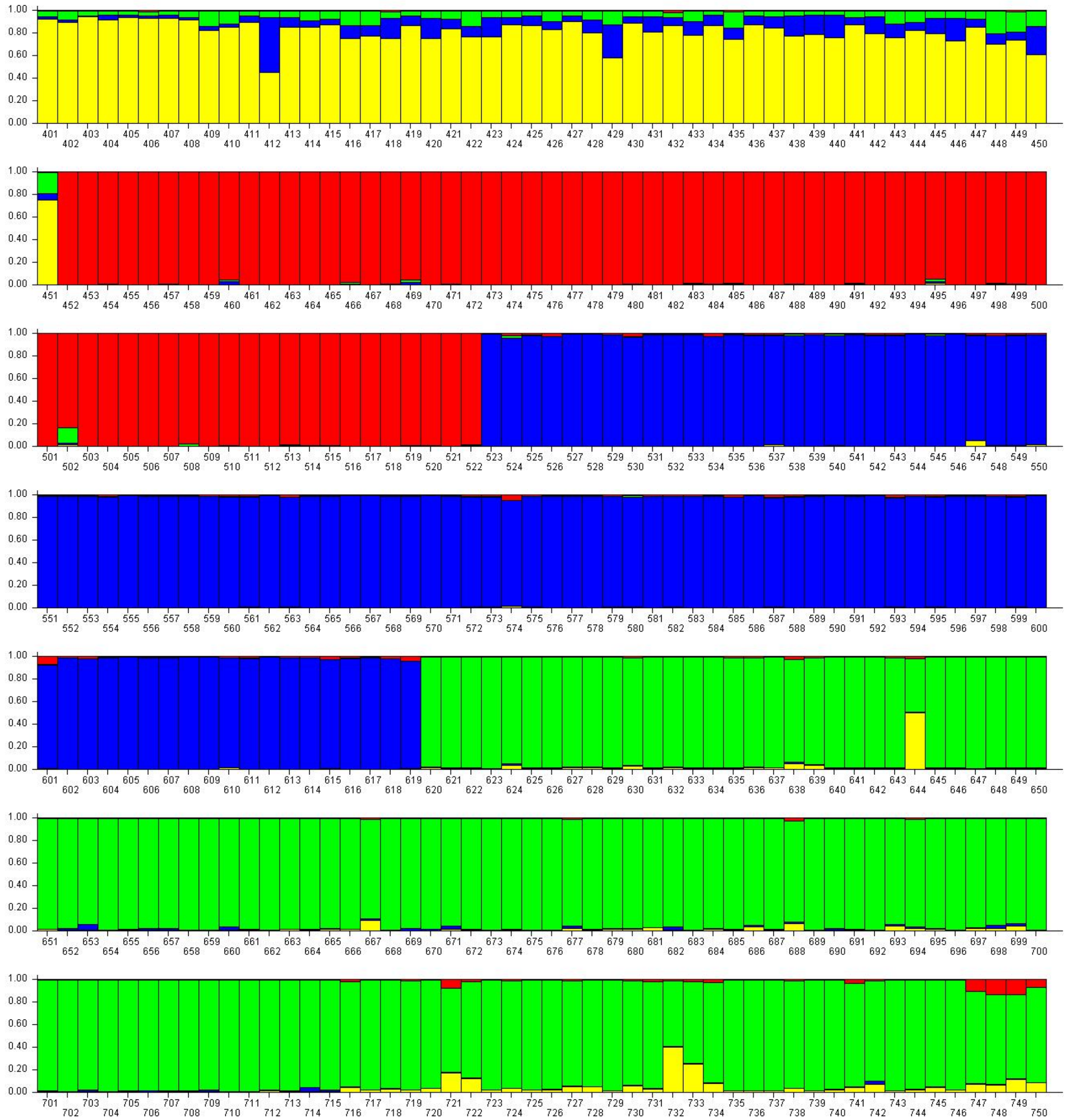



Figure 5. Graphical representation of *q* values, the proportions of the genome assigning to each of *K* = 4 groups, for 350 Willamette River *O. mykiss* samples analyzed with the program STRUCTURE (Pritchard et al. 2000). Each numbered bar represents an individual fish. Colors represent the proportions of the genome that assign to each of the four groups. These 350 samples were from “known” groups and were used by Van Doornik and Teel (2010, 2011, 2012) as GSI baseline data for Willamette eastern tributaries winter steelhead (samples 401-451), resident rainbow trout (samples 452-522), summer steelhead (523-619) and western tributaries winter steelhead (620-750). Note that distinct delineations can be seen among groups (yellow = EW, red = RB, blue = S and green = WW) and that samples 412, 644 and 732 are likely hybrids.

and eastern tributaries winter (SxEW) steelhead comprised 9.1-14.8% of juveniles sampled from these locations. In the McKenzie River, most juvenile samples (73.0%) were pure summer steelhead and several summer hybrid classes were present. Pure summer steelhead comprised 10.0% of juvenile samples from the mainstem Willamette River, and two samples from the mainstem were summer steelhead hybrids. Juvenile *O. mykiss* STRUCTURE results are summarized in Table 3.

Most juvenile samples from all locations, except the McKenzie River, had low *q* values (< 0.10) for the summer steelhead (S) group (Figure 6). Moreover, samples classified as S hybrids from the North and South Santiam rivers tended to have summer steelhead *q* values less than 0.30. In contrast, most juvenile samples from the McKenzie had high summer steelhead *q* values (> 0.80) and most summer steelhead hybrids from that subbasin presented summer steelhead *q* values greater than 0.40 (Figure 6).

In addition to juvenile samples, we analyzed 133 genotypes from unmarked adult *O. mykiss*, sampled at various locations of the Willamette River. Many of these samples were classified in the field as winter steelhead, rainbow trout, etc., based on phenotype and date of collection. Overall, our STRUCTURE analyses suggested that pure summer steelhead were among adult samples from the North Santiam and McKenzie rivers, but not the South Santiam or Middle Fork Willamette rivers (Table 4).

Although most South Santiam River adult steelhead samples appeared to be pure EW steelhead, five fish (10%) appeared to be SxEW hybrids. Similarly, most samples collected from the Middle Fork Willamette River were pure EW steelhead (92%), although a single fish appeared to be a EWxRB hybrid. Adult samples collected in 2009 and 2010 at the Minto Ponds Collection Facility on the North Santiam River included no pure summer steelhead, but 2 of 12 samples were classified as SxEW hybrids. Most of the adult samples collected at the Bennett fish trap on the North Santiam River and at the Leaburg fish trap on the McKenzie River appeared to be either summer steelhead or SxEW hybrids (Table 4). We emphasize that these adult samples were collected opportunistically, in some cases because they exhibited peculiar run timing (e.g. November arrival), and should not be considered representative of local *O. mykiss* stock structures. Adult *O. mykiss* STRUCTURE results are summarized in Table 4.

*Relatedness – ML RELATE results*

We used the program ML RELATE to infer all plausible pairwise relationships for 367 samples; 196 juvenile samples (collected in 2005, 2009-2011) and 171 adult samples (collected in 1986-1988), all of which assigned as summer steelhead through ONCOR analyses. Of the 67,162 possible pairwise relationships, ML RELATE identified 35 as strictly full-sibling pairs, 788 as strictly half-sibling pairs and 691 as either full- or half-sibling pairs ($P < 0.01$). However, 4 of 35 (11.4%) full-sibling relationships identified by ML RELATE were not logically possible; as they paired samples that had been collected decades apart (adults identified as full siblings of

Table 3. Genetic composition of juvenile *O. mykiss* sampled from various locations of the upper Willamette River, as determined by STRUCTURE (Pritchard et al. 2000) analyses of genotypic data for 15 microsatellite loci. Individual samples were classified as summer steelhead (S), eastside tributary Willamette winter steelhead (EW), resident rainbow trout (RB), westside tributary Willamette winter steelhead (WW) or hybrids of these groups. Data are presented as counts and percent of total counts for each location.

| Year | Location | *n* | S | EW | RB | WW | SxWW | SxEW | SxRB | WWxEW | WWxRB | EWxRB | 3x Hybrid |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | Willamette Falls | 240 | 19 | 126 | 1 | 34 | 1 | 23 | 1 | 31 | 0 | 1 | 3 |
| 2010 | Willamette Falls | 287 | 39 | 144 | 1 | 37 | 4 | 29 | 0 | 25 | 0 | 3 | 5 |
| 2011 | Willamette Falls | 56 | 3 | 29 | 0 | 13 | 1 | 3 | 0 | 5 | 0 | 0 | 2 |
| | Percent of Total | | 10.5 | 51.3 | 0.3 | 14.4 | 1.0 | 9.4 | 0.2 | 10.5 | 0.0 | 0.7 | 1.7 |
| 2005 | McKenzie R., Leaburg | 72 | 56 | 1 | 0 | 0 | 1 | 11 | 1 | 1 | 0 | 0 | 1 |
| 2011 | McKenzie R., Leaburg | 91 | 63 | 2 | 4 | 0 | 1 | 11 | 6 | 0 | 0 | 2 | 2 |
| | Percent of Total | | 73.0 | 1.8 | 2.5 | 0.0 | 1.2 | 13.5 | 4.3 | 0.6 | 0.0 | 1.2 | 1.8 |
| 2010 | Mainstem Willamette R. | 30 | 3 | 10 | 10 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | 0 |
| | Percent of Total | | 10.0 | 33.3 | 33.3 | 0.0 | 3.3 | 3.3 | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 |
| 2011 | N. Santiam R. | 36 | 0 | 25 | 0 | 1 | 0 | 4 | 0 | 4 | 0 | 1 | 1 |
| | Percent of Total | | 0.0 | 69.4 | 0.0 | 2.8 | 0.0 | 11.1 | 0.0 | 11.1 | 0.0 | 2.8 | 2.8 |
| 2011 | Santiam R., Mouth | 11 | 0 | 6 | 2 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| | Percent of Total | | 0.0 | 54.5 | 18.2 | 0.0 | 0.0 | 9.1 | 0.0 | 9.1 | 0.0 | 0.0 | 9.1 |
| 2011 | S. Santiam R. | 27 | 0 | 20 | 0 | 1 | 0 | 4 | 0 | 2 | 0 | 0 | 0 |
| | Percent of Total | | 0.0 | 74.1 | 0.0 | 3.7 | 0.0 | 14.8 | 0.0 | 7.4 | 0.0 | 0.0 | 0.0 |

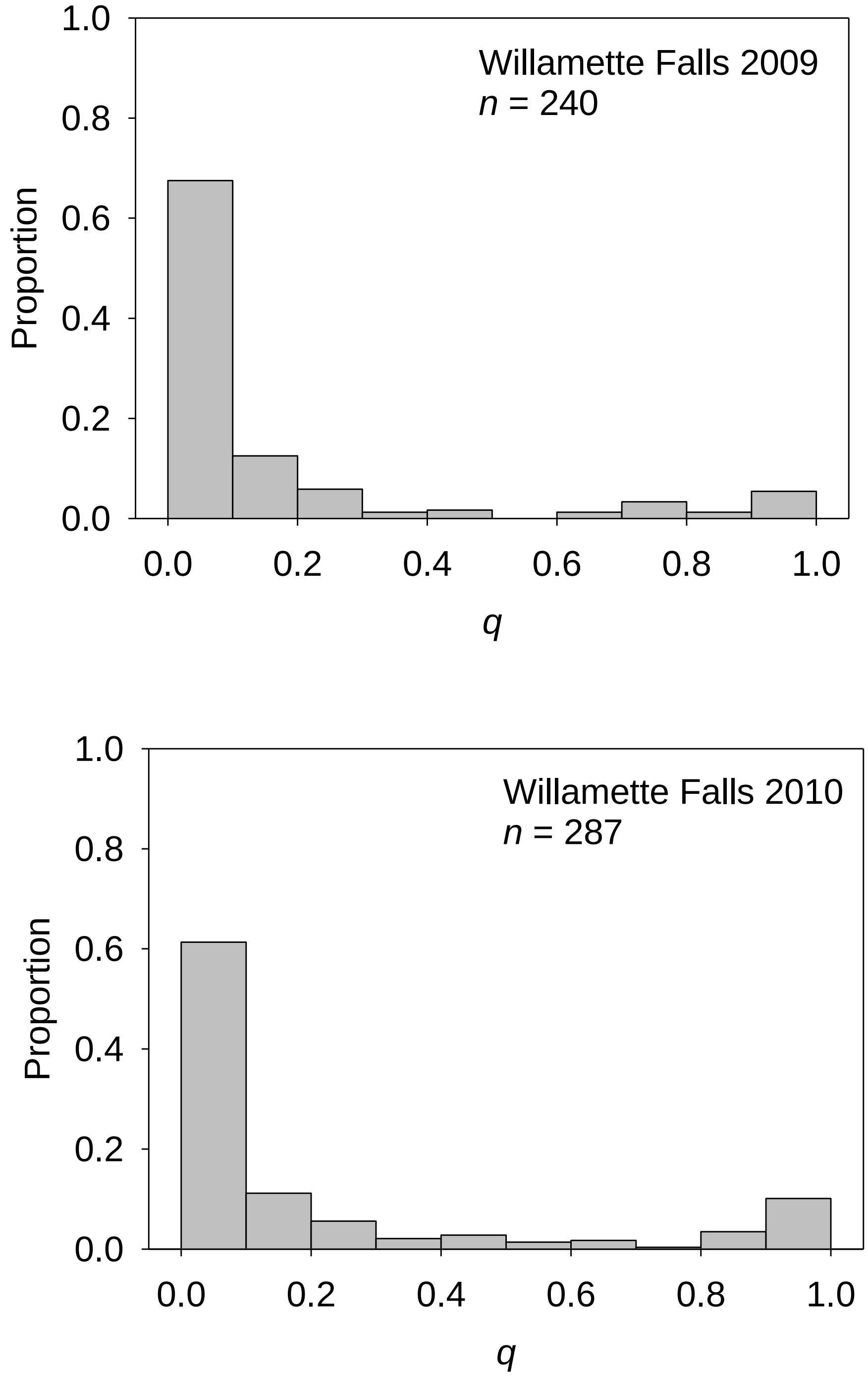
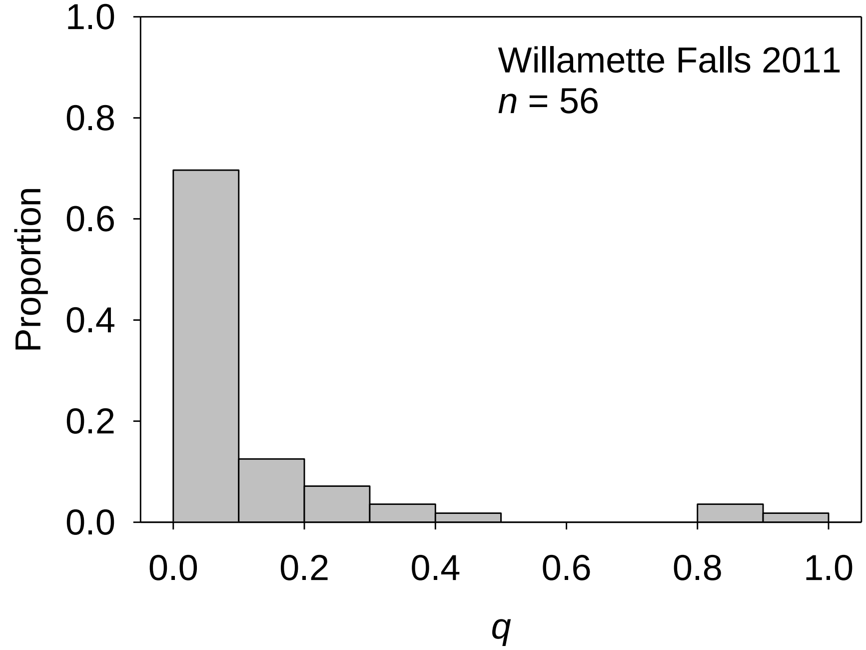



Figure 6. The proportion of juvenile *O. mykiss* samples (*y*-axis) with various levels of summer steelhead ancestry (*x*-axis) by sample location and year. The proportion *q* describes the fraction of each genome descended from the summer steelhead group.



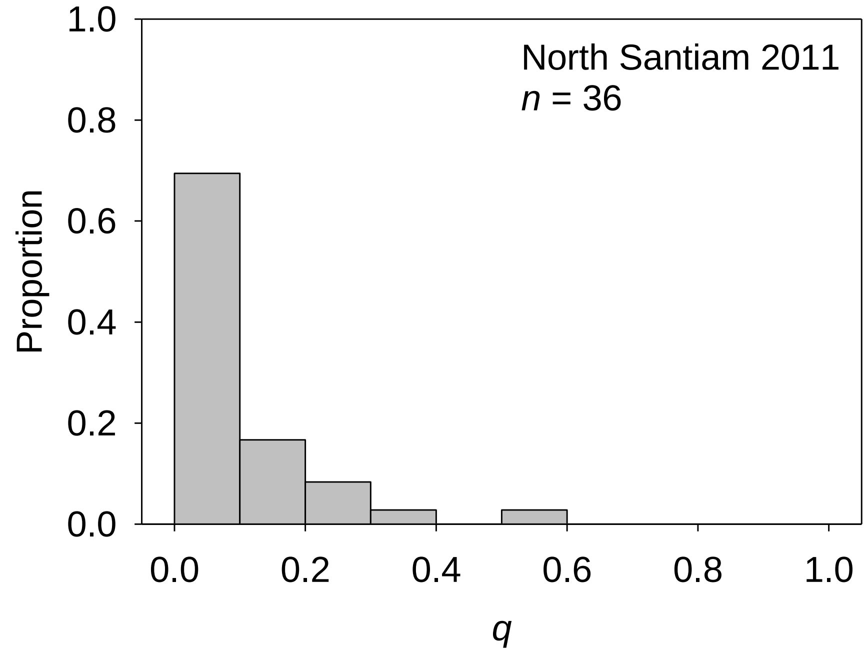




Figure 6 (*continued*).

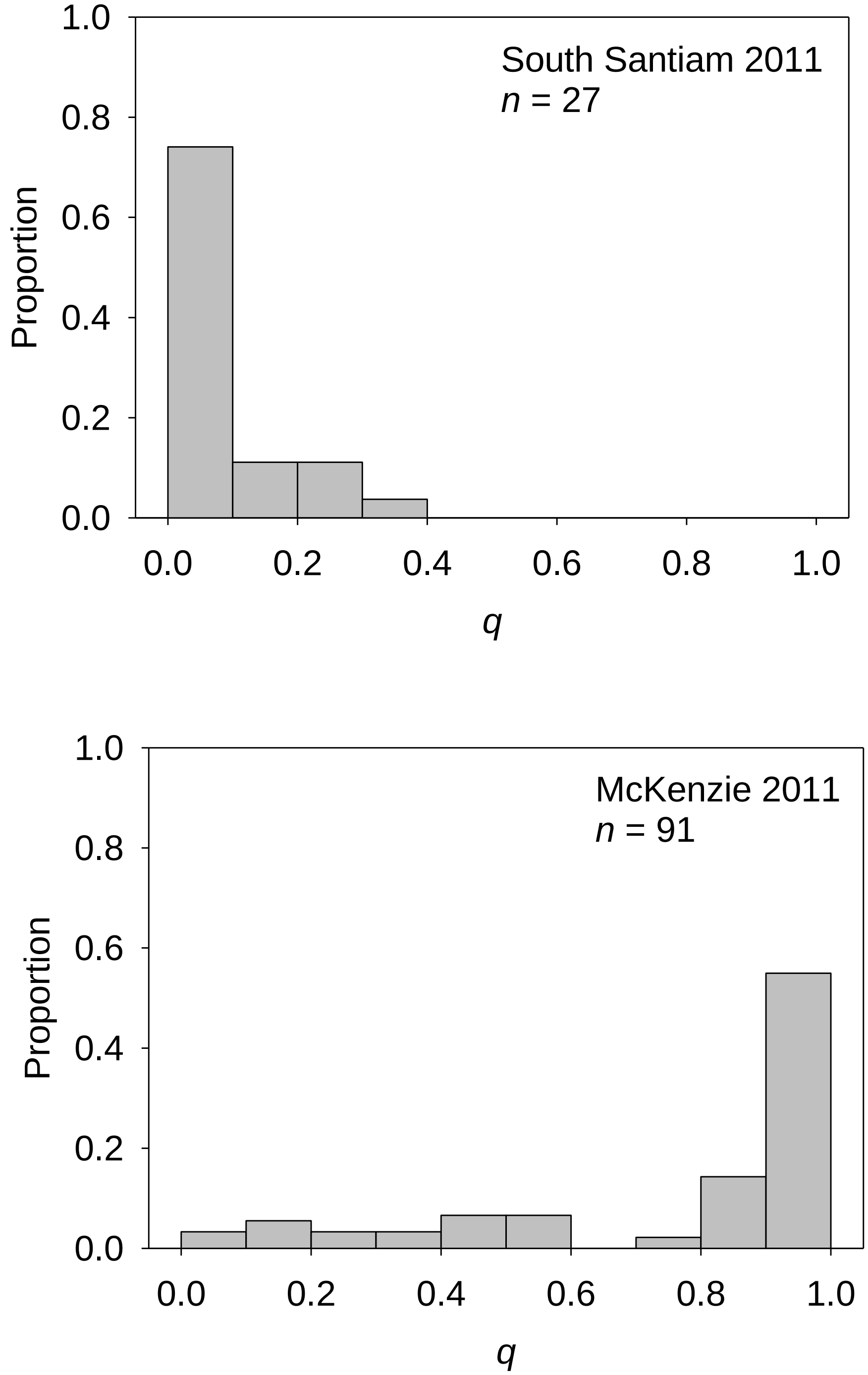



Figure 6 (*continued*).

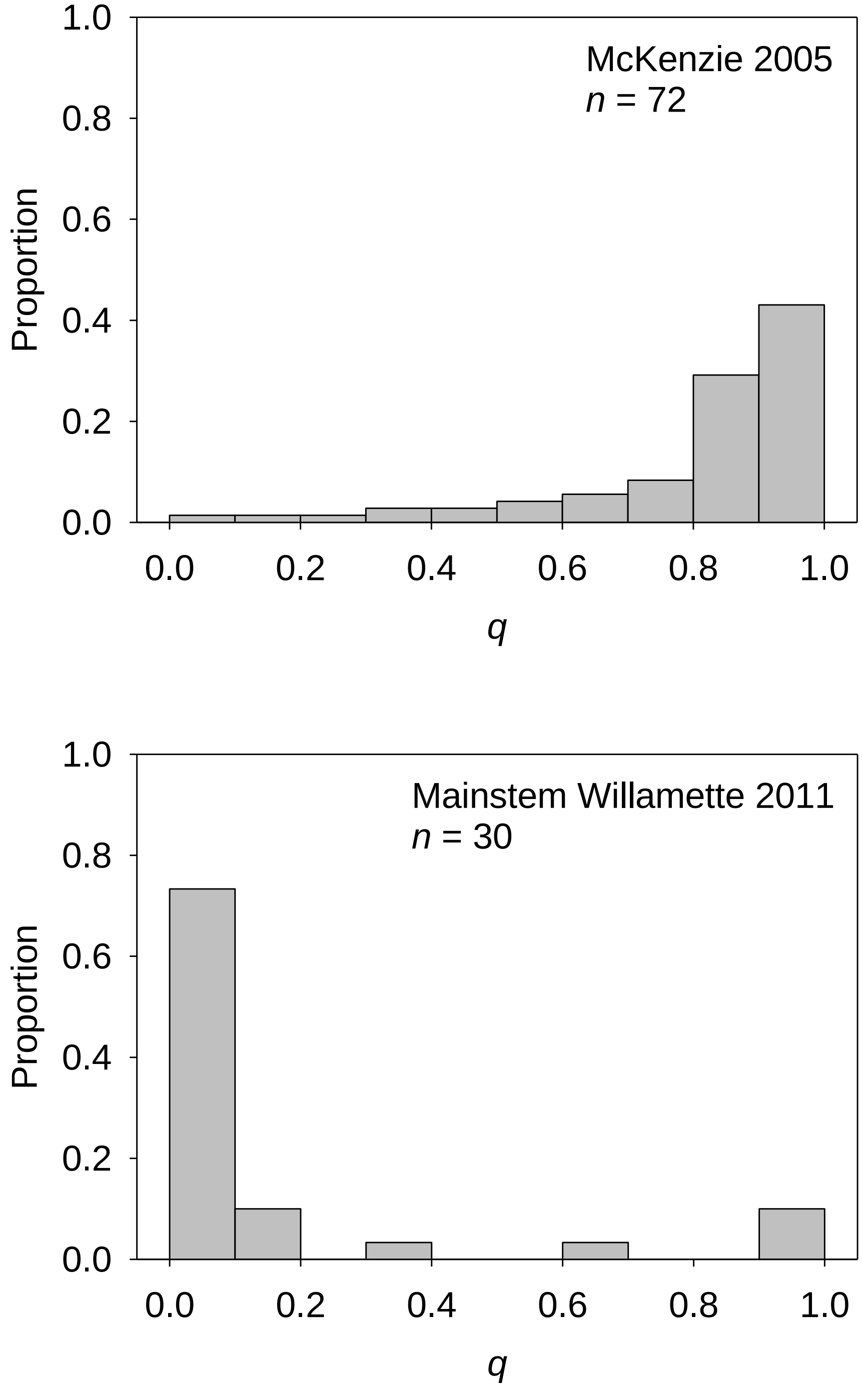



Figure 6 (*continued*).

Table 4. Genetic composition of adult *O. mykiss* sampled from various locations of the upper Willamette River, as determined by STRUCTURE (Pritchard et al. 2000) analyses of genotypic data for 15 microsatellite loci. Individual samples are classified as summer steelhead (S), eastside tributary Willamette winter steelhead (EW), resident rainbow trout (RB), westside tributary Willamette winter steelhead (WW) or hybrids of these groups. Data are presented as counts and percent of total counts for each location.

| Year | Location | *n* | S | EW | RB | WW | SxWW | SxEW | SxRB | WWxEW | WWxRB | EWxRB | 3x Hybrid |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2009 | S. Santiam R., Foster | 50 | 0 | 42 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 1 | 0 |
| | Percent of Total | | 0.0 | 84.0 | 0.0 | 0.0 | 0.0 | 10.0 | 0.0 | 4.0 | 0.0 | 2.0 | 0.0 |
| | | | | | | | | | | | | | |
| 2003 | N. Santiam R., Bennett | 28 | 2 | 7 | 0 | 0 | 0 | 16 | 0 | 1 | 0 | 1 | 1 |
| 2009 | N. Santiam R., Minto Ponds | 11 | 0 | 8 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 |
| 2010 | N. Santiam R., Minto Ponds | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Percent of Total | | 5.0 | 40.0 | 0.0 | 0.0 | 0.0 | 45.0 | 0.0 | 5.0 | 0.0 | 2.5 | 2.5 |
| | | | | | | | | | | | | | |
| 2005 | Mainstem Willamette R. | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | Willamette R., Fall Cr. | 19 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| 2011 | Willamette R., Fall Cr. | 16 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Percent of Total | | 0.0 | 91.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.3 | 0.0 |
| | | | | | | | | | | | | | |
| 2005 | McKenzie R., Mohawk R. | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | McKenzie R., Leaburg | 6 | 3 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| | Percent of Total | | 42.9 | 14.3 | 14.3 | 0.0 | 0.0 | 14.3 | 14.3 | 0.0 | 0.0 | 0.0 | 0.0 |

juveniles). Many (378 of 788; 48%) half-sibling relationships identified by ML RELATE were illogical pairings, and may have occurred as a result of low genetic diversity among summer steelhead samples. Results from this analysis therefore appeared to be unreliable, precluding further inference.

**Natural production of summer steelhead by subbasin**

*ONCOR*

In their GSI analyses of Willamette River steelhead, Van Doornik and Teel (2010, 2011, 2012) used the program ONCOR to perform population assignments for juvenile and adult *O. mykiss* sampled at various locations of the basin. They found that in 2009, 2010 and 2011, summer steelhead comprised 7.5%, 13.2% and 5.4% of juveniles sampled at Willamette Falls. Analyses of samples collected within major subbasins of the upper Willamette River provided evidence for substantial natural production of summer steelhead in the McKenzie River, contrasted with scant evidence for natural summer steelhead production in the North Santiam River and no evidence from the South Santiam River (Table 5; Van Doornik and Teel 2012). Summer steelhead were found at several locations along the mainstem Willamette River (Table 5), though the subbasin of origin for these summer steelhead remained uncertain and could include the McKenzie River.

Table 5. Estimated percentage of Willamette River basin juvenile *O. mykiss* samples assigned to each reporting group (EW = eastern tributaries winter steelhead, S = summer steelhead, WW = western tributaries winter steelhead, RB = resident rainbow trout) with the program ONCOR (Kalinowski 2007). Table adapted from Van Doornik and Teel (2010, 2011, 2012).

| Location | Year | *N* | EW | S | WW | RB |
|---|---|---|---|---|---|---|
| Willamette Falls | 2009 | 240 | 88.3% | 7.5% | 4.2% | 0.0% |
| Willamette Falls | 2010 | 287 | 78.0% | 13.2% | 8.7% | 0.0% |
| Willamette Falls | 2011 | 56 | 89.3% | 5.4% | 5.4% | 0.0% |
| Willamette R., TOTAL of 8 samples below | 2011 | 29 | 58.6% | 13.8% | 0.0% | 27.6% |
| Willamette R., Buena Vista | 2011 | 3 | 66.7% | 0.0% | 0.0% | 33.3% |
| Willamette R., Harrisburg | 2011 | 14 | 35.7% | 21.4% | 0.0% | 42.9% |
| Willamette R., Marshall downstream | 2011 | 1 | 100.0% | 0.0% | 0.0% | 0.0% |
| Willamette R., Marshall Island | 2011 | 2 | 100.0% | 0.0% | 0.0% | 0.0% |
| Willamette R., McCartney | 2011 | 4 | 50.0% | 25.0% | 0.0% | 25.0% |
| Willamette R., McKenzie to Marshall | 2011 | 1 | 100.0% | 0.0% | 0.0% | 0.0% |
| Willamette R., Mouth of Santiam | 2011 | 1 | 100.0% | 0.0% | 0.0% | 0.0% |
| Willamette R., Salem | 2011 | 3 | 100.0% | 0.0% | 0.0% | 0.0% |
| Upper Willamette R., Blue Ruin Island | 2011 | 1 | 0.0% | 0.0% | 0.0% | 100.0% |
| Santiam R., Mouth | 2011 | 11 | 90.9% | 9.1% | 0.0% | 0.0% |
| North Santiam R. | 2011 | 36 | 94.4% | 2.8% | 0.0% | 2.8% |
| South Santiam R. | 2011 | 27 | 100.0% | 0.0% | 0.0% | 0.0% |
| McKenzie R., Leaburg Bypass | 2005 | 72 | 25.0% | 75.0% | 0.0% | 0.0% |
| McKenzie R., Leaburg Bypass | 2011 | 91 | 27.5% | 68.1% | 0.0% | 4.4% |

*STRUCTURE*

In several respects, results from our STRUCTURE analyses of juvenile Willamette *O. mykiss* genotypes corroborate the findings of Van Doornik and Teel (2012). For example, both STRUCTURE and ONCOR analyses provided strong evidence for substantial natural production of summer steelhead in the McKenzie River and no evidence of pure summer steelhead among juveniles sampled in the South Santiam River (Table 3; Table 5). Most of the juveniles that assigned as summer steelhead by ONCOR (90%) were found to be pure summer steelhead with STRUCTURE (Appendix).

However, ONCOR and STRUCTURE employ different population assignment algorithms and provide different forms of information. Whereas ONCOR assigns individuals to their most likely population of origin (and provides a second best population estimate), STRUCTURE estimates the proportion of each individual's genome that assigns to clusters inferred to be present in the data. It is therefore not surprising that we observed some noteworthy differences between results from these two programs.

First, STRUCTURE provided compelling evidence for low levels of SxEW hybridization in the South Santiam River (Table 3), where no juvenile summer steelhead were detected with ONCOR (Table 5). For the four putative SxEW hybrid samples collected from the South Santiam River (samples 2058-2060, 2079 in Appendix), an estimated mean 27.6% of their genomes assigned to the summer steelhead group, suggesting that these were not $F_1$ hybrids, but instead offspring of hybrids ($F_2$ hybrids).

STRUCTURE results also indicated that four SxEW hybrids (samples 2009, 2013, 2024, 2038 in Appendix) were among the 36 juvenile samples from the North Santiam River. Only one of these appeared to be a $F_1$ hybrid (sample 2009 in Appendix), as all others presented $q <$ 25% for the summer steelhead (S) group. Interestingly, the single juvenile sample assigned by ONCOR as a summer steelhead from this subbasin had a 90% WW genome, according to STRUCTURE results.

Overall, our results suggested that naturally-produced *O. mykiss* sampled in the McKenzie River were predominately summer steelhead, and that very few pure summer steelhead were naturally produced in the Santiam rivers. However, some SxEW hybrids were found in the McKenzie, South Santiam and North Santiam rivers.

**Differences among subbasins for summer steelhead production**

Both ONCOR and STRUCTURE analyses indicated that the majority of juvenile *O. mykiss* samples from the North and South Santiam rivers were EW steelhead (Table 6). In contrast, most samples from the McKenzie River assigned as S steelhead. Results from ONCOR and STRUCTURE generally agreed, though STRUCTURE results suggested that some individuals that assigned as EW by ONCOR were instead SxEW or other hybrids. Such classification differences were particularly common among samples from the McKenzie River, where all but 2 of 25 samples that assigned as EW by ONCOR were determined to be S hybrid classes by STRUCTURE analyses (Table 6; Appendix).

Table 6. Counts of juvenile *O. mykiss*, according to group or hybrid class (EW = eastern tributaries winter steelhead, S = summer steelhead, WW = western tributaries winter steelhead, RB = resident rainbow trout) as inferred through ONCOR and STRUCTURE analyses of genotypic data from 15 microsatellite loci. Samples were collected in 2011 from the McKenzie, North Santiam and South Santiam rivers. The S hybrid classes include SxEW, SxWW and SxRB. See Appendix for other hybrid classes.

| | Class | McKenzie R. | N. Santiam R. | S. Santiam R. |
|---|---|---|---|---|
| ONCOR | | | | |
| | S | 62 | 1 | 0 |
| | EW | 25 | 34 | 27 |
| | RB | 4 | 1 | 0 |
| | WW | 0 | 0 | 0 |
| STRUCTURE | | | | |
| | S | 63 | 0 | 0 |
| | EW | 2 | 25 | 20 |
| | RB | 4 | 0 | 0 |
| | WW | 0 | 1 | 1 |
| | S hybrids | 18 | 4 | 4 |
| | Other hybrids | 4 | 6 | 2 |

Pairwise Fisher's exact tests indicated no significant difference ($P = 1.00$) between the proportions of fish assigned to different classes for the North and South Santiam rivers, regardless of assignment method (ONCOR or STRUCTURE). Proportions for class assignment counts were significantly different between the McKenzie River and both Santiam rivers ($P < 0.001$), as samples from the McKenzie River included a relatively high proportion of summer steelhead.

## Discussion

### Overview

Observations made during spawning surveys suggested that low levels of natural production by summer steelhead may occur in the UWR basin, as well as possible hybridization with winter steelhead (Firman et al. 2004). Our findings substantiate these reports with the first quantitative evidence for natural production and genetic introgression from summer steelhead in the UWR basin.

The UWR Conservation and Recovery Plan for Chinook Salmon and Steelhead (ODFW and NMFS 2011) established that the proportion of hatchery origin spawners (pHOS) should be < 0.05 total spawners in most subbasins of the UWR steelhead DPS, so as to allow threatened native populations to meet desired population status goals. Although our results do not provide direct estimates for pHOS, they do suggest that about 10% of unmarked juvenile *O. mykiss* sampled at Willamette Falls in 2009-2011 were summer steelhead and that an additional 10% of these were summer steelhead hybrids. Most *O. mykiss* sampled from the McKenzie River were either summer steelhead or SxEW hybrids. Natural production of pure summer steelhead appeared to be minimal or absent in the North and South Santiam rivers, though SxEW hybrids represented 11.1% and 14.8% of samples. We emphasize that these estimates of hybrid fraction likely represent cumulative effects from multiple generations of natural production by hatchery summer steelhead in the basin and may therefore exceed pHOS of any single generation.

Results from STRUCTURE and ONCOR analyses were generally in agreement, though we observed some minor differences. We found no evidence for natural production of pure summer steelhead in the Santiam rivers from STRUCTURE analyses, though summer steelhead hybrids were detected in these subbasins. Previous GSI results suggested that a single juvenile sample collected from the North Santiam River ($n$ = 36) was a summer steelhead and that no summer steelhead were among the 27 juvenile samples collected from the South Santiam River in 2011. ONCOR and STRUCTURE results agreed that most juvenile *O. mykiss* sampled from the McKenzie River were summer steelhead and that several summer steelhead were among samples collected from the mainstem Willamette River.

### Natural production and hybridization from summer steelhead

By examining genetic and count data from adult and juvenile steelhead, Kostow et al. (2003) found that natural production by hatchery summer steelhead accounted for one third to one half of the naturally produced smolts in the Clackamas River (lower Willamette River basin), but contributed little to adult returns. Those authors found little evidence for hybridization between native winter steelhead and introduced summer steelhead, but concluded that competition with naturally-produced summer steelhead likely posed a serious ecological risk to juvenile winter steelhead.

Similar to results from the Clackamas River, we found a high proportion of summer steelhead among unmarked juvenile *O. mykiss* samples from the McKenzie River, which clearly demonstrated that natural production of steelhead in this subbasin was dominated by either naturalized or stray hatchery fish. However, unlike the Clackamas River, winter steelhead are not native to the McKenzie River. Interactions between summer and winter steelhead in this subbasin have likely been limited by low local abundance of the latter. However, summer steelhead may negatively affect other native forms of *O. mykiss*, such as resident rainbow trout, as suggested by our observation of SxRB hybrids among McKenzie River samples (Table 3). The low proportion of pure resident rainbow trout among samples from the McKenzie River is likely due to sampling bias (only fish with smolt-like appearance were sampled) and not a reflection of the true *O. mykiss* stock structure in that subbasin.

In contrast with findings from the Clackamas River (Kostow et al. 2003) and McKenzie River (this study), we found little evidence for natural production by summer steelhead in the North, South or mainstem Santiam rivers. Results from ONCOR suggested that only a single juvenile from the North Santiam River ($n$ = 36) and another from the lower mainstem Santiam River ($n$ = 11) were from the summer steelhead reporting group. No juvenile *O. mykiss* from the South Santiam River ($n$ = 27) was found to be a summer steelhead. The STRUCTURE results from the same data similarly suggested low levels of natural production by summer steelhead in Santiam River subbasins. However, STRUCTURE provided evidence of hybridization between summer steelhead and native winter steelhead.

Our findings of genetic introgression suggest that temporospatial overlap can occur between naturally spawning summer and winter steelhead in UWR subbasins, and that assortative mating and current management have not entirely prevented hybridization between native and introduced *O. mykiss* stocks. Interbreeding with hatchery summer steelhead could lower the fitness of native UWR winter steelhead, as hatchery-reared Skamania stock summer steelhead have low fitness in the wild (Chilcote et al. 1986; Kostow et al. 2003; Leider et al. 1990). Notwithstanding our findings, the proportion of summer steelhead hybrids among our samples was generally lower than has been described in hybrid zones of other trout and salmon species (Boyer et al. 2008; Kinziger et al. 2008; Ostberg et al. 2004; Simmons et al. 2009; Rubidge and Taylor 2004), though our ability to provide conclusions regarding interannual variability and site-specific patterns was limited by the small number of samples collected within subbasins during a single year.

## Management Implications

Our findings of natural production by summer steelhead and genetic introgression between summer and winter steelhead provide empirical evidence of ecological and genetic risks from upper Willamette River hatchery steelhead programs and have implications for current and future fisheries management. Although the magnitude of risk appears to be low within the winter steelhead DPS, we recommend several actions to further understand and reduce risk from UWR hatchery steelhead:

1) We recommend that managers consider strategies to reduce the occurrence of hatchery steelhead on natural spawning grounds. Modifications to trap operations (opening and closure dates), recycling programs, acclimation and release protocols, and harvest regulations should all be considered.

2) We recommend that managers investigate and apply measures to promote reproductive isolation between hatchery steelhead and native winter steelhead. Opportunities for spatial and temporal segregation (e.g., wild fish sanctuaries and selection on spawn timing by hatchery fish) should be exploited while novel approaches are considered for development.

3) We recommend that additional sampling and genetic analyses be performed to further evaluate the genetic structure and integrity of both juvenile and adult steelhead from UWR subbasins. This effort should include sampling of adult steelhead released into wild fish sanctuaries (currently, only above Foster Dam), which could be coupled with other research efforts and used to plan and improve reintroduction programs on the North and South Santiam rivers. For example, a suite of phenotypic traits might be identified as characteristic of SxEW hybrids that would allow screening aimed to promote genetic integrity of the winter steelhead population.

In addition to these actions, managers should define acceptable levels of natural production and introgression from hatchery steelhead in UWR subbasins, such that the effectiveness of management actions may be evaluated in the context of objective and clearly identified goals.

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## Appendix

Location and collection year for Willamette *O. mykiss* samples analyzed with the program STRUCTURE. The reporting group (RG) or identification number (ID) is provided for samples included in baseline (BL) or mixture files of ONCOR analyses by Van Doornik and Teel (2010, 2011, 2012). ONCOR assignments are provided for mixture samples. For each sample, the proportions of the genome (*q*) assigning to the groups summer steelhead (S), east tributaries winter steelhead (EW), resident rainbow trout (RB) and west tributaries winter steelhead (WW) were used to classify genome ancestry. Hybrids indicated as (e.g.) SxEW.

| | | | STRUCTURE *q* Values | | | | STRUCTURE | ONCOR | ONCOR |
|---|---|---|---|---|---|---|---|---|---|
| Sample | Location, Year | RG or ID | S | EW | RB | WW | Classification | Assignment | Probability |
| 1 | Calapooia, 1997 | EW | 0.005 | 0.986 | 0.007 | 0.001 | EW | BL | NA |
| 2 | Calapooia, 1997 | EW | 0.003 | 0.986 | 0.010 | 0.001 | EW | BL | NA |
| 3 | Calapooia, 1997 | EW | 0.059 | 0.931 | 0.008 | 0.003 | EW | BL | NA |
| 4 | Calapooia, 1997 | EW | 0.004 | 0.978 | 0.017 | 0.002 | EW | BL | NA |
| 5 | Calapooia, 1997 | EW | 0.003 | 0.986 | 0.008 | 0.003 | EW | BL | NA |
| 6 | Calapooia, 1997 | EW | 0.005 | 0.979 | 0.014 | 0.001 | EW | BL | NA |
| 7 | Calapooia, 1997 | EW | 0.021 | 0.962 | 0.014 | 0.003 | EW | BL | NA |
| 8 | Calapooia, 1997 | EW | 0.002 | 0.973 | 0.023 | 0.001 | EW | BL | NA |
| 9 | Calapooia, 1997 | EW | 0.009 | 0.951 | 0.039 | 0.001 | EW | BL | NA |
| 10 | Calapooia, 1997 | EW | 0.002 | 0.989 | 0.007 | 0.002 | EW | BL | NA |
| 11 | Calapooia, 1997 | EW | 0.018 | 0.934 | 0.045 | 0.002 | EW | BL | NA |
| 12 | Calapooia, 1997 | EW | 0.006 | 0.980 | 0.013 | 0.001 | EW | BL | NA |
| 13 | Calapooia, 1997 | EW | 0.006 | 0.972 | 0.018 | 0.003 | EW | BL | NA |
| 14 | Calapooia, 1997 | EW | 0.003 | 0.957 | 0.020 | 0.020 | EW | BL | NA |
| 15 | Calapooia, 1997 | EW | 0.006 | 0.976 | 0.015 | 0.003 | EW | BL | NA |
| 16 | Calapooia, 1997 | EW | 0.006 | 0.957 | 0.036 | 0.002 | EW | BL | NA |
| 17 | Calapooia, 1997 | EW | 0.003 | 0.982 | 0.014 | 0.001 | EW | BL | NA |
| 18 | Calapooia, 1997 | EW | 0.028 | 0.965 | 0.006 | 0.002 | EW | BL | NA |
| 19 | Calapooia, 1997 | EW | 0.004 | 0.976 | 0.017 | 0.003 | EW | BL | NA |
| 20 | Calapooia, 1997 | EW | 0.005 | 0.982 | 0.011 | 0.002 | EW | BL | NA |
| 21 | Calapooia, 1997 | EW | 0.003 | 0.979 | 0.017 | 0.001 | EW | BL | NA |
| 22 | Calapooia, 1997 | EW | 0.002 | 0.981 | 0.013 | 0.003 | EW | BL | NA |
| 23 | Calapooia, 1997 | EW | 0.011 | 0.976 | 0.010 | 0.002 | EW | BL | NA |
| 24 | Calapooia, 1997 | EW | 0.007 | 0.886 | 0.102 | 0.005 | EW | BL | NA |
| 25 | Calapooia, 1997 | EW | 0.005 | 0.979 | 0.011 | 0.004 | EW | BL | NA |
| 26 | Calapooia, 1997 | EW | 0.003 | 0.983 | 0.013 | 0.002 | EW | BL | NA |
| 27 | Calapooia, 1997 | EW | 0.002 | 0.984 | 0.012 | 0.001 | EW | BL | NA |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28 | Calapooia, 1997 | EW | 0.009 | 0.933 | 0.056 | 0.002 | EW | BL | NA |
| 29 | Calapooia, 1997 | EW | 0.021 | 0.965 | 0.010 | 0.004 | EW | BL | NA |
| 30 | Calapooia, 1997 | EW | 0.003 | 0.961 | 0.034 | 0.002 | EW | BL | NA |
| 31 | Calapooia, 1997 | EW | 0.005 | 0.971 | 0.022 | 0.001 | EW | BL | NA |
| 32 | Calapooia, 1997 | EW | 0.005 | 0.983 | 0.009 | 0.003 | EW | BL | NA |
| 33 | Calapooia, 1997 | EW | 0.006 | 0.976 | 0.016 | 0.002 | EW | BL | NA |
| 34 | Calapooia, 1997 | EW | 0.005 | 0.980 | 0.007 | 0.008 | EW | BL | NA |
| 35 | Calapooia, 1997 | EW | 0.002 | 0.985 | 0.011 | 0.001 | EW | BL | NA |
| 36 | Calapooia, 1997 | EW | 0.004 | 0.986 | 0.008 | 0.002 | EW | BL | NA |
| 37 | Calapooia, 1997 | EW | 0.003 | 0.988 | 0.007 | 0.002 | EW | BL | NA |
| 38 | Calapooia, 1997 | EW | 0.003 | 0.986 | 0.010 | 0.001 | EW | BL | NA |
| 39 | Clackamas, 2000 | EW | 0.172 | 0.640 | 0.038 | 0.149 | EW | BL | NA |
| 40 | Clackamas, 2000 | EW | 0.157 | 0.549 | 0.033 | 0.261 | WWxEW | BL | NA |
| 41 | Clackamas, 2000 | EW | 0.193 | 0.537 | 0.119 | 0.151 | EW | BL | NA |
| 42 | Clackamas, 2000 | EW | 0.290 | 0.414 | 0.040 | 0.255 | 3x | BL | NA |
| 43 | Clackamas, 2000 | EW | 0.236 | 0.488 | 0.033 | 0.243 | 3x | BL | NA |
| 44 | Clackamas, 2000 | EW | 0.295 | 0.456 | 0.066 | 0.183 | SxEW | BL | NA |
| 45 | Clackamas, 2000 | EW | 0.195 | 0.568 | 0.055 | 0.182 | EW | BL | NA |
| 46 | Clackamas, 2000 | EW | 0.194 | 0.513 | 0.110 | 0.183 | EW | BL | NA |
| 47 | Clackamas, 2000 | EW | 0.371 | 0.471 | 0.041 | 0.116 | SxEW | BL | NA |
| 48 | Clackamas, 2000 | EW | 0.247 | 0.468 | 0.046 | 0.239 | 3x | BL | NA |
| 49 | Clackamas, 2000 | EW | 0.238 | 0.523 | 0.025 | 0.213 | 3x | BL | NA |
| 50 | Clackamas, 2000 | EW | 0.149 | 0.671 | 0.055 | 0.126 | EW | BL | NA |
| 51 | Clackamas, 2000 | EW | 0.218 | 0.547 | 0.062 | 0.173 | SxEW | BL | NA |
| 52 | Clackamas, 2000 | EW | 0.168 | 0.545 | 0.087 | 0.201 | WWxEW | BL | NA |
| 53 | Clackamas, 2000 | EW | 0.168 | 0.648 | 0.054 | 0.130 | EW | BL | NA |
| 54 | Clackamas, 2000 | EW | 0.183 | 0.594 | 0.033 | 0.189 | EW | BL | NA |
| 55 | Clackamas, 2000 | EW | 0.216 | 0.502 | 0.096 | 0.186 | SxEW | BL | NA |
| 56 | Clackamas, 2000 | EW | 0.157 | 0.633 | 0.027 | 0.183 | EW | BL | NA |
| 57 | Clackamas, 2000 | EW | 0.181 | 0.570 | 0.056 | 0.193 | EW | BL | NA |
| 58 | Clackamas, 2000 | EW | 0.211 | 0.493 | 0.033 | 0.264 | 3x | BL | NA |
| 59 | Clackamas, 2000 | EW | 0.173 | 0.606 | 0.041 | 0.179 | EW | BL | NA |
| 60 | Clackamas, 2000 | EW | 0.239 | 0.407 | 0.055 | 0.299 | 3x | BL | NA |
| 61 | Clackamas, 2000 | EW | 0.265 | 0.507 | 0.064 | 0.163 | SxEW | BL | NA |
| 62 | Clackamas, 2000 | EW | 0.193 | 0.665 | 0.034 | 0.108 | EW | BL | NA |
| 63 | Clackamas, 2000 | EW | 0.191 | 0.536 | 0.036 | 0.236 | WWxEW | BL | NA |
| 64 | Clackamas, 2000 | EW | 0.357 | 0.378 | 0.061 | 0.204 | 3x | BL | NA |
| 65 | Clackamas, 2000 | EW | 0.168 | 0.665 | 0.028 | 0.140 | EW | BL | NA |
| 66 | Clackamas, 2000 | EW | 0.180 | 0.494 | 0.153 | 0.173 | - | BL | NA |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 67 | Clackamas, 2000 | EW | 0.200 | 0.546 | 0.065 | 0.188 | SxEW | BL | NA |
| 68 | Clackamas, 2000 | EW | 0.272 | 0.549 | 0.040 | 0.139 | SxEW | BL | NA |
| 69 | Clackamas, 2000 | EW | 0.326 | 0.418 | 0.040 | 0.216 | 3x | BL | NA |
| 70 | Clackamas, 2000 | EW | 0.217 | 0.482 | 0.043 | 0.257 | 3x | BL | NA |
| 71 | Clackamas, 2000 | EW | 0.476 | 0.345 | 0.033 | 0.146 | SxEW | BL | NA |
| 72 | Clackamas, 2000 | EW | 0.322 | 0.382 | 0.052 | 0.244 | 3x | BL | NA |
| 73 | Clackamas, 2000 | EW | 0.346 | 0.460 | 0.037 | 0.156 | SxEW | BL | NA |
| 74 | Clackamas, 2000 | EW | 0.120 | 0.723 | 0.037 | 0.120 | EW | BL | NA |
| 75 | Clackamas, 2000 | EW | 0.305 | 0.466 | 0.034 | 0.195 | SxEW | BL | NA |
| 76 | Clackamas, 2000 | EW | 0.267 | 0.501 | 0.037 | 0.195 | SxEW | BL | NA |
| 77 | Clackamas, 2000 | EW | 0.320 | 0.369 | 0.047 | 0.264 | 3x | BL | NA |
| 78 | Clackamas, 2000 | EW | 0.132 | 0.623 | 0.033 | 0.212 | WWxEW | BL | NA |
| 79 | Clackamas, 2000 | EW | 0.244 | 0.519 | 0.033 | 0.204 | 3x | BL | NA |
| 80 | Clackamas, 2000 | EW | 0.232 | 0.568 | 0.037 | 0.163 | SxEW | BL | NA |
| 81 | Clackamas, 2000 | EW | 0.058 | 0.766 | 0.003 | 0.173 | EW | BL | NA |
| 82 | Clackamas, 2000 | EW | 0.054 | 0.792 | 0.003 | 0.152 | EW | BL | NA |
| 83 | Clackamas, 2000 | EW | 0.049 | 0.730 | 0.004 | 0.217 | WWxEW | BL | NA |
| 84 | Clackamas, 2000 | EW | 0.048 | 0.781 | 0.004 | 0.166 | EW | BL | NA |
| 85 | Clackamas, 2000 | EW | 0.059 | 0.779 | 0.004 | 0.159 | EW | BL | NA |
| 86 | Clackamas, 2000 | EW | 0.042 | 0.772 | 0.002 | 0.183 | EW | BL | NA |
| 87 | Clackamas, 2000 | EW | 0.042 | 0.796 | 0.003 | 0.159 | EW | BL | NA |
| 88 | Clackamas, 2000 | EW | 0.089 | 0.688 | 0.002 | 0.221 | WWxEW | BL | NA |
| 89 | Clackamas, 2000 | EW | 0.055 | 0.707 | 0.004 | 0.234 | WWxEW | BL | NA |
| 90 | Clackamas, 2000 | EW | 0.131 | 0.691 | 0.003 | 0.176 | EW | BL | NA |
| 91 | Clackamas, 2000 | EW | 0.059 | 0.789 | 0.003 | 0.149 | EW | BL | NA |
| 92 | Clackamas, 2000 | EW | 0.063 | 0.726 | 0.002 | 0.209 | WWxEW | BL | NA |
| 93 | Clackamas, 2000 | EW | 0.055 | 0.760 | 0.004 | 0.181 | EW | BL | NA |
| 94 | Clackamas, 2000 | EW | 0.049 | 0.813 | 0.004 | 0.135 | EW | BL | NA |
| 95 | Clackamas, 2000 | EW | 0.041 | 0.806 | 0.003 | 0.150 | EW | BL | NA |
| 96 | Clackamas, 2000 | EW | 0.084 | 0.697 | 0.003 | 0.217 | WWxEW | BL | NA |
| 97 | Clackamas, 2000 | EW | 0.053 | 0.770 | 0.006 | 0.172 | EW | BL | NA |
| 98 | Clackamas, 2000 | EW | 0.034 | 0.832 | 0.003 | 0.132 | EW | BL | NA |
| 99 | Clackamas, 2000 | EW | 0.056 | 0.800 | 0.002 | 0.142 | EW | BL | NA |
| 100 | Clackamas, 2000 | EW | 0.043 | 0.736 | 0.003 | 0.217 | WWxEW | BL | NA |
| 101 | Clackamas, 2000 | EW | 0.051 | 0.773 | 0.003 | 0.174 | EW | BL | NA |
| 102 | Clackamas, 2000 | EW | 0.042 | 0.798 | 0.005 | 0.155 | EW | BL | NA |
| 103 | Clackamas, 2000 | EW | 0.067 | 0.744 | 0.005 | 0.183 | EW | BL | NA |
| 104 | Clackamas, 2000 | EW | 0.046 | 0.681 | 0.003 | 0.270 | WWxEW | BL | NA |
| 105 | Clackamas, 2000 | EW | 0.095 | 0.771 | 0.006 | 0.128 | EW | BL | NA |
| 106 | Clackamas, 2000 | EW | 0.044 | 0.788 | 0.005 | 0.163 | EW | BL | NA |

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|---|---|---|---|---|---|---|---|---|---|
| 107 | Clackamas, 2000 | EW | 0.044 | 0.726 | 0.002 | 0.227 | WWxEW | BL | NA |
| 108 | Clackamas, 2000 | EW | 0.063 | 0.710 | 0.003 | 0.224 | WWxEW | BL | NA |
| 109 | Clackamas, 2000 | EW | 0.044 | 0.763 | 0.003 | 0.190 | EW | BL | NA |
| 110 | Clackamas, 2000 | EW | 0.064 | 0.753 | 0.003 | 0.181 | EW | BL | NA |
| 111 | Clackamas, 2000 | EW | 0.040 | 0.842 | 0.005 | 0.113 | EW | BL | NA |
| 112 | Clackamas, 2000 | EW | 0.065 | 0.707 | 0.003 | 0.224 | WWxEW | BL | NA |
| 113 | Clackamas, 2000 | EW | 0.046 | 0.761 | 0.003 | 0.190 | EW | BL | NA |
| 114 | Clackamas, 2000 | EW | 0.062 | 0.685 | 0.003 | 0.250 | WWxEW | BL | NA |
| 115 | Clackamas, 2000 | EW | 0.058 | 0.779 | 0.004 | 0.160 | EW | BL | NA |
| 116 | Clackamas, 2000 | EW | 0.061 | 0.769 | 0.004 | 0.166 | EW | BL | NA |
| 117 | Clackamas, 2000 | EW | 0.053 | 0.697 | 0.003 | 0.247 | WWxEW | BL | NA |
| 118 | Clackamas, 2000 | EW | 0.056 | 0.748 | 0.002 | 0.194 | EW | BL | NA |
| 119 | Clackamas, 2000 | EW | 0.066 | 0.746 | 0.004 | 0.185 | EW | BL | NA |
| 120 | Clackamas, 2000 | EW | 0.053 | 0.747 | 0.003 | 0.197 | EW | BL | NA |
| 121 | Clackamas, 2000 | EW | 0.045 | 0.845 | 0.003 | 0.107 | EW | BL | NA |
| 122 | Clackamas, 2000 | EW | 0.039 | 0.812 | 0.002 | 0.147 | EW | BL | NA |
| 123 | Clackamas, 2000 | EW | 0.055 | 0.750 | 0.004 | 0.191 | EW | BL | NA |
| 124 | Clackamas, 2000 | EW | 0.075 | 0.754 | 0.004 | 0.167 | EW | BL | NA |
| 125 | Clackamas, 2000 | EW | 0.066 | 0.719 | 0.003 | 0.212 | WWxEW | BL | NA |
| 126 | Clackamas, 2000 | EW | 0.037 | 0.845 | 0.006 | 0.113 | EW | BL | NA |
| 127 | Clackamas, 2000 | EW | 0.075 | 0.763 | 0.004 | 0.159 | EW | BL | NA |
| 128 | Clackamas, 2000 | EW | 0.051 | 0.752 | 0.004 | 0.194 | EW | BL | NA |
| 129 | Clackamas, 2000 | EW | 0.046 | 0.675 | 0.002 | 0.277 | WWxEW | BL | NA |
| 130 | Clackamas, 2000 | EW | 0.043 | 0.739 | 0.003 | 0.214 | WWxEW | BL | NA |
| 131 | Clackamas, 2000 | EW | 0.073 | 0.703 | 0.003 | 0.221 | WWxEW | BL | NA |
| 132 | Clackamas, 2000 | EW | 0.049 | 0.798 | 0.003 | 0.149 | EW | BL | NA |
| 133 | Clackamas, 2000 | EW | 0.042 | 0.842 | 0.002 | 0.113 | EW | BL | NA |
| 134 | Clackamas, 2000 | EW | 0.040 | 0.764 | 0.003 | 0.193 | EW | BL | NA |
| 135 | Clackamas, 2000 | EW | 0.058 | 0.759 | 0.002 | 0.181 | EW | BL | NA |
| 136 | Clackamas, 2000 | EW | 0.046 | 0.757 | 0.003 | 0.195 | EW | BL | NA |
| 137 | Clackamas, 2000 | EW | 0.043 | 0.790 | 0.003 | 0.164 | EW | BL | NA |
| 138 | Clackamas, 2000 | EW | 0.048 | 0.759 | 0.003 | 0.191 | EW | BL | NA |
| 139 | Clackamas, 2000 | EW | 0.064 | 0.736 | 0.003 | 0.198 | EW | BL | NA |
| 140 | Clackamas, 2000 | EW | 0.037 | 0.745 | 0.002 | 0.216 | WWxEW | BL | NA |
| 141 | Clackamas, 2000 | EW | 0.045 | 0.761 | 0.004 | 0.190 | EW | BL | NA |
| 142 | Clackamas, 2000 | EW | 0.051 | 0.782 | 0.003 | 0.164 | EW | BL | NA |
| 143 | Clackamas, 2000 | EW | 0.082 | 0.767 | 0.003 | 0.149 | EW | BL | NA |
| 144 | Clackamas, 2000 | EW | 0.060 | 0.804 | 0.002 | 0.133 | EW | BL | NA |
| 145 | Clackamas, 2000 | EW | 0.073 | 0.713 | 0.002 | 0.211 | WWxEW | BL | NA |
| 146 | Clackamas, 2000 | EW | 0.039 | 0.770 | 0.003 | 0.188 | EW | BL | NA |

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|---|---|---|---|---|---|---|---|---|---|
| 147 | Clackamas, 2000 | EW | 0.062 | 0.762 | 0.003 | 0.173 | EW | BL | NA |
| 148 | Clackamas, 2000 | EW | 0.054 | 0.648 | 0.003 | 0.295 | WWxEW | BL | NA |
| 149 | Clackamas, 2000 | EW | 0.047 | 0.779 | 0.003 | 0.171 | EW | BL | NA |
| 150 | Clackamas, 2000 | EW | 0.036 | 0.820 | 0.004 | 0.139 | EW | BL | NA |
| 151 | Clackamas, 2000 | EW | 0.049 | 0.808 | 0.004 | 0.139 | EW | BL | NA |
| 152 | Clackamas, 2000 | EW | 0.046 | 0.811 | 0.003 | 0.141 | EW | BL | NA |
| 153 | Clackamas, 2000 | EW | 0.060 | 0.743 | 0.006 | 0.192 | EW | BL | NA |
| 154 | Clackamas, 2000 | EW | 0.038 | 0.778 | 0.003 | 0.181 | EW | BL | NA |
| 155 | Clackamas, 2000 | EW | 0.066 | 0.767 | 0.004 | 0.163 | EW | BL | NA |
| 156 | Clackamas, 2000 | EW | 0.080 | 0.714 | 0.003 | 0.204 | WWxEW | BL | NA |
| 157 | Clackamas, 2000 | EW | 0.038 | 0.797 | 0.003 | 0.162 | EW | BL | NA |
| 158 | Clackamas, 2000 | EW | 0.042 | 0.825 | 0.004 | 0.129 | EW | BL | NA |
| 159 | Clackamas, 2000 | EW | 0.046 | 0.760 | 0.002 | 0.191 | EW | BL | NA |
| 160 | Clackamas, 2000 | EW | 0.044 | 0.805 | 0.003 | 0.148 | EW | BL | NA |
| 161 | Eagle Cr. Wild, 2000 | EW | 0.047 | 0.546 | 0.018 | 0.388 | WWxEW | BL | NA |
| 162 | Eagle Cr. Wild, 2000 | EW | 0.123 | 0.642 | 0.013 | 0.221 | WWxEW | BL | NA |
| 163 | Eagle Cr. Wild, 2000 | EW | 0.070 | 0.718 | 0.008 | 0.204 | WWxEW | BL | NA |
| 164 | Eagle Cr. Wild, 2000 | EW | 0.106 | 0.525 | 0.008 | 0.361 | WWxEW | BL | NA |
| 165 | Eagle Cr. Wild, 2000 | EW | 0.067 | 0.555 | 0.008 | 0.370 | WWxEW | BL | NA |
| 166 | Eagle Cr. Wild, 2000 | EW | 0.054 | 0.784 | 0.027 | 0.135 | EW | BL | NA |
| 167 | Eagle Cr. Wild, 2000 | EW | 0.083 | 0.481 | 0.007 | 0.429 | WWxEW | BL | NA |
| 168 | Eagle Cr. Wild, 2000 | EW | 0.040 | 0.777 | 0.013 | 0.170 | EW | BL | NA |
| 169 | Eagle Cr. Wild, 2000 | EW | 0.051 | 0.803 | 0.031 | 0.115 | EW | BL | NA |
| 170 | Eagle Cr. Wild, 2000 | EW | 0.077 | 0.723 | 0.092 | 0.109 | EW | BL | NA |
| 171 | Eagle Cr. Wild, 2000 | EW | 0.082 | 0.726 | 0.011 | 0.181 | EW | BL | NA |
| 172 | Eagle Cr. Wild, 2000 | EW | 0.090 | 0.422 | 0.011 | 0.477 | WWxEW | BL | NA |
| 173 | Eagle Cr. Wild, 2000 | EW | 0.090 | 0.623 | 0.014 | 0.273 | WWxEW | BL | NA |
| 174 | Eagle Cr. Wild, 2000 | EW | 0.044 | 0.722 | 0.012 | 0.223 | WWxEW | BL | NA |
| 175 | Eagle Cr. Wild, 2000 | EW | 0.050 | 0.695 | 0.009 | 0.246 | WWxEW | BL | NA |
| 176 | Eagle Cr. Wild, 2000 | EW | 0.103 | 0.664 | 0.010 | 0.223 | WWxEW | BL | NA |
| 177 | Eagle Cr. Wild, 2000 | EW | 0.065 | 0.754 | 0.019 | 0.162 | EW | BL | NA |
| 178 | Eagle Cr. Wild, 2000 | EW | 0.058 | 0.732 | 0.017 | 0.192 | EW | BL | NA |
| 179 | Eagle Cr. Wild, 2000 | EW | 0.055 | 0.696 | 0.007 | 0.242 | WWxEW | BL | NA |
| 180 | Eagle Cr. Wild, 2000 | EW | 0.051 | 0.804 | 0.013 | 0.132 | EW | BL | NA |
| 181 | Eagle Cr. Wild, 2000 | EW | 0.050 | 0.738 | 0.015 | 0.198 | EW | BL | NA |
| 182 | Eagle Cr. Wild, 2000 | EW | 0.051 | 0.680 | 0.053 | 0.216 | WWxEW | BL | NA |
| 183 | Eagle Cr. Wild, 2000 | EW | 0.047 | 0.659 | 0.022 | 0.271 | WWxEW | BL | NA |
| 184 | Eagle Cr. Wild, 2000 | EW | 0.059 | 0.767 | 0.048 | 0.126 | EW | BL | NA |
| 185 | Eagle Cr. Wild, 2000 | EW | 0.051 | 0.708 | 0.008 | 0.233 | WWxEW | BL | NA |
| 186 | Eagle Cr. Wild, 2000 | EW | 0.050 | 0.762 | 0.009 | 0.179 | EW | BL | NA |

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|---|---|---|---|---|---|---|---|---|---|---|
| 187 | Eagle Cr. Wild, 2000 | EW | 0.107 | 0.524 | 0.009 | 0.360 | WWxEW | BL | NA |
| 188 | Eagle Cr. Wild, 2000 | EW | 0.048 | 0.798 | 0.019 | 0.135 | EW | BL | NA |
| 189 | Eagle Cr. Wild, 2000 | EW | 0.065 | 0.676 | 0.010 | 0.250 | WWxEW | BL | NA |
| 190 | Eagle Cr. Wild, 2000 | EW | 0.078 | 0.525 | 0.014 | 0.383 | WWxEW | BL | NA |
| 191 | Eagle Cr. Wild, 2000 | EW | 0.055 | 0.486 | 0.012 | 0.446 | WWxEW | BL | NA |
| 192 | Eagle Cr. Wild, 2000 | EW | 0.063 | 0.713 | 0.012 | 0.212 | WWxEW | BL | NA |
| 193 | Eagle Cr. Wild, 2000 | EW | 0.046 | 0.510 | 0.008 | 0.435 | WWxEW | BL | NA |
| 194 | Eagle Cr. Wild, 2000 | EW | 0.105 | 0.636 | 0.012 | 0.247 | WWxEW | BL | NA |
| 195 | Eagle Cr. Wild, 2000 | EW | 0.045 | 0.835 | 0.010 | 0.110 | EW | BL | NA |
| 196 | Eagle Cr. Wild, 2000 | EW | 0.051 | 0.615 | 0.008 | 0.326 | WWxEW | BL | NA |
| 197 | Eagle Cr. Wild, 2000 | EW | 0.062 | 0.696 | 0.012 | 0.230 | WWxEW | BL | NA |
| 198 | Eagle Cr. Wild, 2000 | EW | 0.105 | 0.708 | 0.012 | 0.175 | EW | BL | NA |
| 199 | Eagle Cr. Wild, 2000 | EW | 0.116 | 0.611 | 0.016 | 0.257 | WWxEW | BL | NA |
| 200 | Eagle Cr. Wild, 2000 | EW | 0.059 | 0.819 | 0.013 | 0.110 | EW | BL | NA |
| 201 | Eagle Cr. Wild, 2000 | EW | 0.051 | 0.795 | 0.009 | 0.145 | EW | BL | NA |
| 202 | Eagle Cr. Wild, 2000 | EW | 0.072 | 0.809 | 0.017 | 0.101 | EW | BL | NA |
| 203 | Eagle Cr. Wild, 2000 | EW | 0.055 | 0.603 | 0.011 | 0.330 | WWxEW | BL | NA |
| 204 | Eagle Cr. Wild, 2000 | EW | 0.039 | 0.826 | 0.009 | 0.125 | EW | BL | NA |
| 205 | Eagle Cr. Wild, 2000 | EW | 0.067 | 0.776 | 0.019 | 0.138 | EW | BL | NA |
| 206 | Eagle Cr. Wild, 2000 | EW | 0.035 | 0.730 | 0.013 | 0.222 | WWxEW | BL | NA |
| 207 | Eagle Cr. Wild, 2000 | EW | 0.097 | 0.689 | 0.019 | 0.194 | EW | BL | NA |
| 208 | Eagle Cr. Wild, 2000 | EW | 0.083 | 0.746 | 0.012 | 0.159 | EW | BL | NA |
| 209 | Eagle Cr. Wild, 2000 | EW | 0.042 | 0.741 | 0.007 | 0.209 | WWxEW | BL | NA |
| 210 | Eagle Cr. Wild, 2000 | EW | 0.119 | 0.510 | 0.015 | 0.356 | WWxEW | BL | NA |
| 211 | Eagle Cr. Wild, 2000 | EW | 0.061 | 0.574 | 0.006 | 0.358 | WWxEW | BL | NA |
| 212 | Eagle Cr. Wild, 2000 | EW | 0.058 | 0.769 | 0.011 | 0.161 | EW | BL | NA |
| 213 | Eagle Cr. Wild, 2000 | EW | 0.058 | 0.735 | 0.017 | 0.190 | EW | BL | NA |
| 214 | Eagle Cr. Wild, 2000 | EW | 0.088 | 0.425 | 0.011 | 0.476 | WWxEW | BL | NA |
| 215 | Eagle Cr. Wild, 2000 | EW | 0.045 | 0.805 | 0.010 | 0.140 | EW | BL | NA |
| 216 | Eagle Cr. Wild, 2000 | EW | 0.089 | 0.748 | 0.014 | 0.150 | EW | BL | NA |
| 217 | Eagle Cr. Wild, 2000 | EW | 0.133 | 0.582 | 0.015 | 0.270 | WWxEW | BL | NA |
| 218 | Eagle Cr. Wild, 2000 | EW | 0.067 | 0.589 | 0.015 | 0.329 | WWxEW | BL | NA |
| 219 | Eagle Cr. Wild, 2000 | EW | 0.032 | 0.727 | 0.007 | 0.234 | WWxEW | BL | NA |
| 220 | Eagle Cr. Wild, 2000 | EW | 0.035 | 0.775 | 0.014 | 0.175 | EW | BL | NA |
| 221 | Eagle Cr. Wild, 2000 | EW | 0.074 | 0.754 | 0.027 | 0.145 | EW | BL | NA |
| 222 | Eagle Cr. Wild, 2000 | EW | 0.043 | 0.677 | 0.018 | 0.263 | WWxEW | BL | NA |
| 223 | Eagle Cr. Wild, 2000 | EW | 0.058 | 0.735 | 0.010 | 0.197 | EW | BL | NA |
| 224 | N. Santiam R., 1998 | EW | 0.013 | 0.944 | 0.040 | 0.003 | EW | BL | NA |
| 225 | N. Santiam R., 1998 | EW | 0.009 | 0.976 | 0.013 | 0.003 | EW | BL | NA |
| 226 | N. Santiam R., 1998 | EW | 0.004 | 0.970 | 0.024 | 0.002 | EW | BL | NA |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 227 | N. Santiam R., 1998 | EW | 0.014 | 0.970 | 0.010 | 0.006 | EW | BL | NA |
| 228 | N. Santiam R., 1998 | EW | 0.004 | 0.967 | 0.028 | 0.002 | EW | BL | NA |
| 229 | N. Santiam R., 1998 | EW | 0.005 | 0.970 | 0.022 | 0.003 | EW | BL | NA |
| 230 | N. Santiam R., 1998 | EW | 0.006 | 0.977 | 0.014 | 0.003 | EW | BL | NA |
| 231 | N. Santiam R., 1998 | EW | 0.006 | 0.966 | 0.026 | 0.002 | EW | BL | NA |
| 232 | N. Santiam R., 1998 | EW | 0.006 | 0.980 | 0.012 | 0.003 | EW | BL | NA |
| 233 | N. Santiam R., 1998 | EW | 0.005 | 0.971 | 0.022 | 0.002 | EW | BL | NA |
| 234 | N. Santiam R., 1998 | EW | 0.009 | 0.969 | 0.020 | 0.002 | EW | BL | NA |
| 235 | N. Santiam R., 1998 | EW | 0.007 | 0.970 | 0.020 | 0.003 | EW | BL | NA |
| 236 | N. Santiam R., 1998 | EW | 0.006 | 0.960 | 0.032 | 0.002 | EW | BL | NA |
| 237 | N. Santiam R., 1998 | EW | 0.004 | 0.953 | 0.041 | 0.002 | EW | BL | NA |
| 238 | N. Santiam R., 1998 | EW | 0.010 | 0.885 | 0.090 | 0.014 | EW | BL | NA |
| 239 | N. Santiam R., 1998 | EW | 0.005 | 0.976 | 0.017 | 0.002 | EW | BL | NA |
| 240 | N. Santiam R., 1998 | EW | 0.005 | 0.984 | 0.010 | 0.002 | EW | BL | NA |
| 241 | N. Santiam R., 1998 | EW | 0.007 | 0.973 | 0.018 | 0.003 | EW | BL | NA |
| 242 | N. Santiam R., 1998 | EW | 0.007 | 0.977 | 0.015 | 0.002 | EW | BL | NA |
| 243 | N. Santiam R., 1998 | EW | 0.017 | 0.929 | 0.053 | 0.001 | EW | BL | NA |
| 244 | N. Santiam R., 1998 | EW | 0.003 | 0.981 | 0.014 | 0.001 | EW | BL | NA |
| 245 | N. Santiam R., 1998 | EW | 0.006 | 0.973 | 0.020 | 0.002 | EW | BL | NA |
| 246 | N. Santiam R., 1998 | EW | 0.003 | 0.982 | 0.014 | 0.002 | EW | BL | NA |
| 247 | N. Santiam R., 1998 | EW | 0.003 | 0.978 | 0.017 | 0.002 | EW | BL | NA |
| 248 | N. Santiam R., 1998 | EW | 0.005 | 0.953 | 0.041 | 0.002 | EW | BL | NA |
| 249 | N. Santiam R., 1998 | EW | 0.003 | 0.912 | 0.083 | 0.001 | EW | BL | NA |
| 250 | N. Santiam R., 1998 | EW | 0.110 | 0.835 | 0.051 | 0.003 | EW | BL | NA |
| 251 | N. Santiam R., 1998 | EW | 0.004 | 0.965 | 0.030 | 0.002 | EW | BL | NA |
| 252 | N. Santiam R., 1998 | EW | 0.010 | 0.975 | 0.011 | 0.004 | EW | BL | NA |
| 253 | N. Santiam R., 1998 | EW | 0.008 | 0.967 | 0.023 | 0.001 | EW | BL | NA |
| 254 | N. Santiam R., 1998 | EW | 0.006 | 0.972 | 0.020 | 0.002 | EW | BL | NA |
| 255 | N. Santiam R., 1998 | EW | 0.005 | 0.953 | 0.039 | 0.002 | EW | BL | NA |
| 256 | N. Santiam R., 1998 | EW | 0.005 | 0.977 | 0.012 | 0.006 | EW | BL | NA |
| 257 | N. Santiam R., 1998 | EW | 0.003 | 0.975 | 0.019 | 0.003 | EW | BL | NA |
| 258 | N. Santiam R., 1998 | EW | 0.004 | 0.974 | 0.021 | 0.002 | EW | BL | NA |
| 259 | N. Santiam R., 1998 | EW | 0.003 | 0.984 | 0.011 | 0.002 | EW | BL | NA |
| 260 | N. Santiam R., 1998 | EW | 0.007 | 0.952 | 0.039 | 0.003 | EW | BL | NA |
| 261 | N. Santiam R., 1998 | EW | 0.004 | 0.971 | 0.024 | 0.001 | EW | BL | NA |
| 262 | N. Santiam R., 1998 | EW | 0.004 | 0.981 | 0.014 | 0.002 | EW | BL | NA |
| 263 | N. Santiam R., 1998 | EW | 0.005 | 0.983 | 0.011 | 0.002 | EW | BL | NA |
| 264 | N. Santiam R., 1998 | EW | 0.007 | 0.959 | 0.031 | 0.003 | EW | BL | NA |
| 265 | N. Santiam R., 1998 | EW | 0.008 | 0.967 | 0.021 | 0.004 | EW | BL | NA |
| 266 | N. Santiam R., 1998 | EW | 0.004 | 0.984 | 0.010 | 0.002 | EW | BL | NA |

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|---|---|---|---|---|---|---|---|---|---|---|
| 267 | N. Santiam R., 1998 | EW | 0.004 | 0.976 | 0.019 | 0.002 | EW | BL | NA |
| 268 | N. Santiam R., 1998 | EW | 0.003 | 0.972 | 0.023 | 0.002 | EW | BL | NA |
| 269 | Molalla R., 1996 | EW | 0.030 | 0.888 | 0.002 | 0.081 | EW | BL | NA |
| 270 | Molalla R., 1996 | EW | 0.089 | 0.865 | 0.012 | 0.035 | EW | BL | NA |
| 271 | Molalla R., 1996 | EW | 0.021 | 0.928 | 0.002 | 0.049 | EW | BL | NA |
| 272 | Molalla R., 1996 | EW | 0.655 | 0.301 | 0.003 | 0.041 | SxEW | BL | NA |
| 273 | Molalla R., 1996 | EW | 0.026 | 0.717 | 0.001 | 0.256 | WWxEW | BL | NA |
| 274 | Molalla R., 1996 | EW | 0.041 | 0.912 | 0.004 | 0.043 | EW | BL | NA |
| 275 | Molalla R., 1996 | EW | 0.034 | 0.814 | 0.001 | 0.151 | EW | BL | NA |
| 276 | Molalla R., 1996 | EW | 0.052 | 0.915 | 0.003 | 0.031 | EW | BL | NA |
| 277 | Molalla R., 1996 | EW | 0.029 | 0.842 | 0.004 | 0.124 | EW | BL | NA |
| 278 | Molalla R., 1996 | EW | 0.266 | 0.656 | 0.005 | 0.074 | SxEW | BL | NA |
| 279 | Molalla R., 1996 | EW | 0.063 | 0.905 | 0.002 | 0.030 | EW | BL | NA |
| 280 | Molalla R., 1996 | EW | 0.075 | 0.853 | 0.004 | 0.068 | EW | BL | NA |
| 281 | Molalla R., 1996 | EW | 0.065 | 0.764 | 0.003 | 0.168 | EW | BL | NA |
| 282 | Molalla R., 1996 | EW | 0.101 | 0.794 | 0.002 | 0.103 | EW | BL | NA |
| 283 | Molalla R., 1996 | EW | 0.036 | 0.909 | 0.004 | 0.051 | EW | BL | NA |
| 284 | Molalla R., 1996 | EW | 0.147 | 0.790 | 0.002 | 0.061 | EW | BL | NA |
| 285 | Molalla R., 1996 | EW | 0.022 | 0.924 | 0.003 | 0.052 | EW | BL | NA |
| 286 | Molalla R., 1996 | EW | 0.023 | 0.951 | 0.005 | 0.021 | EW | BL | NA |
| 287 | Molalla R., 1996 | EW | 0.050 | 0.848 | 0.003 | 0.099 | EW | BL | NA |
| 288 | Molalla R., 1996 | EW | 0.015 | 0.949 | 0.001 | 0.034 | EW | BL | NA |
| 289 | Molalla R., 1996 | EW | 0.045 | 0.884 | 0.003 | 0.068 | EW | BL | NA |
| 290 | Molalla R., 1996 | EW | 0.036 | 0.881 | 0.002 | 0.082 | EW | BL | NA |
| 291 | Molalla R., 1996 | EW | 0.032 | 0.929 | 0.002 | 0.037 | EW | BL | NA |
| 292 | Molalla R., 1996 | EW | 0.049 | 0.891 | 0.002 | 0.058 | EW | BL | NA |
| 293 | Molalla R., 1996 | EW | 0.031 | 0.931 | 0.002 | 0.036 | EW | BL | NA |
| 294 | Molalla R., 1996 | EW | 0.019 | 0.942 | 0.004 | 0.035 | EW | BL | NA |
| 295 | Molalla R., 1996 | EW | 0.019 | 0.913 | 0.002 | 0.067 | EW | BL | NA |
| 296 | Molalla R., 1996 | EW | 0.049 | 0.927 | 0.001 | 0.024 | EW | BL | NA |
| 297 | Molalla R., 1996 | EW | 0.028 | 0.940 | 0.002 | 0.030 | EW | BL | NA |
| 298 | Molalla R., 1996 | EW | 0.069 | 0.881 | 0.003 | 0.047 | EW | BL | NA |
| 299 | Molalla R., 1996 | EW | 0.165 | 0.770 | 0.013 | 0.052 | EW | BL | NA |
| 300 | Molalla R., 1996 | EW | 0.038 | 0.895 | 0.003 | 0.063 | EW | BL | NA |
| 301 | Molalla R., 1996 | EW | 0.236 | 0.681 | 0.003 | 0.080 | SxEW | BL | NA |
| 302 | Molalla R., 1996 | EW | 0.037 | 0.844 | 0.002 | 0.117 | EW | BL | NA |
| 303 | Molalla R., 1996 | EW | 0.020 | 0.452 | 0.003 | 0.525 | WWxEW | BL | NA |
| 304 | Molalla R., 1996 | EW | 0.050 | 0.911 | 0.003 | 0.036 | EW | BL | NA |
| 305 | Molalla R., 1996 | EW | 0.016 | 0.954 | 0.007 | 0.023 | EW | BL | NA |
| 306 | Molalla R., 1996 | EW | 0.025 | 0.927 | 0.002 | 0.047 | EW | BL | NA |

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|---|---|---|---|---|---|---|---|---|---|
| 307 | Molalla R., 1996 | EW | 0.020 | 0.905 | 0.003 | 0.072 | EW | BL | NA |
| 308 | Molalla R., 1996 | EW | 0.019 | 0.923 | 0.002 | 0.056 | EW | BL | NA |
| 309 | Molalla R., 1996 | EW | 0.573 | 0.387 | 0.004 | 0.036 | SxEW | BL | NA |
| 310 | Molalla R., 1996 | EW | 0.043 | 0.717 | 0.003 | 0.237 | WWxEW | BL | NA |
| 311 | Molalla R., 1996 | EW | 0.036 | 0.858 | 0.002 | 0.104 | EW | BL | NA |
| 312 | Molalla R., 1996 | EW | 0.022 | 0.610 | 0.006 | 0.362 | WWxEW | BL | NA |
| 313 | Molalla R., 1996 | EW | 0.064 | 0.839 | 0.011 | 0.086 | EW | BL | NA |
| 314 | Molalla R., 1996 | EW | 0.064 | 0.721 | 0.001 | 0.214 | WWxEW | BL | NA |
| 315 | Molalla R., 1996 | EW | 0.034 | 0.768 | 0.002 | 0.195 | EW | BL | NA |
| 316 | Molalla R., 1996 | EW | 0.015 | 0.945 | 0.003 | 0.038 | EW | BL | NA |
| 317 | Molalla R., 1996 | EW | 0.122 | 0.793 | 0.003 | 0.083 | EW | BL | NA |
| 318 | Molalla R., 1996 | EW | 0.029 | 0.921 | 0.003 | 0.047 | EW | BL | NA |
| 319 | N. Santiam R., Bennett Dam, 2005 | EW | 0.031 | 0.759 | 0.197 | 0.013 | EW | BL | NA |
| 320 | N. Santiam R., Bennett Dam, 2005 | EW | 0.065 | 0.858 | 0.063 | 0.014 | EW | BL | NA |
| 321 | N. Santiam R., Bennett Dam, 2005 | EW | 0.042 | 0.904 | 0.033 | 0.021 | EW | BL | NA |
| 322 | N. Santiam R., Bennett Dam, 2005 | EW | 0.111 | 0.820 | 0.035 | 0.034 | EW | BL | NA |
| 323 | N. Santiam R., Bennett Dam, 2005 | EW | 0.266 | 0.692 | 0.030 | 0.012 | SxEW | BL | NA |
| 324 | N. Santiam R., Bennett Dam, 2005 | EW | 0.109 | 0.822 | 0.043 | 0.026 | EW | BL | NA |
| 325 | N. Santiam R., Bennett Dam, 2005 | EW | 0.029 | 0.916 | 0.032 | 0.024 | EW | BL | NA |
| 326 | N. Santiam R., Bennett Dam, 2005 | EW | 0.098 | 0.768 | 0.111 | 0.023 | EW | BL | NA |
| 327 | N. Santiam R., Bennett Dam, 2005 | EW | 0.076 | 0.680 | 0.029 | 0.214 | WWxEW | BL | NA |
| 328 | N. Santiam R., Bennett Dam, 2005 | EW | 0.058 | 0.867 | 0.037 | 0.038 | EW | BL | NA |
| 329 | N. Santiam R., Bennett Dam, 2005 | EW | 0.032 | 0.789 | 0.039 | 0.140 | EW | BL | NA |
| 330 | N. Santiam R., Bennett Dam, 2005 | EW | 0.035 | 0.906 | 0.037 | 0.023 | EW | BL | NA |
| 331 | N. Santiam R., Bennett Dam, 2005 | EW | 0.035 | 0.896 | 0.035 | 0.034 | EW | BL | NA |
| 332 | N. Santiam R., Bennett Dam, 2005 | EW | 0.039 | 0.915 | 0.026 | 0.020 | EW | BL | NA |
| 333 | N. Santiam R., Bennett Dam, 2005 | EW | 0.025 | 0.927 | 0.031 | 0.017 | EW | BL | NA |
| 334 | N. Santiam R., Bennett Dam, 2005 | EW | 0.038 | 0.913 | 0.034 | 0.015 | EW | BL | NA |
| 335 | N. Santiam R., Bennett Dam, 2005 | EW | 0.035 | 0.883 | 0.058 | 0.024 | EW | BL | NA |
| 336 | N. Santiam R., Bennett Dam, 2005 | EW | 0.085 | 0.834 | 0.055 | 0.025 | EW | BL | NA |
| 337 | N. Santiam R., Bennett Dam, 2005 | EW | 0.063 | 0.863 | 0.059 | 0.015 | EW | BL | NA |
| 338 | N. Santiam R., Bennett Dam, 2005 | EW | 0.047 | 0.869 | 0.063 | 0.021 | EW | BL | NA |
| 339 | N. Santiam R., Bennett Dam, 2005 | EW | 0.053 | 0.875 | 0.060 | 0.011 | EW | BL | NA |
| 340 | N. Santiam R., Bennett Dam, 2005 | EW | 0.046 | 0.904 | 0.029 | 0.020 | EW | BL | NA |
| 341 | N. Santiam R., Bennett Dam, 2005 | EW | 0.206 | 0.748 | 0.031 | 0.015 | SxEW | BL | NA |
| 342 | N. Santiam R., Bennett Dam, 2005 | EW | 0.043 | 0.905 | 0.031 | 0.021 | EW | BL | NA |
| 343 | N. Santiam R., Bennett Dam, 2005 | EW | 0.027 | 0.926 | 0.037 | 0.010 | EW | BL | NA |
| 344 | N. Santiam R., Bennett Dam, 2005 | EW | 0.025 | 0.932 | 0.030 | 0.013 | EW | BL | NA |
| 345 | N. Santiam R., Bennett Dam, 2005 | EW | 0.059 | 0.877 | 0.047 | 0.017 | EW | BL | NA |
| 346 | N. Santiam R., Bennett Dam, 2005 | EW | 0.064 | 0.891 | 0.028 | 0.018 | EW | BL | NA |

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|---|---|---|---|---|---|---|---|---|---|---|
| 347 | N. Santiam R., Bennett Dam, 2005 | EW | 0.058 | 0.874 | 0.031 | 0.037 | EW | BL | NA |
| 348 | N. Santiam R., Bennett Dam, 2005 | EW | 0.081 | 0.836 | 0.048 | 0.035 | EW | BL | NA |
| 349 | N. Santiam R., Bennett Dam, 2005 | EW | 0.149 | 0.713 | 0.110 | 0.028 | EW | BL | NA |
| 350 | N. Santiam R., Bennett Dam, 2005 | EW | 0.032 | 0.822 | 0.135 | 0.011 | EW | BL | NA |
| 351 | N. Santiam R., Bennett Dam, 2005 | EW | 0.059 | 0.829 | 0.061 | 0.051 | EW | BL | NA |
| 352 | N. Santiam R., Bennett Dam, 2005 | EW | 0.030 | 0.869 | 0.080 | 0.020 | EW | BL | NA |
| 353 | N. Santiam R., Bennett Dam, 2005 | EW | 0.033 | 0.909 | 0.031 | 0.027 | EW | BL | NA |
| 354 | N. Santiam R., Bennett Dam, 2005 | EW | 0.037 | 0.858 | 0.076 | 0.028 | EW | BL | NA |
| 355 | N. Santiam R., Bennett Dam, 2005 | EW | 0.038 | 0.917 | 0.031 | 0.014 | EW | BL | NA |
| 356 | N. Santiam R., Bennett Dam, 2005 | EW | 0.051 | 0.872 | 0.062 | 0.016 | EW | BL | NA |
| 357 | N. Santiam R., Bennett Dam, 2005 | EW | 0.040 | 0.919 | 0.021 | 0.021 | EW | BL | NA |
| 358 | N. Santiam R., Bennett Dam, 2005 | EW | 0.030 | 0.902 | 0.058 | 0.011 | EW | BL | NA |
| 359 | N. Santiam R., Bennett Dam, 2005 | EW | 0.029 | 0.921 | 0.039 | 0.010 | EW | BL | NA |
| 360 | N. Santiam R., Bennett Dam, 2005 | EW | 0.033 | 0.899 | 0.047 | 0.020 | EW | BL | NA |
| 361 | N. Santiam R., Bennett Dam, 2005 | EW | 0.083 | 0.845 | 0.048 | 0.024 | EW | BL | NA |
| 362 | N. Santiam R., Bennett Dam, 2005 | EW | 0.033 | 0.897 | 0.055 | 0.015 | EW | BL | NA |
| 363 | N. Santiam R., Bennett Dam, 2005 | EW | 0.018 | 0.935 | 0.036 | 0.011 | EW | BL | NA |
| 364 | S. Santiam, Foster, 2005 | EW | 0.019 | 0.940 | 0.004 | 0.037 | EW | BL | NA |
| 365 | S. Santiam, Foster, 2005 | EW | 0.020 | 0.906 | 0.006 | 0.068 | EW | BL | NA |
| 366 | S. Santiam, Foster, 2005 | EW | 0.009 | 0.967 | 0.006 | 0.018 | EW | BL | NA |
| 367 | S. Santiam, Foster, 2005 | EW | 0.015 | 0.946 | 0.002 | 0.036 | EW | BL | NA |
| 368 | S. Santiam, Foster, 2005 | EW | 0.009 | 0.968 | 0.003 | 0.020 | EW | BL | NA |
| 369 | S. Santiam, Foster, 2005 | EW | 0.052 | 0.775 | 0.005 | 0.168 | EW | BL | NA |
| 370 | S. Santiam, Foster, 2005 | EW | 0.021 | 0.943 | 0.004 | 0.033 | EW | BL | NA |
| 371 | S. Santiam, Foster, 2005 | EW | 0.013 | 0.936 | 0.003 | 0.047 | EW | BL | NA |
| 372 | S. Santiam, Foster, 2005 | EW | 0.078 | 0.884 | 0.005 | 0.033 | EW | BL | NA |
| 373 | S. Santiam, Foster, 2005 | EW | 0.022 | 0.944 | 0.002 | 0.032 | EW | BL | NA |
| 374 | S. Santiam, Foster, 2005 | EW | 0.017 | 0.954 | 0.003 | 0.026 | EW | BL | NA |
| 375 | S. Santiam, Foster, 2005 | EW | 0.030 | 0.894 | 0.002 | 0.074 | EW | BL | NA |
| 376 | S. Santiam, Foster, 2005 | EW | 0.020 | 0.942 | 0.004 | 0.035 | EW | BL | NA |
| 377 | S. Santiam, Foster, 2005 | EW | 0.009 | 0.963 | 0.004 | 0.024 | EW | BL | NA |
| 378 | S. Santiam, Foster, 2005 | EW | 0.052 | 0.892 | 0.004 | 0.052 | EW | BL | NA |
| 379 | S. Santiam, Foster, 2005 | EW | 0.015 | 0.940 | 0.003 | 0.042 | EW | BL | NA |
| 380 | S. Santiam, Foster, 2005 | EW | 0.020 | 0.856 | 0.005 | 0.119 | EW | BL | NA |
| 381 | S. Santiam, Foster, 2005 | EW | 0.016 | 0.929 | 0.006 | 0.049 | EW | BL | NA |
| 382 | S. Santiam, Foster, 2005 | EW | 0.039 | 0.820 | 0.008 | 0.133 | EW | BL | NA |
| 383 | S. Santiam, Foster, 2005 | EW | 0.013 | 0.958 | 0.005 | 0.024 | EW | BL | NA |
| 384 | S. Santiam, Foster, 2005 | EW | 0.022 | 0.895 | 0.004 | 0.079 | EW | BL | NA |
| 385 | S. Santiam, Foster, 2005 | EW | 0.023 | 0.744 | 0.011 | 0.222 | WWxEW | BL | NA |
| 386 | S. Santiam, Foster, 2005 | EW | 0.311 | 0.536 | 0.015 | 0.138 | SxEW | BL | NA |

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|---|---|---|---|---|---|---|---|---|---|---|
| 387 | S. Santiam, Foster, 2005 | EW | 0.018 | 0.805 | 0.008 | 0.169 | EW | BL | NA |
| 388 | S. Santiam, Foster, 2005 | EW | 0.056 | 0.840 | 0.007 | 0.097 | EW | BL | NA |
| 389 | S. Santiam, Foster, 2005 | EW | 0.019 | 0.908 | 0.003 | 0.069 | EW | BL | NA |
| 390 | S. Santiam, Foster, 2005 | EW | 0.018 | 0.819 | 0.004 | 0.159 | EW | BL | NA |
| 391 | S. Santiam, Foster, 2005 | EW | 0.020 | 0.933 | 0.004 | 0.042 | EW | BL | NA |
| 392 | S. Santiam, Foster, 2005 | EW | 0.008 | 0.966 | 0.003 | 0.022 | EW | BL | NA |
| 393 | S. Santiam, Foster, 2005 | EW | 0.030 | 0.877 | 0.003 | 0.090 | EW | BL | NA |
| 394 | S. Santiam, Foster, 2005 | EW | 0.062 | 0.841 | 0.003 | 0.095 | EW | BL | NA |
| 395 | S. Santiam, Foster, 2005 | EW | 0.013 | 0.924 | 0.002 | 0.061 | EW | BL | NA |
| 396 | S. Santiam, Foster, 2005 | EW | 0.015 | 0.950 | 0.003 | 0.032 | EW | BL | NA |
| 397 | S. Santiam, Foster, 2005 | EW | 0.023 | 0.924 | 0.013 | 0.040 | EW | BL | NA |
| 398 | S. Santiam, Foster, 2005 | EW | 0.012 | 0.886 | 0.004 | 0.099 | EW | BL | NA |
| 399 | S. Santiam, Foster, 2005 | EW | 0.022 | 0.939 | 0.004 | 0.035 | EW | BL | NA |
| 400 | S. Santiam, Foster, 2005 | EW | 0.032 | 0.928 | 0.005 | 0.035 | EW | BL | NA |
| 401 | S. Santiam, Foster, 2005 | EW | 0.016 | 0.936 | 0.004 | 0.044 | EW | BL | NA |
| 402 | S. Santiam, Foster, 2005 | EW | 0.018 | 0.902 | 0.003 | 0.078 | EW | BL | NA |
| 403 | S. Santiam, Foster, 2005 | EW | 0.009 | 0.956 | 0.003 | 0.032 | EW | BL | NA |
| 404 | S. Santiam, Foster, 2005 | EW | 0.038 | 0.929 | 0.002 | 0.031 | EW | BL | NA |
| 405 | S. Santiam, Foster, 2005 | EW | 0.017 | 0.949 | 0.004 | 0.030 | EW | BL | NA |
| 406 | S. Santiam, Foster, 2005 | EW | 0.020 | 0.944 | 0.008 | 0.028 | EW | BL | NA |
| 407 | S. Santiam, Foster, 2005 | EW | 0.021 | 0.945 | 0.004 | 0.030 | EW | BL | NA |
| 408 | S. Santiam, Foster, 2005 | EW | 0.017 | 0.930 | 0.005 | 0.048 | EW | BL | NA |
| 409 | S. Santiam, Foster, 2005 | EW | 0.032 | 0.831 | 0.004 | 0.133 | EW | BL | NA |
| 410 | S. Santiam, Foster, 2005 | EW | 0.018 | 0.862 | 0.004 | 0.116 | EW | BL | NA |
| 411 | S. Santiam, Foster, 2005 | EW | 0.053 | 0.907 | 0.004 | 0.037 | EW | BL | NA |
| 412 | S. Santiam, Foster, 2005 | EW | 0.564 | 0.385 | 0.003 | 0.047 | SxEW | BL | NA |
| 413 | S. Santiam, Wiley Cr., 1997 | EW | 0.087 | 0.840 | 0.003 | 0.070 | EW | BL | NA |
| 414 | S. Santiam, Wiley Cr., 1997 | EW | 0.070 | 0.838 | 0.004 | 0.089 | EW | BL | NA |
| 415 | S. Santiam, Wiley Cr., 1997 | EW | 0.059 | 0.858 | 0.006 | 0.076 | EW | BL | NA |
| 416 | S. Santiam, Wiley Cr., 1997 | EW | 0.108 | 0.767 | 0.005 | 0.120 | EW | BL | NA |
| 417 | S. Santiam, Wiley Cr., 1997 | EW | 0.097 | 0.782 | 0.005 | 0.116 | EW | BL | NA |
| 418 | S. Santiam, Wiley Cr., 1997 | EW | 0.149 | 0.770 | 0.012 | 0.069 | EW | BL | NA |
| 419 | S. Santiam, Wiley Cr., 1997 | EW | 0.089 | 0.854 | 0.004 | 0.052 | EW | BL | NA |
| 420 | S. Santiam, Wiley Cr., 1997 | EW | 0.152 | 0.770 | 0.007 | 0.072 | EW | BL | NA |
| 421 | S. Santiam, Wiley Cr., 1997 | EW | 0.089 | 0.827 | 0.004 | 0.080 | EW | BL | NA |
| 422 | S. Santiam, Wiley Cr., 1997 | EW | 0.097 | 0.775 | 0.005 | 0.123 | EW | BL | NA |
| 423 | S. Santiam, Wiley Cr., 1997 | EW | 0.151 | 0.779 | 0.005 | 0.065 | EW | BL | NA |
| 424 | S. Santiam, Wiley Cr., 1997 | EW | 0.069 | 0.858 | 0.005 | 0.067 | EW | BL | NA |
| 425 | S. Santiam, Wiley Cr., 1997 | EW | 0.090 | 0.851 | 0.004 | 0.055 | EW | BL | NA |
| 426 | S. Santiam, Wiley Cr., 1997 | EW | 0.082 | 0.819 | 0.005 | 0.094 | EW | BL | NA |

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|---|---|---|---|---|---|---|---|---|---|---|
| 427 | S. Santiam, Wiley Cr., 1997 | EW | 0.063 | 0.880 | 0.006 | 0.051 | EW | BL | NA |
| 428 | S. Santiam, Wiley Cr., 1997 | EW | 0.109 | 0.800 | 0.007 | 0.083 | EW | BL | NA |
| 429 | S. Santiam, Wiley Cr., 1997 | EW | 0.225 | 0.652 | 0.004 | 0.119 | SxEW | BL | NA |
| 430 | S. Santiam, Wiley Cr., 1997 | EW | 0.063 | 0.867 | 0.005 | 0.064 | EW | BL | NA |
| 431 | S. Santiam, Wiley Cr., 1997 | EW | 0.121 | 0.813 | 0.004 | 0.063 | EW | BL | NA |
| 432 | S. Santiam, Wiley Cr., 1997 | EW | 0.079 | 0.853 | 0.017 | 0.051 | EW | BL | NA |
| 433 | S. Santiam, Wiley Cr., 1997 | EW | 0.110 | 0.787 | 0.005 | 0.098 | EW | BL | NA |
| 434 | S. Santiam, Wiley Cr., 1997 | EW | 0.094 | 0.854 | 0.004 | 0.048 | EW | BL | NA |
| 435 | S. Santiam, Wiley Cr., 1997 | EW | 0.099 | 0.761 | 0.009 | 0.130 | EW | BL | NA |
| 436 | S. Santiam, Wiley Cr., 1997 | EW | 0.087 | 0.856 | 0.005 | 0.052 | EW | BL | NA |
| 437 | S. Santiam, Wiley Cr., 1997 | EW | 0.100 | 0.834 | 0.003 | 0.063 | EW | BL | NA |
| 438 | S. Santiam, Wiley Cr., 1997 | EW | 0.155 | 0.782 | 0.003 | 0.059 | EW | BL | NA |
| 439 | S. Santiam, Wiley Cr., 1997 | EW | 0.149 | 0.795 | 0.003 | 0.052 | EW | BL | NA |
| 440 | S. Santiam, Wiley Cr., 1997 | EW | 0.168 | 0.778 | 0.004 | 0.050 | EW | BL | NA |
| 441 | S. Santiam, Wiley Cr., 1997 | EW | 0.075 | 0.853 | 0.005 | 0.068 | EW | BL | NA |
| 442 | S. Santiam, Wiley Cr., 1997 | EW | 0.129 | 0.802 | 0.005 | 0.065 | EW | BL | NA |
| 443 | S. Santiam, Wiley Cr., 1997 | EW | 0.110 | 0.775 | 0.005 | 0.110 | EW | BL | NA |
| 444 | S. Santiam, Wiley Cr., 1997 | EW | 0.077 | 0.814 | 0.005 | 0.104 | EW | BL | NA |
| 445 | S. Santiam, Wiley Cr., 1997 | EW | 0.125 | 0.796 | 0.007 | 0.073 | EW | BL | NA |
| 446 | S. Santiam, Wiley Cr., 1997 | EW | 0.160 | 0.759 | 0.008 | 0.073 | EW | BL | NA |
| 447 | S. Santiam, Wiley Cr., 1997 | EW | 0.077 | 0.839 | 0.008 | 0.076 | EW | BL | NA |
| 448 | S. Santiam, Wiley Cr., 1997 | EW | 0.093 | 0.737 | 0.006 | 0.165 | EW | BL | NA |
| 449 | S. Santiam, Wiley Cr., 1997 | EW | 0.074 | 0.761 | 0.009 | 0.155 | EW | BL | NA |
| 450 | S. Santiam, Wiley Cr., 1997 | EW | 0.200 | 0.668 | 0.005 | 0.127 | SxEW | BL | NA |
| 451 | S. Santiam, Wiley Cr., 1997 | EW | 0.068 | 0.774 | 0.006 | 0.151 | EW | BL | NA |
| 452 | Deer Cr., 1998 | RB | 0.002 | 0.001 | 0.997 | 0.000 | RB | BL | NA |
| 453 | Deer Cr., 1998 | RB | 0.004 | 0.001 | 0.995 | 0.000 | RB | BL | NA |
| 454 | Deer Cr., 1998 | RB | 0.011 | 0.003 | 0.986 | 0.000 | RB | BL | NA |
| 455 | Deer Cr., 1998 | RB | 0.002 | 0.002 | 0.996 | 0.000 | RB | BL | NA |
| 456 | Deer Cr., 1998 | RB | 0.003 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 457 | Deer Cr., 1998 | RB | 0.004 | 0.002 | 0.994 | 0.000 | RB | BL | NA |
| 458 | Deer Cr., 1998 | RB | 0.003 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 459 | Deer Cr., 1998 | RB | 0.003 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 460 | Deer Cr., 1998 | RB | 0.063 | 0.003 | 0.933 | 0.001 | RB | BL | NA |
| 461 | Deer Cr., 1998 | RB | 0.002 | 0.001 | 0.997 | 0.000 | RB | BL | NA |
| 462 | Deer Cr., 1998 | RB | 0.003 | 0.002 | 0.995 | 0.000 | RB | BL | NA |
| 463 | Deer Cr., 1998 | RB | 0.003 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 464 | Deer Cr., 1998 | RB | 0.003 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 465 | Deer Cr., 1998 | RB | 0.004 | 0.001 | 0.995 | 0.000 | RB | BL | NA |
| 466 | Deer Cr., 1998 | RB | 0.015 | 0.005 | 0.979 | 0.001 | RB | BL | NA |

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|---|---|---|---|---|---|---|---|---|---|---|
| 467 | Deer Cr., 1998 | RB | 0.002 | 0.001 | 0.997 | 0.000 | RB | BL | NA |
| 468 | Deer Cr., 1998 | RB | 0.003 | 0.003 | 0.994 | 0.000 | RB | BL | NA |
| 469 | Deer Cr., 1998 | RB | 0.032 | 0.008 | 0.956 | 0.005 | RB | BL | NA |
| 470 | Deer Cr., 1998 | RB | 0.002 | 0.003 | 0.994 | 0.000 | RB | BL | NA |
| 471 | Deer Cr., 1998 | RB | 0.004 | 0.002 | 0.994 | 0.000 | RB | BL | NA |
| 472 | Deer Cr., 1998 | RB | 0.003 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 473 | Deer Cr., 1998 | RB | 0.004 | 0.002 | 0.994 | 0.000 | RB | BL | NA |
| 474 | Deer Cr., 1998 | RB | 0.002 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 475 | Deer Cr., 1998 | RB | 0.003 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 476 | Deer Cr., 1998 | RB | 0.003 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 477 | Deer Cr., 1998 | RB | 0.003 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 478 | Deer Cr., 1998 | RB | 0.002 | 0.001 | 0.997 | 0.000 | RB | BL | NA |
| 479 | Deer Cr., 1998 | RB | 0.003 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 480 | Deer Cr., 1998 | RB | 0.007 | 0.003 | 0.990 | 0.000 | RB | BL | NA |
| 481 | Deer Cr., 1998 | RB | 0.002 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 482 | Deer Cr., 1998 | RB | 0.002 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 483 | Deer Cr., 1998 | RB | 0.011 | 0.005 | 0.984 | 0.001 | RB | BL | NA |
| 484 | Deer Cr., 1998 | RB | 0.008 | 0.003 | 0.989 | 0.000 | RB | BL | NA |
| 485 | Deer Cr., 1998 | RB | 0.012 | 0.004 | 0.984 | 0.001 | RB | BL | NA |
| 486 | Deer Cr., 1998 | RB | 0.003 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 487 | Deer Cr., 1998 | RB | 0.003 | 0.001 | 0.996 | 0.000 | RB | BL | NA |
| 488 | Deer Cr., 1998 | RB | 0.004 | 0.002 | 0.994 | 0.000 | RB | BL | NA |
| 489 | Deer Cr., 1998 | RB | 0.003 | 0.001 | 0.995 | 0.000 | RB | BL | NA |
| 490 | Deer Cr., 1998 | RB | 0.003 | 0.002 | 0.996 | 0.000 | RB | BL | NA |
| 491 | Deer Cr., 1998 | RB | 0.011 | 0.004 | 0.984 | 0.000 | RB | BL | NA |
| 492 | North Fork of MF Willamette, 1998 | RB | 0.002 | 0.004 | 0.990 | 0.005 | RB | BL | NA |
| 493 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.004 | 0.991 | 0.004 | RB | BL | NA |
| 494 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.002 | 0.993 | 0.004 | RB | BL | NA |
| 495 | North Fork of MF Willamette, 1998 | RB | 0.012 | 0.014 | 0.945 | 0.029 | RB | BL | NA |
| 496 | North Fork of MF Willamette, 1998 | RB | 0.002 | 0.004 | 0.991 | 0.004 | RB | BL | NA |
| 497 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.004 | 0.992 | 0.004 | RB | BL | NA |
| 498 | North Fork of MF Willamette, 1998 | RB | 0.003 | 0.011 | 0.977 | 0.009 | RB | BL | NA |
| 499 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.006 | 0.987 | 0.005 | RB | BL | NA |
| 500 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.003 | 0.993 | 0.003 | RB | BL | NA |
| 501 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.004 | 0.992 | 0.004 | RB | BL | NA |
| 502 | North Fork of MF Willamette, 1998 | RB | 0.007 | 0.017 | 0.864 | 0.112 | RB | BL | NA |
| 503 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.003 | 0.992 | 0.004 | RB | BL | NA |
| 504 | North Fork of MF Willamette, 1998 | RB | 0.002 | 0.002 | 0.992 | 0.004 | RB | BL | NA |
| 505 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.003 | 0.992 | 0.004 | RB | BL | NA |
| 506 | North Fork of MF Willamette, 1998 | RB | 0.002 | 0.003 | 0.989 | 0.006 | RB | BL | NA |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 507 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.003 | 0.993 | 0.003 | RB | BL | NA |
| 508 | North Fork of MF Willamette, 1998 | RB | 0.003 | 0.005 | 0.970 | 0.022 | RB | BL | NA |
| 509 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.003 | 0.992 | 0.004 | RB | BL | NA |
| 510 | North Fork of MF Willamette, 1998 | RB | 0.002 | 0.006 | 0.987 | 0.006 | RB | BL | NA |
| 511 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.004 | 0.991 | 0.004 | RB | BL | NA |
| 512 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.004 | 0.991 | 0.004 | RB | BL | NA |
| 513 | North Fork of MF Willamette, 1998 | RB | 0.002 | 0.008 | 0.981 | 0.009 | RB | BL | NA |
| 514 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.006 | 0.989 | 0.004 | RB | BL | NA |
| 515 | North Fork of MF Willamette, 1998 | RB | 0.002 | 0.006 | 0.987 | 0.005 | RB | BL | NA |
| 516 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.004 | 0.991 | 0.004 | RB | BL | NA |
| 517 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.003 | 0.992 | 0.004 | RB | BL | NA |
| 518 | North Fork of MF Willamette, 1998 | RB | 0.002 | 0.004 | 0.990 | 0.004 | RB | BL | NA |
| 519 | North Fork of MF Willamette, 1998 | RB | 0.002 | 0.006 | 0.989 | 0.004 | RB | BL | NA |
| 520 | North Fork of MF Willamette, 1998 | RB | 0.002 | 0.006 | 0.987 | 0.005 | RB | BL | NA |
| 521 | North Fork of MF Willamette, 1998 | RB | 0.001 | 0.003 | 0.993 | 0.003 | RB | BL | NA |
| 522 | North Fork of MF Willamette, 1998 | RB | 0.002 | 0.008 | 0.976 | 0.015 | RB | BL | NA |
| 523 | Clackamas H., 2006 | S | 0.988 | 0.004 | 0.004 | 0.003 | S | BL | NA |
| 524 | Clackamas H., 2006 | S | 0.962 | 0.007 | 0.017 | 0.015 | S | BL | NA |
| 525 | Clackamas H., 2006 | S | 0.980 | 0.005 | 0.011 | 0.004 | S | BL | NA |
| 526 | Clackamas H., 2006 | S | 0.969 | 0.006 | 0.023 | 0.002 | S | BL | NA |
| 527 | Clackamas H., 2006 | S | 0.989 | 0.004 | 0.005 | 0.002 | S | BL | NA |
| 528 | Clackamas H., 2006 | S | 0.991 | 0.003 | 0.004 | 0.003 | S | BL | NA |
| 529 | Clackamas H., 2006 | S | 0.983 | 0.005 | 0.008 | 0.003 | S | BL | NA |
| 530 | Clackamas H., 2006 | S | 0.967 | 0.006 | 0.025 | 0.002 | S | BL | NA |
| 531 | Clackamas H., 2006 | S | 0.983 | 0.005 | 0.008 | 0.004 | S | BL | NA |
| 532 | Clackamas H., 2006 | S | 0.986 | 0.005 | 0.007 | 0.003 | S | BL | NA |
| 533 | Clackamas H., 2006 | S | 0.988 | 0.004 | 0.004 | 0.004 | S | BL | NA |
| 534 | Clackamas H., 2006 | S | 0.968 | 0.007 | 0.023 | 0.002 | S | BL | NA |
| 535 | Clackamas H., 2006 | S | 0.982 | 0.005 | 0.006 | 0.007 | S | BL | NA |
| 536 | Clackamas H., 2006 | S | 0.975 | 0.007 | 0.009 | 0.009 | S | BL | NA |
| 537 | Clackamas H., 2006 | S | 0.965 | 0.016 | 0.012 | 0.006 | S | BL | NA |
| 538 | Clackamas H., 2006 | S | 0.981 | 0.005 | 0.005 | 0.010 | S | BL | NA |
| 539 | Clackamas H., 2006 | S | 0.984 | 0.004 | 0.010 | 0.003 | S | BL | NA |
| 540 | Clackamas H., 2006 | S | 0.974 | 0.008 | 0.005 | 0.013 | S | BL | NA |
| 541 | Clackamas H., 2006 | S | 0.986 | 0.003 | 0.006 | 0.005 | S | BL | NA |
| 542 | Clackamas H., 2006 | S | 0.974 | 0.006 | 0.014 | 0.006 | S | BL | NA |
| 543 | Clackamas H., 2006 | S | 0.981 | 0.004 | 0.009 | 0.007 | S | BL | NA |
| 544 | Clackamas H., 2006 | S | 0.988 | 0.004 | 0.005 | 0.003 | S | BL | NA |
| 545 | Clackamas H., 2006 | S | 0.977 | 0.005 | 0.008 | 0.010 | S | BL | NA |
| 546 | Clackamas H., 2006 | S | 0.990 | 0.003 | 0.005 | 0.002 | S | BL | NA |

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|---|---|---|---|---|---|---|---|---|---|---|
| 547 | Clackamas H., 2006 | S | 0.932 | 0.049 | 0.010 | 0.010 | S | BL | NA |
| 548 | Clackamas H., 2006 | S | 0.969 | 0.009 | 0.020 | 0.003 | S | BL | NA |
| 549 | Clackamas H., 2006 | S | 0.978 | 0.007 | 0.011 | 0.004 | S | BL | NA |
| 550 | Clackamas H., 2006 | S | 0.972 | 0.015 | 0.009 | 0.004 | S | BL | NA |
| 551 | Clackamas H., 2006 | S | 0.986 | 0.004 | 0.008 | 0.002 | S | BL | NA |
| 552 | Clackamas H., 2006 | S | 0.988 | 0.003 | 0.005 | 0.004 | S | BL | NA |
| 553 | Clackamas H., 2006 | S | 0.984 | 0.005 | 0.007 | 0.004 | S | BL | NA |
| 554 | Clackamas H., 2006 | S | 0.978 | 0.005 | 0.013 | 0.003 | S | BL | NA |
| 555 | Clackamas H., 2006 | S | 0.991 | 0.003 | 0.003 | 0.003 | S | BL | NA |
| 556 | Clackamas H., 2006 | S | 0.984 | 0.006 | 0.008 | 0.003 | S | BL | NA |
| 557 | Clackamas H., 2006 | S | 0.987 | 0.004 | 0.005 | 0.004 | S | BL | NA |
| 558 | Clackamas H., 2006 | S | 0.988 | 0.004 | 0.006 | 0.002 | S | BL | NA |
| 559 | Clackamas H., 2006 | S | 0.982 | 0.005 | 0.009 | 0.003 | S | BL | NA |
| 560 | Clackamas H., 2006 | S | 0.978 | 0.007 | 0.011 | 0.004 | S | BL | NA |
| 561 | Clackamas H., 2006 | S | 0.971 | 0.009 | 0.015 | 0.004 | S | BL | NA |
| 562 | Clackamas H., 2006 | S | 0.990 | 0.002 | 0.005 | 0.002 | S | BL | NA |
| 563 | Clackamas H., 2006 | S | 0.973 | 0.008 | 0.016 | 0.003 | S | BL | NA |
| 564 | Clackamas H., 2006 | S | 0.986 | 0.005 | 0.005 | 0.005 | S | BL | NA |
| 565 | Clackamas H., 2006 | S | 0.989 | 0.003 | 0.006 | 0.003 | S | BL | NA |
| 566 | Clackamas H., 2006 | S | 0.988 | 0.004 | 0.006 | 0.002 | S | BL | NA |
| 567 | Clackamas H., 2006 | S | 0.992 | 0.003 | 0.003 | 0.002 | S | BL | NA |
| 568 | Clackamas H., 2006 | S | 0.983 | 0.006 | 0.007 | 0.004 | S | BL | NA |
| 569 | Clackamas H., 2006 | S | 0.984 | 0.006 | 0.007 | 0.003 | S | BL | NA |
| 570 | Clackamas H., 2006 | S | 0.991 | 0.002 | 0.004 | 0.003 | S | BL | NA |
| 571 | Clackamas H., 2006 | S | 0.984 | 0.005 | 0.008 | 0.002 | S | BL | NA |
| 572 | Clackamas H., 2006 | S | 0.977 | 0.008 | 0.012 | 0.003 | S | BL | NA |
| 573 | Clackamas H., 2006 | S | 0.978 | 0.007 | 0.010 | 0.004 | S | BL | NA |
| 574 | S. Santiam H., 2007 | S | 0.936 | 0.019 | 0.040 | 0.005 | S | BL | NA |
| 575 | S. Santiam H., 2007 | S | 0.980 | 0.009 | 0.007 | 0.004 | S | BL | NA |
| 576 | S. Santiam H., 2007 | S | 0.986 | 0.005 | 0.005 | 0.004 | S | BL | NA |
| 577 | S. Santiam H., 2007 | S | 0.990 | 0.002 | 0.003 | 0.005 | S | BL | NA |
| 578 | S. Santiam H., 2007 | S | 0.985 | 0.004 | 0.003 | 0.009 | S | BL | NA |
| 579 | S. Santiam H., 2007 | S | 0.976 | 0.013 | 0.009 | 0.003 | S | BL | NA |
| 580 | S. Santiam H., 2007 | S | 0.970 | 0.009 | 0.003 | 0.018 | S | BL | NA |
| 581 | S. Santiam H., 2007 | S | 0.985 | 0.005 | 0.007 | 0.003 | S | BL | NA |
| 582 | S. Santiam H., 2007 | S | 0.978 | 0.010 | 0.007 | 0.006 | S | BL | NA |
| 583 | S. Santiam H., 2007 | S | 0.988 | 0.003 | 0.006 | 0.003 | S | BL | NA |
| 584 | S. Santiam H., 2007 | S | 0.989 | 0.003 | 0.005 | 0.003 | S | BL | NA |
| 585 | S. Santiam H., 2007 | S | 0.980 | 0.004 | 0.012 | 0.004 | S | BL | NA |
| 586 | S. Santiam H., 2007 | S | 0.989 | 0.006 | 0.003 | 0.002 | S | BL | NA |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 587 | S. Santiam H., 2007 | S | 0.969 | 0.013 | 0.014 | 0.004 | S | BL | NA |
| 588 | S. Santiam H., 2007 | S | 0.983 | 0.003 | 0.011 | 0.003 | S | BL | NA |
| 589 | S. Santiam H., 2007 | S | 0.989 | 0.004 | 0.005 | 0.002 | S | BL | NA |
| 590 | S. Santiam H., 2007 | S | 0.989 | 0.004 | 0.004 | 0.002 | S | BL | NA |
| 591 | S. Santiam H., 2007 | S | 0.983 | 0.006 | 0.003 | 0.008 | S | BL | NA |
| 592 | S. Santiam H., 2007 | S | 0.992 | 0.003 | 0.003 | 0.002 | S | BL | NA |
| 593 | S. Santiam H., 2007 | S | 0.969 | 0.012 | 0.017 | 0.002 | S | BL | NA |
| 594 | S. Santiam H., 2007 | S | 0.986 | 0.003 | 0.008 | 0.002 | S | BL | NA |
| 595 | S. Santiam H., 2007 | S | 0.977 | 0.009 | 0.011 | 0.003 | S | BL | NA |
| 596 | S. Santiam H., 2007 | S | 0.988 | 0.004 | 0.004 | 0.003 | S | BL | NA |
| 597 | S. Santiam H., 2007 | S | 0.987 | 0.006 | 0.005 | 0.002 | S | BL | NA |
| 598 | S. Santiam H., 2007 | S | 0.985 | 0.004 | 0.008 | 0.003 | S | BL | NA |
| 599 | S. Santiam H., 2007 | S | 0.974 | 0.010 | 0.011 | 0.004 | S | BL | NA |
| 600 | S. Santiam H., 2007 | S | 0.991 | 0.004 | 0.003 | 0.003 | S | BL | NA |
| 601 | S. Santiam H., 2007 | S | 0.923 | 0.011 | 0.057 | 0.009 | S | BL | NA |
| 602 | S. Santiam H., 2007 | S | 0.988 | 0.003 | 0.007 | 0.002 | S | BL | NA |
| 603 | S. Santiam H., 2007 | S | 0.979 | 0.004 | 0.013 | 0.004 | S | BL | NA |
| 604 | S. Santiam H., 2007 | S | 0.989 | 0.004 | 0.005 | 0.002 | S | BL | NA |
| 605 | S. Santiam H., 2007 | S | 0.992 | 0.002 | 0.003 | 0.002 | S | BL | NA |
| 606 | S. Santiam H., 2007 | S | 0.986 | 0.005 | 0.005 | 0.004 | S | BL | NA |
| 607 | S. Santiam H., 2007 | S | 0.990 | 0.002 | 0.005 | 0.003 | S | BL | NA |
| 608 | S. Santiam H., 2007 | S | 0.992 | 0.003 | 0.002 | 0.002 | S | BL | NA |
| 609 | S. Santiam H., 2007 | S | 0.991 | 0.003 | 0.003 | 0.002 | S | BL | NA |
| 610 | S. Santiam H., 2007 | S | 0.970 | 0.019 | 0.007 | 0.005 | S | BL | NA |
| 611 | S. Santiam H., 2007 | S | 0.984 | 0.004 | 0.009 | 0.003 | S | BL | NA |
| 612 | S. Santiam H., 2007 | S | 0.991 | 0.002 | 0.003 | 0.004 | S | BL | NA |
| 613 | S. Santiam H., 2007 | S | 0.987 | 0.004 | 0.007 | 0.002 | S | BL | NA |
| 614 | S. Santiam H., 2007 | S | 0.988 | 0.004 | 0.006 | 0.002 | S | BL | NA |
| 615 | S. Santiam H., 2007 | S | 0.972 | 0.008 | 0.018 | 0.002 | S | BL | NA |
| 616 | S. Santiam H., 2007 | S | 0.977 | 0.003 | 0.007 | 0.013 | S | BL | NA |
| 617 | S. Santiam H., 2007 | S | 0.990 | 0.002 | 0.004 | 0.004 | S | BL | NA |
| 618 | S. Santiam H., 2007 | S | 0.977 | 0.006 | 0.014 | 0.003 | S | BL | NA |
| 619 | S. Santiam H., 2007 | S | 0.957 | 0.010 | 0.031 | 0.002 | S | BL | NA |
| 620 | Canyon Cr., 1997 | WW | 0.001 | 0.006 | 0.001 | 0.992 | WW | BL | NA |
| 621 | Canyon Cr., 1997 | WW | 0.001 | 0.003 | 0.001 | 0.995 | WW | BL | NA |
| 622 | Canyon Cr., 1997 | WW | 0.001 | 0.002 | 0.000 | 0.996 | WW | BL | NA |
| 623 | Canyon Cr., 1997 | WW | 0.000 | 0.002 | 0.001 | 0.997 | WW | BL | NA |
| 624 | Canyon Cr., 1997 | WW | 0.003 | 0.021 | 0.002 | 0.974 | WW | BL | NA |
| 625 | Canyon Cr., 1997 | WW | 0.000 | 0.003 | 0.000 | 0.996 | WW | BL | NA |
| 626 | Canyon Cr., 1997 | WW | 0.001 | 0.003 | 0.001 | 0.994 | WW | BL | NA |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 627 | Canyon Cr., 1997 | WW | 0.001 | 0.006 | 0.002 | 0.992 | WW | BL | NA |
| 628 | Canyon Cr., 1997 | WW | 0.001 | 0.005 | 0.002 | 0.992 | WW | BL | NA |
| 629 | Canyon Cr., 1997 | WW | 0.000 | 0.004 | 0.001 | 0.994 | WW | BL | NA |
| 630 | Canyon Cr., 1997 | WW | 0.000 | 0.015 | 0.002 | 0.982 | WW | BL | NA |
| 631 | Canyon Cr., 1997 | WW | 0.001 | 0.003 | 0.000 | 0.996 | WW | BL | NA |
| 632 | Canyon Cr., 1997 | WW | 0.002 | 0.006 | 0.001 | 0.992 | WW | BL | NA |
| 633 | Canyon Cr., 1997 | WW | 0.000 | 0.003 | 0.001 | 0.996 | WW | BL | NA |
| 634 | Canyon Cr., 1997 | WW | 0.001 | 0.002 | 0.001 | 0.996 | WW | BL | NA |
| 635 | Canyon Cr., 1997 | WW | 0.000 | 0.003 | 0.002 | 0.994 | WW | BL | NA |
| 636 | Canyon Cr., 1997 | WW | 0.001 | 0.006 | 0.003 | 0.990 | WW | BL | NA |
| 637 | Canyon Cr., 1997 | WW | 0.001 | 0.005 | 0.001 | 0.994 | WW | BL | NA |
| 638 | Canyon Cr., 1997 | WW | 0.002 | 0.040 | 0.014 | 0.944 | WW | BL | NA |
| 639 | Canyon Cr., 1997 | WW | 0.001 | 0.019 | 0.002 | 0.978 | WW | BL | NA |
| 640 | Canyon Cr., 1997 | WW | 0.001 | 0.005 | 0.001 | 0.993 | WW | BL | NA |
| 641 | Canyon Cr., 1997 | WW | 0.000 | 0.003 | 0.001 | 0.995 | WW | BL | NA |
| 642 | Canyon Cr., 1997 | WW | 0.001 | 0.003 | 0.001 | 0.995 | WW | BL | NA |
| 643 | Canyon Cr., 1997 | WW | 0.001 | 0.003 | 0.002 | 0.994 | WW | BL | NA |
| 644 | Canyon Cr., 1997 | WW | 0.001 | 0.683 | 0.004 | 0.312 | WWxEW | BL | NA |
| 645 | Canyon Cr., 1997 | WW | 0.001 | 0.004 | 0.001 | 0.994 | WW | BL | NA |
| 646 | Canyon Cr., 1997 | WW | 0.000 | 0.003 | 0.001 | 0.996 | WW | BL | NA |
| 647 | Canyon Cr., 1997 | WW | 0.001 | 0.002 | 0.001 | 0.997 | WW | BL | NA |
| 648 | Canyon Cr., 1997 | WW | 0.000 | 0.004 | 0.001 | 0.995 | WW | BL | NA |
| 649 | Canyon Cr., 1997 | WW | 0.001 | 0.003 | 0.001 | 0.995 | WW | BL | NA |
| 650 | Canyon Cr., 1997 | WW | 0.000 | 0.004 | 0.002 | 0.994 | WW | BL | NA |
| 651 | Canyon Cr., 1997 | WW | 0.000 | 0.004 | 0.001 | 0.994 | WW | BL | NA |
| 652 | Canyon Cr., 1997 | WW | 0.002 | 0.004 | 0.001 | 0.993 | WW | BL | NA |
| 653 | Canyon Cr., 1997 | WW | 0.019 | 0.005 | 0.001 | 0.975 | WW | BL | NA |
| 654 | Eagle Cr. H., 2000 | WW | 0.004 | 0.005 | 0.001 | 0.991 | WW | BL | NA |
| 655 | Eagle Cr. H., 2000 | WW | 0.008 | 0.007 | 0.002 | 0.983 | WW | BL | NA |
| 656 | Eagle Cr. H., 2000 | WW | 0.015 | 0.009 | 0.003 | 0.973 | WW | BL | NA |
| 657 | Eagle Cr. H., 2000 | WW | 0.016 | 0.009 | 0.001 | 0.973 | WW | BL | NA |
| 658 | Eagle Cr. H., 2000 | WW | 0.006 | 0.005 | 0.001 | 0.988 | WW | BL | NA |
| 659 | Eagle Cr. H., 2000 | WW | 0.007 | 0.006 | 0.002 | 0.985 | WW | BL | NA |
| 660 | Eagle Cr. H., 2000 | WW | 0.039 | 0.011 | 0.003 | 0.947 | WW | BL | NA |
| 661 | Eagle Cr. H., 2000 | WW | 0.007 | 0.008 | 0.002 | 0.983 | WW | BL | NA |
| 662 | Eagle Cr. H., 2000 | WW | 0.004 | 0.007 | 0.001 | 0.988 | WW | BL | NA |
| 663 | Eagle Cr. H., 2000 | WW | 0.006 | 0.014 | 0.001 | 0.978 | WW | BL | NA |
| 664 | Eagle Cr. H., 2000 | WW | 0.009 | 0.009 | 0.001 | 0.981 | WW | BL | NA |
| 665 | Eagle Cr. H., 2000 | WW | 0.005 | 0.018 | 0.001 | 0.976 | WW | BL | NA |
| 666 | Eagle Cr. H., 2000 | WW | 0.007 | 0.014 | 0.002 | 0.977 | WW | BL | NA |

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|---|---|---|---|---|---|---|---|---|---|
| 667 | Eagle Cr. H., 2000 | WW | 0.024 | 0.104 | 0.014 | 0.859 | WW | BL | NA |
| 668 | Eagle Cr. H., 2000 | WW | 0.006 | 0.008 | 0.002 | 0.985 | WW | BL | NA |
| 669 | Eagle Cr. H., 2000 | WW | 0.018 | 0.006 | 0.001 | 0.975 | WW | BL | NA |
| 670 | Eagle Cr. H., 2000 | WW | 0.011 | 0.005 | 0.001 | 0.983 | WW | BL | NA |
| 671 | Eagle Cr. H., 2000 | WW | 0.030 | 0.016 | 0.002 | 0.952 | WW | BL | NA |
| 672 | Eagle Cr. H., 2000 | WW | 0.011 | 0.009 | 0.001 | 0.979 | WW | BL | NA |
| 673 | Eagle Cr. H., 2000 | WW | 0.009 | 0.004 | 0.002 | 0.985 | WW | BL | NA |
| 674 | Eagle Cr. H., 2000 | WW | 0.007 | 0.009 | 0.002 | 0.982 | WW | BL | NA |
| 675 | Eagle Cr. H., 2000 | WW | 0.009 | 0.006 | 0.002 | 0.984 | WW | BL | NA |
| 676 | Eagle Cr. H., 2000 | WW | 0.004 | 0.005 | 0.001 | 0.989 | WW | BL | NA |
| 677 | Eagle Cr. H., 2000 | WW | 0.026 | 0.024 | 0.011 | 0.939 | WW | BL | NA |
| 678 | Eagle Cr. H., 2000 | WW | 0.012 | 0.009 | 0.001 | 0.977 | WW | BL | NA |
| 679 | Eagle Cr. H., 2000 | WW | 0.007 | 0.016 | 0.002 | 0.975 | WW | BL | NA |
| 680 | Eagle Cr. H., 2000 | WW | 0.008 | 0.018 | 0.001 | 0.973 | WW | BL | NA |
| 681 | Eagle Cr. H., 2000 | WW | 0.006 | 0.028 | 0.002 | 0.964 | WW | BL | NA |
| 682 | Eagle Cr. H., 2000 | WW | 0.026 | 0.012 | 0.002 | 0.960 | WW | BL | NA |
| 683 | Eagle Cr. H., 2000 | WW | 0.003 | 0.007 | 0.001 | 0.989 | WW | BL | NA |
| 684 | Eagle Cr. H., 2000 | WW | 0.006 | 0.017 | 0.002 | 0.976 | WW | BL | NA |
| 685 | Eagle Cr. H., 2000 | WW | 0.010 | 0.009 | 0.001 | 0.980 | WW | BL | NA |
| 686 | Eagle Cr. H., 2000 | WW | 0.014 | 0.040 | 0.005 | 0.941 | WW | BL | NA |
| 687 | Eagle Cr. H., 2000 | WW | 0.009 | 0.007 | 0.001 | 0.983 | WW | BL | NA |
| 688 | Eagle Cr. H., 2000 | WW | 0.016 | 0.069 | 0.024 | 0.890 | WW | BL | NA |
| 689 | Eagle Cr. H., 2000 | WW | 0.003 | 0.007 | 0.001 | 0.988 | WW | BL | NA |
| 690 | Eagle Cr. H., 2000 | WW | 0.014 | 0.010 | 0.005 | 0.972 | WW | BL | NA |
| 691 | Eagle Cr. H., 2000 | WW | 0.009 | 0.010 | 0.002 | 0.979 | WW | BL | NA |
| 692 | Eagle Cr. H., 2000 | WW | 0.009 | 0.005 | 0.001 | 0.986 | WW | BL | NA |
| 693 | Eagle Cr. H., 2000 | WW | 0.020 | 0.050 | 0.004 | 0.925 | WW | BL | NA |
| 694 | Eagle Cr. H., 2000 | WW | 0.019 | 0.025 | 0.008 | 0.947 | WW | BL | NA |
| 695 | Eagle Cr. H., 2000 | WW | 0.011 | 0.015 | 0.002 | 0.973 | WW | BL | NA |
| 696 | Eagle Cr. H., 2000 | WW | 0.003 | 0.010 | 0.001 | 0.986 | WW | BL | NA |
| 697 | Eagle Cr. H., 2000 | WW | 0.009 | 0.025 | 0.002 | 0.963 | WW | BL | NA |
| 698 | Eagle Cr. H., 2000 | WW | 0.030 | 0.024 | 0.005 | 0.941 | WW | BL | NA |
| 699 | Eagle Cr. H., 2000 | WW | 0.027 | 0.048 | 0.002 | 0.922 | WW | BL | NA |
| 700 | Eagle Cr. H., 2000 | WW | 0.007 | 0.005 | 0.001 | 0.987 | WW | BL | NA |
| 701 | Eagle Cr. H., 2000 | WW | 0.008 | 0.009 | 0.002 | 0.980 | WW | BL | NA |
| 702 | Eagle Cr. H., 2000 | WW | 0.005 | 0.006 | 0.002 | 0.987 | WW | BL | NA |
| 703 | Eagle Cr. H., 2000 | WW | 0.019 | 0.011 | 0.003 | 0.967 | WW | BL | NA |
| 704 | Eagle Cr. H., 2000 | WW | 0.005 | 0.008 | 0.001 | 0.985 | WW | BL | NA |
| 705 | Eagle Cr. H., 2000 | WW | 0.009 | 0.009 | 0.002 | 0.980 | WW | BL | NA |
| 706 | Eagle Cr. H., 2000 | WW | 0.013 | 0.005 | 0.001 | 0.981 | WW | BL | NA |

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|---|---|---|---|---|---|---|---|---|---|
| 707 | Eagle Cr. H., 2000 | WW | 0.008 | 0.013 | 0.002 | 0.977 | WW | BL | NA |
| 708 | Eagle Cr. H., 2000 | WW | 0.014 | 0.007 | 0.001 | 0.978 | WW | BL | NA |
| 709 | Eagle Cr. H., 2000 | WW | 0.018 | 0.012 | 0.006 | 0.964 | WW | BL | NA |
| 710 | Eagle Cr. H., 2000 | WW | 0.006 | 0.005 | 0.001 | 0.988 | WW | BL | NA |
| 711 | Eagle Cr. H., 2000 | WW | 0.006 | 0.005 | 0.001 | 0.988 | WW | BL | NA |
| 712 | Eagle Cr. H., 2000 | WW | 0.004 | 0.016 | 0.001 | 0.979 | WW | BL | NA |
| 713 | Eagle Cr. H., 2000 | WW | 0.010 | 0.008 | 0.001 | 0.980 | WW | BL | NA |
| 714 | Eagle Cr. H., 2000 | WW | 0.042 | 0.008 | 0.002 | 0.947 | WW | BL | NA |
| 715 | Eagle Cr. H., 2000 | WW | 0.012 | 0.010 | 0.002 | 0.976 | WW | BL | NA |
| 716 | Luckiamute R., 1997 | WW | 0.004 | 0.048 | 0.008 | 0.940 | WW | BL | NA |
| 717 | Luckiamute R., 1997 | WW | 0.003 | 0.026 | 0.004 | 0.967 | WW | BL | NA |
| 718 | Luckiamute R., 1997 | WW | 0.004 | 0.034 | 0.004 | 0.958 | WW | BL | NA |
| 719 | Luckiamute R., 1997 | WW | 0.003 | 0.028 | 0.005 | 0.963 | WW | BL | NA |
| 720 | Luckiamute R., 1997 | WW | 0.003 | 0.039 | 0.003 | 0.955 | WW | BL | NA |
| 721 | Luckiamute R., 1997 | WW | 0.006 | 0.159 | 0.037 | 0.797 | WW | BL | NA |
| 722 | Luckiamute R., 1997 | WW | 0.003 | 0.111 | 0.010 | 0.875 | WW | BL | NA |
| 723 | Luckiamute R., 1997 | WW | 0.003 | 0.026 | 0.004 | 0.967 | WW | BL | NA |
| 724 | Luckiamute R., 1997 | WW | 0.004 | 0.039 | 0.005 | 0.952 | WW | BL | NA |
| 725 | Luckiamute R., 1997 | WW | 0.003 | 0.026 | 0.004 | 0.967 | WW | BL | NA |
| 726 | Luckiamute R., 1997 | WW | 0.003 | 0.028 | 0.004 | 0.965 | WW | BL | NA |
| 727 | Luckiamute R., 1997 | WW | 0.003 | 0.053 | 0.005 | 0.939 | WW | BL | NA |
| 728 | Luckiamute R., 1997 | WW | 0.003 | 0.051 | 0.004 | 0.943 | WW | BL | NA |
| 729 | Luckiamute R., 1997 | WW | 0.003 | 0.022 | 0.003 | 0.973 | WW | BL | NA |
| 730 | Luckiamute R., 1997 | WW | 0.007 | 0.060 | 0.006 | 0.927 | WW | BL | NA |
| 731 | Luckiamute R., 1997 | WW | 0.003 | 0.036 | 0.010 | 0.950 | WW | BL | NA |
| 732 | Luckiamute R., 1997 | WW | 0.005 | 0.329 | 0.007 | 0.659 | WWxEW | BL | NA |
| 733 | Luckiamute R., 1997 | WW | 0.006 | 0.210 | 0.011 | 0.772 | WWxEW | BL | NA |
| 734 | Luckiamute R., 1997 | WW | 0.004 | 0.077 | 0.012 | 0.907 | WW | BL | NA |
| 735 | Luckiamute R., 1997 | WW | 0.003 | 0.021 | 0.002 | 0.974 | WW | BL | NA |
| 736 | Luckiamute R., 1997 | WW | 0.002 | 0.020 | 0.003 | 0.974 | WW | BL | NA |
| 737 | Luckiamute R., 1997 | WW | 0.002 | 0.020 | 0.002 | 0.975 | WW | BL | NA |
| 738 | Luckiamute R., 1997 | WW | 0.003 | 0.038 | 0.005 | 0.954 | WW | BL | NA |
| 739 | Luckiamute R., 1997 | WW | 0.003 | 0.018 | 0.002 | 0.976 | WW | BL | NA |
| 740 | Luckiamute R., 1997 | WW | 0.004 | 0.029 | 0.004 | 0.964 | WW | BL | NA |
| 741 | Luckiamute R., 1997 | WW | 0.006 | 0.046 | 0.016 | 0.931 | WW | BL | NA |
| 742 | Luckiamute R., 1997 | WW | 0.024 | 0.070 | 0.006 | 0.899 | WW | BL | NA |
| 743 | Luckiamute R., 1997 | WW | 0.003 | 0.019 | 0.002 | 0.976 | WW | BL | NA |
| 744 | Luckiamute R., 1997 | WW | 0.006 | 0.027 | 0.004 | 0.963 | WW | BL | NA |
| 745 | Luckiamute R., 1997 | WW | 0.004 | 0.045 | 0.003 | 0.948 | WW | BL | NA |
| 746 | Luckiamute R., 1997 | WW | 0.002 | 0.025 | 0.004 | 0.969 | WW | BL | NA |

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|---|---|---|---|---|---|---|---|---|---|---|
| 747 | Willamina R., 1997 | WW | 0.008 | 0.075 | 0.101 | 0.816 | WW | BL | NA |
| 748 | Willamina R., 1997 | WW | 0.005 | 0.072 | 0.135 | 0.788 | WW | BL | NA |
| 749 | Willamina R., 1997 | WW | 0.005 | 0.126 | 0.135 | 0.734 | WW | BL | NA |
| 750 | Willamina R., 1997 | WW | 0.005 | 0.089 | 0.069 | 0.837 | WW | BL | NA |
| 751 | Willamina R., 1997 | WW | 0.006 | 0.111 | 0.115 | 0.768 | WW | BL | NA |
| 752 | Willamina R., 1997 | WW | 0.006 | 0.069 | 0.099 | 0.825 | WW | BL | NA |
| 753 | Willamina R., 1997 | WW | 0.007 | 0.080 | 0.074 | 0.839 | WW | BL | NA |
| 754 | Willamina R., 1997 | WW | 0.006 | 0.073 | 0.149 | 0.773 | WW | BL | NA |
| 755 | Willamina R., 1997 | WW | 0.005 | 0.059 | 0.096 | 0.839 | WW | BL | NA |
| 756 | Willamina R., 1997 | WW | 0.004 | 0.061 | 0.080 | 0.856 | WW | BL | NA |
| 757 | Willamina R., 1997 | WW | 0.006 | 0.123 | 0.110 | 0.761 | WW | BL | NA |
| 758 | Willamina R., 1997 | WW | 0.006 | 0.081 | 0.098 | 0.815 | WW | BL | NA |
| 759 | Willamina R., 1997 | WW | 0.007 | 0.051 | 0.070 | 0.872 | WW | BL | NA |
| 760 | Willamina R., 1997 | WW | 0.004 | 0.051 | 0.086 | 0.858 | WW | BL | NA |
| 761 | Willamina R., 1997 | WW | 0.005 | 0.061 | 0.102 | 0.831 | WW | BL | NA |
| 762 | Willamina R., 1997 | WW | 0.007 | 0.059 | 0.084 | 0.850 | WW | BL | NA |
| 763 | Willamina R., 1997 | WW | 0.006 | 0.060 | 0.087 | 0.846 | WW | BL | NA |
| 764 | Willamina R., 1997 | WW | 0.005 | 0.056 | 0.086 | 0.853 | WW | BL | NA |
| 765 | Willamina R., 1997 | WW | 0.005 | 0.058 | 0.090 | 0.847 | WW | BL | NA |
| 766 | Willamina R., 1997 | WW | 0.004 | 0.054 | 0.085 | 0.857 | WW | BL | NA |
| 767 | Willamina R., 1997 | WW | 0.006 | 0.049 | 0.091 | 0.855 | WW | BL | NA |
| 768 | Willamina R., 1997 | WW | 0.006 | 0.070 | 0.093 | 0.830 | WW | BL | NA |
| 769 | Willamina R., 1997 | WW | 0.007 | 0.068 | 0.112 | 0.813 | WW | BL | NA |
| 770 | Willamina R., 1997 | WW | 0.005 | 0.079 | 0.105 | 0.812 | WW | BL | NA |
| 771 | Willamina R., 1997 | WW | 0.005 | 0.058 | 0.107 | 0.830 | WW | BL | NA |
| 772 | Willamina R., 1997 | WW | 0.005 | 0.089 | 0.158 | 0.749 | WW | BL | NA |
| 773 | Willamina R., 1997 | WW | 0.005 | 0.069 | 0.116 | 0.810 | WW | BL | NA |
| 774 | Willamina R., 1997 | WW | 0.008 | 0.077 | 0.142 | 0.773 | WW | BL | NA |
| 775 | Willamina R., 1997 | WW | 0.009 | 0.089 | 0.089 | 0.813 | WW | BL | NA |
| 776 | Willamina R., 1997 | WW | 0.005 | 0.048 | 0.081 | 0.866 | WW | BL | NA |
| 777 | Willamina R., 1997 | WW | 0.005 | 0.096 | 0.096 | 0.804 | WW | BL | NA |
| 778 | Willamina R., 1997 | WW | 0.011 | 0.078 | 0.104 | 0.808 | WW | BL | NA |
| 779 | Willamina R., 1997 | WW | 0.007 | 0.073 | 0.110 | 0.810 | WW | BL | NA |
| 780 | Willamina R., 1997 | WW | 0.008 | 0.077 | 0.107 | 0.809 | WW | BL | NA |
| 781 | Foster Trap, S. Santiam, 2009 | 31696-51 | 0.015 | 0.968 | 0.003 | 0.014 | EW | EW | 1 |
| 782 | Foster Trap, S. Santiam, 2009 | 31696-52 | 0.074 | 0.903 | 0.015 | 0.009 | EW | EW | 1 |
| 783 | Foster Trap, S. Santiam, 2009 | 31696-53 | 0.016 | 0.961 | 0.007 | 0.017 | EW | EW | 1 |
| 784 | Foster Trap, S. Santiam, 2009 | 31696-54 | 0.064 | 0.804 | 0.102 | 0.030 | EW | EW | 0.9997 |
| 785 | Foster Trap, S. Santiam, 2009 | 31696-55 | 0.064 | 0.851 | 0.007 | 0.079 | EW | EW | 1 |
| 786 | Foster Trap, S. Santiam, 2009 | 31696-56 | 0.020 | 0.965 | 0.002 | 0.012 | EW | EW | 1 |

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|---|---|---|---|---|---|---|---|---|---|
| 787 | Foster Trap, S. Santiam, 2009 | 31696-57 | 0.218 | 0.625 | 0.016 | 0.141 | SxEW | EW | 0.9994 |
| 788 | Foster Trap, S. Santiam, 2009 | 31696-58 | 0.270 | 0.641 | 0.032 | 0.058 | SxEW | EW | 0.9999 |
| 789 | Foster Trap, S. Santiam, 2009 | 31696-59 | 0.038 | 0.946 | 0.005 | 0.011 | EW | EW | 1 |
| 790 | Foster Trap, S. Santiam, 2009 | 31696-60 | 0.029 | 0.950 | 0.010 | 0.011 | EW | EW | 1 |
| 791 | Foster Trap, S. Santiam, 2009 | 31696-61 | 0.033 | 0.923 | 0.026 | 0.018 | EW | EW | 1 |
| 792 | Foster Trap, S. Santiam, 2009 | 31696-62 | 0.012 | 0.544 | 0.435 | 0.009 | EWxRB | EW | 0.9999 |
| 793 | Foster Trap, S. Santiam, 2009 | 31696-63 | 0.034 | 0.332 | 0.004 | 0.629 | WWxEW | WW | 0.654 |
| 794 | Foster Trap, S. Santiam, 2009 | 31696-64 | 0.212 | 0.719 | 0.002 | 0.067 | SxEW | EW | 1 |
| 795 | Foster Trap, S. Santiam, 2009 | 31696-65 | 0.283 | 0.680 | 0.023 | 0.014 | SxEW | EW | 0.99 |
| 796 | Foster Trap, S. Santiam, 2009 | 31696-66 | 0.092 | 0.777 | 0.011 | 0.120 | EW | EW | 1 |
| 797 | Foster Trap, S. Santiam, 2009 | 31696-67 | 0.036 | 0.939 | 0.002 | 0.023 | EW | EW | 1 |
| 798 | Foster Trap, S. Santiam, 2009 | 31696-68 | 0.032 | 0.949 | 0.003 | 0.015 | EW | EW | 1 |
| 799 | Foster Trap, S. Santiam, 2009 | 31696-69 | 0.031 | 0.958 | 0.003 | 0.008 | EW | EW | 1 |
| 800 | Foster Trap, S. Santiam, 2009 | 31696-70 | 0.040 | 0.947 | 0.002 | 0.011 | EW | EW | 1 |
| 801 | Foster Trap, S. Santiam, 2009 | 31696-71 | 0.021 | 0.961 | 0.004 | 0.014 | EW | EW | 1 |
| 802 | Foster Trap, S. Santiam, 2009 | 31696-72 | 0.044 | 0.926 | 0.003 | 0.027 | EW | EW | 1 |
| 803 | Foster Trap, S. Santiam, 2009 | 31696-73 | 0.019 | 0.964 | 0.004 | 0.013 | EW | EW | 1 |
| 804 | Foster Trap, S. Santiam, 2009 | 31696-74 | 0.050 | 0.919 | 0.009 | 0.023 | EW | EW | 1 |
| 805 | Foster Trap, S. Santiam, 2009 | 31696-75 | 0.187 | 0.516 | 0.002 | 0.295 | WWxEW | EW | 1 |
| 806 | Foster Trap, S. Santiam, 2009 | 31696-76 | 0.088 | 0.891 | 0.009 | 0.012 | EW | EW | 1 |
| 807 | Foster Trap, S. Santiam, 2009 | 31696-77 | 0.085 | 0.896 | 0.002 | 0.017 | EW | EW | 1 |
| 808 | Foster Trap, S. Santiam, 2009 | 31696-78 | 0.042 | 0.944 | 0.005 | 0.009 | EW | EW | 1 |
| 809 | Foster Trap, S. Santiam, 2009 | 31696-79 | 0.078 | 0.892 | 0.007 | 0.024 | EW | EW | 1 |
| 810 | Foster Trap, S. Santiam, 2009 | 31696-80 | 0.025 | 0.925 | 0.005 | 0.044 | EW | EW | 1 |
| 811 | Foster Trap, S. Santiam, 2009 | 31696-81 | 0.345 | 0.604 | 0.004 | 0.046 | SxEW | EW | 0.9936 |
| 812 | Foster Trap, S. Santiam, 2009 | 31696-82 | 0.026 | 0.952 | 0.003 | 0.019 | EW | EW | 1 |
| 813 | Foster Trap, S. Santiam, 2009 | 31696-83 | 0.024 | 0.864 | 0.002 | 0.109 | EW | EW | 1 |
| 814 | Foster Trap, S. Santiam, 2009 | 31696-84 | 0.096 | 0.802 | 0.018 | 0.085 | EW | EW | 1 |
| 815 | Foster Trap, S. Santiam, 2009 | 31696-85 | 0.018 | 0.971 | 0.003 | 0.008 | EW | EW | 1 |
| 816 | Foster Trap, S. Santiam, 2009 | 31696-86 | 0.056 | 0.894 | 0.002 | 0.048 | EW | EW | 1 |
| 817 | Foster Trap, S. Santiam, 2009 | 31696-87 | 0.190 | 0.786 | 0.007 | 0.017 | EW | EW | 0.9999 |
| 818 | Foster Trap, S. Santiam, 2009 | 31696-88 | 0.094 | 0.889 | 0.003 | 0.013 | EW | EW | 1 |
| 819 | Foster Trap, S. Santiam, 2009 | 31696-89 | 0.089 | 0.897 | 0.004 | 0.010 | EW | EW | 1 |
| 820 | Foster Trap, S. Santiam, 2009 | 31696-90 | 0.023 | 0.954 | 0.007 | 0.016 | EW | EW | 1 |
| 821 | Foster Trap, S. Santiam, 2009 | 31696-91 | 0.172 | 0.781 | 0.037 | 0.010 | EW | EW | 1 |
| 822 | Foster Trap, S. Santiam, 2009 | 31696-92 | 0.032 | 0.932 | 0.002 | 0.034 | EW | EW | 1 |
| 823 | Foster Trap, S. Santiam, 2009 | 31696-93 | 0.049 | 0.909 | 0.010 | 0.032 | EW | EW | 1 |
| 824 | Foster Trap, S. Santiam, 2009 | 31696-94 | 0.019 | 0.970 | 0.003 | 0.008 | EW | EW | 1 |
| 825 | Foster Trap, S. Santiam, 2009 | 31696-95 | 0.033 | 0.954 | 0.005 | 0.008 | EW | EW | 1 |
| 826 | Foster Trap, S. Santiam, 2009 | 31696-96 | 0.030 | 0.953 | 0.004 | 0.013 | EW | EW | 1 |

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|---|---|---|---|---|---|---|---|---|---|
| 827 | Foster Trap, S. Santiam, 2009 | 31696-97 | 0.033 | 0.946 | 0.005 | 0.017 | EW | EW | 1 |
| 828 | Foster Trap, S. Santiam, 2009 | 31696-98 | 0.049 | 0.923 | 0.010 | 0.018 | EW | EW | 1 |
| 829 | Foster Trap, S. Santiam, 2009 | 31696-99 | 0.084 | 0.895 | 0.003 | 0.018 | EW | EW | 1 |
| 830 | Foster Trap, S. Santiam, 2009 | 31696-100 | 0.066 | 0.878 | 0.003 | 0.052 | EW | EW | 0.9999 |
| 831 | Minto Trap, N. Santiam, 2009 | 31697-1 | 0.035 | 0.951 | 0.002 | 0.012 | EW | EW | 1 |
| 832 | Minto Trap, N. Santiam, 2009 | 31697-2 | 0.092 | 0.860 | 0.020 | 0.027 | EW | EW | 1 |
| 833 | Minto Trap, N. Santiam, 2009 | 31697-3 | 0.040 | 0.936 | 0.013 | 0.010 | EW | EW | 1 |
| 834 | Minto Trap, N. Santiam, 2009 | 31697-4 | 0.055 | 0.928 | 0.002 | 0.015 | EW | EW | 1 |
| 835 | Minto Trap, N. Santiam, 2009 | 31697-5 | 0.226 | 0.749 | 0.009 | 0.016 | SxEW | EW | 1 |
| 836 | Minto Trap, N. Santiam, 2009 | 31697-6 | 0.318 | 0.661 | 0.005 | 0.015 | SxEW | EW | 0.9999 |
| 837 | Minto Trap, N. Santiam, 2009 | 31697-7 | 0.014 | 0.873 | 0.021 | 0.091 | EW | EW | 1 |
| 838 | Minto Trap, N. Santiam, 2009 | 31697-8 | 0.029 | 0.578 | 0.008 | 0.385 | WWxEW | EW | 0.9994 |
| 839 | Minto Trap, N. Santiam, 2009 | 31697-9 | 0.021 | 0.959 | 0.002 | 0.018 | EW | EW | 1 |
| 840 | Minto Trap, N. Santiam, 2009 | 31697-10 | 0.084 | 0.854 | 0.025 | 0.037 | EW | EW | 1 |
| 841 | Minto Trap, N. Santiam, 2009 | 31697-11 | 0.022 | 0.954 | 0.003 | 0.021 | EW | EW | 1 |
| 842 | Clackamas, Summer, 1986 | 31698-2404 | 0.971 | 0.021 | 0.002 | 0.007 | S | - | NA |
| 843 | Clackamas, Summer, 1986 | 31698-2405 | 0.943 | 0.044 | 0.006 | 0.007 | S | - | NA |
| 844 | Clackamas, Summer, 1986 | 31698-2406 | 0.931 | 0.040 | 0.004 | 0.026 | S | - | NA |
| 845 | Clackamas, Summer, 1986 | 31698-2407 | 0.054 | 0.894 | 0.011 | 0.040 | EW | - | NA |
| 846 | Clackamas, Summer, 1986 | 31698-2408 | 0.924 | 0.037 | 0.003 | 0.036 | S | - | NA |
| 847 | Clackamas, Summer, 1986 | 31698-2409 | 0.962 | 0.024 | 0.002 | 0.012 | S | - | NA |
| 848 | Clackamas, Summer, 1986 | 31698-2410 | 0.934 | 0.038 | 0.006 | 0.022 | S | - | NA |
| 849 | Clackamas, Summer, 1986 | 31698-2411 | 0.927 | 0.018 | 0.002 | 0.053 | S | - | NA |
| 850 | Clackamas, Summer, 1986 | 31698-2412 | 0.971 | 0.015 | 0.002 | 0.012 | S | - | NA |
| 851 | Clackamas, Summer, 1986 | 31698-2413 | 0.926 | 0.036 | 0.003 | 0.034 | S | - | NA |
| 852 | Clackamas, Summer, 1986 | 31698-2414 | 0.963 | 0.025 | 0.004 | 0.008 | S | - | NA |
| 853 | Clackamas, Summer, 1986 | 31698-2415 | 0.927 | 0.049 | 0.005 | 0.019 | S | - | NA |
| 854 | Clackamas, Summer, 1986 | 31698-2416 | 0.969 | 0.015 | 0.001 | 0.016 | S | - | NA |
| 855 | Clackamas, Summer, 1986 | 31698-2417 | 0.942 | 0.047 | 0.004 | 0.007 | S | - | NA |
| 856 | Clackamas, Summer, 1986 | 31698-2418 | 0.941 | 0.037 | 0.004 | 0.018 | S | - | NA |
| 857 | Clackamas, Summer, 1986 | 31698-2419 | 0.943 | 0.036 | 0.004 | 0.017 | S | - | NA |
| 858 | Clackamas, Summer, 1986 | 31698-2420 | 0.945 | 0.036 | 0.003 | 0.016 | S | - | NA |
| 859 | Clackamas, Summer, 1986 | 31698-2421 | 0.905 | 0.079 | 0.006 | 0.010 | S | - | NA |
| 860 | Clackamas, Summer, 1986 | 31698-2422 | 0.941 | 0.021 | 0.002 | 0.036 | S | - | NA |
| 861 | Clackamas, Summer, 1986 | 31698-2423 | 0.825 | 0.108 | 0.004 | 0.063 | S | - | NA |
| 862 | Clackamas, Summer, 1986 | 31698-2424 | 0.925 | 0.060 | 0.003 | 0.011 | S | - | NA |
| 863 | Clackamas, Summer, 1986 | 31698-2425 | 0.971 | 0.021 | 0.002 | 0.006 | S | - | NA |
| 864 | Clackamas, Summer, 1986 | 31698-2426 | 0.931 | 0.030 | 0.003 | 0.035 | S | - | NA |
| 865 | Clackamas, Summer, 1986 | 31698-2427 | 0.739 | 0.234 | 0.009 | 0.018 | SxEW | - | NA |
| 866 | Clackamas, Summer, 1986 | 31698-2428 | 0.957 | 0.033 | 0.004 | 0.006 | S | - | NA |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 867 | Clackamas, Summer, 1986 | 31698-2429 | 0.971 | 0.017 | 0.002 | 0.011 | S | - | NA |
| 868 | Clackamas, Summer, 1986 | 31698-2432 | 0.966 | 0.017 | 0.001 | 0.016 | S | - | NA |
| 869 | Clackamas, Summer, 1986 | 31698-2433 | 0.951 | 0.028 | 0.009 | 0.011 | S | - | NA |
| 870 | Clackamas, Summer, 1986 | 31698-2434 | 0.908 | 0.069 | 0.011 | 0.012 | S | - | NA |
| 871 | Clackamas, Summer, 1986 | 31698-2435 | 0.938 | 0.044 | 0.003 | 0.015 | S | - | NA |
| 872 | Clackamas, Summer, 1986 | 31698-2436 | 0.955 | 0.036 | 0.002 | 0.008 | S | - | NA |
| 873 | Clackamas, Summer, 1986 | 31698-2437 | 0.944 | 0.040 | 0.005 | 0.011 | S | - | NA |
| 874 | Clackamas, Summer, 1986 | 31698-2438 | 0.836 | 0.137 | 0.009 | 0.018 | S | - | NA |
| 875 | Clackamas, Summer, 1986 | 31698-2439 | 0.255 | 0.059 | 0.003 | 0.683 | SxWW | - | NA |
| 876 | Clackamas, Summer, 1986 | 31698-2440 | 0.950 | 0.035 | 0.003 | 0.012 | S | - | NA |
| 877 | Clackamas, Summer, 1986 | 31698-2441 | 0.901 | 0.061 | 0.015 | 0.023 | S | - | NA |
| 878 | Clackamas, Summer, 1986 | 31698-2442 | 0.932 | 0.042 | 0.013 | 0.013 | S | - | NA |
| 879 | Clackamas, Summer, 1986 | 31698-2443 | 0.951 | 0.032 | 0.004 | 0.013 | S | - | NA |
| 880 | Clackamas, Summer, 1986 | 31698-2444 | 0.941 | 0.033 | 0.004 | 0.023 | S | - | NA |
| 881 | Clackamas, Summer, 1986 | 31698-2445 | 0.965 | 0.023 | 0.002 | 0.010 | S | - | NA |
| 882 | Clackamas, Summer, 1986 | 31698-2446 | 0.961 | 0.026 | 0.002 | 0.011 | S | - | NA |
| 883 | Clackamas, Summer, 1986 | 31698-2447 | 0.924 | 0.055 | 0.011 | 0.010 | S | - | NA |
| 884 | Clackamas, Summer, 1986 | 31698-2448 | 0.883 | 0.084 | 0.024 | 0.009 | S | - | NA |
| 885 | Clackamas, Summer, 1986 | 31698-2449 | 0.807 | 0.179 | 0.004 | 0.011 | S | - | NA |
| 886 | Clackamas, Summer, 1986 | 31698-2450 | 0.938 | 0.031 | 0.001 | 0.030 | S | - | NA |
| 887 | Clackamas, Summer, 1986 | 31698-2451 | 0.961 | 0.029 | 0.002 | 0.008 | S | - | NA |
| 888 | Clackamas, Summer, 1986 | 31698-2452 | 0.896 | 0.085 | 0.005 | 0.014 | S | - | NA |
| 889 | Clackamas, Summer, 1986 | 31698-2453 | 0.863 | 0.119 | 0.004 | 0.014 | S | - | NA |
| 890 | Clackamas, Summer, 1986 | 31698-2454 | 0.946 | 0.034 | 0.007 | 0.013 | S | - | NA |
| 891 | Clackamas, Summer, 1986 | 31698-2455 | 0.949 | 0.030 | 0.002 | 0.019 | S | - | NA |
| 892 | Clackamas, Summer, 1986 | 31698-2456 | 0.895 | 0.065 | 0.010 | 0.031 | S | - | NA |
| 893 | Clackamas, Summer, 1986 | 31698-2457 | 0.875 | 0.071 | 0.004 | 0.050 | S | - | NA |
| 894 | Clackamas, Summer, 1986 | 31698-2458 | 0.966 | 0.017 | 0.001 | 0.015 | S | - | NA |
| 895 | Clackamas, Summer, 1986 | 31698-2459 | 0.965 | 0.023 | 0.002 | 0.010 | S | - | NA |
| 896 | Clackamas, Summer, 1986 | 31698-2460 | 0.947 | 0.037 | 0.002 | 0.014 | S | - | NA |
| 897 | Clackamas, Summer, 1986 | 31698-2461 | 0.758 | 0.104 | 0.002 | 0.136 | S | - | NA |
| 898 | Clackamas, Summer, 1986 | 31698-2462 | 0.800 | 0.133 | 0.017 | 0.050 | S | - | NA |
| 899 | Clackamas, Summer, 1986 | 31698-2464 | 0.969 | 0.020 | 0.002 | 0.009 | S | - | NA |
| 900 | Clackamas, Summer, 1986 | 31698-2465 | 0.911 | 0.046 | 0.005 | 0.037 | S | - | NA |
| 901 | Clackamas, Summer, 1986 | 31698-2466 | 0.902 | 0.076 | 0.003 | 0.019 | S | - | NA |
| 902 | Clackamas, Summer, 1986 | 31698-2467 | 0.972 | 0.019 | 0.002 | 0.006 | S | - | NA |
| 903 | Clackamas, Summer, 1986 | 31698-2468 | 0.736 | 0.226 | 0.003 | 0.035 | SxEW | - | NA |
| 904 | Clackamas, Summer, 1986 | 31698-2470 | 0.965 | 0.020 | 0.002 | 0.013 | S | - | NA |
| 905 | Clackamas, Summer, 1986 | 31698-2471 | 0.958 | 0.032 | 0.003 | 0.007 | S | - | NA |
| 906 | Clackamas, Summer, 1986 | 31698-2472 | 0.965 | 0.022 | 0.002 | 0.011 | S | - | NA |

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|---|---|---|---|---|---|---|---|---|---|
| 907 | Clackamas, Summer, 1986 | 31698-2473 | 0.965 | 0.027 | 0.002 | 0.006 | S | - | NA |
| 908 | Clackamas, Summer, 1986 | 31698-2474 | 0.931 | 0.021 | 0.001 | 0.046 | S | - | NA |
| 909 | Clackamas, Summer, 1986 | 31698-2475 | 0.833 | 0.074 | 0.043 | 0.050 | S | - | NA |
| 910 | Clackamas, Summer, 1986 | 31698-2476 | 0.394 | 0.547 | 0.004 | 0.054 | SxEW | - | NA |
| 911 | Clackamas, Summer, 1986 | 31698-2477 | 0.858 | 0.082 | 0.004 | 0.056 | S | - | NA |
| 912 | Clackamas, Summer, 1986 | 31698-2479 | 0.892 | 0.074 | 0.011 | 0.023 | S | - | NA |
| 913 | Clackamas, Summer, 1986 | 31698-2480 | 0.854 | 0.055 | 0.003 | 0.088 | S | - | NA |
| 914 | Clackamas, Summer, 1986 | 31698-2481 | 0.830 | 0.111 | 0.003 | 0.056 | S | - | NA |
| 915 | Clackamas, Summer, 1986 | 31698-2482 | 0.974 | 0.016 | 0.001 | 0.009 | S | - | NA |
| 916 | Clackamas, Summer, 1986 | 31698-2483 | 0.971 | 0.020 | 0.001 | 0.007 | S | - | NA |
| 917 | Clackamas, Summer, 1986 | 31698-2484 | 0.966 | 0.023 | 0.001 | 0.009 | S | - | NA |
| 918 | Clackamas, Summer, 1986 | 31698-2485 | 0.940 | 0.044 | 0.006 | 0.010 | S | - | NA |
| 919 | Clackamas, Summer, 1986 | 31698-2486 | 0.940 | 0.036 | 0.002 | 0.022 | S | - | NA |
| 920 | Clackamas, Summer, 1986 | 31698-2487 | 0.928 | 0.036 | 0.002 | 0.035 | S | - | NA |
| 921 | Clackamas, Summer, 1986 | 31698-2488 | 0.953 | 0.037 | 0.002 | 0.008 | S | - | NA |
| 922 | Clackamas, Summer, 1986 | 31698-2489 | 0.971 | 0.019 | 0.002 | 0.009 | S | - | NA |
| 923 | Clackamas, Summer, 1986 | 31698-2490 | 0.956 | 0.029 | 0.002 | 0.014 | S | - | NA |
| 924 | Clackamas, Summer, 1986 | 31698-2491 | 0.975 | 0.017 | 0.001 | 0.007 | S | - | NA |
| 925 | Clackamas, Summer, 1986 | 31698-2493 | 0.784 | 0.086 | 0.005 | 0.125 | S | - | NA |
| 926 | Molalla, Summer, 1988 | 31699-9223 | 0.874 | 0.114 | 0.003 | 0.009 | S | - | NA |
| 927 | Molalla, Summer, 1988 | 31699-9224 | 0.925 | 0.053 | 0.005 | 0.017 | S | - | NA |
| 928 | Molalla, Summer, 1988 | 31699-9227 | 0.837 | 0.021 | 0.004 | 0.139 | S | - | NA |
| 929 | Molalla, Summer, 1988 | 31699-9228 | 0.913 | 0.072 | 0.002 | 0.014 | S | - | NA |
| 930 | Molalla, Summer, 1988 | 31699-9229 | 0.954 | 0.022 | 0.001 | 0.023 | S | - | NA |
| 931 | Molalla, Summer, 1988 | 31699-9230 | 0.924 | 0.046 | 0.005 | 0.026 | S | - | NA |
| 932 | Molalla, Summer, 1988 | 31699-9232 | 0.956 | 0.032 | 0.002 | 0.010 | S | - | NA |
| 933 | Molalla, Summer, 1988 | 31699-9233 | 0.905 | 0.083 | 0.005 | 0.007 | S | - | NA |
| 934 | Molalla, Summer, 1988 | 31699-9234 | 0.934 | 0.033 | 0.019 | 0.013 | S | - | NA |
| 935 | Molalla, Summer, 1988 | 31699-9235 | 0.958 | 0.026 | 0.002 | 0.014 | S | - | NA |
| 936 | Molalla, Summer, 1988 | 31699-9236 | 0.925 | 0.054 | 0.009 | 0.013 | S | - | NA |
| 937 | Molalla, Summer, 1988 | 31699-9237 | 0.915 | 0.048 | 0.003 | 0.034 | S | - | NA |
| 938 | Molalla, Summer, 1988 | 31699-9238 | 0.963 | 0.023 | 0.002 | 0.012 | S | - | NA |
| 939 | Molalla, Summer, 1988 | 31699-9239 | 0.950 | 0.038 | 0.004 | 0.008 | S | - | NA |
| 940 | Molalla, Summer, 1988 | 31699-9240 | 0.918 | 0.033 | 0.003 | 0.046 | S | - | NA |
| 941 | Molalla, Summer, 1988 | 31699-9241 | 0.701 | 0.135 | 0.005 | 0.159 | S | - | NA |
| 942 | Molalla, Summer, 1988 | 31699-9242 | 0.939 | 0.044 | 0.009 | 0.008 | S | - | NA |
| 943 | Molalla, Summer, 1988 | 31699-9243 | 0.880 | 0.092 | 0.009 | 0.018 | S | - | NA |
| 944 | Molalla, Summer, 1988 | 31699-9244 | 0.956 | 0.030 | 0.002 | 0.011 | S | - | NA |
| 945 | Molalla, Summer, 1988 | 31699-9245 | 0.932 | 0.048 | 0.003 | 0.016 | S | - | NA |
| 946 | Molalla, Summer, 1988 | 31699-9246 | 0.952 | 0.033 | 0.004 | 0.011 | S | - | NA |

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|---|---|---|---|---|---|---|---|---|---|
| 947 | Molalla, Summer, 1988 | 31699-9247 | 0.966 | 0.024 | 0.003 | 0.006 | S | - | NA |
| 948 | Molalla, Summer, 1988 | 31699-9248 | 0.626 | 0.232 | 0.114 | 0.028 | SxEW | - | NA |
| 949 | Molalla, Summer, 1988 | 31699-9249 | 0.953 | 0.039 | 0.002 | 0.007 | S | - | NA |
| 950 | Molalla, Summer, 1988 | 31699-9250 | 0.842 | 0.138 | 0.003 | 0.017 | S | - | NA |
| 951 | Molalla, Summer, 1988 | 31699-9251 | 0.976 | 0.016 | 0.003 | 0.005 | S | - | NA |
| 952 | Molalla, Summer, 1988 | 31699-9252 | 0.858 | 0.102 | 0.014 | 0.025 | S | - | NA |
| 953 | Molalla, Summer, 1988 | 31699-9253 | 0.960 | 0.030 | 0.002 | 0.007 | S | - | NA |
| 954 | Molalla, Summer, 1988 | 31699-9254 | 0.961 | 0.020 | 0.002 | 0.017 | S | - | NA |
| 955 | Molalla, Summer, 1988 | 31699-9255 | 0.797 | 0.112 | 0.045 | 0.046 | S | - | NA |
| 956 | Molalla, Summer, 1988 | 31699-9256 | 0.958 | 0.023 | 0.002 | 0.017 | S | - | NA |
| 957 | Molalla, Summer, 1988 | 31699-9257 | 0.946 | 0.031 | 0.004 | 0.018 | S | - | NA |
| 958 | Molalla, Summer, 1988 | 31699-9258 | 0.903 | 0.073 | 0.004 | 0.019 | S | - | NA |
| 959 | Molalla, Summer, 1988 | 31699-9259 | 0.950 | 0.040 | 0.002 | 0.008 | S | - | NA |
| 960 | Molalla, Summer, 1988 | 31699-9260 | 0.962 | 0.022 | 0.002 | 0.014 | S | - | NA |
| 961 | Molalla, Summer, 1988 | 31699-9261 | 0.880 | 0.096 | 0.006 | 0.018 | S | - | NA |
| 962 | Molalla, Summer, 1988 | 31699-9263 | 0.924 | 0.058 | 0.003 | 0.015 | S | - | NA |
| 963 | Molalla, Summer, 1988 | 31699-9269 | 0.957 | 0.030 | 0.001 | 0.011 | S | - | NA |
| 964 | Molalla, Summer, 1988 | 31699-9277 | 0.971 | 0.018 | 0.002 | 0.009 | S | - | NA |
| 965 | Molalla, Summer, 1988 | 31699-9278 | 0.963 | 0.026 | 0.001 | 0.009 | S | - | NA |
| 966 | Molalla, Summer, 1988 | 31699-9279 | 0.896 | 0.071 | 0.004 | 0.029 | S | - | NA |
| 967 | Molalla, Summer, 1988 | 31699-9281 | 0.801 | 0.074 | 0.016 | 0.109 | S | - | NA |
| 968 | Molalla, Summer, 1988 | 31699-9284 | 0.959 | 0.031 | 0.002 | 0.009 | S | - | NA |
| 969 | Molalla, Summer, 1988 | 31699-9285 | 0.893 | 0.085 | 0.008 | 0.014 | S | - | NA |
| 970 | Molalla, Summer, 1988 | 31699-9292 | 0.950 | 0.037 | 0.002 | 0.011 | S | - | NA |
| 971 | Molalla, Summer, 1988 | 31699-9296 | 0.814 | 0.115 | 0.005 | 0.065 | S | - | NA |
| 972 | N. Santiam, Summer, 1986 | 31700-15423 | 0.932 | 0.040 | 0.005 | 0.023 | S | - | NA |
| 973 | N. Santiam, Summer, 1986 | 31700-15426 | 0.024 | 0.866 | 0.048 | 0.062 | EW | - | NA |
| 974 | N. Santiam, Summer, 1986 | 31700-15427 | 0.963 | 0.024 | 0.005 | 0.008 | S | - | NA |
| 975 | N. Santiam, Summer, 1986 | 31700-15429 | 0.017 | 0.961 | 0.007 | 0.014 | EW | - | NA |
| 976 | N. Santiam, Summer, 1986 | 31700-15430 | 0.064 | 0.920 | 0.008 | 0.007 | EW | - | NA |
| 977 | N. Santiam, Summer, 1986 | 31700-15431 | 0.941 | 0.034 | 0.002 | 0.022 | S | - | NA |
| 978 | N. Santiam, Summer, 1986 | 31700-15432 | 0.966 | 0.026 | 0.002 | 0.006 | S | - | NA |
| 979 | N. Santiam, Summer, 1986 | 31700-15433 | 0.940 | 0.033 | 0.002 | 0.025 | S | - | NA |
| 980 | N. Santiam, Summer, 1986 | 31700-15435 | 0.938 | 0.035 | 0.004 | 0.023 | S | - | NA |
| 981 | N. Santiam, Summer, 1986 | 31700-15436 | 0.830 | 0.099 | 0.010 | 0.061 | S | - | NA |
| 982 | N. Santiam, Summer, 1986 | 31700-15441 | 0.890 | 0.090 | 0.009 | 0.011 | S | - | NA |
| 983 | N. Santiam, Summer, 1986 | 31700-15442 | 0.972 | 0.017 | 0.004 | 0.007 | S | - | NA |
| 984 | N. Santiam, Summer, 1986 | 31700-15443 | 0.749 | 0.052 | 0.002 | 0.197 | S | - | NA |
| 985 | N. Santiam, Summer, 1986 | 31700-15445 | 0.958 | 0.025 | 0.002 | 0.016 | S | - | NA |
| 986 | N. Santiam, Summer, 1986 | 31700-15447 | 0.963 | 0.026 | 0.006 | 0.006 | S | - | NA |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 987 | N. Santiam, Summer, 1986 | 31700-15448 | 0.965 | 0.014 | 0.001 | 0.020 | S | - | NA |
| 988 | N. Santiam, Summer, 1986 | 31700-15450 | 0.966 | 0.023 | 0.002 | 0.010 | S | - | NA |
| 989 | N. Santiam, Summer, 1986 | 31700-15451 | 0.888 | 0.100 | 0.002 | 0.010 | S | - | NA |
| 990 | N. Santiam, Summer, 1986 | 31700-15452 | 0.896 | 0.067 | 0.002 | 0.035 | S | - | NA |
| 991 | N. Santiam, Summer, 1986 | 31700-15458 | 0.955 | 0.032 | 0.003 | 0.010 | S | - | NA |
| 992 | N. Santiam, Summer, 1986 | 31700-15459 | 0.964 | 0.024 | 0.002 | 0.010 | S | - | NA |
| 993 | N. Santiam, Summer, 1986 | 31700-15460 | 0.962 | 0.024 | 0.003 | 0.011 | S | - | NA |
| 994 | N. Santiam, Summer, 1986 | 31700-15463 | 0.867 | 0.095 | 0.002 | 0.035 | S | - | NA |
| 995 | Clackamas, Winter, 1986 | 31701-2359 | 0.022 | 0.029 | 0.003 | 0.946 | WW | - | NA |
| 996 | Clackamas, Winter, 1986 | 31701-2361 | 0.040 | 0.033 | 0.003 | 0.924 | WW | - | NA |
| 997 | Clackamas, Winter, 1986 | 31701-2363 | 0.920 | 0.053 | 0.006 | 0.021 | S | - | NA |
| 998 | Clackamas, Winter, 1986 | 31701-2364 | 0.010 | 0.053 | 0.003 | 0.934 | WW | - | NA |
| 999 | Clackamas, Winter, 1986 | 31701-2365 | 0.075 | 0.083 | 0.036 | 0.807 | WW | - | NA |
| 1000 | Clackamas, Winter, 1986 | 31701-2366 | 0.044 | 0.172 | 0.003 | 0.781 | WW | - | NA |
| 1001 | Clackamas, Winter, 1986 | 31701-2368 | 0.022 | 0.035 | 0.004 | 0.939 | WW | - | NA |
| 1002 | Clackamas, Winter, 1986 | 31701-2369 | 0.044 | 0.037 | 0.001 | 0.917 | WW | - | NA |
| 1003 | Clackamas, Winter, 1986 | 31701-2371 | 0.020 | 0.028 | 0.002 | 0.950 | WW | - | NA |
| 1004 | Clackamas, Winter, 1986 | 31701-2372 | 0.054 | 0.019 | 0.002 | 0.926 | WW | - | NA |
| 1005 | Clackamas, Winter, 1986 | 31701-2373 | 0.031 | 0.583 | 0.320 | 0.066 | EWxRB | - | NA |
| 1006 | Clackamas, Winter, 1986 | 31701-2374 | 0.949 | 0.027 | 0.002 | 0.023 | S | - | NA |
| 1007 | Clackamas, Winter, 1986 | 31701-2375 | 0.163 | 0.100 | 0.002 | 0.735 | WW | - | NA |
| 1008 | Clackamas, Winter, 1986 | 31701-2376 | 0.020 | 0.045 | 0.002 | 0.933 | WW | - | NA |
| 1009 | Clackamas, Winter, 1986 | 31701-2377 | 0.033 | 0.045 | 0.005 | 0.917 | WW | - | NA |
| 1010 | Clackamas, Winter, 1986 | 31701-2378 | 0.017 | 0.039 | 0.002 | 0.942 | WW | - | NA |
| 1011 | Clackamas, Winter, 1986 | 31701-2379 | 0.600 | 0.118 | 0.008 | 0.274 | SxWW | - | NA |
| 1012 | Clackamas, Winter, 1986 | 31701-2380 | 0.789 | 0.105 | 0.004 | 0.102 | S | - | NA |
| 1013 | Clackamas, Winter, 1986 | 31701-2381 | 0.113 | 0.133 | 0.007 | 0.748 | WW | - | NA |
| 1014 | Clackamas, Winter, 1986 | 31701-2382 | 0.038 | 0.049 | 0.010 | 0.903 | WW | - | NA |
| 1015 | Clackamas, Winter, 1986 | 31701-2383 | 0.023 | 0.061 | 0.003 | 0.913 | WW | - | NA |
| 1016 | Clackamas, Winter, 1986 | 31701-2384 | 0.148 | 0.063 | 0.006 | 0.783 | WW | - | NA |
| 1017 | Clackamas, Winter, 1986 | 31701-2385 | 0.610 | 0.328 | 0.003 | 0.060 | SxEW | - | NA |
| 1018 | Clackamas, Winter, 1986 | 31701-2386 | 0.118 | 0.039 | 0.003 | 0.839 | WW | - | NA |
| 1019 | Clackamas, Winter, 1986 | 31701-2387 | 0.030 | 0.108 | 0.002 | 0.860 | WW | - | NA |
| 1020 | Clackamas, Winter, 1986 | 31701-2388 | 0.016 | 0.955 | 0.020 | 0.008 | EW | - | NA |
| 1021 | Clackamas, Winter, 1986 | 31701-2389 | 0.051 | 0.318 | 0.007 | 0.625 | WWxEW | - | NA |
| 1022 | Clackamas, Winter, 1986 | 31701-2390 | 0.949 | 0.037 | 0.002 | 0.011 | S | - | NA |
| 1023 | Clackamas, Winter, 1986 | 31701-2391 | 0.021 | 0.022 | 0.002 | 0.955 | WW | - | NA |
| 1024 | Clackamas, Winter, 1986 | 31701-2392 | 0.915 | 0.070 | 0.003 | 0.012 | S | - | NA |
| 1025 | Clackamas, Winter, 1986 | 31701-2393 | 0.036 | 0.202 | 0.021 | 0.741 | WWxEW | - | NA |
| 1026 | Clackamas, Winter, 1986 | 31701-2394 | 0.015 | 0.022 | 0.003 | 0.960 | WW | - | NA |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1027 | Clackamas, Winter, 1986 | 31701-2395 | 0.037 | 0.041 | 0.010 | 0.911 | WW | - | NA |
| 1028 | Clackamas, Winter, 1986 | 31701-2396 | 0.959 | 0.026 | 0.004 | 0.010 | S | - | NA |
| 1029 | Clackamas, Winter, 1986 | 31701-2397 | 0.972 | 0.020 | 0.002 | 0.007 | S | - | NA |
| 1030 | Clackamas, Winter, 1986 | 31701-2398 | 0.530 | 0.368 | 0.018 | 0.084 | SxEW | - | NA |
| 1031 | Clackamas, Winter, 1986 | 31701-2399 | 0.834 | 0.075 | 0.072 | 0.019 | S | - | NA |
| 1032 | Clackamas, Winter, 1986 | 31701-2400 | 0.229 | 0.536 | 0.008 | 0.227 | 3x | - | NA |
| 1033 | Clackamas, Winter, 1986 | 31701-2401 | 0.270 | 0.626 | 0.024 | 0.081 | SxEW | - | NA |
| 1034 | Clackamas, Winter, 1986 | 31701-2402 | 0.859 | 0.114 | 0.012 | 0.015 | S | - | NA |
| 1035 | Molalla, Winter, 1986 | 31702-9036 | 0.025 | 0.065 | 0.002 | 0.907 | WW | - | NA |
| 1036 | Molalla, Winter, 1986 | 31702-9037 | 0.025 | 0.039 | 0.006 | 0.930 | WW | - | NA |
| 1037 | Molalla, Winter, 1986 | 31702-9038 | 0.016 | 0.031 | 0.002 | 0.950 | WW | - | NA |
| 1038 | Molalla, Winter, 1986 | 31702-9039 | 0.031 | 0.906 | 0.035 | 0.028 | EW | - | NA |
| 1039 | Molalla, Winter, 1986 | 31702-9041 | 0.037 | 0.027 | 0.001 | 0.936 | WW | - | NA |
| 1040 | Molalla, Winter, 1986 | 31702-9042 | 0.014 | 0.968 | 0.004 | 0.014 | EW | - | NA |
| 1041 | Molalla, Winter, 1986 | 31702-9043 | 0.117 | 0.773 | 0.005 | 0.105 | EW | - | NA |
| 1042 | Molalla, Winter, 1986 | 31702-9044 | 0.014 | 0.059 | 0.004 | 0.923 | WW | - | NA |
| 1043 | Molalla, Winter, 1986 | 31702-9045 | 0.014 | 0.018 | 0.001 | 0.967 | WW | - | NA |
| 1044 | Molalla, Winter, 1986 | 31702-9046 | 0.325 | 0.520 | 0.009 | 0.146 | SxEW | - | NA |
| 1045 | Molalla, Winter, 1986 | 31702-9047 | 0.031 | 0.032 | 0.001 | 0.935 | WW | - | NA |
| 1046 | Molalla, Winter, 1986 | 31702-9048 | 0.080 | 0.040 | 0.006 | 0.875 | WW | - | NA |
| 1047 | Molalla, Winter, 1986 | 31702-9049 | 0.021 | 0.082 | 0.002 | 0.895 | WW | - | NA |
| 1048 | Molalla, Winter, 1986 | 31702-9051 | 0.014 | 0.915 | 0.003 | 0.068 | EW | - | NA |
| 1049 | Molalla, Winter, 1986 | 31702-9052 | 0.055 | 0.050 | 0.008 | 0.886 | WW | - | NA |
| 1050 | Molalla, Winter, 1986 | 31702-9053 | 0.043 | 0.120 | 0.022 | 0.814 | WW | - | NA |
| 1051 | Molalla, Winter, 1986 | 31702-9054 | 0.018 | 0.135 | 0.003 | 0.844 | WW | - | NA |
| 1052 | Molalla, Winter, 1986 | 31702-9055 | 0.023 | 0.016 | 0.001 | 0.960 | WW | - | NA |
| 1053 | Molalla, Winter, 1986 | 31702-9056 | 0.019 | 0.048 | 0.003 | 0.930 | WW | - | NA |
| 1054 | Molalla, Winter, 1986 | 31702-9057 | 0.029 | 0.024 | 0.001 | 0.946 | WW | - | NA |
| 1055 | Molalla, Winter, 1986 | 31702-9058 | 0.030 | 0.046 | 0.002 | 0.922 | WW | - | NA |
| 1056 | Molalla, Winter, 1986 | 31702-9059 | 0.033 | 0.040 | 0.002 | 0.925 | WW | - | NA |
| 1057 | Molalla, Winter, 1986 | 31702-9060 | 0.023 | 0.029 | 0.008 | 0.940 | WW | - | NA |
| 1058 | Molalla, Winter, 1986 | 31702-9062 | 0.021 | 0.048 | 0.003 | 0.928 | WW | - | NA |
| 1059 | Molalla, Winter, 1986 | 31702-9063 | 0.101 | 0.079 | 0.002 | 0.819 | WW | - | NA |
| 1060 | Molalla, Winter, 1986 | 31702-9064 | 0.064 | 0.655 | 0.008 | 0.273 | WWxEW | - | NA |
| 1061 | Molalla, Winter, 1986 | 31702-9065 | 0.058 | 0.830 | 0.003 | 0.108 | EW | - | NA |
| 1062 | Molalla, Winter, 1986 | 31702-9066 | 0.028 | 0.060 | 0.006 | 0.905 | WW | - | NA |
| 1063 | Molalla, Winter, 1986 | 31702-9067 | 0.021 | 0.133 | 0.028 | 0.818 | WW | - | NA |
| 1064 | Molalla, Winter, 1986 | 31702-9068 | 0.187 | 0.061 | 0.002 | 0.750 | WW | - | NA |
| 1065 | Molalla, Winter, 1986 | 31702-9069 | 0.017 | 0.159 | 0.004 | 0.821 | WW | - | NA |
| 1066 | Molalla, Winter, 1986 | 31702-9070 | 0.020 | 0.028 | 0.004 | 0.949 | WW | - | NA |

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|---|---|---|---|---|---|---|---|---|---|
| 1067 | Molalla, Winter, 1986 | 31702-9071 | 0.113 | 0.232 | 0.033 | 0.622 | WWxEW | - | NA |
| 1068 | Molalla, Winter, 1986 | 31702-9072 | 0.120 | 0.820 | 0.006 | 0.054 | EW | - | NA |
| 1069 | Molalla, Winter, 1986 | 31702-9073 | 0.096 | 0.421 | 0.010 | 0.473 | WWxEW | - | NA |
| 1070 | Molalla, Winter, 1986 | 31702-9074 | 0.025 | 0.953 | 0.013 | 0.009 | EW | - | NA |
| 1071 | Molalla, Winter, 1986 | 31702-9075 | 0.040 | 0.922 | 0.001 | 0.037 | EW | - | NA |
| 1072 | Molalla, Winter, 1986 | 31702-9076 | 0.015 | 0.877 | 0.002 | 0.106 | EW | - | NA |
| 1073 | Molalla, Winter, 1986 | 31702-9077 | 0.057 | 0.116 | 0.053 | 0.774 | WW | - | NA |
| 1074 | Molalla, Winter, 1986 | 31702-9078 | 0.144 | 0.527 | 0.003 | 0.326 | WWxEW | - | NA |
| 1075 | Molalla, Winter, 1986 | 31702-9079 | 0.017 | 0.027 | 0.001 | 0.955 | WW | - | NA |
| 1076 | Molalla, Winter, 1986 | 31702-9080 | 0.055 | 0.866 | 0.003 | 0.076 | EW | - | NA |
| 1077 | Molalla, Winter, 1986 | 31702-9081 | 0.099 | 0.771 | 0.008 | 0.122 | EW | - | NA |
| 1078 | Molalla, Winter, 1986 | 31702-9082 | 0.045 | 0.895 | 0.002 | 0.057 | EW | - | NA |
| 1079 | Molalla, Winter, 1986 | 31702-9083 | 0.027 | 0.940 | 0.014 | 0.019 | EW | - | NA |
| 1080 | Molalla, Winter, 1986 | 31702-9084 | 0.028 | 0.038 | 0.003 | 0.931 | WW | - | NA |
| 1081 | Molalla, Winter, 1986 | 31702-9085 | 0.029 | 0.075 | 0.008 | 0.889 | WW | - | NA |
| 1082 | Molalla, Winter, 1986 | 31702-9086 | 0.035 | 0.949 | 0.002 | 0.013 | EW | - | NA |
| 1083 | Molalla, Winter, 1986 | 31702-9087 | 0.073 | 0.015 | 0.001 | 0.911 | WW | - | NA |
| 1084 | Molalla, Winter, 1986 | 31702-9088 | 0.057 | 0.040 | 0.005 | 0.898 | WW | - | NA |
| 1085 | Molalla, Winter, 1986 | 31702-9089 | 0.025 | 0.584 | 0.002 | 0.389 | WWxEW | - | NA |
| 1086 | Molalla, Winter, 1986 | 31702-9090 | 0.057 | 0.072 | 0.002 | 0.869 | WW | - | NA |
| 1087 | Molalla, Winter, 1986 | 31702-9091 | 0.021 | 0.042 | 0.003 | 0.934 | WW | - | NA |
| 1088 | Molalla, Winter, 1986 | 31702-9093 | 0.024 | 0.951 | 0.003 | 0.022 | EW | - | NA |
| 1089 | Molalla, Winter, 1986 | 31702-9094 | 0.024 | 0.966 | 0.002 | 0.007 | EW | - | NA |
| 1090 | Molalla, Winter, 1986 | 31702-9095 | 0.027 | 0.925 | 0.002 | 0.047 | EW | - | NA |
| 1091 | Molalla, Winter, 1986 | 31702-9096 | 0.031 | 0.048 | 0.002 | 0.919 | WW | - | NA |
| 1092 | Molalla, Winter, 1986 | 31702-9097 | 0.028 | 0.959 | 0.005 | 0.008 | EW | - | NA |
| 1093 | Molalla, Winter, 1986 | 31702-9098 | 0.146 | 0.608 | 0.003 | 0.243 | WWxEW | - | NA |
| 1094 | Molalla, Winter, 1986 | 31702-9099 | 0.027 | 0.958 | 0.005 | 0.010 | EW | - | NA |
| 1095 | Molalla, Winter, 1986 | 31702-9100 | 0.009 | 0.982 | 0.005 | 0.004 | EW | - | NA |
| 1096 | Molalla, Winter, 1986 | 31702-9102 | 0.501 | 0.442 | 0.045 | 0.012 | SxEW | - | NA |
| 1097 | Molalla, Winter, 1986 | 31702-9106 | 0.020 | 0.965 | 0.004 | 0.011 | EW | - | NA |
| 1098 | Molalla, Winter, 1986 | 31702-9107 | 0.046 | 0.930 | 0.013 | 0.012 | EW | - | NA |
| 1099 | Molalla, Winter, 1986 | 31702-9108 | 0.049 | 0.891 | 0.004 | 0.056 | EW | - | NA |
| 1100 | N. Santiam, Winter, 1986 | 31703-15385 | 0.922 | 0.055 | 0.009 | 0.013 | S | - | NA |
| 1101 | N. Santiam, Winter, 1986 | 31703-15386 | 0.496 | 0.472 | 0.004 | 0.028 | SxEW | - | NA |
| 1102 | N. Santiam, Winter, 1986 | 31703-15387 | 0.950 | 0.026 | 0.004 | 0.019 | S | - | NA |
| 1103 | N. Santiam, Winter, 1986 | 31703-15388 | 0.898 | 0.064 | 0.028 | 0.009 | S | - | NA |
| 1104 | N. Santiam, Winter, 1986 | 31703-15389 | 0.954 | 0.033 | 0.003 | 0.010 | S | - | NA |
| 1105 | N. Santiam, Winter, 1986 | 31703-15391 | 0.203 | 0.776 | 0.010 | 0.011 | SxEW | - | NA |
| 1106 | N. Santiam, Winter, 1986 | 31703-15392 | 0.010 | 0.979 | 0.005 | 0.006 | EW | - | NA |

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|---|---|---|---|---|---|---|---|---|---|
| 1107 | N. Santiam, Winter, 1986 | 31703-15393 | 0.029 | 0.950 | 0.003 | 0.017 | EW | - | NA |
| 1108 | N. Santiam, Winter, 1986 | 31703-15394 | 0.384 | 0.498 | 0.003 | 0.114 | SxEW | - | NA |
| 1109 | N. Santiam, Winter, 1986 | 31703-15395 | 0.025 | 0.948 | 0.016 | 0.011 | EW | - | NA |
| 1110 | N. Santiam, Winter, 1986 | 31703-15396 | 0.054 | 0.905 | 0.028 | 0.012 | EW | - | NA |
| 1111 | N. Santiam, Winter, 1986 | 31703-15397 | 0.206 | 0.752 | 0.002 | 0.039 | SxEW | - | NA |
| 1112 | N. Santiam, Winter, 1986 | 31703-15398 | 0.031 | 0.765 | 0.002 | 0.202 | WWxEW | - | NA |
| 1113 | N. Santiam, Winter, 1986 | 31703-15399 | 0.591 | 0.359 | 0.012 | 0.039 | SxEW | - | NA |
| 1114 | N. Santiam, Winter, 1986 | 31703-15400 | 0.971 | 0.021 | 0.001 | 0.007 | S | - | NA |
| 1115 | N. Santiam, Winter, 1986 | 31703-15401 | 0.010 | 0.979 | 0.004 | 0.006 | EW | - | NA |
| 1116 | N. Santiam, Winter, 1986 | 31703-15402 | 0.087 | 0.873 | 0.006 | 0.034 | EW | - | NA |
| 1117 | N. Santiam, Winter, 1986 | 31703-15403 | 0.012 | 0.979 | 0.002 | 0.006 | EW | - | NA |
| 1118 | N. Santiam, Winter, 1986 | 31703-15404 | 0.036 | 0.940 | 0.004 | 0.021 | EW | - | NA |
| 1119 | N. Santiam, Winter, 1986 | 31703-15405 | 0.013 | 0.975 | 0.003 | 0.009 | EW | - | NA |
| 1120 | N. Santiam, Winter, 1986 | 31703-15406 | 0.934 | 0.020 | 0.001 | 0.045 | S | - | NA |
| 1121 | N. Santiam, Winter, 1986 | 31703-15407 | 0.037 | 0.952 | 0.002 | 0.010 | EW | - | NA |
| 1122 | N. Santiam, Winter, 1986 | 31703-15408 | 0.931 | 0.045 | 0.006 | 0.018 | S | - | NA |
| 1123 | N. Santiam, Winter, 1986 | 31703-15409 | 0.020 | 0.962 | 0.004 | 0.014 | EW | - | NA |
| 1124 | N. Santiam, Winter, 1986 | 31703-15410 | 0.295 | 0.674 | 0.018 | 0.013 | SxEW | - | NA |
| 1125 | N. Santiam, Winter, 1986 | 31703-15411 | 0.955 | 0.036 | 0.002 | 0.008 | S | - | NA |
| 1126 | N. Santiam, Winter, 1986 | 31703-15412 | 0.959 | 0.029 | 0.003 | 0.008 | S | - | NA |
| 1127 | N. Santiam, Winter, 1986 | 31703-15413 | 0.020 | 0.966 | 0.003 | 0.011 | EW | - | NA |
| 1128 | N. Santiam, Winter, 1986 | 31703-15414 | 0.761 | 0.112 | 0.005 | 0.123 | S | - | NA |
| 1129 | N. Santiam, Winter, 1986 | 31703-15415 | 0.103 | 0.314 | 0.002 | 0.581 | WWxEW | - | NA |
| 1130 | N. Santiam, Winter, 1986 | 31703-15416 | 0.076 | 0.835 | 0.006 | 0.083 | EW | - | NA |
| 1131 | N. Santiam, Winter, 1986 | 31703-15417 | 0.063 | 0.842 | 0.059 | 0.036 | EW | - | NA |
| 1132 | N. Santiam, Winter, 1986 | 31703-15418 | 0.018 | 0.967 | 0.003 | 0.012 | EW | - | NA |
| 1133 | N. Santiam, Winter, 1986 | 31703-15419 | 0.014 | 0.969 | 0.012 | 0.005 | EW | - | NA |
| 1134 | N. Santiam, Winter, 1986 | 31703-15420 | 0.980 | 0.012 | 0.001 | 0.007 | S | - | NA |
| 1135 | N. Santiam, Winter, 1986 | 31703-15421 | 0.949 | 0.027 | 0.003 | 0.021 | S | - | NA |
| 1136 | N. Santiam, Winter, 1986 | 31703-15422 | 0.014 | 0.967 | 0.009 | 0.010 | EW | - | NA |
| 1137 | N. Santiam, Winter, 1986 | 31703-15424 | 0.023 | 0.909 | 0.033 | 0.035 | EW | - | NA |
| 1138 | N. Santiam, Winter, 1986 | 31703-15425 | 0.033 | 0.943 | 0.011 | 0.013 | EW | - | NA |
| 1139 | N. Santiam, Summer, 1987 | 31704-15474 | 0.011 | 0.980 | 0.002 | 0.007 | EW | - | NA |
| 1140 | N. Santiam, Summer, 1987 | 31704-15475 | 0.808 | 0.079 | 0.016 | 0.097 | S | - | NA |
| 1141 | N. Santiam, Summer, 1987 | 31704-15476 | 0.021 | 0.954 | 0.003 | 0.022 | EW | - | NA |
| 1142 | N. Santiam, Summer, 1987 | 31704-15478 | 0.874 | 0.062 | 0.002 | 0.063 | S | - | NA |
| 1143 | N. Santiam, Summer, 1987 | 31704-15479 | 0.933 | 0.023 | 0.001 | 0.043 | S | - | NA |
| 1144 | N. Santiam, Summer, 1987 | 31704-15480 | 0.945 | 0.025 | 0.002 | 0.028 | S | - | NA |
| 1145 | N. Santiam, Summer, 1987 | 31704-15481 | 0.958 | 0.032 | 0.003 | 0.006 | S | - | NA |
| 1146 | N. Santiam, Summer, 1987 | 31704-15483 | 0.887 | 0.096 | 0.003 | 0.014 | S | - | NA |

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|---|---|---|---|---|---|---|---|---|---|
| 1147 | N. Santiam, Summer, 1987 | 31704-15484 | 0.880 | 0.055 | 0.005 | 0.059 | S | - | NA |
| 1148 | N. Santiam, Summer, 1987 | 31704-15485 | 0.964 | 0.019 | 0.006 | 0.012 | S | - | NA |
| 1149 | N. Santiam, Summer, 1987 | 31704-15486 | 0.901 | 0.083 | 0.003 | 0.013 | S | - | NA |
| 1150 | N. Santiam, Summer, 1987 | 31704-15487 | 0.936 | 0.054 | 0.002 | 0.008 | S | - | NA |
| 1151 | N. Santiam, Summer, 1987 | 31704-15488 | 0.834 | 0.093 | 0.003 | 0.070 | S | - | NA |
| 1152 | N. Santiam, Summer, 1987 | 31704-15489 | 0.882 | 0.101 | 0.004 | 0.012 | S | - | NA |
| 1153 | N. Santiam, Summer, 1987 | 31704-15490 | 0.844 | 0.133 | 0.003 | 0.020 | S | - | NA |
| 1154 | N. Santiam, Summer, 1987 | 31704-15491 | 0.907 | 0.069 | 0.002 | 0.021 | S | - | NA |
| 1155 | Willamette Falls, Smolt, 2009 | 90357-1 | 0.072 | 0.797 | 0.016 | 0.115 | EW | EW | 0.9999 |
| 1156 | Willamette Falls, Smolt, 2009 | 90357-2 | 0.050 | 0.027 | 0.005 | 0.918 | WW | EW | 0.6294 |
| 1157 | Willamette Falls, Smolt, 2009 | 90357-3 | 0.018 | 0.029 | 0.002 | 0.951 | WW | WW | 0.9984 |
| 1158 | Willamette Falls, Smolt, 2009 | 90357-4 | 0.095 | 0.844 | 0.010 | 0.051 | EW | EW | 1 |
| 1159 | Willamette Falls, Smolt, 2009 | 90357-5 | 0.012 | 0.973 | 0.002 | 0.013 | EW | EW | 1 |
| 1160 | Willamette Falls, Smolt, 2009 | 90357-6 | 0.970 | 0.021 | 0.002 | 0.007 | S | S | 0.9999 |
| 1161 | Willamette Falls, Smolt, 2009 | 90357-7 | 0.051 | 0.905 | 0.037 | 0.007 | EW | EW | 1 |
| 1162 | Willamette Falls, Smolt, 2009 | 90357-8 | 0.199 | 0.077 | 0.003 | 0.721 | WW | WW | 0.9832 |
| 1163 | Willamette Falls, Smolt, 2009 | 90357-9 | 0.014 | 0.978 | 0.002 | 0.006 | EW | EW | 1 |
| 1164 | Willamette Falls, Smolt, 2009 | 90357-10 | 0.017 | 0.967 | 0.003 | 0.013 | EW | EW | 1 |
| 1165 | Willamette Falls, Smolt, 2009 | 90357-11 | 0.049 | 0.847 | 0.087 | 0.017 | EW | EW | 1 |
| 1166 | Willamette Falls, Smolt, 2009 | 90357-12 | 0.927 | 0.047 | 0.002 | 0.025 | S | S | 1 |
| 1167 | Willamette Falls, Smolt, 2009 | 90357-13 | 0.027 | 0.958 | 0.011 | 0.005 | EW | EW | 1 |
| 1168 | Willamette Falls, Smolt, 2009 | 90357-14 | 0.100 | 0.146 | 0.107 | 0.648 | WW | EW | 0.9997 |
| 1169 | Willamette Falls, Smolt, 2009 | 90357-15 | 0.022 | 0.037 | 0.002 | 0.938 | WW | WW | 0.9869 |
| 1170 | Willamette Falls, Smolt, 2009 | 90357-16 | 0.032 | 0.886 | 0.002 | 0.080 | EW | EW | 1 |
| 1171 | Willamette Falls, Smolt, 2009 | 90357-17 | 0.124 | 0.823 | 0.027 | 0.026 | EW | EW | 1 |
| 1172 | Willamette Falls, Smolt, 2009 | 90357-18 | 0.041 | 0.801 | 0.031 | 0.126 | EW | EW | 1 |
| 1173 | Willamette Falls, Smolt, 2009 | 90357-19 | 0.063 | 0.924 | 0.002 | 0.011 | EW | EW | 1 |
| 1174 | Willamette Falls, Smolt, 2009 | 90357-20 | 0.151 | 0.034 | 0.003 | 0.811 | WW | WW | 0.9982 |
| 1175 | Willamette Falls, Smolt, 2009 | 90357-21 | 0.033 | 0.921 | 0.005 | 0.041 | EW | EW | 1 |
| 1176 | Willamette Falls, Smolt, 2009 | 90357-22 | 0.020 | 0.058 | 0.003 | 0.920 | WW | WW | 0.9982 |
| 1177 | Willamette Falls, Smolt, 2009 | 90357-23 | 0.045 | 0.855 | 0.009 | 0.092 | EW | EW | 1 |
| 1178 | Willamette Falls, Smolt, 2009 | 90357-24 | 0.088 | 0.067 | 0.027 | 0.818 | WW | EW | 0.8241 |
| 1179 | Willamette Falls, Smolt, 2009 | 90357-25 | 0.029 | 0.194 | 0.013 | 0.764 | WW | EW | 0.9833 |
| 1180 | Willamette Falls, Smolt, 2009 | 90357-26 | 0.051 | 0.898 | 0.006 | 0.044 | EW | EW | 1 |
| 1181 | Willamette Falls, Smolt, 2009 | 90357-27 | 0.017 | 0.826 | 0.080 | 0.077 | EW | EW | 1 |
| 1182 | Willamette Falls, Smolt, 2009 | 90357-28 | 0.039 | 0.884 | 0.068 | 0.009 | EW | EW | 0.9999 |
| 1183 | Willamette Falls, Smolt, 2009 | 90357-29 | 0.064 | 0.049 | 0.004 | 0.883 | WW | WW | 0.9995 |
| 1184 | Willamette Falls, Smolt, 2009 | 90357-30 | 0.041 | 0.939 | 0.004 | 0.016 | EW | EW | 1 |
| 1185 | Willamette Falls, Smolt, 2009 | 90357-31 | 0.735 | 0.227 | 0.016 | 0.022 | SxEW | S | 0.6318 |
| 1186 | Willamette Falls, Smolt, 2009 | 90357-32 | 0.053 | 0.924 | 0.006 | 0.017 | EW | EW | 0.9981 |

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|---|---|---|---|---|---|---|---|---|---|
| 1187 | Willamette Falls, Smolt, 2009 | 90357-33 | 0.050 | 0.917 | 0.001 | 0.032 | EW | EW | 1 |
| 1188 | Willamette Falls, Smolt, 2009 | 90357-34 | 0.102 | 0.781 | 0.091 | 0.026 | EW | EW | 0.9963 |
| 1189 | Willamette Falls, Smolt, 2009 | 90357-35 | 0.138 | 0.807 | 0.011 | 0.044 | EW | EW | 0.9484 |
| 1190 | Willamette Falls, Smolt, 2009 | 90357-36 | 0.037 | 0.923 | 0.001 | 0.039 | EW | EW | 1 |
| 1191 | Willamette Falls, Smolt, 2009 | 90357-37 | 0.134 | 0.807 | 0.011 | 0.049 | EW | EW | 0.9484 |
| 1192 | Willamette Falls, Smolt, 2009 | 90357-38 | 0.031 | 0.939 | 0.003 | 0.027 | EW | EW | 1 |
| 1193 | Willamette Falls, Smolt, 2009 | 90357-39 | 0.143 | 0.491 | 0.007 | 0.360 | WWxEW | EW | 0.9998 |
| 1194 | Willamette Falls, Smolt, 2009 | 90357-40 | 0.016 | 0.967 | 0.004 | 0.014 | EW | EW | 1 |
| 1195 | Willamette Falls, Smolt, 2009 | 90357-41 | 0.040 | 0.939 | 0.007 | 0.015 | EW | EW | 1 |
| 1196 | Willamette Falls, Smolt, 2009 | 90357-42 | 0.012 | 0.977 | 0.004 | 0.007 | EW | EW | 1 |
| 1197 | Willamette Falls, Smolt, 2009 | 90357-43 | 0.127 | 0.504 | 0.004 | 0.365 | WWxEW | EW | 0.9958 |
| 1198 | Willamette Falls, Smolt, 2009 | 90357-44 | 0.026 | 0.683 | 0.002 | 0.288 | WWxEW | EW | 1 |
| 1199 | Willamette Falls, Smolt, 2009 | 90357-45 | 0.076 | 0.871 | 0.017 | 0.036 | EW | EW | 0.9999 |
| 1200 | Willamette Falls, Smolt, 2009 | 90357-46 | 0.217 | 0.728 | 0.001 | 0.055 | SxEW | EW | 1 |
| 1201 | Willamette Falls, Smolt, 2009 | 90357-47 | 0.067 | 0.910 | 0.010 | 0.013 | EW | EW | 1 |
| 1202 | Willamette Falls, Smolt, 2009 | 90357-48 | 0.160 | 0.080 | 0.005 | 0.755 | WW | EW | 0.6888 |
| 1203 | Willamette Falls, Smolt, 2009 | 90357-49 | 0.064 | 0.110 | 0.005 | 0.820 | WW | EW | 0.9237 |
| 1204 | Willamette Falls, Smolt, 2009 | 90357-50 | 0.116 | 0.795 | 0.015 | 0.074 | EW | EW | 1 |
| 1205 | Willamette Falls, Smolt, 2009 | 90357-51 | 0.014 | 0.968 | 0.005 | 0.013 | EW | EW | 1 |
| 1206 | Willamette Falls, Smolt, 2009 | 90357-52 | 0.031 | 0.912 | 0.021 | 0.036 | EW | EW | 1 |
| 1207 | Willamette Falls, Smolt, 2009 | 90357-53 | 0.024 | 0.953 | 0.009 | 0.014 | EW | EW | 1 |
| 1208 | Willamette Falls, Smolt, 2009 | 90357-54 | 0.056 | 0.923 | 0.005 | 0.017 | EW | EW | 1 |
| 1209 | Willamette Falls, Smolt, 2009 | 90357-55 | 0.012 | 0.966 | 0.009 | 0.013 | EW | EW | 1 |
| 1210 | Willamette Falls, Smolt, 2009 | 90357-56 | 0.089 | 0.744 | 0.003 | 0.163 | EW | EW | 1 |
| 1211 | Willamette Falls, Smolt, 2009 | 90357-57 | 0.030 | 0.921 | 0.004 | 0.045 | EW | EW | 1 |
| 1212 | Willamette Falls, Smolt, 2009 | 90357-58 | 0.056 | 0.419 | 0.012 | 0.513 | WWxEW | EW | 0.937 |
| 1213 | Willamette Falls, Smolt, 2009 | 90357-59 | 0.860 | 0.114 | 0.006 | 0.020 | S | S | 1 |
| 1214 | Willamette Falls, Smolt, 2009 | 90357-60 | 0.025 | 0.966 | 0.003 | 0.007 | EW | EW | 1 |
| 1215 | Willamette Falls, Smolt, 2009 | 90357-61 | 0.060 | 0.093 | 0.038 | 0.809 | WW | EW | 0.968 |
| 1216 | Willamette Falls, Smolt, 2009 | 90357-62 | 0.056 | 0.935 | 0.003 | 0.005 | EW | EW | 1 |
| 1217 | Willamette Falls, Smolt, 2009 | 90357-63 | 0.015 | 0.966 | 0.002 | 0.017 | EW | EW | 1 |
| 1218 | Willamette Falls, Smolt, 2009 | 90357-64 | 0.038 | 0.926 | 0.003 | 0.033 | EW | EW | 0.9803 |
| 1219 | Willamette Falls, Smolt, 2009 | 90357-65 | 0.929 | 0.048 | 0.009 | 0.015 | S | S | 0.9999 |
| 1220 | Willamette Falls, Smolt, 2009 | 90357-66 | 0.041 | 0.283 | 0.002 | 0.675 | WWxEW | EW | 0.9997 |
| 1221 | Willamette Falls, Smolt, 2009 | 90357-67 | 0.037 | 0.046 | 0.003 | 0.914 | WW | WW | 0.9934 |
| 1222 | Willamette Falls, Smolt, 2009 | 90357-68 | 0.028 | 0.212 | 0.004 | 0.756 | WWxEW | WW | 0.9608 |
| 1223 | Willamette Falls, Smolt, 2009 | 90357-69 | 0.018 | 0.950 | 0.010 | 0.022 | EW | EW | 1 |
| 1224 | Willamette Falls, Smolt, 2009 | 90357-70 | 0.193 | 0.727 | 0.008 | 0.072 | EW | EW | 0.9989 |
| 1225 | Willamette Falls, Smolt, 2009 | 90357-71 | 0.034 | 0.886 | 0.007 | 0.074 | EW | EW | 1 |
| 1226 | Willamette Falls, Smolt, 2009 | 90357-72 | 0.018 | 0.410 | 0.008 | 0.564 | WWxEW | WW | 0.9636 |

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|---|---|---|---|---|---|---|---|---|---|
| 1227 | Willamette Falls, Smolt, 2009 | 90357-73 | 0.168 | 0.778 | 0.014 | 0.040 | EW | EW | 1 |
| 1228 | Willamette Falls, Smolt, 2009 | 90357-74 | 0.088 | 0.872 | 0.002 | 0.037 | EW | EW | 1 |
| 1229 | Willamette Falls, Smolt, 2009 | 90357-75 | 0.028 | 0.352 | 0.003 | 0.616 | WWxEW | EW | 0.9756 |
| 1230 | Willamette Falls, Smolt, 2009 | 90357-76 | 0.043 | 0.382 | 0.003 | 0.572 | WWxEW | EW | 0.9985 |
| 1231 | Willamette Falls, Smolt, 2009 | 90357-77 | 0.067 | 0.896 | 0.001 | 0.036 | EW | EW | 1 |
| 1232 | Willamette Falls, Smolt, 2009 | 90357-78 | 0.021 | 0.418 | 0.014 | 0.547 | WWxEW | EW | 1 |
| 1233 | Willamette Falls, Smolt, 2009 | 90357-79 | 0.040 | 0.940 | 0.009 | 0.011 | EW | EW | 1 |
| 1234 | Willamette Falls, Smolt, 2009 | 90357-80 | 0.020 | 0.934 | 0.033 | 0.013 | EW | EW | 1 |
| 1235 | Willamette Falls, Smolt, 2009 | 90357-81 | 0.032 | 0.018 | 0.009 | 0.941 | WW | WW | 0.9227 |
| 1236 | Willamette Falls, Smolt, 2009 | 90357-82 | 0.139 | 0.844 | 0.004 | 0.012 | EW | EW | 1 |
| 1237 | Willamette Falls, Smolt, 2009 | 90357-83 | 0.116 | 0.440 | 0.013 | 0.431 | WWxEW | WW | 1 |
| 1238 | Willamette Falls, Smolt, 2009 | 90357-84 | 0.082 | 0.803 | 0.005 | 0.110 | EW | EW | 1 |
| 1239 | Willamette Falls, Smolt, 2009 | 90357-85 | 0.017 | 0.974 | 0.002 | 0.007 | EW | EW | 1 |
| 1240 | Willamette Falls, Smolt, 2009 | 90357-86 | 0.021 | 0.729 | 0.109 | 0.140 | EW | EW | 1 |
| 1241 | Willamette Falls, Smolt, 2009 | 90357-87 | 0.039 | 0.400 | 0.018 | 0.543 | WWxEW | EW | 0.7582 |
| 1242 | Willamette Falls, Smolt, 2009 | 90357-88 | 0.044 | 0.882 | 0.004 | 0.070 | EW | EW | 1 |
| 1243 | Willamette Falls, Smolt, 2009 | 90357-89 | 0.021 | 0.965 | 0.003 | 0.011 | EW | EW | 1 |
| 1244 | Willamette Falls, Smolt, 2009 | 90357-90 | 0.026 | 0.948 | 0.012 | 0.014 | EW | EW | 1 |
| 1245 | Willamette Falls, Smolt, 2009 | 90357-91 | 0.062 | 0.905 | 0.015 | 0.018 | EW | EW | 1 |
| 1246 | Willamette Falls, Smolt, 2009 | 90357-92 | 0.018 | 0.024 | 0.002 | 0.956 | WW | WW | 1 |
| 1247 | Willamette Falls, Smolt, 2009 | 90357-93 | 0.082 | 0.905 | 0.002 | 0.011 | EW | EW | 1 |
| 1248 | Willamette Falls, Smolt, 2009 | 90357-94 | 0.164 | 0.815 | 0.007 | 0.014 | EW | EW | 1 |
| 1249 | Willamette Falls, Smolt, 2009 | 90357-95 | 0.731 | 0.205 | 0.040 | 0.024 | SxEW | EW | 0.8787 |
| 1250 | Willamette Falls, Smolt, 2009 | 90357-96 | 0.096 | 0.118 | 0.004 | 0.782 | WW | EW | 0.5441 |
| 1251 | Willamette Falls, Smolt, 2009 | 90357-97 | 0.030 | 0.598 | 0.014 | 0.358 | WWxEW | EW | 0.9991 |
| 1252 | Willamette Falls, Smolt, 2009 | 90357-98 | 0.073 | 0.902 | 0.002 | 0.023 | EW | EW | 1 |
| 1253 | Willamette Falls, Smolt, 2009 | 90357-99 | 0.099 | 0.398 | 0.026 | 0.477 | WWxEW | EW | 0.9995 |
| 1254 | Willamette Falls, Smolt, 2009 | 90357-100 | 0.014 | 0.967 | 0.006 | 0.013 | EW | EW | 1 |
| 1255 | Willamette Falls, Smolt, 2009 | 90357-102 | 0.191 | 0.773 | 0.028 | 0.009 | EW | EW | 0.9991 |
| 1256 | Willamette Falls, Smolt, 2009 | 90357-103 | 0.958 | 0.031 | 0.002 | 0.009 | S | S | 1 |
| 1257 | Willamette Falls, Smolt, 2009 | 90357-104 | 0.034 | 0.781 | 0.021 | 0.164 | EW | EW | 1 |
| 1258 | Willamette Falls, Smolt, 2009 | 90357-105 | 0.935 | 0.050 | 0.002 | 0.012 | S | S | 0.9971 |
| 1259 | Willamette Falls, Smolt, 2009 | 90357-106 | 0.038 | 0.930 | 0.005 | 0.027 | EW | EW | 1 |
| 1260 | Willamette Falls, Smolt, 2009 | 90357-107 | 0.047 | 0.925 | 0.017 | 0.011 | EW | EW | 1 |
| 1261 | Willamette Falls, Smolt, 2009 | 90357-108 | 0.272 | 0.712 | 0.006 | 0.011 | SxEW | EW | 1 |
| 1262 | Willamette Falls, Smolt, 2009 | 90357-109 | 0.019 | 0.962 | 0.003 | 0.016 | EW | EW | 1 |
| 1263 | Willamette Falls, Smolt, 2009 | 90357-110 | 0.024 | 0.948 | 0.005 | 0.023 | EW | EW | 1 |
| 1264 | Willamette Falls, Smolt, 2009 | 90357-111 | 0.226 | 0.516 | 0.024 | 0.235 | 3x | EW | 0.9998 |
| 1265 | Willamette Falls, Smolt, 2009 | 90357-112 | 0.056 | 0.726 | 0.002 | 0.216 | WWxEW | EW | 1 |
| 1266 | Willamette Falls, Smolt, 2009 | 90357-113 | 0.022 | 0.960 | 0.003 | 0.016 | EW | EW | 1 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 1267 | Willamette Falls, Smolt, 2009 | 90357-114 | 0.019 | 0.959 | 0.003 | 0.019 | EW | EW | 1 |
| 1268 | Willamette Falls, Smolt, 2009 | 90357-115 | 0.813 | 0.111 | 0.061 | 0.015 | S | S | 0.9951 |
| 1269 | Willamette Falls, Smolt, 2009 | 90357-116 | 0.028 | 0.945 | 0.002 | 0.026 | EW | EW | 1 |
| 1270 | Willamette Falls, Smolt, 2009 | 90357-117 | 0.025 | 0.228 | 0.007 | 0.740 | WWxEW | EW | 0.9969 |
| 1271 | Willamette Falls, Smolt, 2009 | 90357-119 | 0.253 | 0.399 | 0.003 | 0.345 | 3x | EW | 1 |
| 1272 | Willamette Falls, Smolt, 2009 | 90357-120 | 0.023 | 0.956 | 0.007 | 0.014 | EW | EW | 1 |
| 1273 | Willamette Falls, Smolt, 2009 | 90357-121 | 0.020 | 0.965 | 0.005 | 0.010 | EW | EW | 1 |
| 1274 | Willamette Falls, Smolt, 2009 | 90357-122 | 0.951 | 0.021 | 0.002 | 0.026 | S | S | 0.9991 |
| 1275 | Willamette Falls, Smolt, 2009 | 90357-123 | 0.641 | 0.222 | 0.099 | 0.038 | SxEW | S | 0.6925 |
| 1276 | Willamette Falls, Smolt, 2009 | 90357-124 | 0.141 | 0.729 | 0.014 | 0.116 | EW | EW | 0.9998 |
| 1277 | Willamette Falls, Smolt, 2009 | 90357-126 | 0.033 | 0.909 | 0.048 | 0.010 | EW | EW | 1 |
| 1278 | Willamette Falls, Smolt, 2009 | 90357-127 | 0.038 | 0.452 | 0.046 | 0.464 | WWxEW | EW | 1 |
| 1279 | Willamette Falls, Smolt, 2009 | 90357-129 | 0.114 | 0.065 | 0.004 | 0.817 | WW | EW | 0.6618 |
| 1280 | Willamette Falls, Smolt, 2009 | 90357-130 | 0.238 | 0.731 | 0.005 | 0.026 | SxEW | EW | 1 |
| 1281 | Willamette Falls, Smolt, 2009 | 90357-131 | 0.253 | 0.732 | 0.005 | 0.009 | SxEW | EW | 1 |
| 1282 | Willamette Falls, Smolt, 2009 | 90357-132 | 0.039 | 0.601 | 0.004 | 0.356 | WWxEW | EW | 0.9971 |
| 1283 | Willamette Falls, Smolt, 2009 | 90357-133 | 0.046 | 0.936 | 0.003 | 0.015 | EW | EW | 1 |
| 1284 | Willamette Falls, Smolt, 2009 | 90357-134 | 0.114 | 0.087 | 0.003 | 0.796 | WW | EW | 0.8967 |
| 1285 | Willamette Falls, Smolt, 2009 | 90357-135 | 0.061 | 0.903 | 0.003 | 0.032 | EW | EW | 1 |
| 1286 | Willamette Falls, Smolt, 2009 | 90357-136 | 0.082 | 0.109 | 0.006 | 0.804 | WW | EW | 0.6289 |
| 1287 | Willamette Falls, Smolt, 2009 | 90357-137 | 0.137 | 0.248 | 0.003 | 0.612 | WWxEW | EW | 0.9957 |
| 1288 | Willamette Falls, Smolt, 2009 | 90357-138 | 0.019 | 0.972 | 0.003 | 0.007 | EW | EW | 1 |
| 1289 | Willamette Falls, Smolt, 2009 | 90357-139 | 0.060 | 0.098 | 0.004 | 0.838 | WW | EW | 0.7133 |
| 1290 | Willamette Falls, Smolt, 2009 | 90357-140 | 0.042 | 0.930 | 0.011 | 0.017 | EW | EW | 1 |
| 1291 | Willamette Falls, Smolt, 2009 | 90357-141 | 0.293 | 0.683 | 0.008 | 0.016 | SxEW | EW | 0.8802 |
| 1292 | Willamette Falls, Smolt, 2009 | 90357-142 | 0.028 | 0.929 | 0.001 | 0.041 | EW | EW | 1 |
| 1293 | Willamette Falls, Smolt, 2009 | 90357-143 | 0.019 | 0.964 | 0.005 | 0.012 | EW | EW | 1 |
| 1294 | Willamette Falls, Smolt, 2009 | 90357-144 | 0.064 | 0.085 | 0.004 | 0.846 | WW | WW | 0.8214 |
| 1295 | Willamette Falls, Smolt, 2009 | 90357-145 | 0.056 | 0.904 | 0.005 | 0.035 | EW | EW | 1 |
| 1296 | Willamette Falls, Smolt, 2009 | 90357-146 | 0.694 | 0.215 | 0.003 | 0.088 | SxEW | S | 0.6484 |
| 1297 | Willamette Falls, Smolt, 2009 | 90357-147 | 0.362 | 0.451 | 0.146 | 0.040 | SxEW | EW | 0.5802 |
| 1298 | Willamette Falls, Smolt, 2009 | 90357-148 | 0.028 | 0.823 | 0.008 | 0.141 | EW | EW | 1 |
| 1299 | Willamette Falls, Smolt, 2009 | 90357-149 | 0.202 | 0.763 | 0.023 | 0.012 | SxEW | EW | 0.9933 |
| 1300 | Willamette Falls, Smolt, 2009 | 90357-150 | 0.020 | 0.062 | 0.005 | 0.913 | WW | EW | 0.5138 |
| 1301 | Willamette Falls, Smolt, 2009 | 90357-151 | 0.050 | 0.907 | 0.027 | 0.017 | EW | EW | 1 |
| 1302 | Willamette Falls, Smolt, 2009 | 90357-152 | 0.294 | 0.652 | 0.001 | 0.053 | SxEW | EW | 1 |
| 1303 | Willamette Falls, Smolt, 2009 | 90357-153 | 0.014 | 0.975 | 0.004 | 0.007 | EW | EW | 1 |
| 1304 | Willamette Falls, Smolt, 2009 | 90357-154 | 0.018 | 0.911 | 0.007 | 0.065 | EW | EW | 1 |
| 1305 | Willamette Falls, Smolt, 2009 | 90357-155 | 0.013 | 0.011 | 0.001 | 0.975 | WW | WW | 0.951 |
| 1306 | Willamette Falls, Smolt, 2009 | 90357-156 | 0.141 | 0.780 | 0.007 | 0.072 | EW | EW | 1 |

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|---|---|---|---|---|---|---|---|---|---|
| 1307 | Willamette Falls, Smolt, 2009 | 90357-157 | 0.178 | 0.013 | 0.002 | 0.806 | WW | EW | 0.9827 |
| 1308 | Willamette Falls, Smolt, 2009 | 90357-158 | 0.047 | 0.702 | 0.004 | 0.247 | WWxEW | EW | 0.9901 |
| 1309 | Willamette Falls, Smolt, 2009 | 90357-159 | 0.475 | 0.149 | 0.358 | 0.018 | SxRB | EW | 0.9924 |
| 1310 | Willamette Falls, Smolt, 2009 | 90357-160 | 0.677 | 0.094 | 0.040 | 0.189 | S | EW | 0.6202 |
| 1311 | Willamette Falls, Smolt, 2009 | 90357-161 | 0.048 | 0.525 | 0.005 | 0.422 | WWxEW | EW | 0.8461 |
| 1312 | Willamette Falls, Smolt, 2009 | 90357-162 | 0.075 | 0.360 | 0.005 | 0.560 | WWxEW | EW | 0.9996 |
| 1313 | Willamette Falls, Smolt, 2009 | 90357-163 | 0.089 | 0.888 | 0.005 | 0.018 | EW | EW | 1 |
| 1314 | Willamette Falls, Smolt, 2009 | 90357-164 | 0.224 | 0.727 | 0.025 | 0.025 | SxEW | EW | 1 |
| 1315 | Willamette Falls, Smolt, 2009 | 90357-165 | 0.792 | 0.148 | 0.014 | 0.046 | S | S | 0.9212 |
| 1316 | Willamette Falls, Smolt, 2009 | 90357-166 | 0.020 | 0.969 | 0.004 | 0.007 | EW | EW | 1 |
| 1317 | Willamette Falls, Smolt, 2009 | 90357-167 | 0.055 | 0.928 | 0.004 | 0.013 | EW | EW | 0.9999 |
| 1318 | Willamette Falls, Smolt, 2009 | 90357-168 | 0.012 | 0.971 | 0.011 | 0.005 | EW | EW | 1 |
| 1319 | Willamette Falls, Smolt, 2009 | 90357-169 | 0.063 | 0.925 | 0.001 | 0.011 | EW | EW | 1 |
| 1320 | Willamette Falls, Smolt, 2009 | 90357-170 | 0.265 | 0.295 | 0.004 | 0.436 | 3x | EW | 0.7849 |
| 1321 | Willamette Falls, Smolt, 2009 | 90357-172 | 0.076 | 0.901 | 0.008 | 0.015 | EW | EW | 1 |
| 1322 | Willamette Falls, Smolt, 2009 | 90357-173 | 0.058 | 0.899 | 0.028 | 0.014 | EW | EW | 1 |
| 1323 | Willamette Falls, Smolt, 2009 | 90357-174 | 0.021 | 0.947 | 0.001 | 0.031 | EW | EW | 1 |
| 1324 | Willamette Falls, Smolt, 2009 | 90357-175 | 0.035 | 0.334 | 0.003 | 0.628 | WWxEW | EW | 0.9933 |
| 1325 | Willamette Falls, Smolt, 2009 | 90357-176 | 0.023 | 0.320 | 0.003 | 0.655 | WWxEW | EW | 0.521 |
| 1326 | Willamette Falls, Smolt, 2009 | 90357-177 | 0.913 | 0.032 | 0.004 | 0.051 | S | S | 0.9888 |
| 1327 | Willamette Falls, Smolt, 2009 | 90357-178 | 0.974 | 0.017 | 0.002 | 0.006 | S | S | 1 |
| 1328 | Willamette Falls, Smolt, 2009 | 90357-179 | 0.152 | 0.075 | 0.004 | 0.769 | WW | EW | 0.9937 |
| 1329 | Willamette Falls, Smolt, 2009 | 90357-180 | 0.136 | 0.056 | 0.002 | 0.806 | WW | WW | 0.7077 |
| 1330 | Willamette Falls, Smolt, 2009 | 90357-181 | 0.727 | 0.201 | 0.013 | 0.059 | SxEW | EW | 0.7939 |
| 1331 | Willamette Falls, Smolt, 2009 | 90357-182 | 0.701 | 0.159 | 0.102 | 0.037 | S | EW | 0.5409 |
| 1332 | Willamette Falls, Smolt, 2009 | 90357-183 | 0.072 | 0.571 | 0.008 | 0.349 | WWxEW | EW | 0.9997 |
| 1333 | Willamette Falls, Smolt, 2009 | 90357-184 | 0.205 | 0.072 | 0.028 | 0.696 | SxWW | WW | 0.6692 |
| 1334 | Willamette Falls, Smolt, 2009 | 90357-185 | 0.018 | 0.631 | 0.002 | 0.349 | WWxEW | EW | 0.9444 |
| 1335 | Willamette Falls, Smolt, 2009 | 90357-186 | 0.058 | 0.892 | 0.013 | 0.037 | EW | EW | 0.9996 |
| 1336 | Willamette Falls, Smolt, 2009 | 90357-187 | 0.181 | 0.277 | 0.020 | 0.522 | WWxEW | EW | 0.9997 |
| 1337 | Willamette Falls, Smolt, 2009 | 90357-188 | 0.019 | 0.923 | 0.002 | 0.056 | EW | EW | 0.9999 |
| 1338 | Willamette Falls, Smolt, 2009 | 90357-189 | 0.113 | 0.772 | 0.004 | 0.111 | EW | EW | 0.9997 |
| 1339 | Willamette Falls, Smolt, 2009 | 90357-190 | 0.029 | 0.572 | 0.029 | 0.371 | WWxEW | EW | 1 |
| 1340 | Willamette Falls, Smolt, 2009 | 90357-192 | 0.015 | 0.917 | 0.003 | 0.065 | EW | EW | 1 |
| 1341 | Willamette Falls, Smolt, 2009 | 90357-193 | 0.088 | 0.741 | 0.033 | 0.138 | EW | EW | 1 |
| 1342 | Willamette Falls, Smolt, 2009 | 90357-194 | 0.953 | 0.033 | 0.002 | 0.011 | S | S | 1 |
| 1343 | Willamette Falls, Smolt, 2009 | 90357-195 | 0.026 | 0.959 | 0.005 | 0.011 | EW | EW | 1 |
| 1344 | Willamette Falls, Smolt, 2009 | 90357-196 | 0.013 | 0.952 | 0.010 | 0.025 | EW | EW | 1 |
| 1345 | Willamette Falls, Smolt, 2009 | 90357-197 | 0.025 | 0.597 | 0.019 | 0.360 | WWxEW | EW | 0.9998 |
| 1346 | Willamette Falls, Smolt, 2009 | 90357-198 | 0.011 | 0.977 | 0.002 | 0.010 | EW | EW | 1 |

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|---|---|---|---|---|---|---|---|---|---|
| 1347 | Willamette Falls, Smolt, 2009 | 90357-199 | 0.019 | 0.964 | 0.004 | 0.012 | EW | EW | 1 |
| 1348 | Willamette Falls, Smolt, 2009 | 90357-200 | 0.024 | 0.111 | 0.004 | 0.860 | WW | EW | 0.9622 |
| 1349 | Willamette Falls, Smolt, 2009 | 90357-201 | 0.020 | 0.968 | 0.007 | 0.005 | EW | EW | 1 |
| 1350 | Willamette Falls, Smolt, 2009 | 90357-202 | 0.057 | 0.508 | 0.003 | 0.432 | WWxEW | EW | 1 |
| 1351 | Willamette Falls, Smolt, 2009 | 90357-203 | 0.100 | 0.855 | 0.005 | 0.041 | EW | EW | 1 |
| 1352 | Willamette Falls, Smolt, 2009 | 90357-204 | 0.016 | 0.970 | 0.007 | 0.006 | EW | EW | 1 |
| 1353 | Willamette Falls, Smolt, 2009 | 90357-205 | 0.022 | 0.967 | 0.004 | 0.006 | EW | EW | 1 |
| 1354 | Willamette Falls, Smolt, 2009 | 90357-206 | 0.716 | 0.226 | 0.048 | 0.010 | SxEW | EW | 0.8819 |
| 1355 | Willamette Falls, Smolt, 2009 | 90357-208 | 0.280 | 0.587 | 0.022 | 0.111 | SxEW | EW | 0.9968 |
| 1356 | Willamette Falls, Smolt, 2009 | 90357-209 | 0.015 | 0.974 | 0.004 | 0.007 | EW | EW | 1 |
| 1357 | Willamette Falls, Smolt, 2009 | 90357-210 | 0.012 | 0.015 | 0.002 | 0.971 | WW | WW | 1 |
| 1358 | Willamette Falls, Smolt, 2009 | 90357-211 | 0.716 | 0.227 | 0.005 | 0.053 | SxEW | EW | 0.9662 |
| 1359 | Willamette Falls, Smolt, 2009 | 90357-212 | 0.950 | 0.028 | 0.001 | 0.021 | S | S | 1 |
| 1360 | Willamette Falls, Smolt, 2009 | 90357-213 | 0.458 | 0.484 | 0.043 | 0.015 | SxEW | EW | 0.9977 |
| 1361 | Willamette Falls, Smolt, 2009 | 90357-214 | 0.014 | 0.954 | 0.004 | 0.028 | EW | EW | 1 |
| 1362 | Willamette Falls, Smolt, 2009 | 90357-215 | 0.026 | 0.957 | 0.007 | 0.010 | EW | EW | 1 |
| 1363 | Willamette Falls, Smolt, 2009 | 90357-216 | 0.085 | 0.891 | 0.002 | 0.021 | EW | EW | 1 |
| 1364 | Willamette Falls, Smolt, 2009 | 90357-217 | 0.019 | 0.951 | 0.004 | 0.026 | EW | EW | 1 |
| 1365 | Willamette Falls, Smolt, 2009 | 90357-218 | 0.117 | 0.829 | 0.003 | 0.051 | EW | EW | 1 |
| 1366 | Willamette Falls, Smolt, 2009 | 90357-219 | 0.962 | 0.024 | 0.002 | 0.011 | S | S | 1 |
| 1367 | Willamette Falls, Smolt, 2009 | 90357-220 | 0.779 | 0.207 | 0.003 | 0.011 | SxEW | S | 0.9856 |
| 1368 | Willamette Falls, Smolt, 2009 | 90357-221 | 0.024 | 0.702 | 0.266 | 0.007 | EWxRB | EW | 1 |
| 1369 | Willamette Falls, Smolt, 2009 | 90357-222 | 0.339 | 0.603 | 0.005 | 0.053 | SxEW | EW | 0.9994 |
| 1370 | Willamette Falls, Smolt, 2009 | 90357-223 | 0.048 | 0.943 | 0.004 | 0.005 | EW | EW | 1 |
| 1371 | Willamette Falls, Smolt, 2009 | 90357-224 | 0.030 | 0.143 | 0.809 | 0.018 | RB | EW | 0.9553 |
| 1372 | Willamette Falls, Smolt, 2009 | 90357-225 | 0.341 | 0.585 | 0.001 | 0.073 | SxEW | EW | 1 |
| 1373 | Willamette Falls, Smolt, 2009 | 90357-226 | 0.102 | 0.778 | 0.022 | 0.098 | EW | EW | 1 |
| 1374 | Willamette Falls, Smolt, 2009 | 90357-227 | 0.026 | 0.016 | 0.002 | 0.957 | WW | EW | 0.9721 |
| 1375 | Willamette Falls, Smolt, 2009 | 90357-228 | 0.022 | 0.020 | 0.002 | 0.956 | WW | WW | 0.9997 |
| 1376 | Willamette Falls, Smolt, 2009 | 90357-229 | 0.039 | 0.779 | 0.008 | 0.174 | EW | EW | 0.9999 |
| 1377 | Willamette Falls, Smolt, 2009 | 90357-230 | 0.030 | 0.934 | 0.002 | 0.035 | EW | EW | 1 |
| 1378 | Willamette Falls, Smolt, 2009 | 90357-231 | 0.964 | 0.018 | 0.001 | 0.016 | S | S | 0.9999 |
| 1379 | Willamette Falls, Smolt, 2009 | 90357-232 | 0.034 | 0.954 | 0.004 | 0.008 | EW | EW | 1 |
| 1380 | Willamette Falls, Smolt, 2009 | 90357-233 | 0.081 | 0.773 | 0.005 | 0.141 | EW | EW | 1 |
| 1381 | Willamette Falls, Smolt, 2009 | 90357-234 | 0.019 | 0.895 | 0.011 | 0.075 | EW | EW | 1 |
| 1382 | Willamette Falls, Smolt, 2009 | 90357-235 | 0.026 | 0.103 | 0.001 | 0.869 | WW | EW | 0.9977 |
| 1383 | Willamette Falls, Smolt, 2009 | 90357-236 | 0.071 | 0.056 | 0.005 | 0.868 | WW | EW | 0.9869 |
| 1384 | Willamette Falls, Smolt, 2009 | 90357-237 | 0.960 | 0.031 | 0.003 | 0.006 | S | S | 1 |
| 1385 | Willamette Falls, Smolt, 2009 | 90357-238 | 0.044 | 0.394 | 0.003 | 0.558 | WWxEW | EW | 0.99 |
| 1386 | Willamette Falls, Smolt, 2009 | 90357-239 | 0.445 | 0.410 | 0.077 | 0.067 | SxEW | EW | 0.9995 |

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|---|---|---|---|---|---|---|---|---|---|
| 1387 | Willamette Falls, Smolt, 2009 | 90357-240 | 0.429 | 0.387 | 0.168 | 0.015 | SxEW | EW | 0.9956 |
| 1388 | Willamette Falls, Smolt, 2009 | 90357-242 | 0.190 | 0.786 | 0.004 | 0.020 | EW | EW | 0.9999 |
| 1389 | Willamette Falls, Smolt, 2009 | 90357-243 | 0.076 | 0.873 | 0.002 | 0.049 | EW | EW | 1 |
| 1390 | Willamette Falls, Smolt, 2009 | 90357-244 | 0.863 | 0.084 | 0.002 | 0.050 | S | S | 0.9994 |
| 1391 | Willamette Falls, Smolt, 2009 | 90357-245 | 0.023 | 0.957 | 0.013 | 0.008 | EW | EW | 1 |
| 1392 | Willamette Falls, Smolt, 2009 | 90357-246 | 0.022 | 0.862 | 0.002 | 0.114 | EW | EW | 1 |
| 1393 | Willamette Falls, Smolt, 2009 | 90357-247 | 0.041 | 0.021 | 0.002 | 0.935 | WW | EW | 0.5978 |
| 1394 | Willamette Falls, Smolt, 2009 | 90357-248 | 0.014 | 0.975 | 0.003 | 0.009 | EW | EW | 1 |
| 1395 | Willamette Falls, Smolt, 2010 | 90450-1 | 0.043 | 0.910 | 0.002 | 0.045 | EW | EW | 1 |
| 1396 | Willamette Falls, Smolt, 2010 | 90450-2 | 0.016 | 0.964 | 0.004 | 0.016 | EW | EW | 1 |
| 1397 | Willamette Falls, Smolt, 2010 | 90450-4 | 0.255 | 0.686 | 0.047 | 0.012 | SxEW | EW | 0.9997 |
| 1398 | Willamette Falls, Smolt, 2010 | 90450-5 | 0.055 | 0.593 | 0.001 | 0.351 | WWxEW | EW | 0.9867 |
| 1399 | Willamette Falls, Smolt, 2010 | 90450-8 | 0.030 | 0.937 | 0.008 | 0.025 | EW | EW | 1 |
| 1400 | Willamette Falls, Smolt, 2010 | 90450-11 | 0.269 | 0.619 | 0.027 | 0.085 | SxEW | EW | 0.9593 |
| 1401 | Willamette Falls, Smolt, 2010 | 90450-15 | 0.090 | 0.729 | 0.003 | 0.178 | EW | EW | 1 |
| 1402 | Willamette Falls, Smolt, 2010 | 90450-17 | 0.015 | 0.955 | 0.005 | 0.025 | EW | EW | 1 |
| 1403 | Willamette Falls, Smolt, 2010 | 90450-18 | 0.036 | 0.083 | 0.002 | 0.879 | WW | EW | 0.9998 |
| 1404 | Willamette Falls, Smolt, 2010 | 90450-19 | 0.015 | 0.876 | 0.004 | 0.105 | EW | EW | 1 |
| 1405 | Willamette Falls, Smolt, 2010 | 90450-20 | 0.913 | 0.060 | 0.005 | 0.021 | S | S | 0.9716 |
| 1406 | Willamette Falls, Smolt, 2010 | 90450-21 | 0.938 | 0.032 | 0.001 | 0.029 | S | S | 1 |
| 1407 | Willamette Falls, Smolt, 2010 | 90450-22 | 0.647 | 0.212 | 0.015 | 0.125 | SxEW | S | 0.9929 |
| 1408 | Willamette Falls, Smolt, 2010 | 90450-23 | 0.032 | 0.953 | 0.008 | 0.007 | EW | EW | 1 |
| 1409 | Willamette Falls, Smolt, 2010 | 90450-24 | 0.948 | 0.042 | 0.004 | 0.006 | S | S | 1 |
| 1410 | Willamette Falls, Smolt, 2010 | 90450-25 | 0.192 | 0.782 | 0.013 | 0.014 | EW | EW | 0.8503 |
| 1411 | Willamette Falls, Smolt, 2010 | 90450-26 | 0.021 | 0.935 | 0.036 | 0.009 | EW | EW | 0.9955 |
| 1412 | Willamette Falls, Smolt, 2010 | 90450-27 | 0.028 | 0.941 | 0.010 | 0.020 | EW | EW | 1 |
| 1413 | Willamette Falls, Smolt, 2010 | 90450-28 | 0.110 | 0.846 | 0.003 | 0.040 | EW | EW | 1 |
| 1414 | Willamette Falls, Smolt, 2010 | 90450-29 | 0.014 | 0.036 | 0.004 | 0.946 | WW | WW | 0.9994 |
| 1415 | Willamette Falls, Smolt, 2010 | 90450-30 | 0.047 | 0.084 | 0.001 | 0.869 | WW | EW | 0.9981 |
| 1416 | Willamette Falls, Smolt, 2010 | 90450-31 | 0.129 | 0.675 | 0.018 | 0.178 | EW | EW | 0.9999 |
| 1417 | Willamette Falls, Smolt, 2010 | 90450-32 | 0.061 | 0.063 | 0.003 | 0.873 | WW | EW | 0.9368 |
| 1418 | Willamette Falls, Smolt, 2010 | 90450-33 | 0.917 | 0.062 | 0.009 | 0.012 | S | S | 1 |
| 1419 | Willamette Falls, Smolt, 2010 | 90450-35 | 0.602 | 0.380 | 0.003 | 0.016 | SxEW | EW | 0.6229 |
| 1420 | Willamette Falls, Smolt, 2010 | 90450-36 | 0.057 | 0.825 | 0.105 | 0.014 | EW | EW | 1 |
| 1421 | Willamette Falls, Smolt, 2010 | 90450-37 | 0.091 | 0.852 | 0.012 | 0.045 | EW | EW | 1 |
| 1422 | Willamette Falls, Smolt, 2010 | 90450-38 | 0.034 | 0.925 | 0.002 | 0.039 | EW | EW | 1 |
| 1423 | Willamette Falls, Smolt, 2010 | 90450-39 | 0.060 | 0.080 | 0.003 | 0.857 | WW | WW | 0.7487 |
| 1424 | Willamette Falls, Smolt, 2010 | 90450-40 | 0.023 | 0.939 | 0.003 | 0.034 | EW | EW | 1 |
| 1425 | Willamette Falls, Smolt, 2010 | 90450-41 | 0.170 | 0.343 | 0.002 | 0.485 | WWxEW | EW | 0.9996 |
| 1426 | Willamette Falls, Smolt, 2010 | 90450-42 | 0.071 | 0.913 | 0.007 | 0.009 | EW | EW | 1 |

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|---|---|---|---|---|---|---|---|---|---|
| 1427 | Willamette Falls, Smolt, 2010 | 90450-43 | 0.072 | 0.909 | 0.005 | 0.014 | EW | EW | 1 |
| 1428 | Willamette Falls, Smolt, 2010 | 90450-44 | 0.018 | 0.940 | 0.003 | 0.038 | EW | EW | 1 |
| 1429 | Willamette Falls, Smolt, 2010 | 90450-45 | 0.039 | 0.043 | 0.003 | 0.916 | WW | EW | 0.9157 |
| 1430 | Willamette Falls, Smolt, 2010 | 90450-46 | 0.011 | 0.976 | 0.007 | 0.005 | EW | EW | 1 |
| 1431 | Willamette Falls, Smolt, 2010 | 90450-47 | 0.196 | 0.783 | 0.009 | 0.012 | EW | EW | 1 |
| 1432 | Willamette Falls, Smolt, 2010 | 90450-49 | 0.949 | 0.040 | 0.005 | 0.007 | S | S | 1 |
| 1433 | Willamette Falls, Smolt, 2010 | 90450-50 | 0.073 | 0.500 | 0.136 | 0.292 | WWxEW | EW | 1 |
| 1434 | Willamette Falls, Smolt, 2010 | 90450-51 | 0.018 | 0.954 | 0.016 | 0.012 | EW | EW | 1 |
| 1435 | Willamette Falls, Smolt, 2010 | 90450-52 | 0.019 | 0.050 | 0.003 | 0.928 | WW | WW | 0.9975 |
| 1436 | Willamette Falls, Smolt, 2010 | 90450-53 | 0.025 | 0.955 | 0.009 | 0.012 | EW | EW | 1 |
| 1437 | Willamette Falls, Smolt, 2010 | 90450-54 | 0.226 | 0.348 | 0.013 | 0.413 | 3x | EW | 0.9674 |
| 1438 | Willamette Falls, Smolt, 2010 | 90450-55 | 0.022 | 0.041 | 0.002 | 0.935 | WW | WW | 1 |
| 1439 | Willamette Falls, Smolt, 2010 | 90450-56 | 0.499 | 0.482 | 0.006 | 0.013 | SxEW | S | 0.7111 |
| 1440 | Willamette Falls, Smolt, 2010 | 90450-57 | 0.023 | 0.959 | 0.002 | 0.016 | EW | EW | 1 |
| 1441 | Willamette Falls, Smolt, 2010 | 90450-59 | 0.032 | 0.911 | 0.006 | 0.051 | EW | EW | 1 |
| 1442 | Willamette Falls, Smolt, 2010 | 90450-60 | 0.026 | 0.935 | 0.005 | 0.034 | EW | EW | 1 |
| 1443 | Willamette Falls, Smolt, 2010 | 90450-61 | 0.074 | 0.887 | 0.008 | 0.031 | EW | EW | 1 |
| 1444 | Willamette Falls, Smolt, 2010 | 90450-62 | 0.185 | 0.239 | 0.006 | 0.570 | WWxEW | EW | 0.9805 |
| 1445 | Willamette Falls, Smolt, 2010 | 90450-63 | 0.060 | 0.930 | 0.001 | 0.009 | EW | EW | 1 |
| 1446 | Willamette Falls, Smolt, 2010 | 90450-64 | 0.027 | 0.042 | 0.004 | 0.927 | WW | WW | 0.9938 |
| 1447 | Willamette Falls, Smolt, 2010 | 90450-65 | 0.028 | 0.021 | 0.002 | 0.948 | WW | WW | 1 |
| 1448 | Willamette Falls, Smolt, 2010 | 90450-66 | 0.042 | 0.823 | 0.004 | 0.131 | EW | EW | 0.9975 |
| 1449 | Willamette Falls, Smolt, 2010 | 90450-67 | 0.027 | 0.947 | 0.003 | 0.023 | EW | EW | 0.9999 |
| 1450 | Willamette Falls, Smolt, 2010 | 90450-68 | 0.022 | 0.962 | 0.006 | 0.010 | EW | EW | 1 |
| 1451 | Willamette Falls, Smolt, 2010 | 90450-69 | 0.014 | 0.976 | 0.003 | 0.008 | EW | EW | 1 |
| 1452 | Willamette Falls, Smolt, 2010 | 90450-70 | 0.025 | 0.811 | 0.157 | 0.007 | EW | EW | 0.9994 |
| 1453 | Willamette Falls, Smolt, 2010 | 90450-72 | 0.041 | 0.601 | 0.001 | 0.357 | WWxEW | EW | 0.9999 |
| 1454 | Willamette Falls, Smolt, 2010 | 90450-74 | 0.187 | 0.712 | 0.035 | 0.066 | EW | EW | 1 |
| 1455 | Willamette Falls, Smolt, 2010 | 90450-75 | 0.268 | 0.652 | 0.006 | 0.073 | SxEW | EW | 1 |
| 1456 | Willamette Falls, Smolt, 2010 | 90450-76 | 0.046 | 0.918 | 0.007 | 0.029 | EW | EW | 0.9994 |
| 1457 | Willamette Falls, Smolt, 2010 | 90450-79 | 0.181 | 0.241 | 0.004 | 0.574 | WWxEW | EW | 0.9899 |
| 1458 | Willamette Falls, Smolt, 2010 | 90450-80 | 0.227 | 0.386 | 0.001 | 0.386 | 3x | EW | 0.9976 |
| 1459 | Willamette Falls, Smolt, 2010 | 90450-81 | 0.132 | 0.787 | 0.006 | 0.075 | EW | EW | 0.9971 |
| 1460 | Willamette Falls, Smolt, 2010 | 90450-82 | 0.021 | 0.885 | 0.013 | 0.080 | EW | EW | 1 |
| 1461 | Willamette Falls, Smolt, 2010 | 90450-83 | 0.186 | 0.800 | 0.002 | 0.012 | EW | EW | 0.9984 |
| 1462 | Willamette Falls, Smolt, 2010 | 90450-86 | 0.821 | 0.073 | 0.091 | 0.015 | S | EW | 0.5267 |
| 1463 | Willamette Falls, Smolt, 2010 | 90450-87 | 0.013 | 0.933 | 0.017 | 0.038 | EW | EW | 1 |
| 1464 | Willamette Falls, Smolt, 2010 | 90450-88 | 0.059 | 0.171 | 0.061 | 0.710 | WW | EW | 0.6198 |
| 1465 | Willamette Falls, Smolt, 2010 | 90450-89 | 0.067 | 0.808 | 0.002 | 0.123 | EW | EW | 1 |
| 1466 | Willamette Falls, Smolt, 2010 | 90450-91 | 0.129 | 0.231 | 0.538 | 0.102 | EWxRB | EW | 1 |

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|---|---|---|---|---|---|---|---|---|---|
| 1467 | Willamette Falls, Smolt, 2010 | 90450-93 | 0.964 | 0.024 | 0.003 | 0.010 | S | S | 1 |
| 1468 | Willamette Falls, Smolt, 2010 | 90450-94 | 0.044 | 0.941 | 0.005 | 0.010 | EW | EW | 1 |
| 1469 | Willamette Falls, Smolt, 2010 | 90450-96 | 0.053 | 0.923 | 0.001 | 0.023 | EW | EW | 1 |
| 1470 | Willamette Falls, Smolt, 2010 | 90450-97 | 0.020 | 0.957 | 0.007 | 0.016 | EW | EW | 1 |
| 1471 | Willamette Falls, Smolt, 2010 | 90450-99 | 0.067 | 0.074 | 0.004 | 0.856 | WW | WW | 0.5169 |
| 1472 | Willamette Falls, Smolt, 2010 | 90450-100 | 0.103 | 0.765 | 0.039 | 0.093 | EW | EW | 1 |
| 1473 | Willamette Falls, Smolt, 2010 | 90450-101 | 0.402 | 0.102 | 0.003 | 0.494 | SxWW | EW | 0.9989 |
| 1474 | Willamette Falls, Smolt, 2010 | 90450-102 | 0.141 | 0.834 | 0.005 | 0.021 | EW | EW | 1 |
| 1475 | Willamette Falls, Smolt, 2010 | 90450-106 | 0.032 | 0.275 | 0.005 | 0.688 | WWxEW | EW | 0.9964 |
| 1476 | Willamette Falls, Smolt, 2010 | 90450-108 | 0.029 | 0.947 | 0.007 | 0.018 | EW | EW | 1 |
| 1477 | Willamette Falls, Smolt, 2010 | 90450-109 | 0.040 | 0.943 | 0.006 | 0.012 | EW | EW | 1 |
| 1478 | Willamette Falls, Smolt, 2010 | 90450-110 | 0.039 | 0.944 | 0.004 | 0.014 | EW | EW | 1 |
| 1479 | Willamette Falls, Smolt, 2010 | 90450-111 | 0.967 | 0.024 | 0.001 | 0.008 | S | S | 1 |
| 1480 | Willamette Falls, Smolt, 2010 | 90450-113 | 0.013 | 0.934 | 0.044 | 0.009 | EW | EW | 1 |
| 1481 | Willamette Falls, Smolt, 2010 | 90450-115 | 0.050 | 0.069 | 0.002 | 0.879 | WW | EW | 0.9996 |
| 1482 | Willamette Falls, Smolt, 2010 | 90450-116 | 0.044 | 0.728 | 0.011 | 0.217 | WWxEW | EW | 0.6623 |
| 1483 | Willamette Falls, Smolt, 2010 | 90450-117 | 0.019 | 0.178 | 0.002 | 0.801 | WW | EW | 0.972 |
| 1484 | Willamette Falls, Smolt, 2010 | 90450-118 | 0.126 | 0.849 | 0.004 | 0.022 | EW | EW | 0.9993 |
| 1485 | Willamette Falls, Smolt, 2010 | 90450-119 | 0.128 | 0.813 | 0.013 | 0.045 | EW | EW | 0.7751 |
| 1486 | Willamette Falls, Smolt, 2010 | 90450-120 | 0.042 | 0.865 | 0.008 | 0.086 | EW | EW | 1 |
| 1487 | Willamette Falls, Smolt, 2010 | 90450-124 | 0.653 | 0.078 | 0.031 | 0.237 | SxWW | EW | 0.8736 |
| 1488 | Willamette Falls, Smolt, 2010 | 90450-128 | 0.020 | 0.961 | 0.008 | 0.012 | EW | EW | 1 |
| 1489 | Willamette Falls, Smolt, 2010 | 90450-129 | 0.037 | 0.923 | 0.012 | 0.027 | EW | EW | 1 |
| 1490 | Willamette Falls, Smolt, 2010 | 90450-131 | 0.024 | 0.949 | 0.018 | 0.009 | EW | EW | 1 |
| 1491 | Willamette Falls, Smolt, 2010 | 90450-132 | 0.069 | 0.044 | 0.001 | 0.886 | WW | WW | 0.5794 |
| 1492 | Willamette Falls, Smolt, 2010 | 90450-133 | 0.025 | 0.035 | 0.003 | 0.937 | WW | WW | 0.9999 |
| 1493 | Willamette Falls, Smolt, 2010 | 90450-135 | 0.016 | 0.974 | 0.005 | 0.005 | EW | EW | 1 |
| 1494 | Willamette Falls, Smolt, 2010 | 90450-139 | 0.526 | 0.307 | 0.070 | 0.097 | SxEW | S | 0.6147 |
| 1495 | Willamette Falls, Smolt, 2010 | 90450-144 | 0.025 | 0.914 | 0.003 | 0.058 | EW | EW | 1 |
| 1496 | Willamette Falls, Smolt, 2010 | 90450-170 | 0.218 | 0.755 | 0.004 | 0.023 | SxEW | EW | 1 |
| 1497 | Willamette Falls, Smolt, 2010 | 90450-172 | 0.027 | 0.963 | 0.005 | 0.005 | EW | EW | 1 |
| 1498 | Willamette Falls, Smolt, 2010 | 90450-174 | 0.015 | 0.037 | 0.007 | 0.941 | WW | WW | 0.5317 |
| 1499 | Willamette Falls, Smolt, 2010 | 90450-184 | 0.255 | 0.669 | 0.011 | 0.065 | SxEW | EW | 0.9999 |
| 1500 | Willamette Falls, Smolt, 2010 | 90450-185 | 0.201 | 0.784 | 0.002 | 0.013 | SxEW | EW | 1 |
| 1501 | Willamette Falls, Smolt, 2010 | 90450-186 | 0.897 | 0.087 | 0.003 | 0.013 | S | S | 0.9976 |
| 1502 | Willamette Falls, Smolt, 2010 | 90450-195 | 0.021 | 0.954 | 0.016 | 0.009 | EW | EW | 1 |
| 1503 | Willamette Falls, Smolt, 2010 | 90450-197 | 0.015 | 0.965 | 0.007 | 0.013 | EW | EW | 1 |
| 1504 | Willamette Falls, Smolt, 2010 | 90450-205 | 0.013 | 0.019 | 0.001 | 0.968 | WW | S | 0.9674 |
| 1505 | Willamette Falls, Smolt, 2010 | 90450-206 | 0.051 | 0.056 | 0.037 | 0.855 | WW | WW | 0.9969 |
| 1506 | Willamette Falls, Smolt, 2010 | 90450-212 | 0.025 | 0.015 | 0.002 | 0.958 | WW | WW | 0.998 |

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|---|---|---|---|---|---|---|---|---|---|
| 1507 | Willamette Falls, Smolt, 2010 | 90450-213 | 0.093 | 0.750 | 0.002 | 0.155 | EW | EW | 1 |
| 1508 | Willamette Falls, Smolt, 2010 | 90450-221 | 0.047 | 0.403 | 0.002 | 0.548 | WWxEW | EW | 0.8473 |
| 1509 | Willamette Falls, Smolt, 2010 | 90450-222 | 0.042 | 0.734 | 0.002 | 0.222 | WWxEW | EW | 0.9996 |
| 1510 | Willamette Falls, Smolt, 2010 | 90450-223 | 0.211 | 0.731 | 0.005 | 0.053 | SxEW | EW | 0.9967 |
| 1511 | Willamette Falls, Smolt, 2010 | 90450-224 | 0.031 | 0.011 | 0.001 | 0.957 | WW | EW | 0.7147 |
| 1512 | Willamette Falls, Smolt, 2010 | 90450-225 | 0.905 | 0.080 | 0.003 | 0.012 | S | S | 0.5057 |
| 1513 | Willamette Falls, Smolt, 2010 | 90450-226 | 0.084 | 0.759 | 0.003 | 0.154 | EW | EW | 1 |
| 1514 | Willamette Falls, Smolt, 2010 | 90450-227 | 0.343 | 0.459 | 0.001 | 0.196 | SxEW | EW | 1 |
| 1515 | Willamette Falls, Smolt, 2010 | 90450-228 | 0.916 | 0.071 | 0.006 | 0.007 | S | S | 0.9959 |
| 1516 | Willamette Falls, Smolt, 2010 | 90450-229 | 0.023 | 0.947 | 0.003 | 0.028 | EW | EW | 1 |
| 1517 | Willamette Falls, Smolt, 2010 | 90450-230 | 0.051 | 0.931 | 0.006 | 0.012 | EW | EW | 1 |
| 1518 | Willamette Falls, Smolt, 2010 | 90450-231 | 0.084 | 0.755 | 0.002 | 0.159 | EW | EW | 0.96 |
| 1519 | Willamette Falls, Smolt, 2010 | 90450-232 | 0.024 | 0.966 | 0.003 | 0.007 | EW | EW | 1 |
| 1520 | Willamette Falls, Smolt, 2010 | 90450-233 | 0.455 | 0.256 | 0.004 | 0.285 | 3x | EW | 0.5538 |
| 1521 | Willamette Falls, Smolt, 2010 | 90450-234 | 0.049 | 0.863 | 0.008 | 0.080 | EW | EW | 1 |
| 1522 | Willamette Falls, Smolt, 2010 | 90450-235 | 0.024 | 0.046 | 0.002 | 0.927 | WW | EW | 0.9991 |
| 1523 | Willamette Falls, Smolt, 2010 | 90450-236 | 0.034 | 0.957 | 0.003 | 0.007 | EW | EW | 1 |
| 1524 | Willamette Falls, Smolt, 2010 | 90450-237 | 0.191 | 0.299 | 0.008 | 0.502 | WWxEW | EW | 0.9999 |
| 1525 | Willamette Falls, Smolt, 2010 | 90450-238 | 0.027 | 0.221 | 0.026 | 0.726 | WWxEW | EW | 0.5987 |
| 1526 | Willamette Falls, Smolt, 2010 | 90450-239 | 0.062 | 0.903 | 0.003 | 0.032 | EW | EW | 1 |
| 1527 | Willamette Falls, Smolt, 2010 | 90450-241 | 0.881 | 0.099 | 0.005 | 0.015 | S | S | 0.9598 |
| 1528 | Willamette Falls, Smolt, 2010 | 90450-242 | 0.594 | 0.332 | 0.025 | 0.049 | SxEW | EW | 0.9991 |
| 1529 | Willamette Falls, Smolt, 2010 | 90450-244 | 0.018 | 0.971 | 0.003 | 0.008 | EW | EW | 1 |
| 1530 | Willamette Falls, Smolt, 2010 | 90450-245 | 0.066 | 0.916 | 0.004 | 0.014 | EW | EW | 0.9981 |
| 1531 | Willamette Falls, Smolt, 2010 | 90450-246 | 0.059 | 0.927 | 0.003 | 0.011 | EW | EW | 1 |
| 1532 | Willamette Falls, Smolt, 2010 | 90450-248 | 0.035 | 0.717 | 0.238 | 0.010 | EWxRB | EW | 1 |
| 1533 | Willamette Falls, Smolt, 2010 | 90450-249 | 0.015 | 0.075 | 0.002 | 0.907 | WW | WW | 0.8283 |
| 1534 | Willamette Falls, Smolt, 2010 | 90450-250 | 0.098 | 0.714 | 0.013 | 0.176 | EW | EW | 1 |
| 1535 | Willamette Falls, Smolt, 2010 | 90450-251 | 0.045 | 0.364 | 0.161 | 0.430 | WWxEW | EW | 1 |
| 1536 | Willamette Falls, Smolt, 2010 | 90450-252 | 0.593 | 0.379 | 0.004 | 0.024 | SxEW | EW | 0.5938 |
| 1537 | Willamette Falls, Smolt, 2010 | 90450-253 | 0.105 | 0.760 | 0.046 | 0.089 | EW | EW | 1 |
| 1538 | Willamette Falls, Smolt, 2010 | 90450-254 | 0.165 | 0.071 | 0.003 | 0.761 | WW | EW | 0.9976 |
| 1539 | Willamette Falls, Smolt, 2010 | 90450-255 | 0.947 | 0.020 | 0.004 | 0.029 | S | S | 0.9999 |
| 1540 | Willamette Falls, Smolt, 2010 | 90450-260 | 0.438 | 0.213 | 0.006 | 0.343 | 3x | WW | 0.9366 |
| 1541 | Willamette Falls, Smolt, 2010 | 90450-261 | 0.019 | 0.035 | 0.005 | 0.942 | WW | WW | 0.9781 |
| 1542 | Willamette Falls, Smolt, 2010 | 90450-262 | 0.226 | 0.738 | 0.006 | 0.030 | SxEW | EW | 1 |
| 1543 | Willamette Falls, Smolt, 2010 | 90450-263 | 0.044 | 0.913 | 0.002 | 0.040 | EW | EW | 1 |
| 1544 | Willamette Falls, Smolt, 2010 | 90450-264 | 0.119 | 0.861 | 0.002 | 0.018 | EW | EW | 1 |
| 1545 | Willamette Falls, Smolt, 2010 | 90450-265 | 0.035 | 0.167 | 0.009 | 0.788 | WW | EW | 0.6045 |
| 1546 | Willamette Falls, Smolt, 2010 | 90450-267 | 0.016 | 0.975 | 0.004 | 0.006 | EW | EW | 1 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 1547 | Willamette Falls, Smolt, 2010 | 90450-268 | 0.048 | 0.915 | 0.019 | 0.018 | EW | EW | 1 |
| 1548 | Willamette Falls, Smolt, 2010 | 90450-269 | 0.014 | 0.479 | 0.002 | 0.506 | WWxEW | EW | 0.9988 |
| 1549 | Willamette Falls, Smolt, 2010 | 90450-270 | 0.024 | 0.954 | 0.002 | 0.021 | EW | EW | 1 |
| 1550 | Willamette Falls, Smolt, 2010 | 90450-272 | 0.071 | 0.864 | 0.025 | 0.040 | EW | EW | 1 |
| 1551 | Willamette Falls, Smolt, 2010 | 90450-273 | 0.045 | 0.917 | 0.010 | 0.028 | EW | EW | 1 |
| 1552 | Willamette Falls, Smolt, 2010 | 90450-274 | 0.156 | 0.774 | 0.008 | 0.062 | EW | EW | 1 |
| 1553 | Willamette Falls, Smolt, 2010 | 90450-275 | 0.394 | 0.526 | 0.031 | 0.050 | SxEW | EW | 1 |
| 1554 | Willamette Falls, Smolt, 2010 | 90450-276 | 0.079 | 0.322 | 0.006 | 0.593 | WWxEW | EW | 0.9483 |
| 1555 | Willamette Falls, Smolt, 2010 | 90450-277 | 0.026 | 0.016 | 0.002 | 0.956 | WW | EW | 0.6571 |
| 1556 | Willamette Falls, Smolt, 2010 | 90450-278 | 0.075 | 0.812 | 0.003 | 0.110 | EW | EW | 0.9999 |
| 1557 | Willamette Falls, Smolt, 2010 | 90450-279 | 0.173 | 0.760 | 0.032 | 0.035 | EW | EW | 1 |
| 1558 | Willamette Falls, Smolt, 2010 | 90450-280 | 0.924 | 0.059 | 0.003 | 0.014 | S | S | 0.7157 |
| 1559 | Willamette Falls, Smolt, 2010 | 90450-281 | 0.032 | 0.946 | 0.014 | 0.008 | EW | EW | 1 |
| 1560 | Willamette Falls, Smolt, 2010 | 90450-282 | 0.014 | 0.974 | 0.003 | 0.010 | EW | EW | 1 |
| 1561 | Willamette Falls, Smolt, 2010 | 90450-283 | 0.822 | 0.028 | 0.002 | 0.148 | S | S | 0.8847 |
| 1562 | Willamette Falls, Smolt, 2010 | 90450-284 | 0.036 | 0.643 | 0.005 | 0.317 | WWxEW | EW | 1 |
| 1563 | Willamette Falls, Smolt, 2010 | 90450-285 | 0.940 | 0.040 | 0.002 | 0.017 | S | S | 0.9999 |
| 1564 | Willamette Falls, Smolt, 2010 | 90450-286 | 0.020 | 0.967 | 0.005 | 0.008 | EW | EW | 1 |
| 1565 | Willamette Falls, Smolt, 2010 | 90450-287 | 0.026 | 0.960 | 0.003 | 0.011 | EW | EW | 1 |
| 1566 | Willamette Falls, Smolt, 2010 | 90450-288 | 0.072 | 0.279 | 0.003 | 0.646 | WWxEW | EW | 0.9924 |
| 1567 | Willamette Falls, Smolt, 2010 | 90450-289 | 0.101 | 0.022 | 0.003 | 0.874 | WW | WW | 0.983 |
| 1568 | Willamette Falls, Smolt, 2010 | 90450-290 | 0.087 | 0.883 | 0.023 | 0.007 | EW | EW | 1 |
| 1569 | Willamette Falls, Smolt, 2010 | 90450-291 | 0.012 | 0.971 | 0.006 | 0.010 | EW | EW | 1 |
| 1570 | Willamette Falls, Smolt, 2010 | 90450-292 | 0.920 | 0.042 | 0.004 | 0.033 | S | S | 1 |
| 1571 | Willamette Falls, Smolt, 2010 | 90450-293 | 0.928 | 0.049 | 0.002 | 0.021 | S | S | 0.9962 |
| 1572 | Willamette Falls, Smolt, 2010 | 90450-294 | 0.022 | 0.308 | 0.005 | 0.665 | WWxEW | WW | 0.9823 |
| 1573 | Willamette Falls, Smolt, 2010 | 90450-295 | 0.171 | 0.791 | 0.022 | 0.016 | EW | EW | 1 |
| 1574 | Willamette Falls, Smolt, 2010 | 90450-297 | 0.221 | 0.756 | 0.004 | 0.019 | SxEW | EW | 1 |
| 1575 | Willamette Falls, Smolt, 2010 | 90450-298 | 0.410 | 0.546 | 0.004 | 0.040 | SxEW | EW | 0.9999 |
| 1576 | Willamette Falls, Smolt, 2010 | 90450-299 | 0.029 | 0.948 | 0.004 | 0.020 | EW | EW | 1 |
| 1577 | Willamette Falls, Smolt, 2010 | 90450-300 | 0.045 | 0.911 | 0.003 | 0.040 | EW | EW | 1 |
| 1578 | Willamette Falls, Smolt, 2010 | 90450-301 | 0.061 | 0.909 | 0.018 | 0.011 | EW | EW | 1 |
| 1579 | Willamette Falls, Smolt, 2010 | 90450-302 | 0.019 | 0.971 | 0.004 | 0.007 | EW | EW | 1 |
| 1580 | Willamette Falls, Smolt, 2010 | 90450-303 | 0.095 | 0.851 | 0.004 | 0.050 | EW | EW | 1 |
| 1581 | Willamette Falls, Smolt, 2010 | 90450-304 | 0.468 | 0.316 | 0.129 | 0.086 | SxEW | EW | 0.9998 |
| 1582 | Willamette Falls, Smolt, 2010 | 90450-305 | 0.105 | 0.843 | 0.026 | 0.026 | EW | EW | 1 |
| 1583 | Willamette Falls, Smolt, 2010 | 90450-306 | 0.016 | 0.969 | 0.006 | 0.009 | EW | EW | 1 |
| 1584 | Willamette Falls, Smolt, 2010 | 90450-307 | 0.031 | 0.945 | 0.010 | 0.014 | EW | EW | 1 |
| 1585 | Willamette Falls, Smolt, 2010 | 90450-310 | 0.016 | 0.968 | 0.003 | 0.013 | EW | EW | 1 |
| 1586 | Willamette Falls, Smolt, 2010 | 90450-311 | 0.916 | 0.066 | 0.005 | 0.014 | S | S | 1 |

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|---|---|---|---|---|---|---|---|---|---|
| 1587 | Willamette Falls, Smolt, 2010 | 90450-314 | 0.012 | 0.018 | 0.001 | 0.969 | WW | WW | 0.9986 |
| 1588 | Willamette Falls, Smolt, 2010 | 90450-317 | 0.325 | 0.506 | 0.008 | 0.161 | SxEW | EW | 0.999 |
| 1589 | Willamette Falls, Smolt, 2010 | 90450-320 | 0.017 | 0.944 | 0.002 | 0.036 | EW | EW | 1 |
| 1590 | Willamette Falls, Smolt, 2010 | 90450-322 | 0.039 | 0.182 | 0.007 | 0.772 | WW | WW | 1 |
| 1591 | Willamette Falls, Smolt, 2010 | 90450-326 | 0.102 | 0.796 | 0.037 | 0.064 | EW | EW | 1 |
| 1592 | Willamette Falls, Smolt, 2010 | 90450-327 | 0.079 | 0.863 | 0.006 | 0.051 | EW | EW | 0.9994 |
| 1593 | Willamette Falls, Smolt, 2010 | 90450-390 | 0.028 | 0.091 | 0.003 | 0.878 | WW | WW | 0.888 |
| 1594 | Willamette Falls, Smolt, 2010 | 90450-395 | 0.302 | 0.683 | 0.003 | 0.012 | SxEW | EW | 0.9984 |
| 1595 | Willamette Falls, Smolt, 2010 | 90450-397 | 0.962 | 0.027 | 0.003 | 0.008 | S | S | 1 |
| 1596 | Willamette Falls, Smolt, 2010 | 90450-398 | 0.051 | 0.432 | 0.003 | 0.514 | WWxEW | WW | 0.5777 |
| 1597 | Willamette Falls, Smolt, 2010 | 90450-399 | 0.059 | 0.096 | 0.003 | 0.842 | WW | EW | 0.9801 |
| 1598 | Willamette Falls, Smolt, 2010 | 90450-400 | 0.861 | 0.071 | 0.007 | 0.062 | S | EW | 0.9517 |
| 1599 | Willamette Falls, Smolt, 2010 | 90450-404 | 0.029 | 0.955 | 0.007 | 0.009 | EW | EW | 0.9999 |
| 1600 | Willamette Falls, Smolt, 2010 | 90450-408 | 0.019 | 0.952 | 0.003 | 0.027 | EW | EW | 1 |
| 1601 | Willamette Falls, Smolt, 2010 | 90450-412 | 0.058 | 0.368 | 0.002 | 0.571 | WWxEW | EW | 0.995 |
| 1602 | Willamette Falls, Smolt, 2010 | 90450-414 | 0.025 | 0.955 | 0.008 | 0.013 | EW | EW | 1 |
| 1603 | Willamette Falls, Smolt, 2010 | 90450-417 | 0.034 | 0.953 | 0.003 | 0.010 | EW | EW | 1 |
| 1604 | Willamette Falls, Smolt, 2010 | 90450-419 | 0.012 | 0.974 | 0.004 | 0.010 | EW | EW | 1 |
| 1605 | Willamette Falls, Smolt, 2010 | 90450-426 | 0.227 | 0.288 | 0.011 | 0.474 | 3x | EW | 1 |
| 1606 | Willamette Falls, Smolt, 2010 | 90450-428 | 0.080 | 0.380 | 0.010 | 0.530 | WWxEW | EW | 0.8583 |
| 1607 | Willamette Falls, Smolt, 2010 | 90450-429 | 0.029 | 0.942 | 0.020 | 0.008 | EW | EW | 1 |
| 1608 | Willamette Falls, Smolt, 2010 | 90450-431 | 0.014 | 0.951 | 0.008 | 0.028 | EW | EW | 1 |
| 1609 | Willamette Falls, Smolt, 2010 | 90450-433 | 0.030 | 0.904 | 0.054 | 0.012 | EW | EW | 1 |
| 1610 | Willamette Falls, Smolt, 2010 | 90450-434 | 0.033 | 0.130 | 0.010 | 0.828 | WW | WW | 0.9207 |
| 1611 | Willamette Falls, Smolt, 2010 | 90450-435 | 0.060 | 0.922 | 0.003 | 0.015 | EW | EW | 1 |
| 1612 | Willamette Falls, Smolt, 2010 | 90450-438 | 0.197 | 0.762 | 0.015 | 0.026 | EW | EW | 1 |
| 1613 | Willamette Falls, Smolt, 2010 | 90450-443 | 0.016 | 0.931 | 0.004 | 0.050 | EW | EW | 1 |
| 1614 | Willamette Falls, Smolt, 2010 | 90450-447 | 0.010 | 0.979 | 0.003 | 0.008 | EW | EW | 1 |
| 1615 | Willamette Falls, Smolt, 2010 | 90450-449 | 0.027 | 0.953 | 0.007 | 0.012 | EW | EW | 1 |
| 1616 | Willamette Falls, Smolt, 2010 | 90450-450 | 0.023 | 0.963 | 0.002 | 0.012 | EW | EW | 1 |
| 1617 | Willamette Falls, Smolt, 2010 | 90450-452 | 0.317 | 0.664 | 0.003 | 0.015 | SxEW | EW | 0.9638 |
| 1618 | Willamette Falls, Smolt, 2010 | 90450-453 | 0.959 | 0.030 | 0.002 | 0.009 | S | S | 0.9997 |
| 1619 | Willamette Falls, Smolt, 2010 | 90450-455 | 0.047 | 0.694 | 0.002 | 0.257 | WWxEW | EW | 0.9997 |
| 1620 | Willamette Falls, Smolt, 2010 | 90450-459 | 0.150 | 0.801 | 0.018 | 0.031 | EW | EW | 0.9995 |
| 1621 | Willamette Falls, Smolt, 2010 | 90450-460 | 0.137 | 0.790 | 0.003 | 0.071 | EW | EW | 0.9992 |
| 1622 | Willamette Falls, Smolt, 2010 | 90450-462 | 0.100 | 0.879 | 0.004 | 0.018 | EW | EW | 1 |
| 1623 | Willamette Falls, Smolt, 2010 | 90450-463 | 0.075 | 0.913 | 0.004 | 0.009 | EW | EW | 1 |
| 1624 | Willamette Falls, Smolt, 2010 | 90450-468 | 0.975 | 0.016 | 0.002 | 0.007 | S | S | 0.9999 |
| 1625 | Willamette Falls, Smolt, 2010 | 90450-472 | 0.955 | 0.035 | 0.001 | 0.009 | S | S | 0.9999 |
| 1626 | Willamette Falls, Smolt, 2010 | 90450-473 | 0.437 | 0.138 | 0.200 | 0.226 | SxWW | EW | 0.9184 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 1627 | Willamette Falls, Smolt, 2010 | 90450-475 | 0.017 | 0.969 | 0.006 | 0.008 | EW | EW | 1 |
| 1628 | Willamette Falls, Smolt, 2010 | 90450-476 | 0.050 | 0.905 | 0.029 | 0.016 | EW | EW | 1 |
| 1629 | Willamette Falls, Smolt, 2010 | 90450-478 | 0.018 | 0.541 | 0.002 | 0.439 | WWxEW | EW | 0.9999 |
| 1630 | Willamette Falls, Smolt, 2010 | 90450-482 | 0.016 | 0.966 | 0.010 | 0.008 | EW | EW | 1 |
| 1631 | Willamette Falls, Smolt, 2010 | 90450-488 | 0.012 | 0.959 | 0.007 | 0.022 | EW | EW | 1 |
| 1632 | Willamette Falls, Smolt, 2010 | 90450-489 | 0.020 | 0.943 | 0.018 | 0.020 | EW | EW | 1 |
| 1633 | Willamette Falls, Smolt, 2010 | 90450-493 | 0.055 | 0.905 | 0.005 | 0.035 | EW | EW | 1 |
| 1634 | Willamette Falls, Smolt, 2010 | 90450-496 | 0.829 | 0.139 | 0.018 | 0.014 | S | EW | 0.6362 |
| 1635 | Willamette Falls, Smolt, 2010 | 90450-497 | 0.021 | 0.919 | 0.029 | 0.031 | EW | EW | 1 |
| 1636 | Willamette Falls, Smolt, 2010 | 90450-501 | 0.027 | 0.949 | 0.012 | 0.012 | EW | EW | 1 |
| 1637 | Willamette Falls, Smolt, 2010 | 90450-506 | 0.047 | 0.069 | 0.015 | 0.869 | WW | WW | 0.7602 |
| 1638 | Willamette Falls, Smolt, 2010 | 90450-507 | 0.041 | 0.942 | 0.003 | 0.015 | EW | EW | 1 |
| 1639 | Willamette Falls, Smolt, 2010 | 90450-508 | 0.178 | 0.745 | 0.006 | 0.071 | EW | EW | 1 |
| 1640 | Willamette Falls, Smolt, 2010 | 90450-509 | 0.018 | 0.964 | 0.005 | 0.012 | EW | EW | 1 |
| 1641 | Willamette Falls, Smolt, 2010 | 90450-514 | 0.188 | 0.301 | 0.479 | 0.033 | EWxRB | EW | 0.9946 |
| 1642 | Willamette Falls, Smolt, 2010 | 90450-517 | 0.867 | 0.097 | 0.021 | 0.016 | S | S | 0.9941 |
| 1643 | Willamette Falls, Smolt, 2010 | 90450-518 | 0.016 | 0.956 | 0.006 | 0.021 | EW | EW | 1 |
| 1644 | Willamette Falls, Smolt, 2010 | 90450-519 | 0.966 | 0.024 | 0.002 | 0.008 | S | S | 0.9992 |
| 1645 | Willamette Falls, Smolt, 2010 | 90450-520 | 0.012 | 0.941 | 0.040 | 0.007 | EW | EW | 1 |
| 1646 | Willamette Falls, Smolt, 2010 | 90450-522 | 0.221 | 0.081 | 0.004 | 0.694 | SxWW | EW | 0.8408 |
| 1647 | Willamette Falls, Smolt, 2010 | 90450-528 | 0.948 | 0.038 | 0.002 | 0.012 | S | S | 1 |
| 1648 | Willamette Falls, Smolt, 2010 | 90450-530 | 0.968 | 0.024 | 0.003 | 0.005 | S | S | 1 |
| 1649 | Willamette Falls, Smolt, 2010 | 90450-540 | 0.959 | 0.030 | 0.003 | 0.008 | S | S | 1 |
| 1650 | Willamette Falls, Smolt, 2010 | 90450-541 | 0.081 | 0.170 | 0.005 | 0.744 | WW | EW | 0.9888 |
| 1651 | Willamette Falls, Smolt, 2010 | 90450-545 | 0.736 | 0.243 | 0.006 | 0.015 | SxEW | S | 0.9983 |
| 1652 | Willamette Falls, Smolt, 2010 | 90450-548 | 0.069 | 0.826 | 0.002 | 0.103 | EW | EW | 1 |
| 1653 | Willamette Falls, Smolt, 2010 | 90450-552 | 0.941 | 0.040 | 0.008 | 0.011 | S | S | 1 |
| 1654 | Willamette Falls, Smolt, 2010 | 90450-554 | 0.027 | 0.944 | 0.003 | 0.026 | EW | EW | 1 |
| 1655 | Willamette Falls, Smolt, 2010 | 90450-555 | 0.052 | 0.927 | 0.004 | 0.016 | EW | EW | 1 |
| 1656 | Willamette Falls, Smolt, 2010 | 90450-556 | 0.052 | 0.937 | 0.003 | 0.008 | EW | EW | 1 |
| 1657 | Willamette Falls, Smolt, 2010 | 90450-565 | 0.009 | 0.011 | 0.001 | 0.979 | WW | WW | 0.9837 |
| 1658 | Willamette Falls, Smolt, 2010 | 90450-571 | 0.122 | 0.857 | 0.010 | 0.011 | EW | EW | 1 |
| 1659 | Willamette Falls, Smolt, 2010 | 90450-572 | 0.870 | 0.054 | 0.006 | 0.069 | S | S | 0.9996 |
| 1660 | Willamette Falls, Smolt, 2010 | 90450-574 | 0.032 | 0.773 | 0.012 | 0.183 | EW | EW | 0.9886 |
| 1661 | Willamette Falls, Smolt, 2010 | 90450-575 | 0.421 | 0.567 | 0.004 | 0.008 | SxEW | EW | 1 |
| 1662 | Willamette Falls, Smolt, 2010 | 90450-576 | 0.051 | 0.641 | 0.003 | 0.305 | WWxEW | EW | 0.9952 |
| 1663 | Willamette Falls, Smolt, 2010 | 90450-577 | 0.936 | 0.042 | 0.005 | 0.018 | S | S | 0.9998 |
| 1664 | Willamette Falls, Smolt, 2010 | 90450-578 | 0.951 | 0.034 | 0.001 | 0.014 | S | S | 0.9989 |
| 1665 | Willamette Falls, Smolt, 2010 | 90450-579 | 0.970 | 0.020 | 0.002 | 0.008 | S | S | 1 |
| 1666 | Willamette Falls, Smolt, 2010 | 90450-580 | 0.475 | 0.512 | 0.004 | 0.009 | SxEW | S | 0.8466 |

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|---|---|---|---|---|---|---|---|---|---|
| 1667 | Willamette Falls, Smolt, 2010 | 90450-581 | 0.030 | 0.950 | 0.010 | 0.011 | EW | EW | 1 |
| 1668 | Willamette Falls, Smolt, 2010 | 90450-582 | 0.020 | 0.964 | 0.008 | 0.008 | EW | EW | 1 |
| 1669 | Willamette Falls, Smolt, 2010 | 90450-583 | 0.030 | 0.464 | 0.014 | 0.491 | WWxEW | EW | 0.995 |
| 1670 | Willamette Falls, Smolt, 2010 | 90450-584 | 0.056 | 0.869 | 0.005 | 0.070 | EW | EW | 1 |
| 1671 | Willamette Falls, Smolt, 2010 | 90450-585 | 0.056 | 0.119 | 0.811 | 0.015 | RB | EW | 0.9993 |
| 1672 | Willamette Falls, Smolt, 2010 | 90450-586 | 0.018 | 0.017 | 0.001 | 0.964 | WW | WW | 0.9984 |
| 1673 | Willamette Falls, Smolt, 2010 | 90450-591 | 0.836 | 0.137 | 0.014 | 0.014 | S | S | 0.9999 |
| 1674 | Willamette Falls, Smolt, 2010 | 90450-592 | 0.394 | 0.591 | 0.003 | 0.013 | SxEW | EW | 0.6068 |
| 1675 | Willamette Falls, Smolt, 2010 | 90450-594 | 0.621 | 0.209 | 0.009 | 0.161 | SxEW | WW | 0.9661 |
| 1676 | Willamette Falls, Smolt, 2010 | 90450-595 | 0.977 | 0.016 | 0.001 | 0.006 | S | S | 1 |
| 1677 | Willamette Falls, Smolt, 2010 | 90450-596 | 0.090 | 0.884 | 0.009 | 0.017 | EW | EW | 1 |
| 1678 | Willamette Falls, Smolt, 2010 | 90450-597 | 0.872 | 0.080 | 0.003 | 0.045 | S | S | 0.996 |
| 1679 | Willamette Falls, Smolt, 2010 | 90450-598 | 0.286 | 0.505 | 0.135 | 0.075 | SxEW | EW | 0.9991 |
| 1680 | Willamette Falls, Smolt, 2010 | 90450-599 | 0.660 | 0.326 | 0.005 | 0.010 | SxEW | EW | 0.5772 |
| 1681 | Willamette Falls, Smolt, 2010 | 90450-600 | 0.857 | 0.118 | 0.007 | 0.018 | S | S | 0.6912 |
| 1682 | Upper Willamette, Smolt, 2010 | 90451-601 | 0.075 | 0.182 | 0.521 | 0.222 | WWxRB | EW | 0.9219 |
| 1683 | Upper Willamette, Smolt, 2010 | 90451-602 | 0.913 | 0.031 | 0.002 | 0.053 | S | S | 0.9999 |
| 1684 | Upper Willamette, Smolt, 2010 | 90451-603 | 0.019 | 0.967 | 0.003 | 0.010 | EW | EW | 1 |
| 1685 | Upper Willamette, Smolt, 2010 | 90451-701 | 0.019 | 0.939 | 0.023 | 0.019 | EW | EW | 1 |
| 1686 | Upper Willamette, Smolt, 2010 | 90451-749 | 0.147 | 0.824 | 0.003 | 0.026 | EW | EW | 1 |
| 1687 | Upper Willamette, Smolt, 2010 | 90451-750 | 0.020 | 0.898 | 0.047 | 0.036 | EW | EW | 1 |
| 1688 | N. Santiam, Bennett, Adults, 2003 | 90452-1 | 0.040 | 0.939 | 0.007 | 0.014 | EW | EW | 1 |
| 1689 | N. Santiam, Bennett, Adults, 2003 | 90452-3 | 0.531 | 0.412 | 0.003 | 0.054 | SxEW | EW | 0.9996 |
| 1690 | N. Santiam, Bennett, Adults, 2003 | 90452-4 | 0.540 | 0.442 | 0.004 | 0.013 | SxEW | EW | 0.9025 |
| 1691 | N. Santiam, Bennett, Adults, 2003 | 90452-5 | 0.352 | 0.605 | 0.005 | 0.038 | SxEW | EW | 0.8922 |
| 1692 | N. Santiam, Bennett, Adults, 2003 | 90452-6 | 0.954 | 0.035 | 0.002 | 0.009 | S | S | 0.9354 |
| 1693 | N. Santiam, Bennett, Adults, 2003 | 90452-7 | 0.043 | 0.833 | 0.006 | 0.118 | EW | EW | 1 |
| 1694 | N. Santiam, Bennett, Adults, 2003 | 90452-8 | 0.303 | 0.675 | 0.005 | 0.016 | SxEW | EW | 1 |
| 1695 | N. Santiam, Bennett, Adults, 2003 | 90452-9 | 0.592 | 0.386 | 0.005 | 0.017 | SxEW | S | 0.5005 |
| 1696 | N. Santiam, Bennett, Adults, 2003 | 90452-10 | 0.134 | 0.818 | 0.009 | 0.038 | EW | EW | 1 |
| 1697 | N. Santiam, Bennett, Adults, 2003 | 90452-11 | 0.700 | 0.266 | 0.011 | 0.023 | SxEW | S | 0.9025 |
| 1698 | N. Santiam, Bennett, Adults, 2003 | 90452-12 | 0.576 | 0.336 | 0.038 | 0.050 | SxEW | EW | 0.9995 |
| 1699 | N. Santiam, Bennett, Adults, 2003 | 90452-13 | 0.303 | 0.640 | 0.009 | 0.047 | SxEW | EW | 0.9999 |
| 1700 | N. Santiam, Bennett, Adults, 2003 | 90452-14 | 0.746 | 0.225 | 0.003 | 0.026 | SxEW | S | 0.9843 |
| 1701 | N. Santiam, Bennett, Adults, 2003 | 90452-15 | 0.522 | 0.318 | 0.046 | 0.114 | SxEW | EW | 0.8866 |
| 1702 | N. Santiam, Bennett, Adults, 2003 | 90452-16 | 0.470 | 0.478 | 0.004 | 0.049 | SxEW | EW | 0.9999 |
| 1703 | N. Santiam, Bennett, Adults, 2003 | 90452-17 | 0.157 | 0.812 | 0.012 | 0.020 | EW | EW | 1 |
| 1704 | N. Santiam, Bennett, Adults, 2003 | 90452-18 | 0.298 | 0.309 | 0.026 | 0.366 | 3x | EW | 0.986 |
| 1705 | N. Santiam, Bennett, Adults, 2003 | 90452-19 | 0.527 | 0.423 | 0.004 | 0.046 | SxEW | EW | 0.9412 |
| 1706 | N. Santiam, Bennett, Adults, 2003 | 90452-20 | 0.194 | 0.580 | 0.002 | 0.224 | WWxEW | EW | 0.9999 |

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|---|---|---|---|---|---|---|---|---|---|
| 1707 | N. Santiam, Bennett, Adults, 2003 | 90452-88 | 0.752 | 0.173 | 0.057 | 0.018 | S | EW | 0.942 |
| 1708 | N. Santiam, Bennett, Adults, 2003 | 90452-170 | 0.647 | 0.335 | 0.004 | 0.015 | SxEW | EW | 0.9943 |
| 1709 | N. Santiam, Bennett, Adults, 2003 | 90452-172 | 0.101 | 0.439 | 0.433 | 0.027 | EWxRB | EW | 0.9999 |
| 1710 | N. Santiam, Bennett, Adults, 2003 | 90452-175 | 0.020 | 0.968 | 0.002 | 0.009 | EW | EW | 1 |
| 1711 | N. Santiam, Bennett, Adults, 2003 | 90452-189 | 0.218 | 0.770 | 0.003 | 0.009 | SxEW | EW | 0.9996 |
| 1712 | N. Santiam, Bennett, Adults, 2003 | 90452-204 | 0.085 | 0.888 | 0.006 | 0.021 | EW | EW | 0.9995 |
| 1713 | N. Santiam, Bennett, Adults, 2003 | 90452-207 | 0.019 | 0.965 | 0.006 | 0.010 | EW | EW | 1 |
| 1714 | N. Santiam, Bennett, Adults, 2003 | 90452-210 | 0.335 | 0.632 | 0.004 | 0.029 | SxEW | EW | 0.9749 |
| 1715 | N. Santiam, Bennett, Adults, 2003 | 90452-217 | 0.409 | 0.540 | 0.002 | 0.048 | SxEW | EW | 1 |
| 1716 | N. Santiam, Minto, Adults, 2010 | 90453-2200 | 0.160 | 0.818 | 0.005 | 0.017 | EW | EW | 1 |
| 1717 | McKenzie R., Leaburg, Smolt, 2005 | 50623-2 | 0.944 | 0.036 | 0.003 | 0.017 | S | S | 0.997 |
| 1718 | McKenzie R., Leaburg, Smolt, 2005 | 50623-3 | 0.948 | 0.040 | 0.004 | 0.008 | S | S | 0.9987 |
| 1719 | McKenzie R., Leaburg, Smolt, 2005 | 50623-4 | 0.883 | 0.063 | 0.003 | 0.051 | S | S | 0.7931 |
| 1720 | McKenzie R., Leaburg, Smolt, 2005 | 50623-5 | 0.952 | 0.037 | 0.002 | 0.009 | S | S | 0.9996 |
| 1721 | McKenzie R., Leaburg, Smolt, 2005 | 50623-6 | 0.933 | 0.046 | 0.009 | 0.012 | S | S | 0.9985 |
| 1722 | McKenzie R., Leaburg, Smolt, 2005 | 50623-7 | 0.962 | 0.021 | 0.003 | 0.014 | S | S | 1 |
| 1723 | McKenzie R., Leaburg, Smolt, 2005 | 50623-9 | 0.931 | 0.059 | 0.004 | 0.007 | S | S | 0.9989 |
| 1724 | McKenzie R., Leaburg, Smolt, 2005 | 50623-10 | 0.941 | 0.047 | 0.004 | 0.008 | S | S | 0.998 |
| 1725 | McKenzie R., Leaburg, Smolt, 2005 | 50623-11 | 0.948 | 0.034 | 0.003 | 0.014 | S | S | 0.9987 |
| 1726 | McKenzie R., Leaburg, Smolt, 2005 | 50623-12 | 0.967 | 0.023 | 0.002 | 0.008 | S | S | 1 |
| 1727 | McKenzie R., Leaburg, Smolt, 2005 | 50623-13 | 0.951 | 0.035 | 0.003 | 0.010 | S | S | 1 |
| 1728 | McKenzie R., Leaburg, Smolt, 2005 | 50623-14 | 0.961 | 0.022 | 0.005 | 0.011 | S | S | 1 |
| 1729 | McKenzie R., Leaburg, Smolt, 2005 | 50623-16 | 0.872 | 0.100 | 0.010 | 0.018 | S | S | 0.9981 |
| 1730 | McKenzie R., Leaburg, Smolt, 2005 | 50623-17 | 0.744 | 0.208 | 0.009 | 0.038 | SxEW | EW | 0.9249 |
| 1731 | McKenzie R., Leaburg, Smolt, 2005 | 50623-18 | 0.889 | 0.089 | 0.002 | 0.019 | S | S | 0.9915 |
| 1732 | McKenzie R., Leaburg, Smolt, 2005 | 50623-20 | 0.965 | 0.025 | 0.002 | 0.008 | S | S | 0.9999 |
| 1733 | McKenzie R., Leaburg, Smolt, 2005 | 50623-21 | 0.937 | 0.039 | 0.013 | 0.011 | S | S | 0.9998 |
| 1734 | McKenzie R., Leaburg, Smolt, 2005 | 50623-22 | 0.919 | 0.062 | 0.006 | 0.013 | S | S | 0.9999 |
| 1735 | McKenzie R., Leaburg, Smolt, 2005 | 50623-23 | 0.886 | 0.065 | 0.003 | 0.046 | S | S | 0.9517 |
| 1736 | McKenzie R., Leaburg, Smolt, 2005 | 50623-24 | 0.922 | 0.039 | 0.002 | 0.037 | S | S | 0.9995 |
| 1737 | McKenzie R., Leaburg, Smolt, 2005 | 50623-25 | 0.951 | 0.024 | 0.002 | 0.023 | S | S | 0.9998 |
| 1738 | McKenzie R., Leaburg, Smolt, 2005 | 50623-26 | 0.930 | 0.053 | 0.005 | 0.012 | S | S | 0.9984 |
| 1739 | McKenzie R., Leaburg, Smolt, 2005 | 50623-27 | 0.161 | 0.780 | 0.007 | 0.052 | EW | EW | 0.9997 |
| 1740 | McKenzie R., Leaburg, Smolt, 2005 | 50623-28 | 0.808 | 0.052 | 0.005 | 0.135 | S | EW | 0.8629 |
| 1741 | McKenzie R., Leaburg, Smolt, 2005 | 50623-31 | 0.935 | 0.047 | 0.002 | 0.016 | S | S | 0.9997 |
| 1742 | McKenzie R., Leaburg, Smolt, 2005 | 50623-33 | 0.828 | 0.085 | 0.005 | 0.082 | S | S | 0.9946 |
| 1743 | McKenzie R., Leaburg, Smolt, 2005 | 50623-34 | 0.785 | 0.139 | 0.002 | 0.074 | S | EW | 0.8466 |
| 1744 | McKenzie R., Leaburg, Smolt, 2005 | 50623-35 | 0.670 | 0.267 | 0.004 | 0.059 | SxEW | S | 0.9531 |
| 1745 | McKenzie R., Leaburg, Smolt, 2005 | 50623-36 | 0.958 | 0.023 | 0.003 | 0.016 | S | S | 1 |
| 1746 | McKenzie R., Leaburg, Smolt, 2005 | 50623-37 | 0.780 | 0.202 | 0.004 | 0.014 | SxEW | EW | 0.9632 |

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|---|---|---|---|---|---|---|---|---|---|
| 1747 | McKenzie R., Leaburg, Smolt, 2005 | 50623-38 | 0.915 | 0.044 | 0.004 | 0.037 | S | S | 0.9986 |
| 1748 | McKenzie R., Leaburg, Smolt, 2005 | 50623-41 | 0.920 | 0.031 | 0.002 | 0.047 | S | S | 0.9988 |
| 1749 | McKenzie R., Leaburg, Smolt, 2005 | 50623-42 | 0.975 | 0.014 | 0.001 | 0.009 | S | S | 0.9998 |
| 1750 | McKenzie R., Leaburg, Smolt, 2005 | 50623-43 | 0.942 | 0.041 | 0.005 | 0.012 | S | S | 0.9997 |
| 1751 | McKenzie R., Leaburg, Smolt, 2005 | 50623-45 | 0.870 | 0.092 | 0.007 | 0.032 | S | S | 0.9596 |
| 1752 | McKenzie R., Leaburg, Smolt, 2005 | 50623-46 | 0.947 | 0.041 | 0.004 | 0.007 | S | S | 1 |
| 1753 | McKenzie R., Leaburg, Smolt, 2005 | 50623-47 | 0.910 | 0.072 | 0.003 | 0.015 | S | S | 1 |
| 1754 | McKenzie R., Leaburg, Smolt, 2005 | 50623-48 | 0.889 | 0.054 | 0.036 | 0.021 | S | S | 0.5249 |
| 1755 | McKenzie R., Leaburg, Smolt, 2005 | 50623-49 | 0.964 | 0.026 | 0.001 | 0.009 | S | S | 0.9995 |
| 1756 | McKenzie R., Leaburg, Smolt, 2005 | 50623-50 | 0.778 | 0.134 | 0.076 | 0.012 | S | S | 0.9 |
| 1757 | McKenzie R., Leaburg, Smolt, 2005 | 50623-51 | 0.900 | 0.069 | 0.023 | 0.008 | S | S | 0.9991 |
| 1758 | McKenzie R., Leaburg, Smolt, 2005 | 50623-52 | 0.914 | 0.023 | 0.001 | 0.062 | S | S | 0.9999 |
| 1759 | McKenzie R., Leaburg, Smolt, 2005 | 50623-53 | 0.829 | 0.099 | 0.061 | 0.011 | S | S | 0.6155 |
| 1760 | McKenzie R., Leaburg, Smolt, 2005 | 50623-54 | 0.557 | 0.388 | 0.021 | 0.034 | SxEW | EW | 0.7429 |
| 1761 | McKenzie R., Leaburg, Smolt, 2005 | 50623-55 | 0.679 | 0.061 | 0.010 | 0.251 | SxWW | S | 0.8676 |
| 1762 | McKenzie R., Leaburg, Smolt, 2005 | 50623-56 | 0.892 | 0.043 | 0.012 | 0.054 | S | S | 0.9999 |
| 1763 | McKenzie R., Leaburg, Smolt, 2005 | 50623-57 | 0.546 | 0.379 | 0.061 | 0.015 | SxEW | EW | 0.8538 |
| 1764 | McKenzie R., Leaburg, Smolt, 2005 | 50623-58 | 0.881 | 0.069 | 0.033 | 0.016 | S | S | 0.9234 |
| 1765 | McKenzie R., Leaburg, Smolt, 2005 | 50623-59 | 0.868 | 0.105 | 0.009 | 0.018 | S | S | 0.9801 |
| 1766 | McKenzie R., Leaburg, Smolt, 2005 | 50623-61 | 0.829 | 0.100 | 0.047 | 0.024 | S | S | 0.9148 |
| 1767 | McKenzie R., Leaburg, Smolt, 2005 | 50623-62 | 0.212 | 0.101 | 0.664 | 0.022 | SxRB | EW | 0.979 |
| 1768 | McKenzie R., Leaburg, Smolt, 2005 | 50623-63 | 0.962 | 0.018 | 0.002 | 0.018 | S | S | 1 |
| 1769 | McKenzie R., Leaburg, Smolt, 2005 | 50623-64 | 0.847 | 0.121 | 0.004 | 0.029 | S | EW | 0.8131 |
| 1770 | McKenzie R., Leaburg, Smolt, 2005 | 50623-65 | 0.918 | 0.066 | 0.003 | 0.013 | S | S | 0.9979 |
| 1771 | McKenzie R., Leaburg, Smolt, 2005 | 50623-66 | 0.456 | 0.314 | 0.042 | 0.188 | SxEW | EW | 0.7575 |
| 1772 | McKenzie R., Leaburg, Smolt, 2005 | 50623-67 | 0.645 | 0.269 | 0.017 | 0.069 | SxEW | S | 0.6643 |
| 1773 | McKenzie R., Leaburg, Smolt, 2005 | 50623-68 | 0.636 | 0.328 | 0.020 | 0.015 | SxEW | EW | 0.8768 |
| 1774 | McKenzie R., Leaburg, Smolt, 2005 | 50623-69 | 0.894 | 0.074 | 0.004 | 0.029 | S | S | 0.9863 |
| 1775 | McKenzie R., Leaburg, Smolt, 2005 | 50623-70 | 0.593 | 0.354 | 0.037 | 0.016 | SxEW | EW | 0.8538 |
| 1776 | McKenzie R., Leaburg, Smolt, 2005 | 50623-71 | 0.859 | 0.122 | 0.006 | 0.013 | S | S | 0.998 |
| 1777 | McKenzie R., Leaburg, Smolt, 2005 | 50623-72 | 0.777 | 0.156 | 0.003 | 0.064 | S | EW | 0.9566 |
| 1778 | McKenzie R., Leaburg, Smolt, 2005 | 50623-73 | 0.826 | 0.161 | 0.003 | 0.010 | S | S | 0.9928 |
| 1779 | McKenzie R., Leaburg, Smolt, 2005 | 50623-74 | 0.957 | 0.030 | 0.005 | 0.008 | S | S | 1 |
| 1780 | McKenzie R., Leaburg, Smolt, 2005 | 50623-75 | 0.373 | 0.437 | 0.022 | 0.168 | SxEW | EW | 0.9867 |
| 1781 | McKenzie R., Leaburg, Smolt, 2005 | 50623-76 | 0.329 | 0.326 | 0.330 | 0.014 | 3x | EW | 0.9727 |
| 1782 | McKenzie R., Leaburg, Smolt, 2005 | 50623-78 | 0.465 | 0.524 | 0.002 | 0.008 | SxEW | EW | 0.992 |
| 1783 | McKenzie R., Leaburg, Smolt, 2005 | 50623-79 | 0.832 | 0.128 | 0.006 | 0.034 | S | S | 0.6442 |
| 1784 | McKenzie R., Leaburg, Smolt, 2005 | 50623-81 | 0.853 | 0.116 | 0.004 | 0.027 | S | S | 0.7777 |
| 1785 | McKenzie R., Leaburg, Smolt, 2005 | 50623-82 | 0.857 | 0.109 | 0.017 | 0.017 | S | S | 0.9299 |
| 1786 | McKenzie R., Leaburg, Smolt, 2005 | 50623-83 | 0.785 | 0.073 | 0.125 | 0.017 | S | S | 0.9956 |

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|---|---|---|---|---|---|---|---|---|---|
| 1787 | McKenzie R., Leaburg, Smolt, 2005 | 50623-84 | 0.857 | 0.069 | 0.025 | 0.050 | S | S | 0.9203 |
| 1788 | McKenzie R., Leaburg, Smolt, 2005 | 50623-R1 | 0.061 | 0.468 | 0.009 | 0.462 | WWxEW | EW | 0.9447 |
| 1789 | Willamette R., Adult, Winter, 2005 | 50624-Q1 | 0.035 | 0.938 | 0.015 | 0.012 | EW | EW | 1 |
| 1790 | McKenzie R., Adult, Winter, 2005 | 50625-A1 | 0.028 | 0.946 | 0.017 | 0.009 | EW | EW | 1 |
| 1791 | McKenzie R., Leaburg, Rainbow, 2011 | 50626-58 | 0.093 | 0.082 | 0.813 | 0.013 | RB | RB | 0.6077 |
| 1792 | McKenzie R., Leaburg, Rainbow, 2011 | 50626-67 | 0.975 | 0.016 | 0.002 | 0.007 | S | S | 1 |
| 1793 | McKenzie R., Leaburg, Rainbow, 2011 | 50626-76 | 0.334 | 0.034 | 0.610 | 0.022 | SxRB | EW | 0.9838 |
| 1794 | McKenzie R., Leaburg, Rainbow, 2011 | 50626-106 | 0.222 | 0.647 | 0.123 | 0.009 | SxEW | EW | 1 |
| 1795 | McKenzie R., Leaburg, Rainbow, 2011 | 50626-108 | 0.976 | 0.016 | 0.001 | 0.007 | S | S | 1 |
| 1796 | McKenzie R., Leaburg, Rainbow, 2011 | 50626-271 | 0.809 | 0.135 | 0.028 | 0.027 | S | S | 0.9541 |
| 1797 | McKenzie R., Leaburg, Smolt, 2011 | 50627-55 | 0.695 | 0.272 | 0.025 | 0.009 | SxEW | S | 0.9972 |
| 1798 | McKenzie R., Leaburg, Smolt, 2011 | 50627-56 | 0.935 | 0.051 | 0.004 | 0.009 | S | S | 0.9991 |
| 1799 | McKenzie R., Leaburg, Smolt, 2011 | 50627-57 | 0.945 | 0.044 | 0.003 | 0.007 | S | S | 1 |
| 1800 | McKenzie R., Leaburg, Smolt, 2011 | 50627-59 | 0.889 | 0.077 | 0.010 | 0.024 | S | S | 0.9985 |
| 1801 | McKenzie R., Leaburg, Smolt, 2011 | 50627-60 | 0.925 | 0.031 | 0.003 | 0.041 | S | S | 0.9505 |
| 1802 | McKenzie R., Leaburg, Smolt, 2011 | 50627-61 | 0.956 | 0.035 | 0.002 | 0.007 | S | S | 1 |
| 1803 | McKenzie R., Leaburg, Smolt, 2011 | 50627-62 | 0.957 | 0.030 | 0.002 | 0.011 | S | S | 0.9994 |
| 1804 | McKenzie R., Leaburg, Smolt, 2011 | 50627-63 | 0.966 | 0.024 | 0.002 | 0.008 | S | S | 0.9996 |
| 1805 | McKenzie R., Leaburg, Smolt, 2011 | 50627-64 | 0.875 | 0.034 | 0.002 | 0.089 | S | S | 1 |
| 1806 | McKenzie R., Leaburg, Smolt, 2011 | 50627-65 | 0.887 | 0.076 | 0.005 | 0.032 | S | S | 0.8372 |
| 1807 | McKenzie R., Leaburg, Smolt, 2011 | 50627-66 | 0.897 | 0.084 | 0.003 | 0.016 | S | EW | 0.6812 |
| 1808 | McKenzie R., Leaburg, Smolt, 2011 | 50627-68 | 0.955 | 0.034 | 0.002 | 0.009 | S | S | 1 |
| 1809 | McKenzie R., Leaburg, Smolt, 2011 | 50627-69 | 0.913 | 0.055 | 0.002 | 0.030 | S | S | 0.9259 |
| 1810 | McKenzie R., Leaburg, Smolt, 2011 | 50627-70 | 0.410 | 0.221 | 0.343 | 0.027 | 3x | EW | 1 |
| 1811 | McKenzie R., Leaburg, Smolt, 2011 | 50627-71 | 0.347 | 0.056 | 0.588 | 0.009 | SxRB | EW | 0.6089 |
| 1812 | McKenzie R., Leaburg, Smolt, 2011 | 50627-72 | 0.393 | 0.533 | 0.005 | 0.069 | SxEW | EW | 0.9985 |
| 1813 | McKenzie R., Leaburg, Smolt, 2011 | 50627-73 | 0.942 | 0.042 | 0.008 | 0.009 | S | S | 0.9998 |
| 1814 | McKenzie R., Leaburg, Smolt, 2011 | 50627-74 | 0.959 | 0.026 | 0.002 | 0.013 | S | S | 1 |
| 1815 | McKenzie R., Leaburg, Smolt, 2011 | 50627-75 | 0.780 | 0.202 | 0.007 | 0.012 | SxEW | S | 0.9835 |
| 1816 | McKenzie R., Leaburg, Smolt, 2011 | 50627-77 | 0.914 | 0.067 | 0.005 | 0.014 | S | S | 1 |
| 1817 | McKenzie R., Leaburg, Smolt, 2011 | 50627-78 | 0.407 | 0.120 | 0.464 | 0.009 | SxRB | EW | 0.9975 |
| 1818 | McKenzie R., Leaburg, Smolt, 2011 | 50627-79 | 0.404 | 0.435 | 0.150 | 0.011 | SxEW | EW | 0.9999 |
| 1819 | McKenzie R., Leaburg, Smolt, 2011 | 50627-80 | 0.915 | 0.073 | 0.002 | 0.010 | S | S | 0.9625 |
| 1820 | McKenzie R., Leaburg, Smolt, 2011 | 50627-82 | 0.812 | 0.099 | 0.017 | 0.073 | S | S | 0.9979 |
| 1821 | McKenzie R., Leaburg, Smolt, 2011 | 50627-83 | 0.876 | 0.109 | 0.004 | 0.011 | S | S | 0.9874 |
| 1822 | McKenzie R., Leaburg, Smolt, 2011 | 50627-84 | 0.949 | 0.035 | 0.004 | 0.012 | S | S | 1 |
| 1823 | McKenzie R., Leaburg, Smolt, 2011 | 50627-86 | 0.053 | 0.069 | 0.811 | 0.067 | RB | RB | 0.7356 |
| 1824 | McKenzie R., Leaburg, Smolt, 2011 | 50627-87 | 0.816 | 0.158 | 0.007 | 0.019 | S | EW | 0.7069 |
| 1825 | McKenzie R., Leaburg, Smolt, 2011 | 50627-88 | 0.905 | 0.038 | 0.002 | 0.055 | S | S | 0.578 |
| 1826 | McKenzie R., Leaburg, Smolt, 2011 | 50627-89 | 0.897 | 0.033 | 0.002 | 0.069 | S | S | 0.9921 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 1827 | McKenzie R., Leaburg, Smolt, 2011 | 50627-90 | 0.956 | 0.029 | 0.006 | 0.008 | S | S | 1 |
| 1828 | McKenzie R., Leaburg, Smolt, 2011 | 50627-91 | 0.558 | 0.396 | 0.016 | 0.031 | SxEW | EW | 0.8856 |
| 1829 | McKenzie R., Leaburg, Smolt, 2011 | 50627-92 | 0.437 | 0.100 | 0.318 | 0.145 | SxRB | S | 0.9543 |
| 1830 | McKenzie R., Leaburg, Smolt, 2011 | 50627-93 | 0.918 | 0.069 | 0.005 | 0.007 | S | S | 0.9997 |
| 1831 | McKenzie R., Leaburg, Smolt, 2011 | 50627-95 | 0.951 | 0.035 | 0.005 | 0.010 | S | S | 1 |
| 1832 | McKenzie R., Leaburg, Smolt, 2011 | 50627-96 | 0.911 | 0.061 | 0.002 | 0.026 | S | S | 0.9999 |
| 1833 | McKenzie R., Leaburg, Smolt, 2011 | 50627-97 | 0.537 | 0.389 | 0.056 | 0.019 | SxEW | EW | 0.9891 |
| 1834 | McKenzie R., Leaburg, Smolt, 2011 | 50627-99 | 0.573 | 0.075 | 0.022 | 0.330 | SxWW | S | 0.7704 |
| 1835 | McKenzie R., Leaburg, Smolt, 2011 | 50627-100 | 0.813 | 0.151 | 0.026 | 0.009 | S | S | 0.996 |
| 1836 | McKenzie R., Leaburg, Smolt, 2011 | 50627-101 | 0.893 | 0.051 | 0.043 | 0.012 | S | S | 1 |
| 1837 | McKenzie R., Leaburg, Smolt, 2011 | 50627-102 | 0.898 | 0.071 | 0.004 | 0.027 | S | S | 0.9999 |
| 1838 | McKenzie R., Leaburg, Smolt, 2011 | 50627-103 | 0.971 | 0.014 | 0.001 | 0.014 | S | S | 0.9964 |
| 1839 | McKenzie R., Leaburg, Smolt, 2011 | 50627-105 | 0.918 | 0.045 | 0.025 | 0.012 | S | S | 1 |
| 1840 | McKenzie R., Leaburg, Smolt, 2011 | 50627-107 | 0.270 | 0.058 | 0.647 | 0.025 | SxRB | EW | 0.6367 |
| 1841 | McKenzie R., Leaburg, Smolt, 2011 | 50627-110 | 0.594 | 0.246 | 0.124 | 0.037 | SxEW | EW | 0.9974 |
| 1842 | McKenzie R., Leaburg, Smolt, 2011 | 50627-111 | 0.582 | 0.355 | 0.049 | 0.014 | SxEW | EW | 0.954 |
| 1843 | McKenzie R., Leaburg, Smolt, 2011 | 50627-112 | 0.956 | 0.027 | 0.002 | 0.014 | S | S | 1 |
| 1844 | McKenzie R., Leaburg, Smolt, 2011 | 50627-113 | 0.895 | 0.072 | 0.008 | 0.025 | S | EW | 0.7142 |
| 1845 | McKenzie R., Leaburg, Smolt, 2011 | 50627-115 | 0.867 | 0.101 | 0.010 | 0.023 | S | EW | 0.9288 |
| 1846 | McKenzie R., Leaburg, Smolt, 2011 | 50627-116 | 0.940 | 0.040 | 0.002 | 0.018 | S | S | 1 |
| 1847 | McKenzie R., Leaburg, Smolt, 2011 | 50627-117 | 0.925 | 0.050 | 0.002 | 0.023 | S | S | 0.9994 |
| 1848 | McKenzie R., Leaburg, Smolt, 2011 | 50627-118 | 0.879 | 0.062 | 0.008 | 0.051 | S | S | 0.9693 |
| 1849 | McKenzie R., Leaburg, Smolt, 2011 | 50627-119 | 0.931 | 0.053 | 0.007 | 0.009 | S | S | 0.9999 |
| 1850 | McKenzie R., Leaburg, Smolt, 2011 | 50627-120 | 0.940 | 0.040 | 0.009 | 0.011 | S | S | 0.9982 |
| 1851 | McKenzie R., Leaburg, Smolt, 2011 | 50627-261 | 0.974 | 0.018 | 0.002 | 0.006 | S | S | 1 |
| 1852 | McKenzie R., Leaburg, Smolt, 2011 | 50627-262 | 0.216 | 0.355 | 0.421 | 0.008 | 3x | EW | 0.9893 |
| 1853 | McKenzie R., Leaburg, Smolt, 2011 | 50627-263 | 0.903 | 0.036 | 0.002 | 0.058 | S | S | 0.9999 |
| 1854 | McKenzie R., Leaburg, Smolt, 2011 | 50627-264 | 0.943 | 0.043 | 0.002 | 0.012 | S | S | 0.9989 |
| 1855 | McKenzie R., Leaburg, Smolt, 2011 | 50627-265 | 0.455 | 0.366 | 0.159 | 0.020 | SxEW | EW | 0.8371 |
| 1856 | McKenzie R., Leaburg, Smolt, 2011 | 50627-266 | 0.935 | 0.042 | 0.004 | 0.019 | S | S | 1 |
| 1857 | McKenzie R., Leaburg, Smolt, 2011 | 50627-267 | 0.963 | 0.017 | 0.001 | 0.019 | S | S | 1 |
| 1858 | McKenzie R., Leaburg, Smolt, 2011 | 50627-270 | 0.137 | 0.712 | 0.140 | 0.011 | EW | EW | 0.9996 |
| 1859 | McKenzie R., Leaburg, Smolt, 2011 | 50627-272 | 0.949 | 0.019 | 0.001 | 0.031 | S | S | 1 |
| 1860 | McKenzie R., Leaburg, Smolt, 2011 | 50627-274 | 0.934 | 0.049 | 0.006 | 0.011 | S | EW | 0.7416 |
| 1861 | McKenzie R., Leaburg, Smolt, 2011 | 50627-275 | 0.940 | 0.043 | 0.008 | 0.009 | S | S | 0.9997 |
| 1862 | McKenzie R., Leaburg, Smolt, 2011 | 50627-276 | 0.962 | 0.028 | 0.002 | 0.007 | S | S | 1 |
| 1863 | McKenzie R., Leaburg, Smolt, 2011 | 50627-277 | 0.920 | 0.064 | 0.006 | 0.010 | S | S | 0.9987 |
| 1864 | McKenzie R., Leaburg, Smolt, 2011 | 50627-278 | 0.453 | 0.471 | 0.069 | 0.008 | SxEW | EW | 0.995 |
| 1865 | McKenzie R., Leaburg, Smolt, 2011 | 50627-279 | 0.945 | 0.039 | 0.004 | 0.012 | S | S | 1 |
| 1866 | McKenzie R., Leaburg, Smolt, 2011 | 50627-280 | 0.051 | 0.033 | 0.880 | 0.036 | RB | RB | 0.9741 |

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|---|---|---|---|---|---|---|---|---|---|
| 1867 | McKenzie R., Leaburg, Smolt, 2011 | 50627-281 | 0.874 | 0.088 | 0.017 | 0.021 | S | S | 0.5419 |
| 1868 | McKenzie R., Leaburg, Smolt, 2011 | 50627-283 | 0.899 | 0.068 | 0.019 | 0.014 | S | S | 0.9227 |
| 1869 | McKenzie R., Leaburg, Smolt, 2011 | 50627-284 | 0.953 | 0.031 | 0.004 | 0.013 | S | S | 0.9998 |
| 1870 | McKenzie R., Leaburg, Smolt, 2011 | 50627-285 | 0.845 | 0.054 | 0.002 | 0.100 | S | S | 0.9999 |
| 1871 | McKenzie R., Leaburg, Smolt, 2011 | 50627-286 | 0.153 | 0.466 | 0.360 | 0.022 | EWxRB | EW | 1 |
| 1872 | McKenzie R., Leaburg, Smolt, 2011 | 50627-287 | 0.159 | 0.420 | 0.258 | 0.163 | EWxRB | EW | 1 |
| 1873 | McKenzie R., Leaburg, Smolt, 2011 | 50627-288 | 0.974 | 0.017 | 0.002 | 0.007 | S | S | 1 |
| 1874 | McKenzie R., Leaburg, Smolt, 2011 | 50627-289 | 0.951 | 0.024 | 0.002 | 0.022 | S | S | 1 |
| 1875 | McKenzie R., Leaburg, Smolt, 2011 | 50627-290 | 0.306 | 0.091 | 0.585 | 0.018 | SxRB | EW | 0.9679 |
| 1876 | McKenzie R., Leaburg, Smolt, 2011 | 50627-291 | 0.956 | 0.025 | 0.002 | 0.017 | S | S | 0.9997 |
| 1877 | McKenzie R., Leaburg, Smolt, 2011 | 50627-292 | 0.796 | 0.186 | 0.005 | 0.012 | S | S | 0.9803 |
| 1878 | McKenzie R., Leaburg, Smolt, 2011 | 50627-294 | 0.965 | 0.027 | 0.002 | 0.007 | S | S | 1 |
| 1879 | McKenzie R., Leaburg, Smolt, 2011 | 50627-295 | 0.188 | 0.059 | 0.746 | 0.007 | RB | RB | 0.8643 |
| 1880 | McKenzie R., Leaburg, Smolt, 2011 | 50627-296 | 0.515 | 0.116 | 0.361 | 0.008 | SxRB | EW | 1 |
| 1881 | McKenzie R., Leaburg, Smolt, 2011 | 50627-297 | 0.115 | 0.792 | 0.079 | 0.015 | EW | EW | 0.9976 |
| 1882 | McKenzie R., Leaburg, Smolt, 2011 | 50627-298 | 0.917 | 0.065 | 0.004 | 0.014 | S | S | 0.997 |
| 1883 | McKenzie R., Leaburg, Smolt, 2011 | 50627-299 | 0.019 | 0.033 | 0.937 | 0.011 | RB | EW | 0.9559 |
| 1884 | McKenzie R., Leaburg, Smolt, 2011 | 50627-300 | 0.955 | 0.033 | 0.004 | 0.009 | S | S | 1 |
| 1885 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-2 | 0.013 | 0.906 | 0.006 | 0.075 | EW | EW | 1 |
| 1886 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-3 | 0.015 | 0.944 | 0.030 | 0.012 | EW | EW | 1 |
| 1887 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-4 | 0.025 | 0.956 | 0.011 | 0.008 | EW | EW | 1 |
| 1888 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-5 | 0.107 | 0.866 | 0.005 | 0.021 | EW | EW | 1 |
| 1889 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-6 | 0.038 | 0.715 | 0.235 | 0.012 | EWxRB | EW | 1 |
| 1890 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-7 | 0.069 | 0.263 | 0.611 | 0.056 | EWxRB | EW | 1 |
| 1891 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-8 | 0.021 | 0.965 | 0.006 | 0.007 | EW | EW | 1 |
| 1892 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-9 | 0.029 | 0.843 | 0.056 | 0.073 | EW | EW | 0.9999 |
| 1893 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-10 | 0.034 | 0.923 | 0.034 | 0.008 | EW | EW | 1 |
| 1894 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-11 | 0.032 | 0.933 | 0.004 | 0.031 | EW | EW | 1 |
| 1895 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-12 | 0.024 | 0.942 | 0.025 | 0.008 | EW | EW | 1 |
| 1896 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-13 | 0.048 | 0.431 | 0.505 | 0.017 | EWxRB | EW | 0.9869 |
| 1897 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-14 | 0.012 | 0.979 | 0.002 | 0.007 | EW | EW | 1 |
| 1898 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-15 | 0.029 | 0.949 | 0.004 | 0.018 | EW | EW | 1 |
| 1899 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-16 | 0.043 | 0.939 | 0.004 | 0.014 | EW | EW | 1 |
| 1900 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-17 | 0.014 | 0.975 | 0.004 | 0.006 | EW | EW | 1 |
| 1901 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-18 | 0.071 | 0.900 | 0.014 | 0.015 | EW | EW | 1 |
| 1902 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-19 | 0.027 | 0.962 | 0.005 | 0.006 | EW | EW | 1 |
| 1903 | Willamette R., Fall Cr., Adult, Winter, 2010 | 50628-20 | 0.014 | 0.967 | 0.012 | 0.007 | EW | EW | 1 |
| 1904 | Willamette R., Fall Cr., 2011 | 50629-21 | 0.025 | 0.966 | 0.004 | 0.006 | EW | EW | 1 |
| 1905 | Willamette R., Fall Cr., 2011 | 50629-22 | 0.058 | 0.865 | 0.061 | 0.016 | EW | EW | 1 |
| 1906 | Willamette R., Fall Cr., 2011 | 50629-23 | 0.022 | 0.864 | 0.101 | 0.013 | EW | EW | 1 |

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|---|---|---|---|---|---|---|---|---|---|
| 1907 | Willamette R., Fall Cr., 2011 | 50629-24 | 0.036 | 0.910 | 0.039 | 0.015 | EW | EW | 1 |
| 1908 | Willamette R., Fall Cr., 2011 | 50629-25 | 0.030 | 0.879 | 0.071 | 0.021 | EW | EW | 1 |
| 1909 | Willamette R., Fall Cr., 2011 | 50629-26 | 0.089 | 0.881 | 0.012 | 0.018 | EW | EW | 0.9998 |
| 1910 | Willamette R., Fall Cr., 2011 | 50629-B | 0.028 | 0.949 | 0.004 | 0.019 | EW | EW | 1 |
| 1911 | Willamette R., Fall Cr., Adult, Winter, 2011 | 50630-1 | 0.012 | 0.971 | 0.012 | 0.005 | EW | EW | 1 |
| 1912 | Willamette R., Fall Cr., Adult, Winter, 2011 | 50630-27 | 0.022 | 0.958 | 0.013 | 0.006 | EW | EW | 1 |
| 1913 | Willamette R., Fall Cr., Adult, Winter, 2011 | 50630-28 | 0.027 | 0.952 | 0.003 | 0.017 | EW | EW | 1 |
| 1914 | Willamette R., Fall Cr., Adult, Winter, 2011 | 50630-29 | 0.017 | 0.946 | 0.021 | 0.016 | EW | EW | 1 |
| 1915 | Willamette R., Fall Cr., Adult, Winter, 2011 | 50630-30 | 0.016 | 0.942 | 0.030 | 0.012 | EW | EW | 1 |
| 1916 | Willamette R., Fall Cr., Adult, Winter, 2011 | 50630-31 | 0.013 | 0.951 | 0.029 | 0.007 | EW | EW | 1 |
| 1917 | Willamette R., Fall Cr., Adult, Winter, 2011 | 50630-32 | 0.038 | 0.941 | 0.014 | 0.006 | EW | EW | 1 |
| 1918 | Willamette R., Fall Cr., Adult, Winter, 2011 | 50630-33 | 0.017 | 0.968 | 0.006 | 0.009 | EW | EW | 1 |
| 1919 | Willamette R., Fall Cr., Adult, Winter, 2011 | 50630-34 | 0.022 | 0.925 | 0.042 | 0.011 | EW | EW | 1 |
| 1920 | Willamette Falls, Smolt, 2011 | 90523-1 | 0.097 | 0.713 | 0.016 | 0.175 | EW | EW | 0.972 |
| 1921 | Willamette Falls, Smolt, 2011 | 90523-2 | 0.862 | 0.106 | 0.016 | 0.016 | S | S | 0.7436 |
| 1922 | Willamette Falls, Smolt, 2011 | 90523-3 | 0.020 | 0.966 | 0.006 | 0.008 | EW | EW | 1 |
| 1923 | Willamette Falls, Smolt, 2011 | 90523-4 | 0.070 | 0.706 | 0.003 | 0.220 | WWxEW | EW | 0.9986 |
| 1924 | Willamette Falls, Smolt, 2011 | 90523-5 | 0.021 | 0.962 | 0.002 | 0.016 | EW | EW | 1 |
| 1925 | Willamette Falls, Smolt, 2011 | 90523-6 | 0.053 | 0.048 | 0.013 | 0.886 | WW | EW | 0.9564 |
| 1926 | Willamette Falls, Smolt, 2011 | 90523-7 | 0.023 | 0.955 | 0.002 | 0.020 | EW | EW | 1 |
| 1927 | Willamette Falls, Smolt, 2011 | 90523-8 | 0.012 | 0.973 | 0.005 | 0.010 | EW | EW | 1 |
| 1928 | Willamette Falls, Smolt, 2011 | 90523-9 | 0.145 | 0.425 | 0.012 | 0.417 | WWxEW | EW | 0.9926 |
| 1929 | Willamette Falls, Smolt, 2011 | 90523-10 | 0.302 | 0.505 | 0.133 | 0.059 | SxEW | EW | 0.9999 |
| 1930 | Willamette Falls, Smolt, 2011 | 90523-11 | 0.054 | 0.863 | 0.060 | 0.023 | EW | EW | 0.8697 |
| 1931 | Willamette Falls, Smolt, 2011 | 90523-12 | 0.029 | 0.742 | 0.002 | 0.227 | WWxEW | EW | 1 |
| 1932 | Willamette Falls, Smolt, 2011 | 90523-13 | 0.036 | 0.145 | 0.007 | 0.812 | WW | EW | 0.8814 |
| 1933 | Willamette Falls, Smolt, 2011 | 90523-14 | 0.040 | 0.905 | 0.002 | 0.053 | EW | EW | 1 |
| 1934 | Willamette Falls, Smolt, 2011 | 90523-15 | 0.026 | 0.864 | 0.007 | 0.103 | EW | EW | 1 |
| 1935 | Willamette Falls, Smolt, 2011 | 90523-16 | 0.022 | 0.938 | 0.022 | 0.018 | EW | EW | 1 |
| 1936 | Willamette Falls, Smolt, 2011 | 90523-17 | 0.102 | 0.875 | 0.006 | 0.017 | EW | EW | 0.9997 |
| 1937 | Willamette Falls, Smolt, 2011 | 90523-18 | 0.025 | 0.559 | 0.003 | 0.414 | WWxEW | EW | 0.9993 |
| 1938 | Willamette Falls, Smolt, 2011 | 90523-20 | 0.052 | 0.921 | 0.003 | 0.024 | EW | EW | 1 |
| 1939 | Willamette Falls, Smolt, 2011 | 90523-21 | 0.030 | 0.923 | 0.036 | 0.011 | EW | EW | 1 |
| 1940 | Willamette Falls, Smolt, 2011 | 90523-22 | 0.089 | 0.878 | 0.013 | 0.019 | EW | EW | 0.9969 |
| 1941 | Willamette Falls, Smolt, 2011 | 90523-23 | 0.077 | 0.746 | 0.008 | 0.169 | EW | EW | 1 |
| 1942 | Willamette Falls, Smolt, 2011 | 90523-24 | 0.152 | 0.029 | 0.002 | 0.818 | WW | EW | 0.6598 |
| 1943 | Willamette Falls, Smolt, 2011 | 90523-25 | 0.050 | 0.108 | 0.005 | 0.837 | WW | EW | 0.9999 |
| 1944 | Willamette Falls, Smolt, 2011 | 90523-26 | 0.171 | 0.048 | 0.004 | 0.777 | WW | EW | 0.8202 |
| 1945 | Willamette Falls, Smolt, 2011 | 90523-27 | 0.024 | 0.048 | 0.002 | 0.927 | WW | WW | 0.999 |
| 1946 | Willamette Falls, Smolt, 2011 | 90523-28 | 0.022 | 0.964 | 0.002 | 0.012 | EW | EW | 1 |

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|---|---|---|---|---|---|---|---|---|---|
| 1947 | Willamette Falls, Smolt, 2011 | 90523-29 | 0.028 | 0.030 | 0.002 | 0.940 | WW | WW | 0.997 |
| 1948 | Willamette Falls, Smolt, 2011 | 90523-30 | 0.051 | 0.061 | 0.004 | 0.884 | WW | EW | 0.9983 |
| 1949 | Willamette Falls, Smolt, 2011 | 90523-31 | 0.197 | 0.042 | 0.002 | 0.759 | WW | EW | 0.9018 |
| 1950 | Willamette Falls, Smolt, 2011 | 90523-32 | 0.046 | 0.936 | 0.008 | 0.011 | EW | EW | 1 |
| 1951 | Willamette Falls, Smolt, 2011 | 90523-33 | 0.017 | 0.964 | 0.002 | 0.018 | EW | EW | 1 |
| 1952 | Willamette Falls, Smolt, 2011 | 90523-34 | 0.046 | 0.909 | 0.002 | 0.043 | EW | EW | 1 |
| 1953 | Willamette Falls, Smolt, 2011 | 90523-35 | 0.031 | 0.943 | 0.004 | 0.021 | EW | EW | 1 |
| 1954 | Willamette Falls, Smolt, 2011 | 90523-36 | 0.052 | 0.178 | 0.002 | 0.768 | WW | EW | 0.9179 |
| 1955 | Willamette Falls, Smolt, 2011 | 90523-37 | 0.188 | 0.038 | 0.003 | 0.771 | WW | EW | 0.9353 |
| 1956 | Willamette Falls, Smolt, 2011 | 90523-38 | 0.043 | 0.361 | 0.001 | 0.594 | WWxEW | EW | 0.9999 |
| 1957 | Willamette Falls, Smolt, 2011 | 90523-39 | 0.329 | 0.462 | 0.038 | 0.171 | SxEW | EW | 0.9999 |
| 1958 | Willamette Falls, Smolt, 2011 | 90523-40 | 0.225 | 0.210 | 0.011 | 0.554 | 3x | EW | 0.9933 |
| 1959 | Willamette Falls, Smolt, 2011 | 90523-41 | 0.012 | 0.973 | 0.003 | 0.012 | EW | EW | 1 |
| 1960 | Willamette Falls, Smolt, 2011 | 90523-42 | 0.223 | 0.046 | 0.001 | 0.730 | SxWW | EW | 1 |
| 1961 | Willamette Falls, Smolt, 2011 | 90523-43 | 0.405 | 0.570 | 0.003 | 0.021 | SxEW | EW | 0.9999 |
| 1962 | Willamette Falls, Smolt, 2011 | 90523-44 | 0.012 | 0.973 | 0.003 | 0.013 | EW | EW | 1 |
| 1963 | Willamette Falls, Smolt, 2011 | 90523-45 | 0.048 | 0.929 | 0.005 | 0.019 | EW | EW | 1 |
| 1964 | Willamette Falls, Smolt, 2011 | 90523-46 | 0.078 | 0.063 | 0.002 | 0.857 | WW | WW | 0.999 |
| 1965 | Willamette Falls, Smolt, 2011 | 90523-763 | 0.021 | 0.068 | 0.008 | 0.903 | WW | EW | 1 |
| 1966 | Willamette Falls, Smolt, 2011 | 90523-764 | 0.101 | 0.879 | 0.005 | 0.014 | EW | EW | 1 |
| 1967 | Willamette Falls, Smolt, 2011 | 90523-765 | 0.024 | 0.956 | 0.003 | 0.017 | EW | EW | 1 |
| 1968 | Willamette Falls, Smolt, 2011 | 90523-766 | 0.960 | 0.026 | 0.002 | 0.013 | S | S | 1 |
| 1969 | Willamette Falls, Smolt, 2011 | 90523-767 | 0.087 | 0.763 | 0.004 | 0.145 | EW | EW | 0.9993 |
| 1970 | Willamette Falls, Smolt, 2011 | 90523-768 | 0.034 | 0.945 | 0.003 | 0.018 | EW | EW | 1 |
| 1971 | Willamette Falls, Smolt, 2011 | 90523-769 | 0.022 | 0.964 | 0.004 | 0.010 | EW | EW | 1 |
| 1972 | Willamette Falls, Smolt, 2011 | 90523-770 | 0.044 | 0.921 | 0.025 | 0.010 | EW | EW | 1 |
| 1973 | Willamette Falls, Smolt, 2011 | 90523-771 | 0.247 | 0.330 | 0.016 | 0.407 | 3x | EW | 0.658 |
| 1974 | Willamette Falls, Smolt, 2011 | 90523-772 | 0.857 | 0.085 | 0.005 | 0.053 | S | S | 0.9564 |
| 1975 | Willamette Falls, Smolt, 2011 | 90523-773 | 0.013 | 0.978 | 0.003 | 0.006 | EW | EW | 1 |
| 1976 | Willamette R., Smolt, 2011 | 90524-121 | 0.021 | 0.950 | 0.017 | 0.012 | EW | EW | 1 |
| 1977 | Willamette R., Smolt, 2011 | 90524-122 | 0.113 | 0.108 | 0.769 | 0.011 | RB | RB | 0.5278 |
| 1978 | Willamette R., Smolt, 2011 | 90524-124 | 0.947 | 0.028 | 0.002 | 0.023 | S | S | 1 |
| 1979 | Willamette R., Smolt, 2011 | 90524-125 | 0.019 | 0.791 | 0.182 | 0.008 | EW | EW | 0.9998 |
| 1980 | Willamette R., Smolt, 2011 | 90524-126 | 0.033 | 0.943 | 0.005 | 0.019 | EW | EW | 1 |
| 1981 | Willamette R., Smolt, 2011 | 90524-132 | 0.023 | 0.582 | 0.390 | 0.005 | EWxRB | EW | 1 |
| 1982 | Willamette R., Smolt, 2011 | 90524-139 | 0.015 | 0.955 | 0.021 | 0.009 | EW | EW | 1 |
| 1983 | Willamette R., Smolt, 2011 | 90524-140 | 0.169 | 0.689 | 0.010 | 0.133 | EW | EW | 1 |
| 1984 | Willamette R., Smolt, 2011 | 90524-145 | 0.610 | 0.037 | 0.003 | 0.350 | SxWW | S | 0.9805 |
| 1985 | Willamette R., Smolt, 2011 | 90524-156 | 0.016 | 0.044 | 0.929 | 0.011 | RB | EW | 0.7926 |
| 1986 | Willamette R., Smolt, 2011 | 90524-157 | 0.332 | 0.391 | 0.120 | 0.156 | SxEW | EW | 0.9968 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 1987 | Willamette R., Smolt, 2011 | 90524-158 | 0.015 | 0.034 | 0.946 | 0.005 | RB | RB | 0.9814 |
| 1988 | Willamette R., Smolt, 2011 | 90524-159 | 0.089 | 0.473 | 0.392 | 0.046 | EWxRB | EW | 0.9999 |
| 1989 | Willamette R., Smolt, 2011 | 90524-160 | 0.017 | 0.896 | 0.076 | 0.011 | EW | EW | 1 |
| 1990 | Willamette R., Smolt, 2011 | 90524-161 | 0.109 | 0.098 | 0.772 | 0.021 | RB | RB | 0.5708 |
| 1991 | Willamette R., Smolt, 2011 | 90524-162 | 0.085 | 0.613 | 0.294 | 0.008 | EWxRB | EW | 1 |
| 1992 | Willamette R., Smolt, 2011 | 90524-163 | 0.955 | 0.032 | 0.002 | 0.010 | S | S | 0.9999 |
| 1993 | Willamette R., Smolt, 2011 | 90524-164 | 0.019 | 0.285 | 0.690 | 0.006 | EWxRB | EW | 0.9999 |
| 1994 | Willamette R., Smolt, 2011 | 90524-165 | 0.011 | 0.043 | 0.874 | 0.072 | RB | RB | 0.9999 |
| 1995 | Willamette R., Smolt, 2011 | 90524-166 | 0.031 | 0.065 | 0.881 | 0.024 | RB | RB | 0.7794 |
| 1996 | Willamette R., Smolt, 2011 | 90524-167 | 0.014 | 0.132 | 0.849 | 0.005 | RB | RB | 0.9959 |
| 1997 | Willamette R., Smolt, 2011 | 90524-168 | 0.016 | 0.946 | 0.029 | 0.009 | EW | EW | 1 |
| 1998 | Willamette R., Smolt, 2011 | 90524-176 | 0.013 | 0.978 | 0.003 | 0.005 | EW | EW | 1 |
| 1999 | Willamette R., Smolt, 2011 | 90524-177 | 0.045 | 0.719 | 0.225 | 0.011 | EWxRB | EW | 1 |
| 2000 | Willamette R., Smolt, 2011 | 90524-179 | 0.015 | 0.025 | 0.954 | 0.005 | RB | RB | 0.9972 |
| 2001 | Willamette R., Smolt, 2011 | 90524-180 | 0.082 | 0.895 | 0.003 | 0.019 | EW | EW | 1 |
| 2002 | Willamette R., Smolt, 2011 | 90524-181 | 0.012 | 0.967 | 0.010 | 0.011 | EW | EW | 1 |
| 2003 | Willamette R., Smolt, 2011 | 90524-182 | 0.951 | 0.029 | 0.001 | 0.019 | S | S | 1 |
| 2004 | Willamette R., Smolt, 2011 | 90524-183 | 0.031 | 0.127 | 0.806 | 0.036 | RB | EW | 0.9986 |
| 2005 | Willamette R., Smolt, 2011 | 90524-190 | 0.013 | 0.041 | 0.940 | 0.006 | RB | RB | 0.9996 |
| 2006 | N. Santiam R., Smolt, 2011 | 90525-133 | 0.025 | 0.947 | 0.014 | 0.013 | EW | EW | 1 |
| 2007 | N. Santiam R., Smolt, 2011 | 90525-134 | 0.054 | 0.921 | 0.012 | 0.013 | EW | EW | 1 |
| 2008 | N. Santiam R., Smolt, 2011 | 90525-135 | 0.035 | 0.933 | 0.009 | 0.023 | EW | EW | 1 |
| 2009 | N. Santiam R., Smolt, 2011 | 90525-136 | 0.547 | 0.404 | 0.002 | 0.047 | SxEW | EW | 0.9995 |
| 2010 | N. Santiam R., Smolt, 2011 | 90525-137 | 0.023 | 0.815 | 0.134 | 0.028 | EW | EW | 1 |
| 2011 | N. Santiam R., Smolt, 2011 | 90525-138 | 0.037 | 0.898 | 0.002 | 0.063 | EW | EW | 0.9999 |
| 2012 | N. Santiam R., Smolt, 2011 | 90525-146 | 0.029 | 0.925 | 0.016 | 0.031 | EW | EW | 1 |
| 2013 | N. Santiam R., Smolt, 2011 | 90525-147 | 0.230 | 0.750 | 0.002 | 0.018 | SxEW | EW | 1 |
| 2014 | N. Santiam R., Smolt, 2011 | 90525-148 | 0.032 | 0.936 | 0.005 | 0.027 | EW | EW | 1 |
| 2015 | N. Santiam R., Smolt, 2011 | 90525-149 | 0.121 | 0.826 | 0.025 | 0.028 | EW | EW | 1 |
| 2016 | N. Santiam R., Smolt, 2011 | 90525-151 | 0.070 | 0.848 | 0.043 | 0.038 | EW | EW | 1 |
| 2017 | N. Santiam R., Smolt, 2011 | 90525-152 | 0.027 | 0.932 | 0.002 | 0.038 | EW | EW | 0.9991 |
| 2018 | N. Santiam R., Smolt, 2011 | 90525-153 | 0.014 | 0.503 | 0.004 | 0.479 | WWxEW | EW | 1 |
| 2019 | N. Santiam R., Smolt, 2011 | 90525-154 | 0.013 | 0.217 | 0.760 | 0.010 | EWxRB | EW | 0.8397 |
| 2020 | N. Santiam R., Smolt, 2011 | 90525-155 | 0.114 | 0.809 | 0.059 | 0.017 | EW | EW | 1 |
| 2021 | N. Santiam R., Smolt, 2011 | 90525-191 | 0.064 | 0.633 | 0.081 | 0.223 | WWxEW | EW | 0.9936 |
| 2022 | N. Santiam R., Smolt, 2011 | 90525-192 | 0.151 | 0.832 | 0.006 | 0.011 | EW | EW | 1 |
| 2023 | N. Santiam R., Smolt, 2011 | 90525-193 | 0.065 | 0.905 | 0.007 | 0.023 | EW | EW | 1 |
| 2024 | N. Santiam R., Smolt, 2011 | 90525-194 | 0.242 | 0.712 | 0.004 | 0.042 | SxEW | EW | 1 |
| 2025 | N. Santiam R., Smolt, 2011 | 90525-195 | 0.034 | 0.945 | 0.008 | 0.012 | EW | EW | 1 |
| 2026 | N. Santiam R., Smolt, 2011 | 90525-196 | 0.092 | 0.758 | 0.009 | 0.141 | EW | EW | 0.999 |

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|---|---|---|---|---|---|---|---|---|---|
| 2027 | N. Santiam R., Smolt, 2011 | 90525-197 | 0.039 | 0.948 | 0.005 | 0.008 | EW | EW | 1 |
| 2028 | N. Santiam R., Smolt, 2011 | 90525-198 | 0.030 | 0.648 | 0.121 | 0.201 | WWxEW | EW | 1 |
| 2029 | N. Santiam R., Smolt, 2011 | 90525-199 | 0.060 | 0.904 | 0.006 | 0.030 | EW | EW | 1 |
| 2030 | N. Santiam R., Smolt, 2011 | 90525-202 | 0.069 | 0.028 | 0.003 | 0.899 | WW | S | 0.896 |
| 2031 | N. Santiam R., Smolt, 2011 | 90525-203 | 0.322 | 0.386 | 0.247 | 0.045 | 3x | EW | 0.987 |
| 2032 | N. Santiam R., Smolt, 2011 | 90525-212 | 0.032 | 0.952 | 0.004 | 0.012 | EW | EW | 1 |
| 2033 | N. Santiam R., Smolt, 2011 | 90525-216 | 0.111 | 0.848 | 0.009 | 0.032 | EW | EW | 1 |
| 2034 | N. Santiam R., Smolt, 2011 | 90525-217 | 0.038 | 0.946 | 0.005 | 0.011 | EW | EW | 1 |
| 2035 | N. Santiam R., Smolt, 2011 | 90525-218 | 0.115 | 0.378 | 0.017 | 0.490 | WWxEW | EW | 0.9972 |
| 2036 | N. Santiam R., Smolt, 2011 | 90525-219 | 0.027 | 0.936 | 0.006 | 0.031 | EW | EW | 1 |
| 2037 | N. Santiam R., Smolt, 2011 | 90525-220 | 0.087 | 0.883 | 0.005 | 0.025 | EW | EW | 1 |
| 2038 | N. Santiam R., Smolt, 2011 | 90525-221 | 0.248 | 0.553 | 0.072 | 0.127 | SxEW | EW | 0.9992 |
| 2039 | N. Santiam R., Smolt, 2011 | 90525-222 | 0.069 | 0.899 | 0.024 | 0.007 | EW | EW | 1 |
| 2040 | N. Santiam R., Smolt, 2011 | 90525-223 | 0.111 | 0.872 | 0.006 | 0.011 | EW | EW | 1 |
| 2041 | N. Santiam R., Smolt, 2011 | 90525-224 | 0.033 | 0.941 | 0.005 | 0.020 | EW | EW | 1 |
| 2042 | Santiam R., Mouth, Smolt, 2011 | 90526-127 | 0.052 | 0.820 | 0.003 | 0.125 | EW | EW | 1 |
| 2043 | Santiam R., Mouth, Smolt, 2011 | 90526-128 | 0.089 | 0.871 | 0.016 | 0.024 | EW | EW | 1 |
| 2044 | Santiam R., Mouth, Smolt, 2011 | 90526-129 | 0.371 | 0.364 | 0.013 | 0.252 | 3x | EW | 0.9916 |
| 2045 | Santiam R., Mouth, Smolt, 2011 | 90526-130 | 0.196 | 0.540 | 0.019 | 0.245 | WWxEW | EW | 0.9994 |
| 2046 | Santiam R., Mouth, Smolt, 2011 | 90526-131 | 0.091 | 0.862 | 0.028 | 0.019 | EW | EW | 0.9999 |
| 2047 | Santiam R., Mouth, Smolt, 2011 | 90526-184 | 0.037 | 0.953 | 0.002 | 0.008 | EW | EW | 1 |
| 2048 | Santiam R., Mouth, Smolt, 2011 | 90526-185 | 0.042 | 0.050 | 0.708 | 0.199 | RB | EW | 0.9967 |
| 2049 | Santiam R., Mouth, Smolt, 2011 | 90526-186 | 0.070 | 0.073 | 0.849 | 0.008 | RB | RB | 0.9991 |
| 2050 | Santiam R., Mouth, Smolt, 2011 | 90526-187 | 0.113 | 0.857 | 0.001 | 0.028 | EW | EW | 0.9999 |
| 2051 | Santiam R., Mouth, Smolt, 2011 | 90526-188 | 0.227 | 0.731 | 0.023 | 0.019 | SxEW | EW | 0.9968 |
| 2052 | Santiam R., Mouth, Smolt, 2011 | 90526-189 | 0.013 | 0.876 | 0.006 | 0.106 | EW | EW | 1 |
| 2053 | S. Santiam R., Smolt, 2011 | 90527-1 | 0.018 | 0.968 | 0.006 | 0.007 | EW | EW | 1 |
| 2054 | S. Santiam R., Smolt, 2011 | 90527-2 | 0.124 | 0.846 | 0.003 | 0.027 | EW | EW | 1 |
| 2055 | S. Santiam R., Smolt, 2011 | 90527-3 | 0.067 | 0.884 | 0.035 | 0.014 | EW | EW | 1 |
| 2056 | S. Santiam R., Smolt, 2011 | 90527-4 | 0.037 | 0.937 | 0.002 | 0.024 | EW | EW | 1 |
| 2057 | S. Santiam R., Smolt, 2011 | 90527-98 | 0.116 | 0.860 | 0.004 | 0.020 | EW | EW | 1 |
| 2058 | S. Santiam R., Smolt, 2011 | 90527-99 | 0.262 | 0.661 | 0.003 | 0.074 | SxEW | EW | 1 |
| 2059 | S. Santiam R., Smolt, 2011 | 90527-141 | 0.265 | 0.586 | 0.002 | 0.146 | SxEW | EW | 0.9911 |
| 2060 | S. Santiam R., Smolt, 2011 | 90527-142 | 0.324 | 0.544 | 0.008 | 0.124 | SxEW | EW | 1 |
| 2061 | S. Santiam R., Smolt, 2011 | 90527-143 | 0.041 | 0.943 | 0.002 | 0.014 | EW | EW | 1 |
| 2062 | S. Santiam R., Smolt, 2011 | 90527-200 | 0.016 | 0.963 | 0.011 | 0.010 | EW | EW | 1 |
| 2063 | S. Santiam R., Smolt, 2011 | 90527-201 | 0.045 | 0.905 | 0.039 | 0.011 | EW | EW | 0.9999 |
| 2064 | S. Santiam R., Smolt, 2011 | 90527-204 | 0.089 | 0.866 | 0.003 | 0.042 | EW | EW | 1 |
| 2065 | S. Santiam R., Smolt, 2011 | 90527-205 | 0.038 | 0.662 | 0.005 | 0.294 | WWxEW | EW | 1 |
| 2066 | S. Santiam R., Smolt, 2011 | 90527-206 | 0.028 | 0.954 | 0.008 | 0.010 | EW | EW | 1 |

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| 2067 | S. Santiam R., Smolt, 2011 | 90527-207 | 0.050 | 0.790 | 0.003 | 0.156 | EW | EW | 1 |
| 2068 | S. Santiam R., Smolt, 2011 | 90527-208 | 0.041 | 0.929 | 0.003 | 0.027 | EW | EW | 1 |
| 2069 | S. Santiam R., Smolt, 2011 | 90527-209 | 0.019 | 0.972 | 0.002 | 0.008 | EW | EW | 1 |
| 2070 | S. Santiam R., Smolt, 2011 | 90527-210 | 0.026 | 0.963 | 0.004 | 0.006 | EW | EW | 1 |
| 2071 | S. Santiam R., Smolt, 2011 | 90527-211 | 0.016 | 0.934 | 0.002 | 0.048 | EW | EW | 1 |
| 2072 | S. Santiam R., Smolt, 2011 | 90527-225 | 0.021 | 0.380 | 0.004 | 0.595 | WWxEW | EW | 0.9976 |
| 2073 | S. Santiam R., Smolt, 2011 | 90527-1496 | 0.116 | 0.794 | 0.003 | 0.086 | EW | EW | 1 |
| 2074 | S. Santiam R., Smolt, 2011 | 90527-1497 | 0.019 | 0.899 | 0.013 | 0.068 | EW | EW | 1 |
| 2075 | S. Santiam R., Smolt, 2011 | 90527-1498 | 0.016 | 0.071 | 0.003 | 0.910 | WW | EW | 0.9906 |
| 2076 | S. Santiam R., Smolt, 2011 | 90527-1553 | 0.022 | 0.958 | 0.003 | 0.016 | EW | EW | 1 |
| 2077 | S. Santiam R., Smolt, 2011 | 90527-1554 | 0.040 | 0.937 | 0.003 | 0.019 | EW | EW | 1 |
| 2078 | S. Santiam R., Smolt, 2011 | 90527-1555 | 0.028 | 0.953 | 0.005 | 0.015 | EW | EW | 1 |
| 2079 | S. Santiam R., Smolt, 2011 | 90527-1556 | 0.251 | 0.713 | 0.007 | 0.029 | SxEW | EW | 1 |
| 2080 | McKenzie R., Leaburg, Smolt, 2011 | 90528-51 | 0.964 | 0.019 | 0.001 | 0.015 | S | S | 1 |
| 2081 | McKenzie R., Leaburg, Smolt, 2011 | 90528-52 | 0.210 | 0.599 | 0.171 | 0.020 | SxEW | EW | 0.9999 |
| 2082 | McKenzie R., Leaburg, Smolt, 2011 | 90528-53 | 0.917 | 0.064 | 0.004 | 0.015 | S | S | 0.999 |