Inventory of Fall Chinook Spawning Habitat in Mainstem Reaches of Oregon's Coastal Rivers

CUMULATIVE REPORT

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INTRODUCTION

The Oregon Department of Fish and Wildlife (ODFW) has completed two years of a proposed three-year study to inventory fall chinook (*Oncorhynchus tshawytscha)* spawning habitat in Oregon's coastal rivers. Funding for this study was made available through the US-Canada Letter of Agreement (LOA) and is administered by the Chinook Technical Committee (CTC) of the Pacific Salmon Commission. The Pacific Salmon Commission is comprised of fishery scientists that are responsible for the abundance-based management of north migrating fall chinook salmon stocks covered by the Pacific Salmon Treaty. There are two north-migrating stock aggregates identified as originating in Oregon: the North Oregon Coast (NOC) and Mid Oregon Coast (MOC) aggregates. Current ODFW monitoring programs do not supply the CTC with adequate information for management of fall chinook. The inventory was conducted in conjunction with several other CTC funded studies designed to assess fall chinook abundance. Recognition and documentation of spawning habitat are important components in designing monitoring programs for abundance estimates.

Fall chinook are known to spawn extensively in mainstem reaches and large tributaries where there is a general belief that the standard fall chinook survey reaches do not fairly represent fall chinook spawning habitat. Selection of these reaches was based primarily on recommendations by ODFW personnel, and due to the lack of an ongoing monitoring program, was not verified. A 1995 habitat inventory conducted by Hodgson and Jacobs (1997) successfully verified the existence of fall chinook spawning habitat for mainstem and large tributaries in a majority of five north coast basins. Documenting the extent and location of suitable fall chinook spawning habitat in mainstem reaches may narrow the sampling universe and improve the efficiency of the fall chinook survey procedures that are currently being evaluated (Riggers et al. 1998). This will ultimately result in improved, more efficient monitoring methods and reliable escapement estimates. The objective of this study is to document the size and distribution of spawning habitat areas within mainstem and large tributary reaches of NOC and MOC river basins. This information will be incorporated into the ODFW salmonid spawning survey database and used as a framework to refine the survey design for estimating fall chinook escapement.

STUDY AREA

Mainstem reaches of the Yaquina, Smith, Coos, and Coquille rivers were completely inventoried, and the majority of the remaining mainstem reaches from the partial 1995 inventory (Hodgson and Jacobs 1997) of the Alsea and Siuslaw rivers were completed in 1999. The Smith River basin, Nehalem River basin and the upper mainstem reaches of the South Umpqua River were inventoried in 2000 (Figure 1). For the Alsea River, this included the Five Rivers and Drift Creek subbasins and the lower part of the mainstem below Fall Creek. In the Siuslaw River, this included Deadwood Creek in the Lake Creek subbasin. Four reaches of the 1995 inventory in the North Fork Nehalem River were resurveyed in 1999 and 2000 for comparison of results. A total of 205 reaches comprising 649 kilometers of coastal mainstem habitat were inventoried in 1999 and 109 reaches and 235 kilometers in 2000. A total of 630 kilometers remain to be inventoried for spawning habitat within the NOC and MOC aggregates.

Figure 1. Map depicting the three management areas with inventoried basins in the NOC and MOC highlighted.

METHODS

Survey Targets

Selection of the targeted area within the basin (mainstem and large tributaries) was determined using ODFW's spawning ground survey database of fall chinook spawning distribution. This database includes stream reaches annually surveyed for fall chinook. These survey reaches were selected from the partially unconfirmed judgment of coastal district biologists, coupled with stratified random coho spawner surveys conducted during 1990-1997, where at least four spawning chinook were observed. Surveys were conducted on a reach-by-reach basis. A reach is defined as a segment of stream extending from its mouth or one stream junction to the adjacent stream junction or headwaters.

Criteria for Identifying Spawning Habitat

Suitability was based upon criteria derived from the literature. Physical characteristics determining spawning habitat are water depth, water velocity, substrate composition, and slope of the streambed. Fall chinook have been observed spawning in a wide range of conditions for each of these parameters. Values for these habitat components cited in the literature were determined during fall and early winter spawning flows. Interpreting these conditions in low summer flows was somewhat subjective.

Water depths in which chinook were observed to spawn include 30-460 cm (Chapman 1943), 28-41 cm (Briggs 1953), and 10-120 cm (Bovee 1978). Surveys conducted throughout Oregon by Smith (1973) and Thompson (1972) suggested a minimum spawning depth of 24 cm. Based upon these studies, a depth of 24-100 cm under spawning flows (with 30-60 cm considered optimal) was established for this inventory. These depth criteria were not calibrated to summer flows due to the existence of dry channels where spawning would be likely under winter flows.

Water velocities conducive to fall chinook spawning in Oregon are reported to be 0.33-0.76 m/s (Smith, 1973). Studies outside of Oregon have produced values both similar, 0.30-0.76 m/s (Briggs 1953) and highly variable 0.37-1.89 m/s (Chapman et al. 1986). For this project, a range of 0.3-0.8 m/s has been selected as representative of water velocities utilized by spawning Oregon coastal fall chinook. Calibrating these flows to summer conditions will be difficult. Summer criteria was an observation of velocities ranging from a minimum of no water flow (dry channel) to a maximum of apparent surface turbulence, but not dominated by whitewater.

Available estimates of the surface area of substrate used by fall chinook for redd construction are wide ranging. Chapman (1943) and Burner (1951) estimated redd area for fall chinook in tributaries of the Columbia River at 2.4-4.0 m^2 and 3.9-6.5 m^2, respectively. Conversely, Neilson and Banford (1983) found redd areas ranging from 0.5-27.5 m^2 in the Nechako River, B.C. Redd areas reported for the Hanford Reach of the Columbia River were 2.1-44.8 m^2 (Chapman et al. 1986). The primary reason for this wide range of variability may be due to the differences in stream widths. The objective of this habitat inventory was to identify locations that receive a high degree of use by spawning fall chinook in mainstem and large tributary reaches; therefore, separate criteria were used to denote minimum area of suitable habitat required for these reaches. Mainstem and large tributaries were defined as reaches where bankful channel width is ≥ 20 m. Within these streams a minimum surface area of 10 m^2 was used to qualify a spawning habitat unit.

Another key component in identifying potential fall chinook spawning habitat is the composition of substrate. Due to their large size, fall chinook are capable of spawning in larger substrate and higher water flows than most other salmonids. Snake River fall chinook have been observed spawning in gravel ranging from 2.5-15.2 cm (Groves 1993). We used the following criteria for identifying suitable substrate. Within the minimum contiguous areas specified above, ≥ 50% of the substrate needed to range from 2.0-15 cm in diameter. A summary of the physical criteria used for the inventory and how they were applied as field measurements is listed in Table 1.

Table 1. Physical criteria used to represent fall chinook spawning habitat in Oregon coastal streams.

Criteria	Depth	Velocity	Substrate Size	Minimum Area
Measured during spawning	24-100 cm	0.3-0.8 (m/s)	2-15 cm	4 m^2-(streams < 20 m wide) 10 m^2-(streams ≥ 20 m wide)
Visual mepresentation during summer flow	wet surface-top of thigh	Minimum: visible flow, maximum: whitewater	≥ 50% golfball-softball sized within minimum area	same as above

In addition to the above criteria, other features are recognized as being influential in site selection of redd construction by fall chinook spawners. Both the orientation and degree of slope of the substrate impact the likelihood that fall chinook will use an area. If gravel deposits are situated such that the slope is parallel to the current rather than bisected by it, then they tend to be avoided. Similarly, if the lateral slope of the substrate is > 5% it jeopardizes the stability of the site and negates use (Conner et al. 1993). Many authors have emphasized the importance of subgravel flow in the choice of redd sites by chinook. This condition is often maximized at the interface between pools and riffles (Fig 2). The preference by salmonids to spawn in such "tailout" sites has been well documented (Briggs 1953; Chapman 1943). Groot and Margolis (1991) state that "provided the condition of good subgravel flow is met, chinook will spawn in water that is shallow or deep, slow or fast and where the gravel is coarse or fine". The physical criterion utilized in this inventory (Table 2) was designed to accommodate these features.

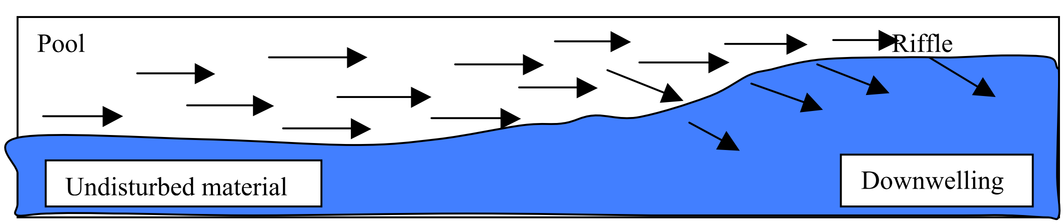

Figure 2. The pool-riffle interface creates the optimal downwelling conditions preferred by chinook salmon for spawning (taken from Groot and Margolis 1991).

Pools

Recent studies imply a correlation of spawner abundance to channel types with high pool densities (Montgomery et al. 1999.) This relationship could be associated with cover and resting area provided from pools, or just a function of low gradients associated with pools. We documented pool habitat in conjunction with spawning habitat during this inventory. Pool units were distinguished from spawning units by recording depth on the data form. Pools are defined as a portion of a stream with reduced current velocity, often with deeper water than the surrounding area. Each qualifying pool unit had a width of at least 50% of the wetted channel width, and a length of at least 1 wetted channel width.

Survey Procedure

The habitat inventories were conducted during four-month periods between the first of June and mid-October of 1999 and 2000. This time period was selected to take advantage of summer flow conditions and good visibility. Mainstem reaches and large tributaries were floated in kayaks or walked depending on flow and navigability hazards. Each contiguous patch of substrate that met our criteria was designated as a *habitat unit*, and every pool was designated as a *pool unit*. Each targeted reach was surveyed to identify the presence of habitat units and pool units. Upon designation of the unit, the location was recorded as universal transmercator (UTM) coordinates using a Global Positioning Satellite (GPS) receiver.

Two person crews conducted the surveys to facilitate accurate measurements of each unit using a 50-meter tape measure. Each pool and habitat unit was measured to get length and width. Depth was also measured for pool units using a graduated staff. At each unit, the bankful channel width was also measured. For each habitat unit it was also determined, by consensus of the two crewmembers, the proportion of the unit that was within a tailout. Length, width, and depth measurements were used to determine the linear and area density of potential spawning habitat and pools within each reach. Linear habitat density was computed as the total area (m^2) of habitat units per meter of reach inventoried and expressed as a percentage. Area habitat density factors in variability in channel widths among reaches and was calculated as follows:

$$D_j = \frac{\sum_{i=1}^{j} h_{ij}}{l_j \cdot w_j}$$

where

$\%D_j$ = percent density of potential habitat per area of channel for reach j

h_{ij} = m^2 of estimated habitat in unit i in reach j

l_j = length of reach j

w_j = mean width of channel for reach j

Linear pool density was calculated as the total pool volume (m_) per meter of reach inventoried. Area pool density was calculated in the same manner as the area habitat density with a component for depth of the pool unit included.

The substrate composition within each unit was broken into five categories: fines (silt or sand), pebble (2cm), gravel (>2-15cm), cobble (>15cm), and boulder or bedrock. The relative percentages of each of these categories was visually estimated for each unit and agreed upon by both surveyors.

Verification Surveys

Random chinook surveys were conducted in the Coos, Nehalem, Siuslaw, Coquille and Umpqua River basins in the years following the habitat inventories as part of an ongoing study to calibrate survey methods to fall chinook populations. Resurveys were conducted in the North Fork Nehalem to compare variability of the methods between years and surveyors. Live and carcass counts collected during these surveys were used to verify the ability to correctly identify habitat and spawner density relationships. A radio tagging study in the South Fork Coos, Nehalem and Siuslaw rivers were used to verify spawner distribution.

RESULTS

The reach area, habitat area, and pool volume were summarized by subbasin for all units inventoried in 1999 and 2000 (Table 2). The data were also summarized on a reach-by-reach basis for habitat area, pool volume, linear habitat density, area habitat density, linear pool volume, and area pool density (Appendix A). The Umpqua and the Nehalem River basins were identified as having the greatest proportion of suitable chinook spawner habitat within their respective river channels. About 16% in the Umpqua basin river channel was identified as containing spawning habitat and 11% in the Nehalem River basin. The remaining basins inventoried recorded spawner habitat densities between 1% and 4%. The highest area pool density was found in the Alsea River basin with about 3% of the area surveyed containing pool habitat.

Table 2. Total area surveyed by subbasin with the total habitat area and pool volume calculated for each.

Basin	Subbasin	Length (km)	Area Surveyed (km_)	Habitat Area (m_)	Pool Volume (m_)
Yaquina River	Mainstem	21.11	0.63	1,829	83,167
	Elk Creek	32.51	0.77	11,701	236,933
Alsea River	Mainstem	29.77	1.30	35,909	785,805
	Drift Creek	24.94	0.57	32,101	42,917
	Five Rivers	32.34	0.66	34,209	133,178
Siuslaw River	Lake Creek	21.77	0.48	36,866	58,356
Umpqua River	Smith River	146.24	2.97	57,939	361,900
	South Fork	60.50	3.05	970,341	1,255,673
Coos River	Millicoma River	55.03	0.87	16,376	109,305
	South Fork	64.37	1.66	20,914	502,488
Coquille River	North Fork	13.36	0.16	9,257	12,525
	East Fork	19.47	0.32	4,735	1,472
	Middle Fork	43.34	0.58	16,875	104,800
	South Fork	64.21	1.41	55,744	213,619
Nehalem River	Mainstem	168.40	7.71	1,091,897	1,738,203
	Salmonberry	18.66	0.66	195,456	70,858
	Rock Creek	38.94	0.84	120,209	18,221
	North Fork(00)	20.66	0.67	132,043	85,535
	North Fork(99)	7.89	0.19	14,079	8,338

Data on pools were collected as a framework for future analysis due to the relationship between spawner abundance and channel types with high pool densities (Montgomery et al. 1999). Pool data has not been used in ODFW chinook escapement studies that have been taking place since 1999.

As part of a calibration study, fall chinook mark and recapture studies took place in the Smith River and South Fork Coos River during the fall spawning season of 1999. The analysis of the habitat inventory was used to project areas of high spawner densities where it was thought to be the most efficient areas to conduct carcass recovery surveys. This was achieved by plotting the habitat data onto the streams using GIS (Figures 3, 5, and 7). The habitat data was then graphed to determine the cumulative area of habitat per river mile (Figures 4, 6, and 8). From these graphs, areas with the steepest slopes were identified and categorized as high-density strata. All other reaches were categorized as moderate density habitat. These stratifications were used to narrow the sampling universe for the chinook spawning ground surveys. All high strata and 25% of moderate habitat were surveyed and then peak counts were determined. This strategy was suspended the following seasons due to the poor relationship between habitat, and spawner and carcass densities.

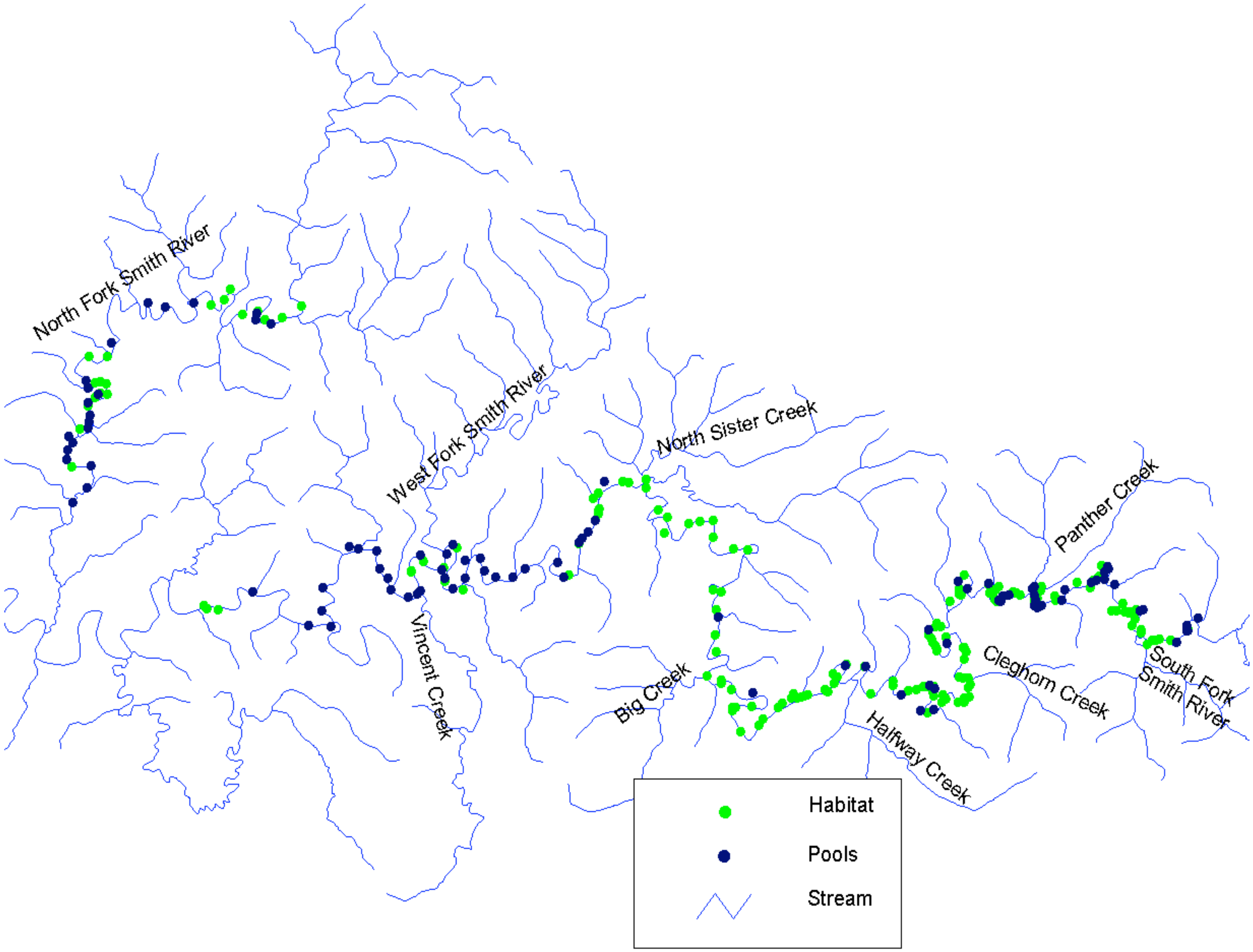

Figure 3. Fall chinook spawning habitat and pool units found in the mainstem and North Fork of the Smith River in 1999.

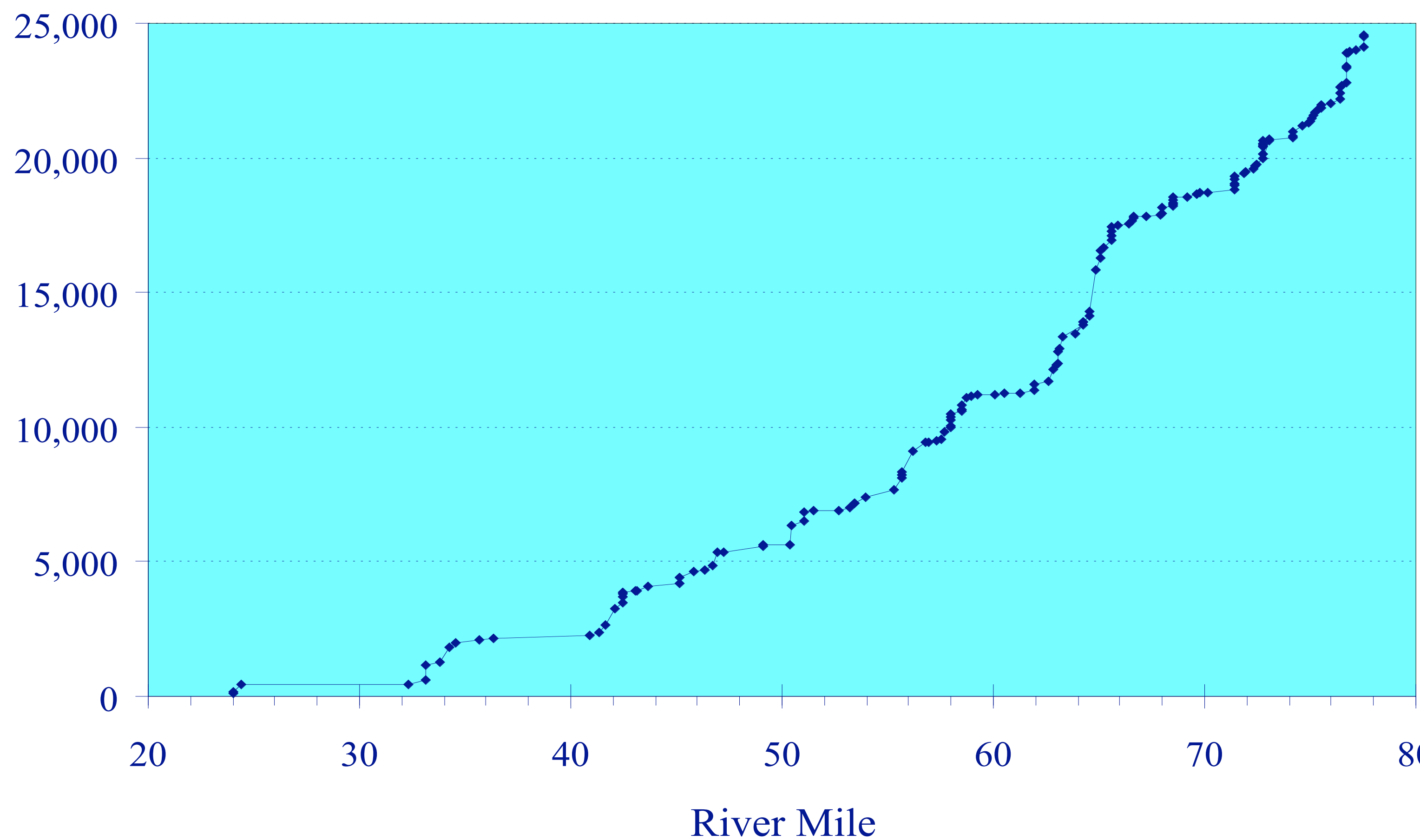

Figure 4. Cumulative area (m^2) of Fall chinook spawning habitat for the mainstem Smith River above the falls.

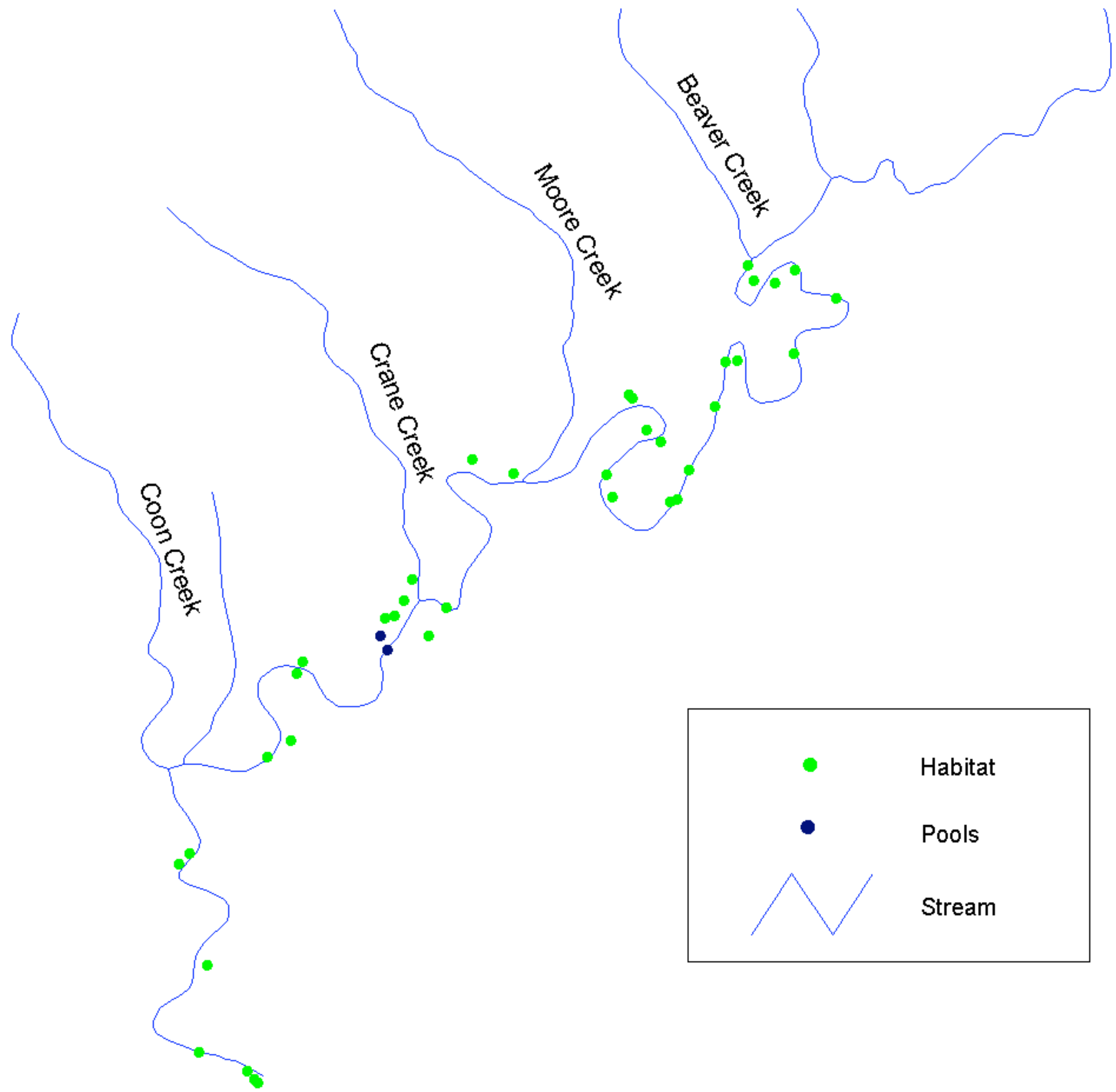

Figure 5. Fall chinook spawning habitat and pool units found in the West Fork of the Smith River in 1999.

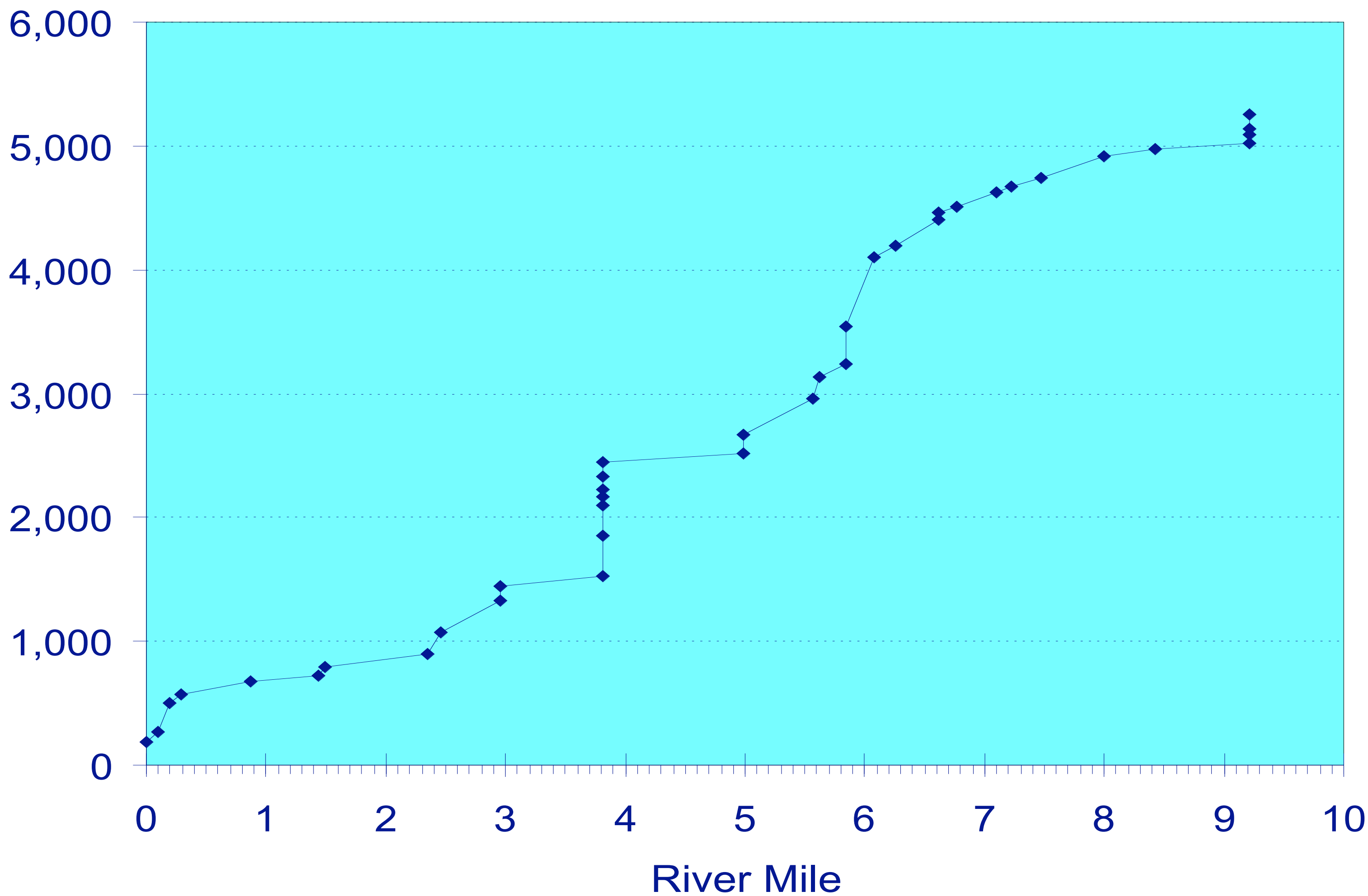

Figure 6. Cumulative area (m^2) of Fall chinook spawning habitat in the in the West Fork of the Smith River in 1999.

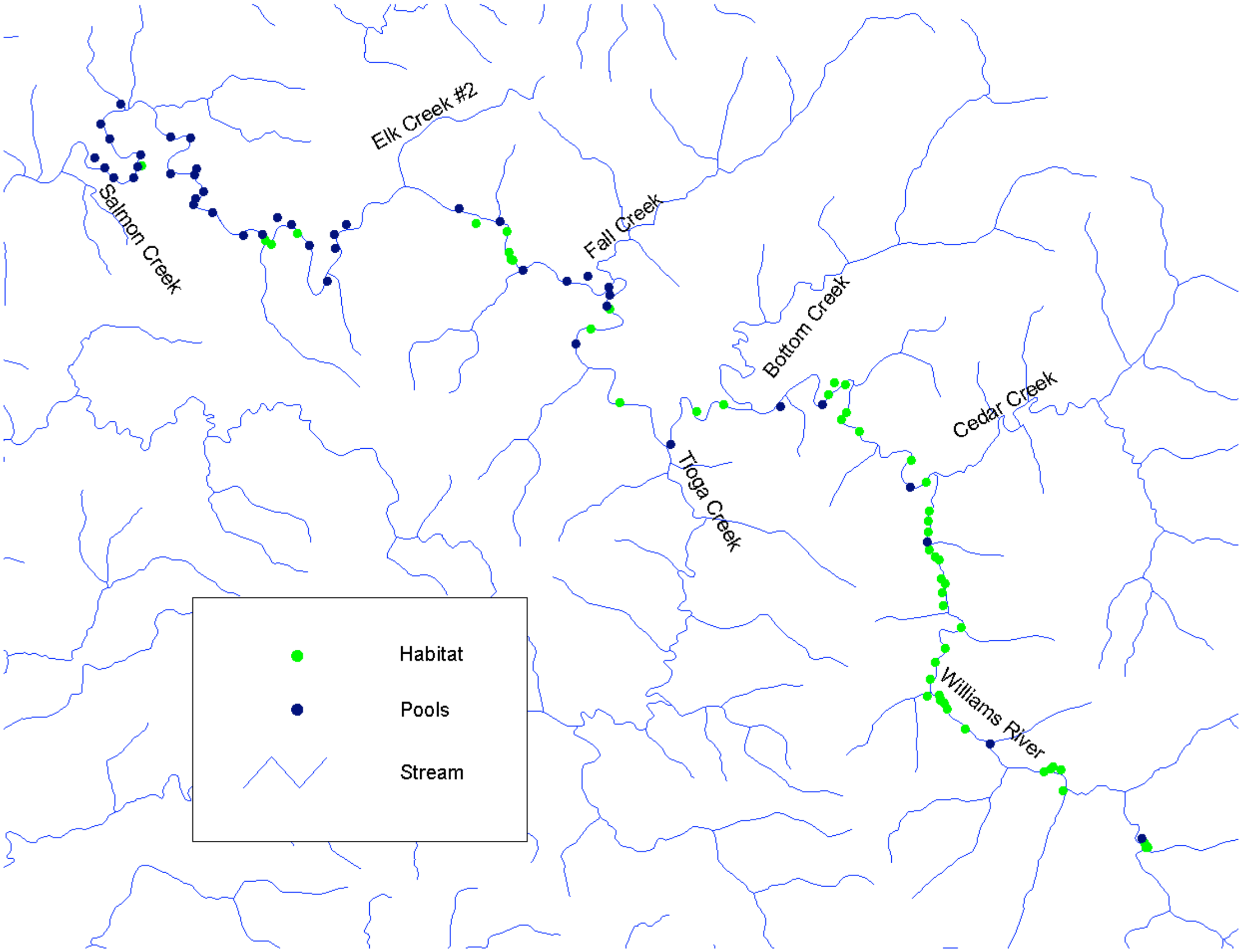

Figure 7. Fall chinook spawning habitat and pool units found in the mainstem of the South Fork Coos River and Williams River in 1999.

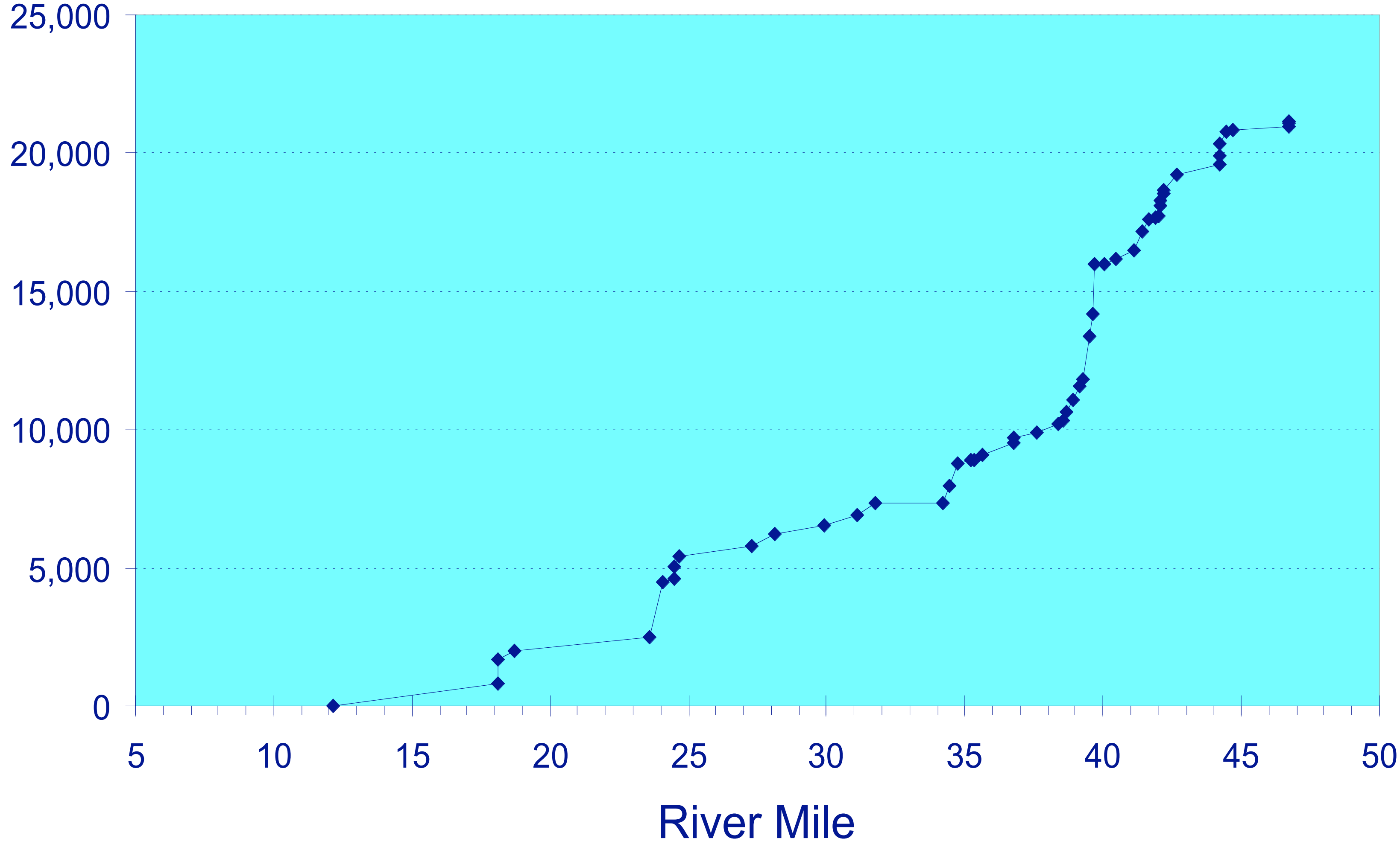

Figure 8. Cumulative area (m^2) of fall chinook spawning habitat in the South Fork Coos River in 1999. (The Williams River is also included starting at river mile 31.)

The distribution of radio tagged chinook was used to determine the relative proportion of spawners within each habitat density stratum. The habitat data were compared to the results of a radio-tagging project on the South Fork Coos River. Using the 107 radio tags regarded as having the best history, UTM coordinates were recorded and related to the reach ID associated with each fish. We compared the distribution of fish in reaches of moderate habitat densities versus those in reaches considered to have high spawner habitat densities A graphical comparison of fish densities based on peak counts with radio tag distribution between the two strata types suggest similar distribution (Figure 9).

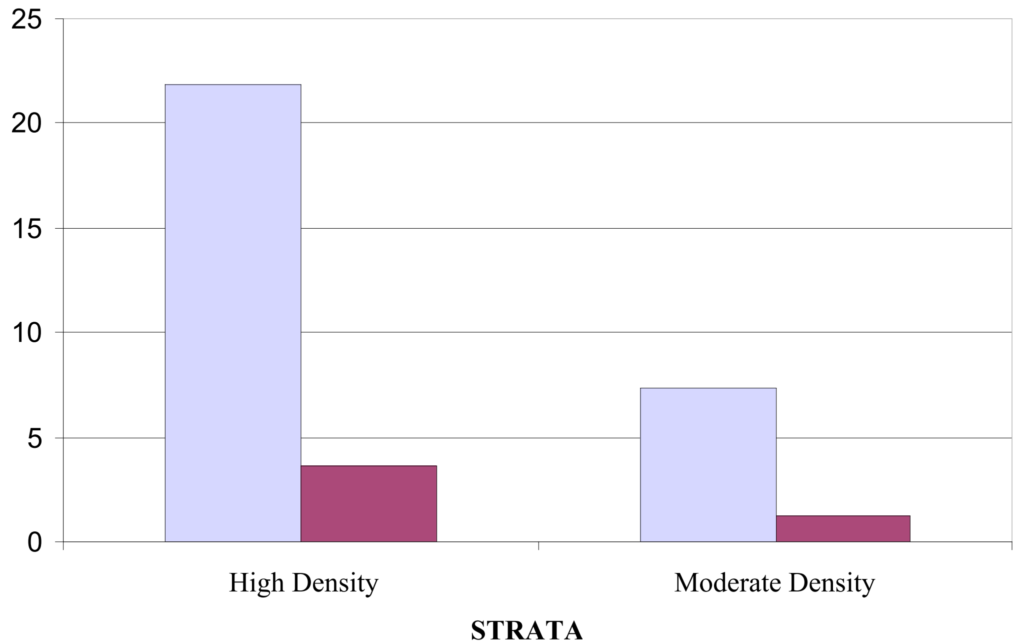

Figure 9. Comparison of peak counts and radio tag distribution to habitat strata in the South Fork Coos River, 1999.

Based on the hypothesis that spawner densities correlate to relative carcass densities, an inventory of spawning habitat would be beneficial toward an efficient carcass mark-recapture survey design. A study to assess the drift of chum in the large Skagit River of Washington State revealed that only 20% of all carcasses drifted more than 1.5 km during the initial five days of monitoring (Glock et al. 1980). Retention studies on coho conducted on spawning streams in Washington's Olympic Peninsula indicate that the majority of carcasses were retained within 600 meters of the point of release (Cederholm et al. 1989).

A regression analysis indicates no relationship between spawning habitat density and the number of adult carcasses within the same reaches of the South Fork Coos and Williams rivers (Figure 10). Using only the mainstem South Fork Coos River in the analysis, there is a significant relationship between adult carcasses and habitat density, R^2=0.71 and p=0.034 (Figure 11). A possible explanation as to what was occurring in the Williams River, a multiple regression was preformed using both habitat area and river mile as independent variables. This analysis enabled us to explain 96% of the variability of carcass location (p=0.0013).

Regression analyses were performed on spawning habitat area versus live adult fall chinook in randomly selected reaches of the Coos, Siuslaw, Nehalem and Coquille River basins. The regression results were significant in all basins, but only explained a small proportion of the variability (Figures 12,13, 14, 15).

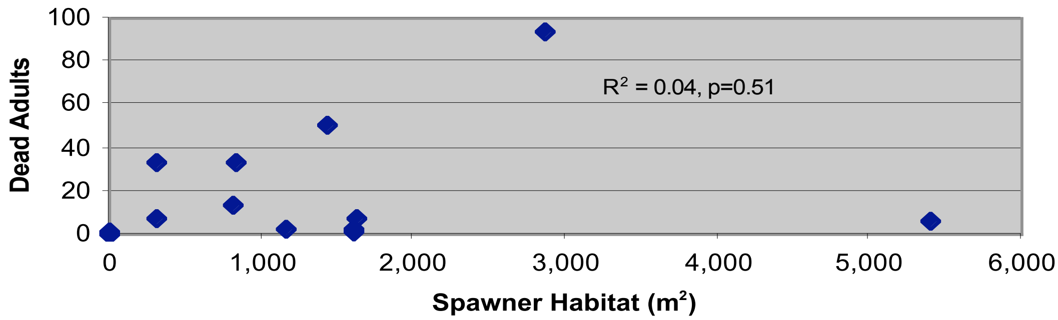

Figure 10. Regression of the habitat area (m^2) versus the dead fall chinook adults in the South Fork Coos River and Williams River in 1999.

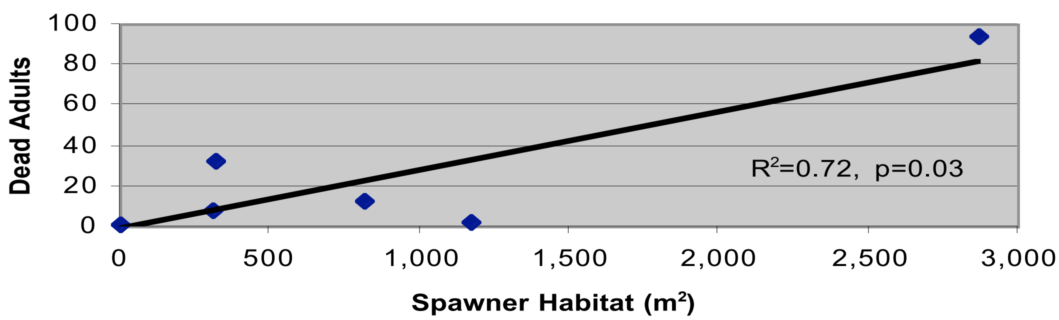

Figure 11. Regression of the habitat area (m^2) versus dead fall chinook adults in the mainstem of the South Fork Coos River in 1999.

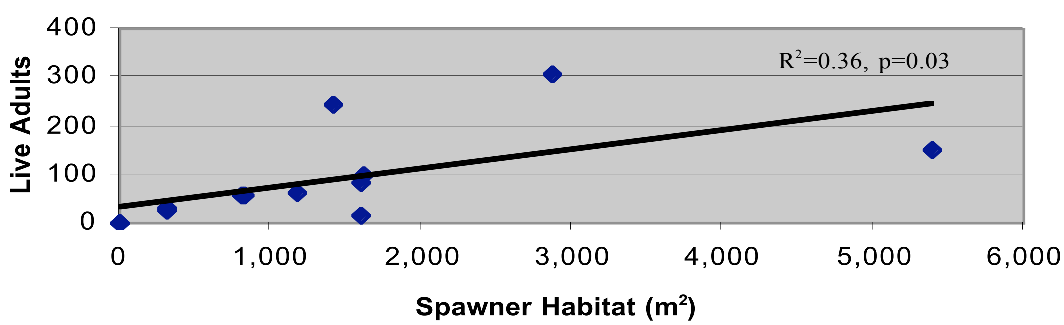

Figure 12. Regression of the habitat area (m^2) versus the live fall chinook adults in the South Fork Coos River and Williams River in 1999.

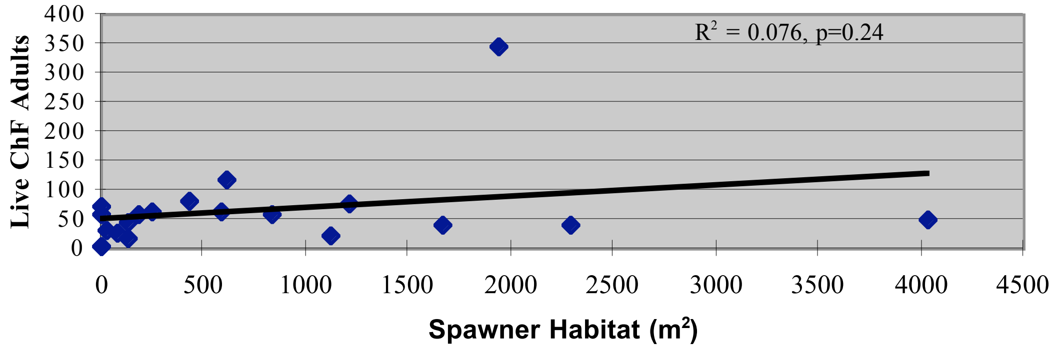

Figure 13. Regression of the habitat area (m^2) versus live adult fall chinook in the mainstem of the Siuslaw River in 2000.

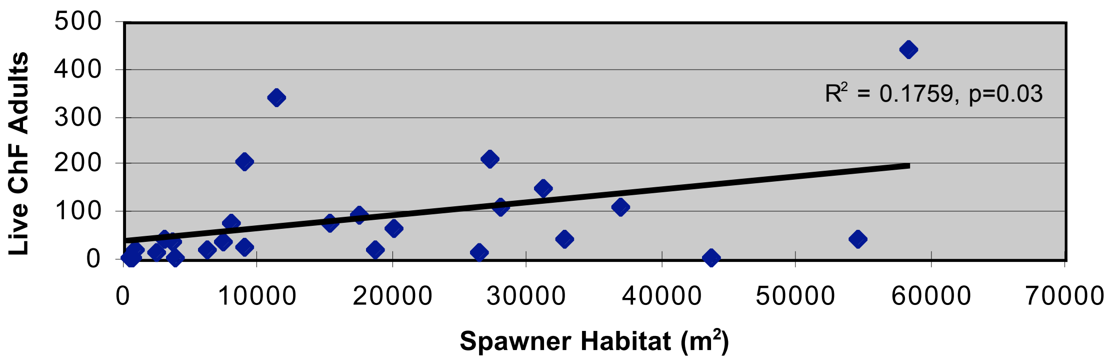

Figure 14. Regression of the habitat area (m^2) versus live adult fall chinook in the mainstem of the Nehalem River in 2000.

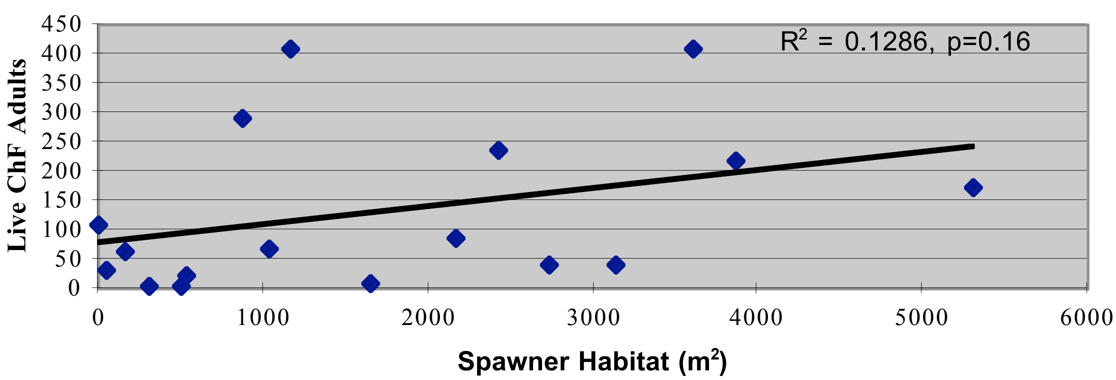

Figure 15. Regression of the habitat area (m^2) versus live adult fall chinook in the mainstem of the Coquile River in 2000.

Four reaches on the North Fork Nehalem that were surveyed in 1995 (Hodgson and Jacobs 1997) were resurveyed in 1999 and 2000 to compare results. A much larger percentage of habitat was identified in 1999 and 2000 versus 1995 and significantly more habitat recorded for 2 of the 4 reaches in 2000 than in 1999 (Table 3).

Table 3. Comparison of habitat results in 1995 versus 1999 and 2000 for four reaches on the North Fork Nehalem.

Reach	% Habitat in 1995	% Habitat in 1999	% Habitat in 2000
25871.70	0.30	4.79	2.72
25873.00	1.78	12.32	10.62
25875.00	3.27	10.14	21.05
25877.00	1.13	3.97	22.63
Total	**1.64**	**7.45**	**13.28**

DISCUSSION

The ODFW fall chinook spawning habitat inventory project has affirmed our ability to accurately identify appropriate spawning habitat. Reach areas of highest habitat density had the highest fish densities based on live fish and carcass counts. Conversely, the areas identified as containing no spawning habitat, rarely recorded live fish sightings. Although we are confident we are able to identify the existence of and absence of chinook spawning habitat at the broad scale, there is only a weak relationship between relative spawning habitat densities and spawner densities.

The emphasis in this study has been on quantitative understanding of fall chinook spawning habitat. However, the weak association between the quantity of suitable habitat available and the numbers of fall chinook using this habitat requires us to hypothesize that other qualitative factors influence fall chinook choice of spawning habitat. These factors could include proximity to resting pools, interstitial flow characteristics, orientation and degree of substrate slope, and distance above tidewater. Flow conditions at the times of our surveys may also be an influence. Finally, our indices of habitat use were based on counts of live chinook, and chinook carcasses. It is possible that there is an inexact correspondence between where fall chinook are observed prior to spawning, or where carcasses accumulate, and where these fish actually spawn. The tendency of fall chinook to spawn in aggregations makes counts of redds an inexact, but perhaps desirable measure to resolve some of this uncertainty.

Replicate surveys were conducted on four reaches in the North Fork Nehalem River in 1995, 1999, and 2000. We noted significant differences in habitat abundance with each survey. The reasons for these changes are unclear. It is possible that there is a natural shift of gravel distribution from year to year. Certainly, large flow events such as the flood of 1996 can distribute, import or export significant volumes of gravel. It is more likely though, that the increase reflects variability in surveyor judgment of habitat units. In 1995, the surveyors defined more habitat units, but they were much smaller in area than what the 1999 and 2000 surveyors measured. While our instructions and training to surveyors were consistent from year to year, this highlights the need for training to ensure consistency across survey crews and thus to eliminate one element of variability in developing usable survey indices.

At this time, we cannot use our habitat inventory to confidently predict the distribution of fall chinook spawners within a basin. With a broader programmatic goal of developing better survey methods to monitor and index fall chinook spawning abundance, we suggest that our understanding will be improved if we integrate qualitative habitat characteristics into the analyses to complement our understanding of the quantitative abundance and distribution of spawning habitat.

We encourage the Oregon Department of Fish and Wildlife and the Chinook Technical Committee to complete the inventory of fall chinook spawning habitat in the remaining basins outlined in Appendix B. A priority should be placed on completing surveys in the Umpqua River basin with approximately 395 river kilometers containing suitable habitat. Our inventory and survey design should be modified to include identification and collection of data on qualitative habitat elements.

RECOMMENDATIONS

1. Perform cluster analysis of inventoried reaches and spawner distribution based on habitat quality parameters that may influence fall chinook spawning behavior and location (e.g. substrate composition, slope and orientation, proximity to resting pools and tail outs, channel width).

2. Analyze spawner abundance based on distance above tidewater in combination with habitat parameters.

3. Document stream features that may contribute to carcass distribution and aggregation.

4. Complete the habitat inventory in the remaining basins and portions thereof (Appendix B) including: lower Umpqua basin, Elk River, Sixes River, Yachats River, Upper Alsea (North and South Fork) River, Salmon River, Nestucca River, Trask River, Kilchis River, Necanicum River, and Miami River basins. Priority should be placed on the remaining Umpqua River basin consisting of approximately 395 kilometers of reaches with suitable habitat.

ACKNOWLEDGMENTS

We wish to thank Jason Clevenger, Michael Hogansen, Jeff Johnson and John Moore for their dedicated fieldwork.

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APPENDIX A

Results of Fall Chinook Habitat Inventory 1999

Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
25855.00	Nehalem R, N Fk	Boykin Cr	Unnamed Trib	2,092	43.7	91,349	6	1	13,914	10,200	6.65	0.15	4.88	0.10		7/
25857.00	Nehalem R, N Fk	Unnamed Trib	Grassy Lake Cr	2,092	46.7	97,695	9	4	37,244	11,456	17.80	0.38	5.48	0.15	60	7/
25863.00	Nehalem R, N Fk	Trail Cr	Soapstone Cr	4,828	29.7	143,187	50	6	42,950	17,181	8.90	0.30	3.56	0.13	70	7/
25871.00	Nehalem R, N Fk	Soapstone Cr	Sally Cr	3,057	23.4	71,434	11	12	3,922	31,337	1.28	0.05	10.25	0.42	92	7/
25871.30	Sally Cr	Mouth	Sally Cr, Trib A	708	25.0	17,701	7	1	1,411	1,280	1.99	0.08	1.81	0.07	100	7/
25871.70	Nehalem R, N Fk	Sally Cr	Gods Valley Cr	2,253	25.0	56,209	4	1	2,692	878	1.19	0.05	0.39	0.02	0	9/2
25871.70	Nehalem R, N Fk	Sally Cr	Gods Valley Cr	2,253	25.0	56,322	7	1	1,531	1,400	0.68	0.03	0.62	0.02	100	7/
25873.00	Nehalem R, N Fk	Gods Valley Cr	Lost Cr	1,609	24.0	38,685	5		4,768		2.96	0.12			0	9/2
25873.00	Nehalem R, N Fk	Gods Valley Cr	Lost Cr	1,609	56.5	90,982	13		9,663		6.00	0.11				7/
25875.00	Nehalem R, N Fk	Lost Cr	Sweet Home Cr	2,092	23.6	49,460	14	4	10,410	6,681	4.98	0.21	3.19	0.13	63	7/
25875.00	Nehalem R, N Fk	Lost Cr	Sweet Home Cr	2,092	22.3	46,670	11	3	4,733	5,660	2.26	0.10	2.71	0.12	23	9/2
25877.00	Nehalem R, N Fk	Sweet Home Cr	Fall Cr	1,931	24.6	47,504	3	1	1,887	1,800	0.98	0.04	0.93	0.03	0	9/2
25877.00	Nehalem R, N Fk	Sweet Home Cr	Fall Cr	1,931	25.2	48,598	12	1	10,998	6,000	5.70	0.23	3.11	0.08	100	7/

[a] *Distances in meters; areas in square meters; volumes in cubic*

Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
25898.00	Nehalem R	Eck Cr	Peterson Cr	1,609	81.0	130,345	4	4	76,600	46,045	47.60	0.59	28.61	0.33		8/1
25900.00	Nehalem R	Peterson Cr	Anderson Cr	1,609	80.0	128,736	2		32,160		19.99	0.25				8/1
25902.00	Nehalem R	Anderson Cr	Cook Cr	2,897	76.7	222,070	12	6	112,255	103,334	38.75	0.51	35.67	0.47	77	8/1
25903.00	Cook Cr	Mouth	Dry Cr	1,770	18.9	33,379	7	1	4,957	408	2.80	0.15	0.23	0.01	30	8/1
25916.00	Nehalem R	Cook Cr	Lost Cr	1,770	71.3	126,121	4	2	37,013	14,865	20.91	0.29	8.40	0.12	20	8/1
25918.00	Nehalem R	Lost Cr	Fall Cr	2,092	75.0	156,897	4	7	9,550	86,310	4.57	0.06	41.26	0.60	83	8/1
25920.00	Nehalem R	Fall Cr	Helloff Cr	1,609	70.6	113,678	14	5	43,671	45,480	27.14	0.38	28.26	0.40	53	8/1
25922.00	Nehalem R	Helloff Cr	Bastard Cr	3,057	158.7	485,120	3	2	6,719	30,360	2.20	0.01	9.93	0.17		8/1
25924.00	Nehalem R	Bastard Cr	Snark Cr	1,609	59.0	94,943	1	2	594	31,976	0.37	0.01	19.87	0.39		8/1
25926.00	Nehalem R	Snark Cr	Salmonberry R	4,828	63.5	306,553	6	3	18,248	171,500	3.78	0.06	35.52	0.64		8/1
25927.00	Salmonberry R	Mouth	Hatchery Cr	483	35.0	16,897	1		352		0.73	0.02				8/1
25929.00	Salmonberry R	Hatchery Cr	Buick Canyon	1,931	25.6	49,435	9	1	16,399	1,680	8.49	0.33	0.87	0.03	100	8/1
25931.00	Salmonberry R	Buick Canyon	Belfort Cr	3,218	47.8	153,898	11	2	78,260	41,250	24.32	0.51	12.82	0.39	75	8/1

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
25933.00	Salmonberry R	Belfort Cr	Preston Cr	1,126	28.0	31,540	7	4	17,100	4,271	15.18	0.54	3.79	0.13	53	8/1
25935.00	Salmonberry R	Preston Cr	Tank Cr	1,931	34.1	65,831	11	4	27,204	9,281	14.09	0.41	4.81	0.20	62	8/1
25936.00	Tank Cr	Mouth	Headwaters	3,218	53.2	171,219	5		10,720		3.33	0.06			100	8/1
25937.00	Salmonberry R	Tank Cr	Tunnel Cr	2,253	26.0	58,575	2	2	12,075	3,270	5.36	0.21	1.45	0.06	10	8/1
25939.00	Salmonberry R	Tunnel Cr	Salmonberry R, S Fk	1,931	25.3	48,920	9	6	18,559	5,700	9.61	0.38	2.95	0.12	48	8/1
25943.00	Salmonberry R	Salmonberry R, S Fk	Bathtub Cr	644	26.0	16,736	1		1,899		2.95	0.11				8/1
25945.00	Salmonberry R	Bathtub Cr	Salmonberry R, N Fk	1,931	25.9	50,004	19	8	12,888	5,406	6.67	0.26	2.80	0.11	60	8/1
25956.00	Nehalem R	Salmonberry R	Cronin Cr	3,057	54.5	166,515	13	4	26,287	54,680	8.60	0.16	17.88	0.30	74	8/1
25962.00	Nehalem R	Cronin Cr	Trib 4	6,759	63.9	431,877	20	2	35,154	40,028	5.20	0.08	5.92	0.07		8/
25962.70	Nehalem R	Trib 4	Spruce Run Cr	3,379	65.8	222,359	5		11,402		3.37	0.05				8/
25964.00	Nehalem R	Spruce Run Cr	George Cr	5,149	66.4	341,736	11	3	54,523	28,218	10.59	0.16	5.48	0.08		8/
25966.00	Nehalem R	George Cr	Humbug Cr	2,414	59.3	143,104	7	1	32,782	32,000	13.58	0.23	13.26	0.20		8/
25986.00	Nehalem R	Humbug Cr	Quartz Cr	2,897	60.0	173,794	9		36,929		12.75	0.21				8/

[a] *Distances in meters; areas in square meters; volumes in cubic*

Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
25990.00	Nehalem R	Quartz Cr	Osweg Cr	1,609	54.4	87,540	5	4	17,214	589,000	10.70	0.20	366.02	6.10		8/
25992.00	Nehalem R	Osweg Cr	George Cr	4,989	49.8	248,595	6	3	8,763	22,345	1.76	0.04	4.48	0.09		8/
25994.00	Nehalem R	George Cr	Cow Cr	1,609	50.0	80,460	2		3,060		1.90	0.04				8/
25998.00	Nehalem R	Klines Cr	Moores Cr	966	40.0	38,621	4		12,600		13.05	0.33				8/
26000.00	Nehalem R	Moores Cr	Buster Cr	2,092	52.7	110,246	10		35,025		16.74	0.32				8/
26008.00	Nehalem R	Buster Cr	Fishhawk Cr	5,471	48.3	263,989	4	2	4,567	45,700	0.83	0.02	8.35	0.14		8/
26026.00	Nehalem R	Fishhawk Cr	Slaughters Cr	2,253	45.3	102,023	7	1	3,512	32,340	1.56	0.03	14.35	0.24		8/
26026.60	Nehalem R	Crawford Cr	Strum	3,218	35.0	112,644	4	2	1,743	18,900	0.54	0.02	5.87	0.15	100	8/
26028.00	Nehalem R	Strum Cr	Squaw Cr	1,126	60.0	67,586		1		40,680			36.11	0.60		8/
26032.00	Nehalem R	Squaw Cr	Northrup Cr	4,023	25.3	101,916	3	1	754	20,000	0.19	0.01	4.97	0.09	50	8/
26034.00	Nehalem R	Northrup Cr	Sager Cr	3,862	33.5	129,380	2		34		0.01	0.00				8/
26036.00	Nehalem R	Sager Cr	Louisgnot Cr	2,414	32.0	77,242	1	1	315	16,875	0.13	0.00	6.99	0.14		8/
26038.00	Nehalem R	Louisgnot Cr	Grub Cr	5,310	30.1	159,870	19	6	11,050	97,465	2.08	0.07	18.35	0.63	50	8/

a *Distances in meters; areas in square meters; volumes in cubic*

Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
26044.00	Nehalem R	Deep Cr	Fishhawk Cr	4,184	27.6	115,655	14		8,893		2.13	0.08				8/
26054.00	Nehalem R	Beaver Cr	Unnamed Trib, Nehalem R	4,023	43.8	176,084	13	1	29,326	9,720	7.29	0.17	2.42	0.05		8/
26054.20	Unnamed Trib, Nehalem R	Mouth	Headwaters	1,931	29.7	57,379	7		6,876		3.56	0.12				8/
26054.80	Nehalem R	Adams Cr	Calvin Cr	1,207	41.0	49,483	4		5,352		4.43	0.11				7/2
26056.00	Nehalem R	Calvin Cr	Ford Cr	2,414	37.0	89,311	3		4,901		2.03	0.05				7/2
26058.00	Nehalem R	Ford Cr	Lundgren Cr	2,253	38.8	87,487	6		10,869		4.82	0.12				7/2
26062.00	Nehalem R	Lundgren Cr	Battle Cr	2,414	35.8	86,444	16	1	17,447	7,875	7.23	0.20	3.26	0.08		7/2
26066.00	Nehalem R	Battle Cr	Deer Cr	1,126	35.0	39,425	5		5,875		5.22	0.15				7/2
26070.00	Nehalem R	Deer Cr	Gus Cr	4,345	36.8	159,844	19		26,961		6.21	0.17				7/2
26072.00	Nehalem R	Gus Cr	Cedar Cr	1,609	35.0	56,322	1	1	180	29,750	0.11	0.00	18.49	0.53		7/2
26074.00	Nehalem R	Cedar Cr	Oak Ranch Cr	805	85.8	69,035	5		5,528		6.87	0.08				7/2
26078.00	Nehalem R	Oak Ranch Cr	Fall Cr	1,126	35.8	40,327	5	2	2,201	14,895	1.95	0.05	13.22	0.38	25	7/2
26080.00	Nehalem R	Fall Cr	Crooked Cr	1,448	33.3	48,276	6	2	4,990	50,540	3.45	0.10	34.90	0.56		7/2

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
26082.00	Nehalem R	Crooked Cr	Cook Cr	1,609	28.7	46,130	6		5,980		3.72	0.13				7/2
26084.00	Nehalem R	Cook Cr	Nehalem R, E Fk	3,540	29.2	103,375	10	2	7,306	22,400	2.06	0.07	6.33	0.18		7/2
26094.00	Nehalem R	Nehalem R, E Fk	Knickerson Cr	7,563	36.0	272,277	2		6,170		0.82	0.02				7/1
26094.00	Nehalem R	Nehalem R, E Fk	Knickerson Cr	7,563	45.3	342,382	26		40,211		5.32	0.12			54	7/2
26094.70	Nehalem R	Knickerson Cr	Coon Cr	2,736	38.0	103,954	10	3	11,234	12,975	4.11	0.11	4.74	0.13	100	7/1
26097.00	Rock Cr	Bear Cr	Ivy Cr	16,575	22.0	364,036	108	10	94,896	15,721	5.73	0.26	0.95	0.04	39	7/1
26097.00	Rock Cr	Bear Cr	Ivy Cr	16,575	22.0	364,645	1		2,025		0.12	0.01				7/2
26099.00	Rock Cr	Ivy Cr	Maynard Cr	1,609	20.7	33,290	16	1	6,340	322	3.94	0.19	0.20	0.01		7/1
26101.00	Rock Cr	Maynard Cr	Selder Cr	1,609	16.9	27,178	9	1	9,381	1,120	5.83	0.35	0.70	0.03	75	7/1
26103.00	Rock Cr	Selder Cr	Fall Cr	2,575	19.4	49,921	18	3	7,567	1,058	2.94	0.15	0.41	0.02		7/1
26130.00	Nehalem R	Pebble Cr	Rock Cr	2,897	31.9	92,276	7		13,078		4.52	0.14				7/1
26130.50	Nehalem R	Rock Cr	Beaver Cr	3,379	24.7	83,357	9	1	6,018	2,160	1.78	0.07	0.64	0.03		7/1
26134.00	Nehalem R	Beaver Cr	Cedar Cr	4,023	26.8	107,927	29		18,152		4.51	0.17				7/1

[a] *Distances in meters; areas in square meters; volumes in cubic*

Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
26136.00	Nehalem R	Cedar Cr	Weed Cr	2,253	30.7	69,146	13		13,877		6.16	0.20				7/1
26136.70	Nehalem R	Weed Cr	Clear Cr	7,724	33.7	260,361	81	8	108,193	7,488	14.01	0.42	0.97	0.03	49	7/1
26138.00	Nehalem R	Clear Cr	Robinson Cr	7,563	28.7	216,716	51	4	65,247	8,622	8.63	0.30	1.14	0.04	40	7/1
26140.00	Nehalem R	Robinson Cr	Wolf Cr	3,218	24.0	77,370	25	6	29,551	3,270	9.18	0.38	1.02	0.05	44	6/2
24957.00	Elk Cr	Devils Well Cr	Unnamed Trib	4,989	35.1	175,097	1		61		0.01	0.00			0	8/3
24961.00	Elk Cr	Beaver Cr	Bull Cr	9,012	24.0	216,534	14	16	2,967	80,084	0.33	0.01	8.89	0.36	73	9/
24963.00	Elk Cr	Bull Cr	Deer Cr	6,276	20.8	130,538	16	10	2,286	71,899	0.36	0.02	11.46	0.54	56	9/
24965.00	Elk Cr	Deer Cr	Wolf Cr	8,207	21.9	180,096	9	10	2,783	45,295	0.34	0.02	5.52	0.25	28	8/3
24969.00	Elk Cr	Wolf Cr	Grant Cr	4,023	17.9	71,939	11	7	3,604	39,655	0.90	0.05	9.86	0.53	23	8/2
24996.00	Yaquina R	Sloop Cr	Simpson Cr	1,770	26.6	47,085	3	2	195	39,840	0.11	0.00	22.51	0.77	67	9/2
25004.00	Yaquina R	Trapp Cr	Thornton Cr	805	27.0	21,724		1		24,300			30.20	1.12		9/2
25014.00	Yaquina R	Whitney Cr	Hayes Cr	4,184	16.2	67,919	3	3	420	5,960	0.10	0.01	1.42	0.08	82	9/2
25018.00	Yaquina R	Peterson Cr	Eddy Cr	1,770	17.5	31,066	4	4	164	7,475	0.09	0.01	4.22	0.24	59	9/2

a *Distances in meters; areas in square meters; volumes in cubic*

Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
25030.00	Yaquina R	Little Elk Cr	Bales Cr	9,012	11.1	100,253	8	6	976	5,592	0.11	0.01	0.62	0.05	50	9/2
25034.00	Yaquina R	Bales Cr	Buttermilk Cr	2,366	9.0	21,290	1		14		0.01	0.00			0	9/2
25036.00	Yaquina R	Buttermilk Cr	Bryant Cr	1,207	13.5	16,293	1		60		0.05	0.00			0	9/2
24623.00	Drift Cr	Lyndon Cr	Bear Cr	4,184	25.5	106,730	21	4	12,872	13,286	3.08	0.12	3.18	0.14	15	8/2
24625.00	Drift Cr	Bear Cr	Cedar Cr	161	24.0	3,862		1		5,100			31.69	1.32		8/2
24627.00	Drift Cr	Cedar Cr	Trout Cr	322	23.4	7,515		2		3,074			9.55	0.41		8/2
24631.00	Drift Cr	Trout Cr	Ellen Cr	3,218	31.5	101,380	2	3	583	1,823	0.18	0.01	0.57	0.02	0	8/2
24633.00	Drift Cr	Ellen Cr	Cougar Cr	2,575	27.0	69,403	9		6,518		2.53	0.09			0	8/2
24635.00	Drift Cr	Cougar Cr	Boulder Cr	2,897	26.5	76,831	8	2	1,140	3,543	0.39	0.01	1.22	0.06	19	8/2
24637.00	Drift Cr	Boulder Cr	Slickrock Cr	3,540	17.1	60,680	5	4	1,727	2,826	0.49	0.03	0.80	0.04	80	8/2
24639.00	Drift Cr	Slickrock Cr	Gold Cr	483	22.3	10,741		2		608			1.26	0.06		8/2
24641.00	Drift Cr	Gold Cr	Meadow Cr	7,563	18.4	139,012	20	14	9,261	12,656	1.22	0.07	1.67	0.10	17	8/1
24684.00	Alsea R	Mill Cr	Hatchery Cr	3,862	65.0	251,035	1	1	1,190	204,750	0.31	0.00	53.02	0.82	100	8/

a *Distances in meters; areas in square meters; volumes in cubic*

Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID Date	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	
24688.00	Alsea R	Barclay Cr	Slide Cr	2,575	62.5	160,920	2	1	1,740	27,300	0.68	0.01	10.60	0.16	50	8/
24690.00	Alsea R	Slide Cr	Scott Cr	1,126	65.0	73,219	1	1	1,040	87,750	0.92	0.01	77.90	1.20	100	8/
24694.00	Alsea R	Scott Cr	Brush Cr	5,149	48.8	251,035	4	2	5,935	142,000	1.15	0.02	27.58	0.61	31	8/
24704.00	Alsea R	Grass Cr	Lake Cr	3,540	40.0	141,610	1	2	765	70,200	0.22	0.01	19.83	0.50	0	8/
24706.00	Alsea R	Lake Cr	Five Rivers	2,092	35.0	73,219		1		28,000			13.38	0.38		8/
24707.00	Five Rivers	Mouth	Bear Cr	1,126	32.0	36,046	1		245		0.22	0.01			0	8/
24709.00	Five Rivers	Bear Cr	Elk Cr	2,092	29.3	61,364	3	2	2,355	36,000	1.13	0.04	17.21	0.57	33	8/
24711.00	Five Rivers	Elk Cr	Lobster Cr	2,092	30.0	62,759	1		360		0.17	0.01			0	8/
24712.00	Lobster Cr	Mouth	Taylor Cr	3,862	20.0	77,164	10	2	4,686	11,620	1.21	0.06	3.01	0.12	7	8/1
24714.00	Lobster Cr	Taylor Cr	Crooked Cr	805	19.6	15,770	4	3	6,838	12,360	8.50	0.43	15.36	0.68	11	8/1
24718.00	Lobster Cr	Crooked Cr	Phillips Cr	805	17.1	13,759	1	1	218	23,100	0.27	0.02	28.71	1.20	20	8/1
24720.00	Lobster Cr	Phillips Cr	Camp Cr	2,575	19.7	50,722	1	1	150	12,000	0.06	0.00	4.66	0.20	0	8/1
24724.00	Lobster Cr	Camp Cr	Wilkinson Cr	3,057	19.9	60,959	8	3	5,744	6,115	1.88	0.09	2.00	0.10	21	8/1

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID Date	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	
24726.00	Lobster Cr	Wilkinson Cr	Little Lobster Cr	1,448	20.3	29,400	4	2	3,145	3,854	2.17	0.11	2.66	0.13	25	8/1
24749.00	Five Rivers	Swamp Cr	Cascade Cr	2,575	22.1	56,901		1		4,800			1.86	0.08		8/1
24753.00	Five Rivers	Cascade Cr	Cherry Cr	4,184	22.5	94,138	3	4	740	20,570	0.18	0.01	4.92	0.26	0	8/1
24763.00	Five Rivers	Buck Cr	Cougar Cr	161	11.7	1,883	1		71		0.44	0.04			0	8/
24765.00	Five Rivers	Cougar Cr	Crab Cr	805	13.9	11,144	2		953		1.18	0.09			0	8/
24767.00	Five Rivers	Crab Cr	Alder Cr	2,092	13.5	28,200	10	1	3,913	825	1.87	0.14	0.39	0.04	0	8/
24769.00	Five Rivers	Alder Cr	Crazy Cr	3,862	13.8	53,248	8		2,141		0.55	0.04			0	8/
24771.00	Five Rivers	Crazy Cr	Green R	805	13.8	11,103	5	2	2,650	1,935	3.29	0.24	2.40	0.16	30	8/
24784.00	Alsea R	Five Rivers	Cedar Cr	4,828	29.5	142,414	4	8	2,604	99,380	0.54	0.02	20.59	0.62	50	8/
24786.00	Alsea R	Cedar Cr	Phillips Cr	1,448	31.5	45,621	4	3	5,107	35,610	3.53	0.11	24.59	0.77	75	8/
24788.00	Alsea R	Phillips Cr	Minotti Cr	1,287	33.3	42,912	3	1	5,235	4,800	4.07	0.12	3.73	0.12	33	8/
24790.00	Alsea R	Minotti Cr	Bear Cr	483	35.0	16,897	1	1	850	2,754	1.76	0.05	5.70	0.16	100	8/
24792.00	Alsea R	Bear Cr	Cow Cr	322	30.0	9,655		1		9,000			27.96	0.93		8/

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
24794.00	Alsea R	Cow Cr	Fall Cr	3,057	30.4	93,083	9	10	11,443	74,261	3.74	0.12	24.29	0.77	94	8/
24153.00	Deadwood Cr	Mouth	Boyle Cr	7,080	25.2	178,074	4	5	630	7,886	0.09	0.00	1.11	0.04	75	10/
24155.00	Deadwood Cr	Boyle Cr	Failor Cr	1,609	22.9	36,891	4	1	4,036	1,300	2.51	0.11	0.81	0.03	25	10/
24157.00	Deadwood Cr	Failor Cr	Deadwood Cr, W Fk	2,092	23.8	49,684	4	3	1,206	16,375	0.58	0.02	7.83	0.34	50	10/
24161.00	Deadwood Cr	Deadwood Cr, W Fk	Schwartz Cr	129	13.0	1,674		1		1,080			8.39	0.65		10/
24163.00	Deadwood Cr	Schwartz Cr	Raleigh Cr	4,345	19.9	86,581	22	8	13,406	16,689	3.09	0.15	3.84	0.19	24	10/
24165.00	Deadwood Cr	Raleigh Cr	Bear Cr	483	20.0	9,655	1	1	181	2,850	0.37	0.02	5.90	0.28	0	10/
24169.00	Deadwood Cr	Bear Cr	Deer	1,851	17.9	33,084	9	3	7,849	8,187	4.24	0.24	4.42	0.26	16	10/
24169.40	Deadwood Cr	Deer Cr	Alpha Cr	2,575	21.2	54,701	11	2	7,347	3,563	2.85	0.13	1.38	0.06	2	10/
24169.70	Deadwood Cr	Alpha Cr	Karlstrom Cr	805	19.0	15,287	4		615		0.76	0.04			0	9/3
24169.90	Deadwood Cr	Karlstrom Cr	Rock Cr	805	21.0	16,897	3	1	1,596	427	1.98	0.09	0.53	0.03	17	9/2
22447.00	Smith R, N Fk	Johnson Cr	Edmonds Cr	1,287	22.0	28,322	1	1	1,200	13,300	0.93	0.04	10.33	0.47	100	7/2
22449.00	Smith R, N Fk	Edmonds Cr	Hell Of Bush Cr	2,253	20.3	45,809	3	3	4,935	129,750	2.19	0.11	57.59	2.58	67	7/2

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID Date	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	
22451.00	Smith R, N Fk	Hell Of Bush Cr	Sulphur Cr	805	17.5	14,081	2	2	700	14,900	0.87	0.05	18.52	0.81	100	7/2
22453.00	Smith R, N Fk	Sulphur Cr	Georgia Cr	644	13.5	8,690	2	1	960	2,700	1.49	0.11	4.19	0.25	50	7/2
22455.00	Smith R, N Fk	Georgia Cr	Moore Cr	322	20.0	6,437	1	1	2,250	9,000	6.99	0.35	27.96	0.80	50	7/2
22457.00	Smith R, N Fk	Moore Cr	Harlan Cr	2,897	19.2	55,614	11	4	13,768	7,770	4.75	0.25	2.68	0.14	14	7/2
22459.00	Smith R, N Fk	Harlan Cr	Paxton Cr	6,598	23.0	151,967	3	3	1,080	2,850	0.16	0.01	0.43	0.02	33	7/2
22461.00	Smith R, N Fk	Paxton Cr	Smith R, N Fk, W Br	4,506	19.7	88,613		3		2,774			0.62	0.03		7/2
22463.00	Smith R, N Fk	Smith R, N Fk, W Br	Cedar Cr	4,345	24.5	106,593	3		876		0.20	0.01			0	7/1
22467.00	Smith R, N Fk	Cedar Cr	Smith R, N Fk, M Fk	5,632	20.4	114,756	4	3	1,460	2,591	0.26	0.01	0.46	0.02	0	7/1
22469.00	Smith R, N Fk	Smith R, N Fk, M Fk	Kentucky Cr	8,851	22.1	195,598	1		152		0.02	0.00			0	7/1
22488.00	Smith R	Spencer Cr	Buck Cr	9,012	25.4	229,193	3	3	424	4,890	0.05	0.00	0.54	0.02	0	7/
22492.00	Smith R	Little Buck Cr	Bear Cr	3,540	31.5	111,518		2		5,060			1.43	0.05		7/
22494.00	Smith R	Bear Cr	Johnson Cr	966	31.5	30,414		2		15,180			15.72	0.50		7/
22496.00	Smith R	Johnson Cr	Vincent Cr	2,736	27.0	73,862	1	6	36	17,705	0.01	0.00	6.47	0.20	100	7/

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
22498.00	Smith R	Vincent Cr	Smith R, W Fk	3,218	31.2	100,495	4	4	1,381	23,040	0.43	0.01	7.16	0.25	0	7/
22499.00	Smith R, W Fk	Mouth	Coon Cr	3,540	12.2	43,292	7		793		0.22	0.02			0	6/1
22501.00	Smith R, W Fk	Coon Cr	Trib B	1,529	15.0	22,931	2		283		0.19	0.01			0	6/1
22501.50	Smith R, W Fk	Trib B	Crane Cr	1,738	15.5	26,938	8	2	1,251	635	0.72	0.05	0.37	0.02	25	6/1
22502.30	Smith R, W Fk	Crane Cr	Trib C	611	15.1	9,234	3		342		0.56	0.04			0	6/1
22503.00	Smith R, W Fk	Moore Cr	Trib E	2,993	12.7	38,062	6		1,528		0.51	0.04			0	6/1
22503.50	Smith R, W Fk	Trib E	Beaver Cr	5,326	13.8	73,638	12		1,062		0.20	0.01			0	6/1
22508.00	Smith R	Smith R, W Fk	Scare Cr	2,897	24.0	69,421	3	3	337	31,796	0.12	0.00	10.98	0.40	0	7/
22510.00	Smith R	Scare Cr	Blackwell Cr	1,287	31.5	40,552		2		18,900			14.68	0.47		7/
22512.00	Smith R	Blackwell Cr	Clearwater Cr	483	30.0	14,483		1		6,375			13.21	0.44		7/
22512.70	Smith R	Clearwater Cr	Coldwater Cr	1,770	29.0	51,333		3		12,440			7.03	0.24		7/
22514.00	Smith R	Coldwater Cr	Carpenter Cr	644	30.0	19,310		1		4,800			7.46	0.25		7/
22516.00	Smith R	Carpenter Cr	Beaver Cr	3,057	25.0	76,437	1	2	64	7,300	0.02	0.00	2.39	0.09	0	7/

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
22518.00	Smith R	Beaver Cr	Trib G	1,770	27.5	48,678	2	4	428	4,917	0.24	0.01	2.78	0.10	50	7/
22518.70	Smith R	Trib G	N Sister Cr	2,736	23.6	64,561	7	1	1,252	660	0.46	0.02	0.24	0.02	0	7/
22520.80	N Sister Cr	Mouth	S Sister Cr	161	9.6	1,545	1		298		1.85	0.19			0	6/1
22534.00	Smith R	N Sister Cr	Unnamed Trib	2,414	33.5	80,862	2		287		0.12	0.00			0	6/1
22534.70	Smith R	Unnnamed Trib	Devils Club Cr	6,276	24.4	153,210	8		1,423		0.23	0.01			0	6/1
22536.00	Smith R	Devils Club Cr	Marsh Cr	3,379	20.5	69,276	4		1,225		0.36	0.02			0	6/3
22538.00	Smith R	Marsh Cr	Rock Cr	2,736	18.8	51,430	2	1	63	480	0.02	0.00	0.18	0.01	0	6/3
22538.70	Smith R	Rock Cr	Big Cr	805	15.3	12,310	1		82		0.10	0.01			0	6/3
22544.00	Smith R	Blind Cr	Mosetown Cr	3,862	17.4	67,255	7	1	1,338	172	0.35	0.02	0.04	0.00	0	6/2
22548.00	Smith R	Mosetown Cr	Smith R, Trib X	3,218	17.5	56,250	9		1,930		0.60	0.03			0	6/2
22548.70	Smith R	Smith R, Trib X	Halfway Cr	3,379	17.9	60,415	9	1	923	518	0.27	0.02	0.15	0.01	0	6/2
22550.00	Smith R	Halfway Cr	Clabber Cr	1,287	16.2	20,855	1	1	81	1,500	0.06	0.00	1.17	0.04	0	6/2
22552.00	Smith R	Clabber Cr	Slideout Cr	2,253	14.0	31,540	1		10		0.00	0.00			0	6/2

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
22554.00	Smith R	Slideout Cr	Lower Johnson Cr	3,379	15.9	53,731	10	4	2,394	1,194	0.71	0.04	0.35	0.02	20	6/2
22556.00	Smith R	Lower Johnson Cr	Upper Johnson Cr	644	19.1	12,262	2	1	224	300	0.35	0.02	0.47	0.03	0	6/2
22558.00	Smith R	Upper Johnson Cr	Cleghorn Cr	2,253	18.6	41,954	9		3,224		1.43	0.08			0	6/2
22564.00	Smith R	Cleghorn Cr	Hardenbrook Cr	4,828	16.6	80,069	14	2	1,171	377	0.24	0.01	0.08	0.00	0	6/2
22564.70	Smith R	Hardenbrook Cr	Yellow Cr	1,126	13.6	15,282	3		226		0.20	0.01			0	6/2
22566.00	Smith R	Yellow Cr	Deer Cr	3,540	15.5	54,933	6	3	297	327	0.08	0.01	0.09	0.01	0	6/2
22572.00	Smith R	Huckleberry Cr	Haney Cr	2,092	12.4	25,894	9	6	939	3,063	0.45	0.04	1.46	0.12	0	6/2
22576.00	Smith R	Haney Cr	Panther Cr	483	10.5	5,069	1	1	198	873	0.41	0.04	1.81	0.18	100	6/2
22578.00	Smith R	Panther Cr	Amberson Cr	2,253	10.9	24,515	11	5	860	5,252	0.38	0.04	2.33	0.13	9	6/2
22580.00	Smith R	Amberson Cr	Salmonberry Cr	2,575	11.4	29,438	12		1,178		0.46	0.04			50	7/
22582.00	Smith R	Salmonberry Cr	Smith R, S Fk	2,575	13.3	34,262	14	3	2,550	2,935	0.99	0.07	1.14	0.08	29	6/2
22586.00	Smith R	Smith R, S Fk	Elk Cr	2,736	8.9	24,230	7	5	458	5,578	0.17	0.02	2.04	0.16	0	6/2
23388.00	S Umpqua R	Jordan Cr	Canyon Cr	966	54.0	52,138	1		2,760		2.86	0.05				9/1

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
23404.00	S Umpqua R	Canyon Cr	O'Shea Cr	644	70.0	45,058	2		175,460		272.59	.89				9/1
23406.00	S Umpqua R	O'Shea Cr	Small Cr	805	60.0	48,276	3		12,485		15.52	0.26				9/1
23408.00	S Umpqua R	Small Cr	Morgan Cr	2,092	51.5	107,736	2		27,780		13.28	0.26				9/1
23410.00	S Umpqua R	Morgan Cr	Weaver Cr	644	79.0	50,851	2		15,260		23.71	0.30				9/1
23412.00	S Umpqua R	Weaver Cr	Clough Gulch	1,609	58.5	94,138	3	1	14,586	12,240	9.06	0.15	7.61	0.17	75	9/1
23414.00	S Umpqua R	Clough Gulch	Packard Gulch	805	73.3	59,004	3		14,583		18.12	0.25				9/1
23418.00	S Umpqua R	Beckworth Cr	Stinger Gulch Cr	966	58.0	56,000	2		21,270		22.03	0.38				9/1
23420.00	S Umpqua R	Stinger Gulch Cr	Days Cr	2,414	50.7	122,299	6	1	8,210	56,400	3.40	0.07	23.37	0.47		9/1
23442.90	S Umpqua R	Dietch Cr	Beals Cr	2,253	41.4	93,307	12	3	80,641	56,785	35.79	0.86	25.21	0.53	40	9/
23450.00	S Umpqua R	Slimwater Cr	Hammon Cr	2,253	65.0	146,437	6	1	173,180	7,875	76.87	0.57	3.50	0.05		9/
23452.00	S Umpqua R	Hammon Cr	Bland Br	1,287	75.0	96,552	4		38,850		30.18	0.40				9/
23454.00	S Umpqua R	Bland Br	Shively Cr	1,287	49.2	63,295	6	2	20,060	58,050	15.58	0.32	45.09	0.90	60	9/
23460.00	S Umpqua R	Shively Cr	Poole Cr	2,092	237.0	495,795	10	1	105,400	74,375	50.38	0.21	35.55	0.79	90	9/

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ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
23464.00	S Umpqua R	Poole Cr	Lavadoure Cr	1,609	49.3	79,311	7	3	33,865	82,193	21.04	0.43	51.08	1.17		9/
23466.00	S Umpqua R	Lavadoure Cr	Ash Cr	805	40.0	32,184	1	1	4,600	3,600	5.72	0.14	4.47	0.11		9/
23468.00	S Umpqua R	Ash Cr	Coon Cr	2,575	51.1	131,525	12	3	38,005	57,270	14.76	0.29	22.24	0.44	100	9/
23476.00	S Umpqua R	Stouts Cr	Lick Cr	1,609	41.3	66,380	4	3	8,450	23,825	5.25	0.13	14.81	0.39	43	9/
23480.00	S Umpqua R	Cedar Cr	Corn Cr	805	42.5	34,196	1	3	1,710	364,550	2.13	0.05	453.08	11.33	30	9/
23482.00	S Umpqua R	Corn Cr	Coffee Cr	1,609	45.5	73,280	13	6	21,093	30,916	13.11	0.29	19.21	0.47	60	8/3
23492.00	S Umpqua R	Coffee Cr	Hatchet Cr	2,253	28.8	64,924	11	7	7,751	47,091	3.44	0.12	20.90	0.73	60	8/3
23494.00	S Umpqua R	Hatchet Cr	Elk Cr	2,736	40.0	109,426	3	1	9,720	2,220	3.55	0.09	0.81	0.02	100	8/3
23520.00	S Umpqua R	Elk Cr	Salt Cr #2	1,770	40.0	70,805	1	2	2,500	6,450	1.41	0.04	3.64	0.08		8/3
23520.70	S Umpqua R	Salt Cr #2	Dead Horse Cr	2,414	28.0	67,586	5	5	4,900	36,600	2.03	0.07	15.16	0.59		8/3
23522.00	S Umpqua R	Dead Horse Cr	Dompier Cr	2,897	29.5	85,449		2		7,600			2.62	0.09		8/3
23524.00	S Umpqua R	Dompier Cr	Jackson Cr	4,506	52.2	234,993	13	5	58,550	91,190	12.99	0.25	20.24	0.41	30	8/3
23578.00	S Umpqua R	Deadman Cr	Sam Cr	3,540	38.2	135,237	10	5	16,866	143,870	4.76	0.12	40.64	1.14	80	8/2

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID Date	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	
23579.00	Sam Cr	Mouth	Hutchinson Cr	322	34.8	11,200	5		8,987		27.92	0.29			65	8/2
23580.00	S Umpqua R	Sam Cr	Francis Cr	3,540	30.2	106,766	19	6	18,283	47,944	5.16	0.17	13.54	0.45	56	8/2
23582.00	S Umpqua R	Francis Cr	Dumont Cr	3,540	30.0	106,207	6	5	5,689	29,665	1.61	0.05	8.38	0.28	18	8/2
23586.00	S Umpqua R	Dumont Cr	Zinc Cr	2,253	31.6	71,288	14	7	12,145	11,245	5.39	0.17	4.99	0.16	72	8/2
23588.00	S Umpqua R	Zinc Cr	Boulder Cr	1,609	26.0	41,839	6	1	6,703	3,720	4.17	0.16	2.31	0.08	20	8/2
22169.00	Coos R, S Fk	Salmon Cr	West Cr	5,954	28.0	166,713	1	8	20	147,762	0.00	0.00	24.82	0.64	0	7/
22171.00	Coos R, S Fk	West Cr	Big Cr	1,126	29.0	32,667		1		800			30.89	0.11		6/3
22173.00	Coos R, S Fk	Big Cr	Cox Cr	6,759	48.0	324,415	1	11	816	128,813	0.12	0.00	19.06	0.66	0	6/3
22175.00	Coos R, S Fk	Cox Cr	Burma Cr	3,701	35.0	129,541	2	5	1,170	56,655	0.32	0.01	15.31	0.61	50	6/2
22175.70	Coos R, S Fk	Burma Cr	Elk Cr	3,540	28.7	101,487		3		22,770			6.43	0.22		6/2
22177.00	Coos R, S Fk	Elk Cr	Farrin Cr	2,092	14.0	29,287	1	1	310	2,048	0.15	0.01	0.98	0.06	0	6/2
22177.50	Coos R, S Fk	Farrin Cr	Coal Cr	1,931	23.8	45,862	4	1	2,871	672	1.49	0.06	0.35	0.01	0	6/2
22179.00	Coos R, S Fk	Coal Cr	Fall Cr	3,379	31.8	107,293		4		18,398			5.44	0.17		6/2

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
22181.00	Coos R, S Fk	Fall Cr	Mink Cr	4,667	30.5	142,334	2	4	807	54,068	0.17	0.01	11.59	0.44	50	6/2
22183.00	Coos R, S Fk	Mink Cr	Tioga Cr	4,023	20.0	80,460	1		315		0.08	0.00			0	6/2
22197.90	Williams R	Mouth	Bottom Cr	4,184	23.5	98,322	2	1	804	8,320	0.19	0.01	1.99	0.08	0	6/2
22201.00	Williams R	Bottom Cr	Trib 1	966	20.0	19,310		1		20,000			20.71	1.04		6/2
22201.20	Williams R	Trib 1	Skip Cr	3,379	13.3	45,058	3	1	1,426	3,600	0.42	0.03	1.07	0.09	0	6/2
22201.50	Williams R	Skip Cr	Trib A	2,414	19.3	46,667	3		340		0.14	0.01			0	6/2
22201.70	Williams R	Trib A	Cedar Cr	2,736	21.0	57,448	3	1	826	1,920	0.30	0.01	0.70	0.03	0	6/2
22215.00	Williams R	Cedar Cr	Trib D	4,023	17.6	70,805	10	1	6,103	1,125	1.52	0.09	0.28	0.01	0	6/2
22215.50	Williams R	Trid D	Cabin Cr	3,218	17.5	56,322	4		1,620		0.50	0.03			0	6/2
22215.70	Williams R	Cabin Cr	Fall Cr	2,414	19.6	47,242	7		1,603		0.66	0.03			29	6/2
22217.20	Williams R	Goosberry Cr	Bear Cr	1,931	16.8	32,441	5		1,607		0.83	0.05			0	6/1
22217.80	Williams R	Panther Cr	Fivemile Cr	1,931	12.2	23,494	3	2	276	1,538	0.14	0.01	0.80	0.07	33	6/1
22241.00	Millicoma R, E Fk	Mouth	Marlow Cr	1,448	16.3	23,655	3	1	754	1,800	0.52	0.03	1.24	0.08	33	7/

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID Date	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	
22243.00	Millicoma R, E Fk	Marlow Cr	Hodges Cr	6,759	18.1	122,331	10	5	5,580	21,181	0.83	0.05	3.13	0.11	10	7/
22245.00	Millicoma R, E Fk	Hodges Cr	Glenn Cr	4,989	18.0	89,793	1	13	391	41,817	0.08	0.00	8.38	0.39	100	7/
22276.00	Millicoma R, W Fk	Rainy Cr	Devils Elbow Cr	4,023	14.3	57,419	11	3	4,264	7,267	1.06	0.07	1.81	0.09	27	7/1
22278.00	Millicoma R, W Fk	Devils Elbow Cr	Daggett Cr	6,437	15.0	96,552	4	1	1,188	1,088	0.18	0.01	0.17	0.01	25	7/1
22280.00	Millicoma R, W Fk	Daggett Cr	Totten Cr	966	15.0	14,483	2	1	280	240	0.29	0.02	0.25	0.02	50	7/1
22282.00	Millicoma R, W Fk	Totten Cr	Schumacher Cr	1,609	16.0	25,747	1		264		0.16	0.01			0	7/1
22284.00	Millicoma R, W Fk	Schumacher Cr	Vaughn Mill Cr	14,644	13.4	196,644	7	9	1,454	23,527	0.10	0.01	1.61	0.07	14	7/1
22284.70	Millicoma R, W Fk	Vaughn Mill Cr	Trout Cr	5,793	18.0	104,276	3	4	310	8,159	0.05	0.00	1.41	0.07	0	7/1
22286.00	Millicoma R, W Fk	Trout Cr	Buck Cr	8,368	16.1	134,931	8	4	1,891	4,227	0.23	0.01	0.51	0.02	13	7/
21729.00	Coquille R, M Fk	Mouth	Indian Cr	4,345	15.0	65,173	7		5,667		1.30	0.09			0	8/
21733.00	Coquille R, M Fk	Endicott Cr	Mcmullen Cr	3,540	14.3	50,743	3		1,644		0.46	0.03			0	8/
21739.00	Coquille R, M Fk	King Cr	Big Cr	3,701	24.0	88,828	3	1	1,715	5,888	0.46	0.02	1.59	0.07	33	8/
21749.00	Coquille R, M Fk	Big Cr	Salmon Cr	644	8.5	5,471	2	1	532	9,108	0.83	0.10	14.15	0.43	50	7/2

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
21751.00	Coquille R, M Fk	Salmon Cr	Myrtle Cr	1,609	14.0	22,529	4		2,209		1.37	0.10			0	7/2
21765.00	Coquille R, M Fk	Myrtle Cr	Belieu Cr	2,736	9.4	25,715	5	3	629	12,758	0.23	0.02	4.66	0.20	20	7/2
21767.00	Coquille R, M Fk	Belieu Cr	Anderson Cr	644	21.0	13,517		1		5,586			8.68	0.41		7/2
21767.70	Coquille R, M Fk	Anderson Cr	Tanner Cr	2,897	30.0	86,897		1		14,400			4.97	0.17		7/2
21771.00	Coquille R, M Fk	Frenchie Cr	Sandy Cr	3,057	5.7	17,326	3		306		0.10	0.02			0	7/2
21773.00	Coquille R, M Fk	Sandy Cr	Slide Cr	322	10.0	3,218	2		156		0.48	0.05			0	7/2
21775.00	Coquille R, M Fk	Slide Cr	Rock Cr	4,023	13.7	54,981	9	1	3,609	624	0.90	0.07	0.16	0.01	0	7/2
21781.00	Coquille R, M Fk	Rock Cr	Slater Cr	9,816	10.0	98,161	1	4	48	16,915	0.00	0.00	1.72	0.07	100	7/2
21783.00	Coquille R, M Fk	Slater Cr	Twelvemile Cr	6,115	7.5	45,862	2	12	360	39,521	0.06	0.01	6.46	0.35	0	7/2
21828.00	Coquille R, S Fk	Rhoda Cr	Dement Cr	11,908	29.0	345,334	5	1	4,009	14,022	0.34	0.01	1.18	0.03	0	8/1
21834.00	Coquille R, S Fk	Dement Cr	Yellow Cr	8,207	20.8	170,704	10	2	8,077	29,100	0.98	0.05	3.55	0.11	10	8/1
21836.00	Coquille R, S Fk	Yellow Cr	Beaver Cr	2,414	25.0	60,345	2		2,168		0.90	0.04			0	8/1
21838.00	Coquille R, S Fk	Beaver Cr	Long Tom Cr	644	19.0	12,230	1		2,660		4.13	0.22			0	8/1

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
21840.00	Coquille R, S Fk	Long Tom Cr	Rowland Cr	2,414	26.0	62,759	5		13,555		5.62	0.22			0	8/1
21842.00	Coquille R, S Fk	Rowland Cr	Whisky Cr	2,414	12.6	30,414	5	3	1,294	17,488	0.54	0.04	7.25	0.32	20	8/1
21844.00	Coquille R, S Fk	Whisky Cr	Baker Cr	1,287	14.0	18,023	4	2	1,204	14,207	0.94	0.07	11.04	0.36	0	8/1
21846.00	Coquille R, S Fk	Baker Cr	Woodward Cr	3,379	20.0	67,586	3	5	1,032	46,513	0.31	0.02	13.76	0.67	67	8/1
21848.00	Coquille R, S Fk	Woodward Cr	Salmon Cr	3,057	22.7	69,303	3		5,310		1.74	0.08			0	8/1
21864.00	Coquille R, S Fk	Salmon Cr	Mill Cr	966	27.5	26,552	2		2,422		2.51	0.09			0	8/1
21866.00	Coquille R, S Fk	Mill Cr	Hays Cr	805	15.0	12,069		1		12,285			15.27	1.02		8/1
21868.00	Coquille R, S Fk	Hays Cr	Estes Cr	1,287	12.0	15,448	1	2	504	3,882	0.39	0.03	3.02	0.15	0	8/1
21870.00	Coquille R, S Fk	Estes Cr	Grant Cr	644	28.0	18,023	2		2,960		4.60	0.16			0	8/1
21872.00	Coquille R, S Fk	Grant Cr	Banner Cr	805	19.0	15,287	1	1	1,159	14,812	1.44	0.08	18.41	0.80	0	8/1
21874.00	Coquille R, S Fk	Banner Cr	Lower Land Cr	2,414	29.5	71,207	2		3,696		1.53	0.05			0	8/1
21878.00	Coquille R, S Fk	Lower Land Cr	Upper Land Cr	1,126	26.0	29,287	2		1,154		1.02	0.04			0	8/1
21880.00	Coquille R, S Fk	Upper Land Cr	Coal Cr	2,414	27.0	65,173		1		14,418			5.97	0.22		8/1

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
21882.00	Coquille R, S Fk	Coal Cr	Elk Cr	805	12.0	9,655	1	1	168	5,376	0.21	0.02	6.68	0.32	0	8/1
21884.00	Coquille R, S Fk	Elk Cr	Delta Cr	3,862	22.0	84,966	1	3	264	24,274	0.07	0.00	6.29	0.26	0	8/1
21886.00	Coquille R, S Fk	Delta Cr	Dry Cr	4,345	13.7	59,379	6	3	3,055	11,078	0.70	0.05	2.55	0.11	0	8/1
21888.00	Coquille R, S Fk	Dry Cr	Johnson Cr	3,057	21.0	64,207	1		399		0.13	0.01			0	8/
21896.00	Coquille R, S Fk	Johnson Cr	Kelly Cr	805	21.0	16,897		1		1,512			1.88	0.09		8/
21898.00	Coquille R, S Fk	Kelly Cr	Fall Cr	1,931	12.0	23,172	2	1	318	3,174	0.16	0.01	1.64	0.07	0	8/
21900.00	Coquille R, S Fk	Fall Cr	Hosposko Cr	966	24.0	23,172	1		336		0.35	0.01			0	8/
21902.00	Coquille R, S Fk	Hosposko Cr	Rock Cr	2,253	17.0	38,299		1		1,479			0.66	0.04		8/
21954.00	Coquille R, E Fk	Yankee Run	Hantz Cr	11,586	13.9	160,552	7		3,859		0.33	0.02			0	9/3
21956.00	Coquille R, E Fk	Hantz Cr	Steel Cr	2,736	15.0	41,035	3		876		0.32	0.02			0	9/2
21958.00	Coquille R, E Fk	Steel Cr	Bills Cr	5,149	23.0	118,437		1		1,472			0.29	0.01		9/2
22025.70	Coquille R, N Fk	Coquille R, N Fk, Trib E	Lost Cr	2,253	14.0	31,540	1		630		0.28	0.02			0	8/2
22029.00	Coquille R, N Fk	Blair Cr	Steele Cr	2,414	8.5	20,517	2	2	369	9,665	0.15	0.02	4.00	0.17	0	8/2

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Appendix Table A-1. Results of Fall chinook spawning habitat inventory 1999 and 2000 [a]

ID	Reach	Start	End	Reach Length	Average Channel Width	Reach Area	Habitat Units	Pool Units	Habitat Area	Total Pool Volume	Linear Habitat Density	Area Habitat Density	Linear Pool Density	Area Pool Density	Average Percent Tailout	Date
22031.00	Coquille R, N Fk	Steele Cr	Evans Cr	2,575	10.0	25,747	2	1	768	2,860	0.30	0.03	1.11	0.05	50	8/2
22035.00	Coquille R, N Fk	Evans Cr	Hudson Cr	6,115	14.2	86,920	14		7,490		1.22	0.09			0	8/2

a *Distances in meters; areas in square meters; volumes in cubic*

APPENDIX B

Table of Basins without an Inventory of Spawning Habitat

Appendix Table B-1. Remaining basins to be inventoried for fall chinook spawner habitat

REACH ID	BA	SU	REACH	START	END	LENGTH
21491.00	55	1	ELK R	MOUTH	CEDAR CR	0.6
21491.30	55	1	ELK R	CEDAR CR	KNAPP CR	0.6
21491.50	55	1	ELK R	KNAPP CR	CAMP CR	1.9
21491.70	55	1	ELK R	CAMP CR	INDIAN CR	2.8
21493.00	55	1	ELK R	INDIAN CR	BAGLEY CR	1.3
21494.10	55	1	ELK R	BAGLEY CR	KRIEGER CR	2.9
21495.00	55	1	ELK R	KRIEGER CR	ROCK CR	1.1
21497.00	55	1	ELK R	ROCK CR	CHAPMAN CR	1.1
21501.00	55	1	ELK R	ANVIL CR	BALD MTN CR	2.2
21537.00	54	1	SIXES R	CRYSTAL CR	BEAVER CR	2.3
21539.00	54	1	SIXES R	BEAVER CR	EDSON CR	2.2
21541.00	54	1	SIXES R	EDSON CR	DRY CR	1
21545.00	54	1	SIXES R	DRY CR	ELEPHANT ROCK CR	5.4
21547.00	54	1	SIXES R	ELEPHANT ROCK	SIXES R, S FK	1
21549.00	54	1	SIXES R	SIXES R, S FK	OTTER CR	1.7
21551.00	54	1	SIXES R	OTTER CR	SIXES R, M FK	3.5
21553.00	54	1	SIXES R	SIXES R, M FK	SUGAR CR	2.4
22648.00	43	1	MILL CR	FOOTLOG CR	PUCKET CR	1.6
22650.00	43	1	MILL CR	PUCKET CR	DOUBLE BARREL CR	1
22652.00	43	1	MILL CR	DOUBLE BARREL	CAMP CR	1
22679.00	43	1	UMPQUA R	WELLS CR	GOLDEN CR	0.7
22681.00	43	1	UMPQUA R	GOLDEN CR	BURCHARD CR	2
22685.00	43	1	UMPQUA R	BURCHARD CR	WEATHERLY CR	1.6
22687.00	43	1	UMPQUA R	WEATHERLY CR	LUTSINGER CR	1.2
22689.00	43	1	UMPQUA R	LUTSINGER CR	BUTLER CR	0.9
22691.00	43	1	UMPQUA R	BUTLER CR	SCOTT CR	1.8
22693.00	43	1	UMPQUA R	SCOTT CR	PARADISE CR	2.3
22701.00	43	1	UMPQUA R	PARADISE CR	SAWYER CR	3.5
22703.00	43	1	UMPQUA R	SAWYER CR	ELK CR	5.8
22704.00	43	3	ELK CR	MOUTH	LITTLE TOM FOLLEY	2.3
22706.00	43	3	ELK CR	LITTLE TOM	HANCOCK CR	2.1
22708.00	43	3	ELK CR	HANCOCK CR	BIG TOM FOLLEY CR	4.2
22714.00	43	3	ELK CR	BIG TOM FOLLEY	BRUSH CR	3.3
22819.00	43	3	UMPQUA R	ELK CR	HEDDIN CR	4
22821.00	43	1	UMPQUA R	HEDDIN CR	FITZPATRICK CR	1.5
22823.00	43	1	UMPQUA R	FITZPATRICK CR	MEHL CR	1.2
22825.00	43	1	UMPQUA R	MEHL CR	WILLIAMS CR	3.5
22827.00	43	1	UMPQUA R	WILLIAMS CR	BRADS CR	1.8
22829.00	43	1	UMPQUA R	BRADS CR	MARTIN CR	4.5
22831.00	43	1	UMPQUA R	MARTIN CR	WAGGONER CR	5.5
22833.00	43	1	UMPQUA R	WAGGONER CR	MCGEE CR	1.6
22835.00	43	1	UMPQUA R	MCGEE CR	YELLOW CR	6.6
22843.00	43	1	UMPQUA R	YELLOW CR	LITTLE CANYON CR	0.4
22847.00	43	1	UMPQUA R	LITTLE CANYON	LOST CR	3.5
22849.00	43	1	UMPQUA R	LOST CR	BASIN CR	1.5
22851.00	43	1	UMPQUA R	BASIN CR	LEONARD CR	2.5
22853.00	43	1	UMPQUA R	LEONARD CR	PORTER CR	0.7
22855.00	43	1	UMPQUA R	PORTER CR	WOLF CR	2.7
22865.00	43	1	UMPQUA R	WOLF CR	COUGAR CR	3.3

22867.00	43	1	UMPQUA R	COUGAR CR	BOTTLE CR	4
22869.00	43	1	UMPQUA R	BOTTLE CR	HUBBARD CR	1.9
22881.00	43	1	UMPQUA R	HUBBARD CR	MILL CR	1.9
22885.00	43	1	UMPQUA R	MILL CR	CALAPOOYA CR	1.4
22890.00	43	6	CALAPOOYA CR	COON CR	DODGE CANYON CR	1.3
22892.00	43	6	CALAPOOYA CR	DODGE CANYON	WILLIAMS CR	2.1
22896.00	43	6	CALAPOOYA CR	WILLIAMS CR	CABIN CR	4.3
22973.00	43	1	UMPQUA R	CALAPOOYA CR	TURKEY CR	4
22973.70	43	1	UMPQUA R	TURKEY CR	N UMPQUA R	5.2
22974.00	43	5	S UMPQUA R	MOUTH	CHAMPAGNE CR	1.7
22984.00	43	5	S UMPQUA R	CHAMPAGNE CR	STOCKEL CR	1
22986.00	43	5	S UMPQUA R	STOCKEL CR	NEWTON CR	6.2
22988.00	43	5	S UMPQUA R	NEWTON CR	DEER CR	2.3
23000.00	43	5	S UMPQUA R	DEER CR	ROBERTS CR	5.1
23002.00	43	5	S UMPQUA R	ROBERTS CR	MARSTERS CR	1.3
23004.00	43	5	S UMPQUA R	MARSTERS CR	LOOKINGGLASS CR	8.5
23005.00	43	5	LOOKINGGLASS	MOUTH	OLALLA CR	7
23044.00	43	5	S UMPQUA R	LOOKINGGLASS	BROCKWAY CR	0.6
23046.00	43	5	S UMPQUA R	BROCKWAY CR	KENT CR	1
23056.00	43	5	S UMPQUA R	KENT CR	RICE CR	1.4
23064.00	43	5	S UMPQUA R	RICE CR	WILLIS CR	0.9
23068.00	43	5	S UMPQUA R	WILLIS CR	S UMPQUA R, CLARK	3.2
23072.00	43	5	S UMPQUA R	S UMPQUA R,	VAN DINE CR	4.8
23074.00	43	5	S UMPQUA R	VAN DINE CR	MYRTLE CR	2.3
23075.00	43	5	MYRTLE CR	MOUTH	N MYRTLE CR	1
23132.00	43	5	S UMPQUA R	MYRTLE CR	JUDD CR	6
23134.00	43	5	S UMPQUA R	JUDD CR	COW CR	2
23135.00	43	5	COW CR	MOUTH	MITCHELL CR	0.7
23141.00	43	5	COW CR	ASH CR	JERRY CR	2.3
23143.00	43	5	COW CR	JERRY CR	RUSSELL CR	2
23145.00	43	5	COW CR	RUSSELL CR	CATCHING CR	1.4
23147.00	43	5	COW CR	CATCHING CR	COUNCIL CR	2
23151.00	43	5	COW CR	COUNCIL CR	CRAWFORD BR	0.6
23153.00	43	5	COW CR	CRAWFORD BR	BEATTY CR	1.5
23155.00	43	5	COW CR	BEATTY CR	ALDER CR	0.5
23157.00	43	5	COW CR	ALDER CR	ISLAND CR	0.5
23159.00	43	5	COW CR	ISLAND CR	SALT CR	0.6
23161.00	43	5	COW CR	SALT CR	DOE CR	1
23167.00	43	5	COW CR	DOE CR	BUCK CR	0.5
23169.00	43	5	COW CR	BUCK CR	SMITH CR	0.5
23171.00	43	5	COW CR	SMITH CR	IRON MTN CR	0.5
23173.00	43	5	COW CR	IRON MTN CR	TABLE CR	3.6
23175.00	43	5	COW CR	TABLE CR	LITTLE DADS CR	0.4
23177.00	43	5	COW CR	LITTLE DADS CR	CATTLE CR	0.6
23179.00	43	5	COW CR	CATTLE CR	BOULDER CR	0.8
23181.00	43	5	COW CR	BOULDER CR	UNION CR	0.4
23183.00	43	5	COW CR	UNION CR	SHORT CR	1.2
23185.00	43	5	COW CR	SHORT CR	DARBY CR	1.4
23187.00	43	5	COW CR	DARBY CR	COW CR, W FK	3.2
23188.00	43	5	COW CR, W FK	MOUTH	JACOB CR	1.4
23243.00	43	5	COW CR	COW CR, W FK	MIDDLE CR	0.4
23266.00	43	5	COW CR	MIDDLE CR	SUSAN CR	0.8
23268.00	43	5	COW CR	SUSAN CR	RIFFLE CR	1.7
23272.00	43	5	COW CR	RIFFLE CR	SKULL CR	1
23274.00	43	5	COW CR	SKULL CR	DADS CR	0.5

23280.00	43	5	COW CR	DADS CR	TULLER CR	1.1
23282.00	43	5	COW CR	TULLER CR	PANTHER CR	2.5
23284.00	43	5	COW CR	PANTHER CR	PERKINS CR	0.4
23286.00	43	5	COW CR	PERKINS CR	RATTLESNAKE CR	0.4
23290.00	43	5	COW CR	RATTLESNAKE	TOTTEN CR	2.5
23292.00	43	5	COW CR	TOTTEN CR	MCCULLOUGH CR	1
23297.00	43	5	COW CR	MCCULLOUGH	WINDY CR	1.5
23297.70	43	5	COW CR	SECTION CR	WINDY CR	0.7
23305.00	43	5	COW CR	WINDY CR	SWAMP CR	4.5
23305.70	43	5	COW CR	SWAMP CR	WOODFORD CR	0.9
23309.00	43	5	COW CR	COW CR,	QUINES CR	2.5
23416.00	43	5	S UMPQUA R	PACKARD GULCH	BECKWORTH CR	1.1
23442.00	43	5	S UMPQUA R	DAYS CR	DIETCH CR	1
23448.00	43	5	S UMPQUA R	BEALS CR	SLIMWATER CR	1.3
23472.00	43	5	S UMPQUA R	ST JOHN CR	STOUTS CR	0.3
23617.00	43	4	N UMPQUA R	MOUTH	SUTHERLIN CR	5
23627.00	43	4	N UMPQUA R	SUTHERLIN CR	DIXON CR	5.3
23629.00	43	4	N UMPQUA R	DIXON CR	CLOVER CR	0.9
23631.00	43	4	N UMPQUA R	CLOVER CR	OAK CR	2
23633.00	43	4	N UMPQUA R	OAK CR	BULL CR	1.5
23635.00	43	4	N UMPQUA R	BULL CR	COOPER CR	2
23637.00	43	4	N UMPQUA R	COOPER CR	HUNTLEY CR	2.5
23639.00	43	4	N UMPQUA R	HUNTLEY CR	FORDICE CR	0.9
23641.00	43	4	N UMPQUA R	FORDICE CR	LITTLE R	3
23719.00	43	4	N UMPQUA R	LITTLE R	BRADLEY CR	1.2
23721.00	43	4	N UMPQUA R	BRADLEY CR	FRENCH CR	0.8
23723.00	43	4	N UMPQUA R	FRENCH CR	BRITT CR	1.6
23727.00	43	4	N UMPQUA R	BRITT CR	ROCK CR	3
24558.00	30	1	YACHATS R	CEDAR CR	REEDY CR	0.5
24560.00	30	1	YACHATS R	REEDY CR	MARKS CR	0.5
24562.00	30	1	YACHATS R	MARKS CR	BEAMER CR	0.5
24564.00	30	1	YACHATS R	BEAMER CR	CARSON CR	0.5
24566.00	30	1	YACHATS R	CARSON CR	BEND CR	0.5
24568.00	30	1	YACHATS R	BEND CR	WINTERS CR	0.5
24570.00	30	1	YACHATS R	WINTERS CR	HELMS CR	0.5
24572.00	30	1	YACHATS R	HELMS CR	AXTELL CR	0.5
24574.00	30	1	YACHATS R	AXTELL CR	YACHATS R, N FK	0.5
24843.00	28	4	ALSEA R, N FK	RYDER CR	HAYDEN CR	0.8
24845.00	28	4	ALSEA R, N FK	HAYDEN CR	SEELEY CR	0.3
24845.70	28	4	ALSEA R, N FK	SEELEY CR	CROOKED CR	1
24876.00	28	5	ALSEA R, S FK	MOUTH	BUMMER CR	0.5
24884.00	28	5	ALSEA R, S FK	BUMMER CR	HEADRICK CR	0.5
24886.00	28	5	ALSEA R, S FK	HEADRICK CR	TOBE CR	0.5
24973.00	25	2	ELK CR	GRANT CR	FEAGLES CR	0.8
24975.00	25	2	ELK CR	FEAGLES CR	SPOUT CR	0.17
25271.00	16	1	SALMON R	MINK CR	SALMON CR	0.4
25277.00	16	1	SALMON R	SALMON CR	FRAZER CR	0.4
25279.00	16	1	SALMON R	FRAZER CR	BAXTER CR	0.6
25281.00	16	1	SALMON R	BAXTER CR	DEER CR	0.6
25287.00	16	1	SALMON R	DEER CR	WILLIS CR	1.4
25289.00	16	1	SALMON R	WILLIS CR	CURL CR	0.5
25291.00	16	1	SALMON R	CURL CR	PANTHER CR	0.5
25295.00	16	1	SALMON R	PANTHER CR	BEAR CR	1
25297.00	16	1	SALMON R	BEAR CR	SLICK ROCK CR	1.6
25301.00	16	1	SALMON R	SLICK ROCK CR	WIDOW CR	1.4

25305.00	16	1	SALMON R	WIDOW CR	ALDER BROOK	0.5
25307.00	16	1	SALMON R	ALDER BROOK	TREAT R	0.3
25357.00	13	4	LITTLE NESTUCCA	FALL CR	KELLOW CR	0.5
25359.00	13	4	LITTLE NESTUCCA	KELLOW CR	SQUAW CR	0.5
25361.00	13	4	LITTLE NESTUCCA	SQUAW CR	AUSTIN CR	0.1
25365.00	13	4	LITTLE NESTUCCA	AUSTIN CR	BEAR CR	1
25367.00	13	4	LITTLE NESTUCCA	BEAR CR	MCKNIGHT CR	1.8
25369.00	13	4	LITTLE NESTUCCA	MCKNIGHT CR	LITTLE NESTUCCA R,	0.1
25410.00	13	1	NESTUCCA R	SANDERS CR	HARTNEY CR	1
25412.00	13	1	NESTUCCA R	HARTNEY CR	THREE RIVERS	1
25413.00	13	2	THREE RIVERS	MOUTH	CEDAR CR	4.5
25418.00	13	2	THREE RIVERS	CEDAR CR	POLLARD CR	2.5
25420.00	13	2	THREE RIVERS	POLLARD CR	LAWRENCE CR	0.5
25422.00	13	2	THREE RIVERS	LAWRENCE CR	ALDER CR	0.2
25432.00	13	1	NESTUCCA R	THREE RIVERS	GEORGE CR	1
25434.00	13	1	NESTUCCA R	GEORGE CR	FARMER CR	1
25436.00	13	1	NESTUCCA R	FARMER CR	SALING CR	1
25438.00	13	1	NESTUCCA R	SALING CR	WEST CR	1
25440.00	13	1	NESTUCCA R	WEST CR	BEAVER CR	1
25452.00	13	1	NESTUCCA R	BEAVER CR	FOLAND CR	1.2
25458.00	13	1	NESTUCCA R	FOLAND CR	WOLFE CR	1.2
25462.00	13	1	NESTUCCA R	WOLFE CR	TONY CR	1.2
25464.00	13	1	NESTUCCA R	TONY CR	BOULDER CR	1.3
25468.00	13	1	NESTUCCA R	BOULDER CR	BAYS CR	1.2
25470.00	13	1	NESTUCCA R	BAYS CR	ALDER CR	1.2
25472.00	13	1	NESTUCCA R	ALDER CR	MOON CR	1.2
25476.00	13	1	NESTUCCA R	MOON CR	LIMESTONE CR	1.2
25478.00	13	1	NESTUCCA R	LIMESTONE CR	MORRIS CR	1.5
25480.00	13	1	NESTUCCA R	MORRIS CR	POWDER CR	1.2
25484.00	13	1	NESTUCCA R	POWDER CR	NIAGARA CR	1.2
25490.00	13	1	NESTUCCA R	NIAGARA CR	CLARENCE CR	1.2
25492.00	13	1	NESTUCCA R	CLARENCE CR	SLICK ROCK CR	1.2
25494.00	13	1	NESTUCCA R	SLICK ROCK CR	MINA CR	1.4
25496.00	13	1	NESTUCCA R	MINA CR	BIBLE CR	1.2
25500.00	13	1	NESTUCCA R	BIBLE CR	TESTAMENT CR	1.2
25502.00	13	1	NESTUCCA R	TESTAMENT CR	BEAR CR	2
25504.00	13	1	NESTUCCA R	BEAR CR	ELK CR	1.2
25510.00	13	1	NESTUCCA R	ELK CR	FAN CR	1.5
25586.00	9	1	TRASK R	MILL CR	GREEN CR	1
25588.00	9	1	TRASK R	GREEN CR	HANENKRAT CR	1.6
25590.00	9	1	TRASK R	HANENKRAT CR	GOLD CR	1.1
25594.00	9	1	TRASK R	GOLD CR	CEDAR CR	1
25596.00	9	1	TRASK R	CEDAR CR	HATCHERY CR	2
25598.00	9	1	TRASK R	HATCHERY CR	BLUE RIDGE CR	1.1
25600.00	9	1	TRASK R	BLUE RIDGE CR	BILL CR	1.4
25600.70	9	1	TRASK R	BILL CR	SAMSON CR	1
25602.00	9	1	TRASK R	SAMSON CR	RAWE CR	1.1
25604.00	9	1	TRASK R	RAWE CR	TRASK R, N FK	1.1
25605.00	9	3	TRASK R, S FK	MOUTH	TRASK R, S FK, E FK	4.6
25606.20	9	3	E FK OF S FK	SCOTCH CR	PIGEON CR	1.4
25606.40	9	3	E FK OF S FK	PIGEON CR	BALES CR	0.2
25611.00	9	3	TRASK R, S FK	TRASK R, S FK, E	EDWARDS CR	0.5
25618.00	9	2	TRASK R, N FK	MOUTH	CLEAR CR, #1	2
25620.00	9	2	TRASK R, N FK	CLEAR CR, #1	BARK SHANTY CR	1
25622.00	9	2	TRASK R, N FK	BARK SHANTY	MICHAEL CR	5.5

25622.90	9	2	TRASK R, N FK	MICHAEL CR	CLEAR CR #2	1.2
25720.00	7	1	KILCHIS R	COAL CR	MURPHY CR	0.7
25722.00	7	1	KILCHIS R	MURPHY CR	MAPES CR	0.7
25724.00	7	1	KILCHIS R	MAPES CR	MYRTLE CR	0.7
25726.00	7	1	KILCHIS R	MYRTLE CR	THOMAS CR	1
25728.00	7	1	KILCHIS R	THOMAS CR	CLEAR CR	0.7
25730.00	7	1	KILCHIS R	CLEAR CR	WATERTANK CR	0.7
25732.00	7	1	KILCHIS R	WATERTANK CR	KILCHIS R, LITTLE S	0.7
25744.00	7	1	KILCHIS R	KILCHIS R,	SCHOOL CR	1
25746.00	7	1	KILCHIS R	SCHOOL CR	WASHOUT CR	0.7
25748.00	7	1	KILCHIS R	WASHOUT CR	SHARP CR	0.7
25750.00	7	1	KILCHIS R	SHARP CR	SLIDE CR	1.5
25752.00	7	1	KILCHIS R	SLIDE CR	TILTON CR	0.7
25754.00	7	1	KILCHIS R	TILTON CR	BLUE STAR CR	0.7
25756.00	7	1	KILCHIS R	BLUE STAR CR	ZIGZAG CANYON	0.7
25758.00	7	1	KILCHIS R	ZIGZAG CANYON	KILCHIS R, S FK	0.7
25794.00	6	1	MIAMI R	PETERSON CR	MARGARY CR	0.3
25794.70	6	1	MIAMI R	MARGARY CR	STUART CR	0.8
25796.00	6	1	MIAMI R	STUART CR	PROUTY CR	0.2
26205.00	1	1	NECANICUM R	CIRCLE CR	DIEHL CR	2
26205.70	1	1	NECANICUM R	DIEHL CR	MEYER CR	1
26207.00	1	1	NECANICUM R	MEYER CR	HAWLEY CR	1.7
26209.00	1	1	NECANICUM R	HAWLEY CR	VOLMER CR	0.2
26211.00	1	1	NECANICUM R	VOLMER CR	KLOOTCHIE CR	1
26215.00	1	1	NECANICUM R	KLOOTCHIE CR	JOHNSON CR	0.4
26217.00	1	1	NECANICUM R	JOHNSON CR	MAIL CR	0.6
26219.00	1	1	NECANICUM R	MAIL CR	NECANICUM R, S FK	1.5