THE OREGON PLAN *for Salmon and Watersheds*

Abundance Monitoring of Juvenile Salmonids In Oregon Coastal Streams, 2005.

Report Number: OPSW-ODFW-2007-1

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January, 2007

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Citation: Jepsen, D. B., and K. Leader. 2007. Abundance Monitoring of Juvenile Salmonids in Oregon Coastal Streams, 2005. Monitoring Program Report Number OPSW-ODFW-2007-1, Oregon Department of Fish and Wildlife, Salem.

Table of Contents

List of Figures

List of Tables

Page

List of Appendices

Executive Summary

This report summarizes results of sampling the abundance and distribution of juvenile salmonids in coastal streams in western Oregon monitoring areas (MA's) in 2005, as part of the Western Oregon Rearing Project.

Coho

- In comparisons of the brood cycle years 2002 and 2005, there were no differences in average density of coho in pools or average % pool occupancy for any MA.

- Coho occurred in 73-94% of the 1^{st}-3^{rd} order stream sites, were more widespread among Mid-South and Mid Coast sites, and as in previous years least widespread among Umpqua sites. The average percent pool occupancy ranged between 63% (Umpqua and North Coast) to 75% (South Coast). All MA's had more than 50% of sites with > 50% pool occupancy.

- Average pool densities for coho in 1^{st}-3^{rd} order stream sites were between 0.23 fish/m^2 (Mid Coast) and 0.83 fish/m^2 (South Coast). The three most southern monitoring areas had significantly higher densities than the other MA's in 1^{st}-3^{rd} order stream sites.

- The percentage of 1^{st}-3^{rd} order stream sites with juvenile coho densities $\geq$0.7 fish/m^2 (target seeding level) were greater in the three southern MA's (>32%) than in the two northern MA's

- The Umpqua and South Coast MA's produce fewer adults per mile than other MA's, but regression analysis suggests that egg to parr survival is greater in the South Coast relative to other MA's. Data in 2005 continue to support the pattern that juvenile coho in North and Mid Coast sites may experience density dependant effects during the freshwater rearing phase.

Steelhead

- Steelhead occurred in 66-78% of the 1^{st}-3^{rd} order sites (excluding South Coast sites). For South Coast sites selected from steelhead distributions, steelhead were present in 94% and 89% of sites in the non-Rogue and Rogue basins, respectively. The average percent pool occupancy ranged from 30% (Umpqua) to 46% (North Coast) for 1^{st}-3^{rd} order stream sites. Non-Rogue and Rogue basin1^{st}-3^{rd} order stream sites had significantly greater pool occupancy than comparable streams in other MA's.

- Average pool densities of steelhead in 1^{st}-3^{rd} order streams were between 0.04 fish/m^2 (Umpqua and Mid Coast) and 0.09 fish/m^2 (South Coast Rogue basin). South Coast Rogue basin sites had statistically higher steelhead densities than other MA's except the North Coast.

Introduction

As part of the Oregon Plan for Salmon and Watersheds, the Oregon Department of Fish and Wildlife (ODFW) initiated a project in 1998 to monitor juvenile coho salmon (*Oncorhynchus kisutch*) rearing in Oregon coastal streams. Monitoring was expanded in 2002 to include juvenile steelhead (*Oncorhynchus mykiss*) and cutthroat trout (*O. clarkii*). The project is designed to monitor the yearly status and long term trends in juvenile salmonid abundance within five coastal Monitoring Areas (hereafter referred to as MA's; Figure 1). This report summarizes abundance data collected in the summer of 2005 for all three species, and for coho includes an analysis with abundance data from prior years. Details of the study area and methods are described in previous annual reports (Jepsen and Rodgers 2004). Details of methods and analyses specific to the present year are included below.

Methods

A full description of study design, random site selection, and survey methods is found in Jepsen and Rodgers (2004). Snorkel surveys were conducted at randomly chosen candidate sites that were spatially balanced within two separate sampling frames (rearing distributions; but see South Coast steelhead, below). One frame included sites of all 1^{st}-3^{rd} order stream reaches within the known coastal coho rearing distribution. The other included sites from all 4^{th}-5^{th} order stream reaches within the known steelhead rearing distribution. For summary and comparative analyses, data for each species were split into subsets based on the MA and stream order frame (Table 1). This level of partitioning allowed separate fish abundance estimates for smaller streams (the presumed best rearing reaches for coho) and larger order streams (the presumed best rearing reaches for steelhead).

As noted in previous reports (Jepsen and Rodgers 2004), there is a more distinct rearing distribution for coho and trout in the South Coast MA relative to the other MA's, requiring an adjustment to the spatial design of site selection. The South Coast coho 1^{st}-3^{rd} order dataset was balanced in the same manner as the sites in other MA's, but the sites used for a larger stream order coho dataset were derived from a stream network based on a steelhead distribution sampling frame, and proportioned between Rogue and Non-Rogue basin sites. From the steelhead frame, steelhead and cutthroat trout subsets were created for 1^{st}-3^{rd} and 4^{th}-5^{th} order stream reaches, and then partitioned proportionately within Rogue and Non-Rogue basins. Although steelhead and cutthroat data were collected from South Coast coho 1^{st}-3^{rd} order sites, the sites are considered spatially unbalanced for steelhead distributions (and unknown for cutthroat). Similarly, coho data were collected from South Coast steelhead 1^{st}-3^{rd} order sites are considered spatially unbalanced for coho. These datasets are indicated by italics in summary tables but not used in comparative analyses.

The accuracy of pool counts was assessed by doing resurveys of 15-20% of sites, limited to those that contained juvenile coho. A resurvey generally occurred within 1-4 days of the original survey, and fish were counted from the same pools identified in the original survey.

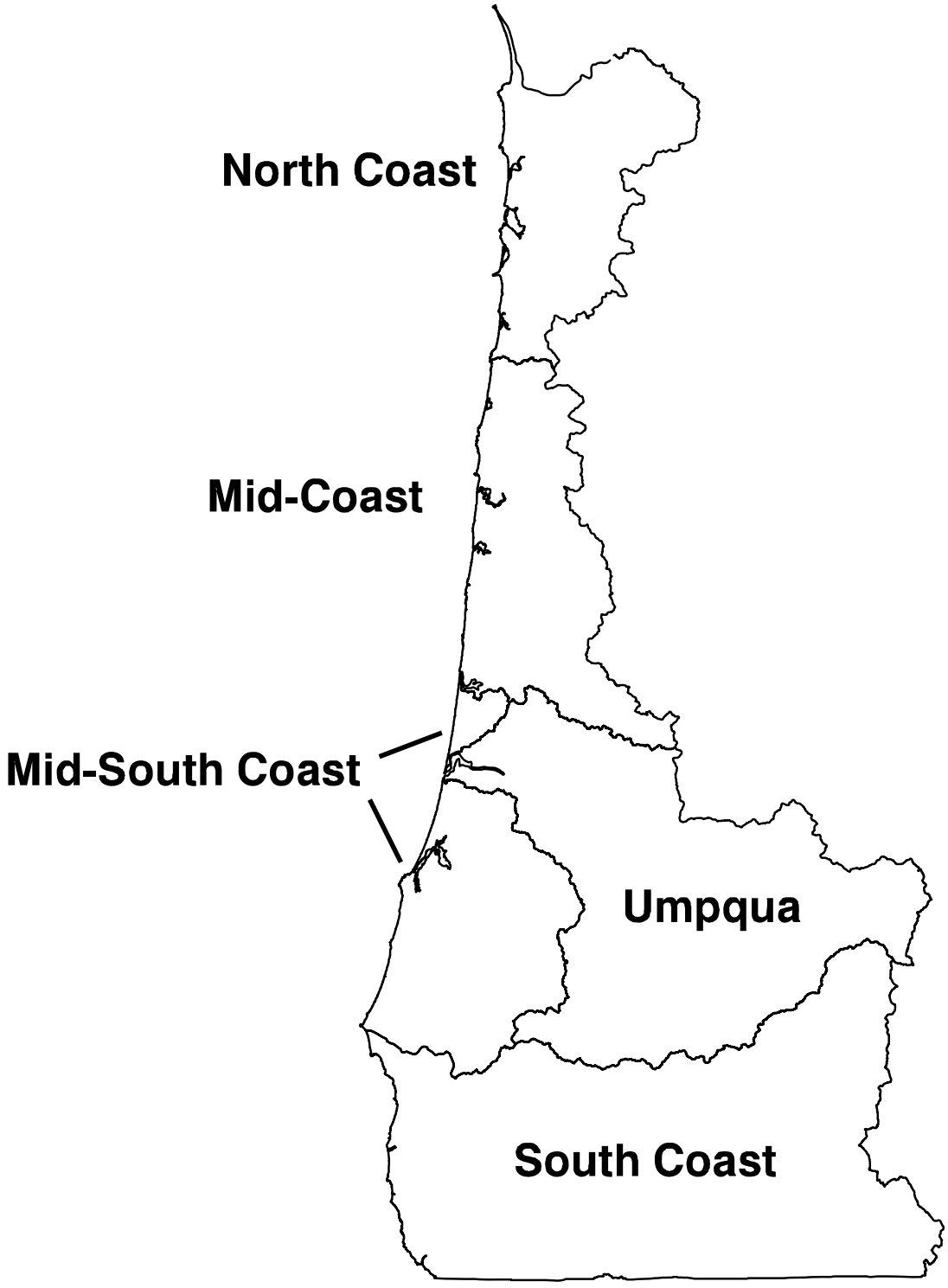

Figure 1. Location of five Monitoring Areas for coho salmon and steelhead along the Oregon Coast.

Table 1. Summary of juvenile salmonid datasets used in 2005 to test differences in average percent pool occupancy and average fish density. Datasets with common letters were compared. NC= North Coast, MC=Mid Coast, MS=Mid-South Coast, UMP=Umpqua, and SC-NR=South Coast Non-Rogue. Steelhead and cutthroat subsets in the South Coast were based on known steelhead distribution in those streams, and were divided into [1]non-Rogue Basin sites and [2]Rogue Basin sites. [3]See Methods for description of South Coast coho dataset for 4th-5th order streams.

	1st-3rd order coho stream frame					4th-5th order steelhead stream frame				
Monitoring Area	NC	MC	MS	UMP	SC-NR[1]	NC	MC	MS	UMP	SC-NR[1]
Coho										
Mid Coast	a					x				
Mid-South Coast	a	a				x	x			
Umpqua	a	a	a			x	x	x		
South Coast[3]	a	a	a	a		x	x	x	x	
Steelhead										
Mid Coast	b					y				
Mid-South Coast	b	b				y	y			
Umpqua	b	b	b			y	y	y		
South Coast[1]	b	b	b	b		y	y	y	y	
South Coast[2]	b	b	b	b	b	y	y	y	y	y
Cutthroat										
Mid Coast	c					z				
Mid-South Coast	c	c				z	z			
Umpqua	c	c	c			z	z	z		
South Coast[1]	c	c	c	c		z	z	z	z	
South Coast[2]	c	c	c	c	c	z	z	z	z	z

Results and Discussion

In previous annual reports we included abundance data for individual sites, plotted for each species and stream order group (1st-3rd order and 4th-5th order). In this report we provide only MA-level summaries, but include Appendix 1 as a summary table for site data. Outputs from GIS referenced maps that spatially summarize fish abundance at individual sites are available by request from the Western Oregon Rearing Project.

Site Visitation

A summary table of sample sites, including UTM coordinates and fish count summaries is found in Appendix 1. As in the previous year the Mid Coast contained the most tributary sites that were sampled (snorkeled or electrofished), and the South Coast contained the fewest (Table 2). The Mid-South Coast and Umpqua had the highest number of sites that could not be sampled, primarily due to lack of water. Site access denial was highest in the South Coast and North Coast. A total of 29 coho tributary sites (18% of sites) and 8 steelhead tributary sites (13% of sites) that were snorkeled were

revisited for fish counts by supervisory staff. When resurveys of juvenile salmonid counts from coho tributaries were regressed on original surveys (Figure 2), the calculated slope of the relationships were 0.9616x (steelhead; r^2=0.95), 0.9619x (coho; r^2=0.96), and 0.8845x (cutthroat; r^2=0.79), indicating high agreement between initial survey counts and resurveys.

Table 2. Summary of site visits of randomly selected sites in 2005 for juvenile salmonid surveys in Oregon coastal Monitoring Areas. Refer to Table 1 and Methods section for explanation of superscripts at South Coast sites. Note that data for 4th-5th order sites for South Coast coho are not listed but are the total of the Non-Rogue and Rogue steelhead sites.

	Sampled			Not Sampled							
	Snorkeled		Electro-fished	Could Not Be Sampled		Above Barrier		Access Denied		Not Visited	
Monitoring Area	1st - 3rd order	4th - 5th order	1st - 3rd order	1st - 3rd order	4th - 5th order	1st - 3rd order	4th - 5th order	1st - 3rd order	4th - 5th order	1st - 3rd order	4th - 5th order
North Coast	35	11	12	2	7	1	0	8	0	1	0
Mid-Coast	43	12	1	1	3	2	0	1	0	1	0
Mid-South Coast	28	11	4	5	3	1	0	5	1	3	0
Umpqua	33	12	8	5	0	3	2	4	0	0	0
South Coast[3]	31	-	0	1	-	0	-	7	-	0	-
South Coast[1]	31	4	0	0	0	6	0	1	0	0	0
South Coast[2]	21	9	0	4	0	2	0	5	2	1	2

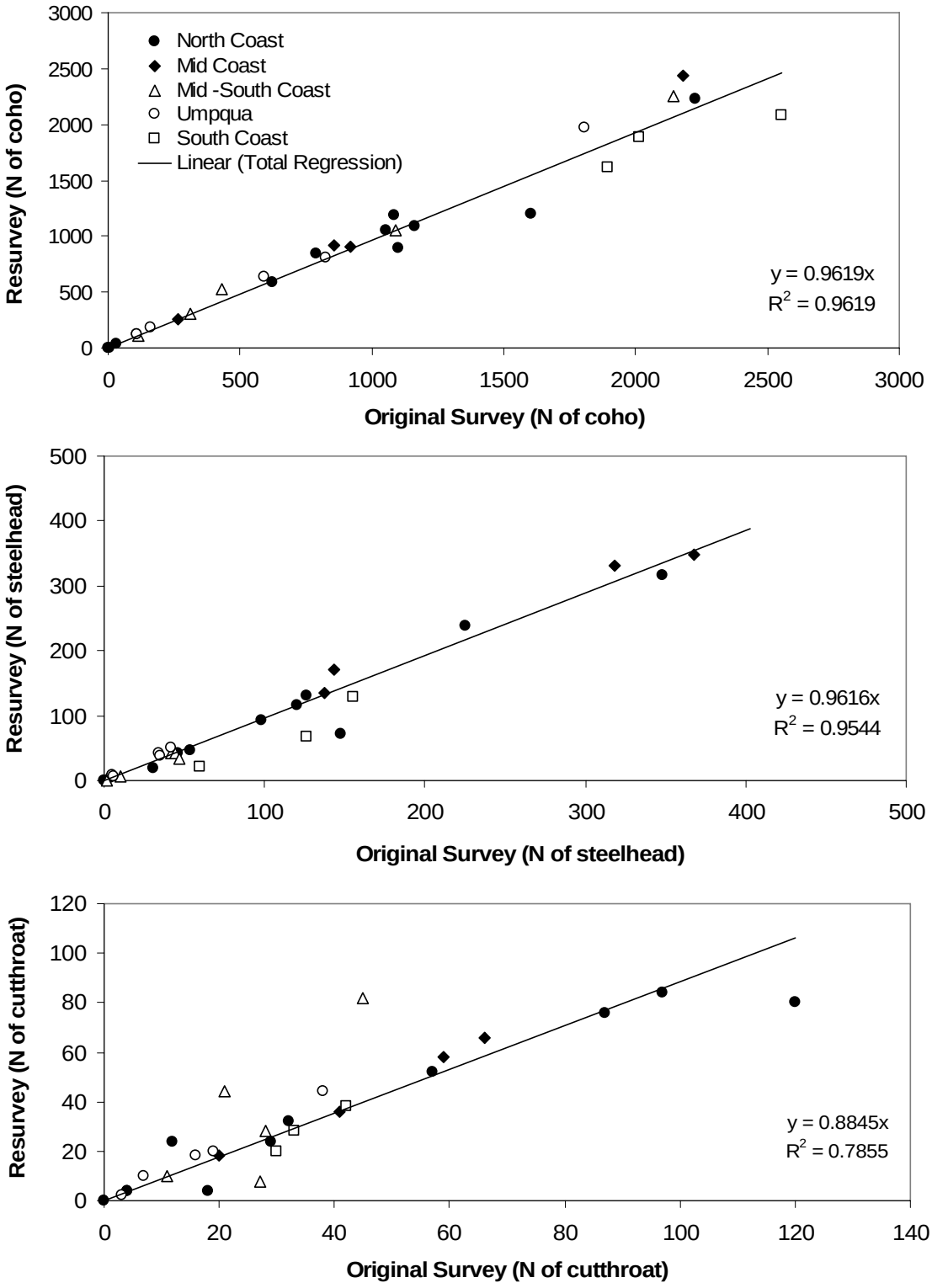

Figure 2. The relationship between original snorkel counts of the number of juvenile salmonids in pools and resurvey of the same pools, subdivided by monitoring area in 2005. Symbols are individual sites, and total linear regression line and model results are for all sites combined.

Juvenile Salmonid Frequency of Occurrence

Coho

Coho occurred in 73-94% of the 1st-3rd order stream sites, were more widespread among Mid-South and Mid Coast sites, and as in previous years least widespread among Umpqua sites (Table 3). Within the 1st-3rd order stream sites of an MA, the average percent pool occupancy ranged between 63% (Umpqua and North Coast) to 75% (South Coast). There were no statistical differences in mean percent pool occupancy between the MA's, for either tributary or mainstem sites (Table 4). Plots of percent pool occupancy in 1st-3rd order stream reaches illustrate the extent to which juvenile coho are distributed among pools for each site (Figures 3-4). All monitoring areas had more than 50% of sites with > 50% pool occupancy.

In comparisons between the 2002 and 2005 brood year cycle (for adult spawners in 2001 and 2004, respectively) none of the MA's had differences in pool occupancies between the brood years (Table 5).

Steelhead

Steelhead occurred in 66-78% of the 1st-3rd order sites (excluding South Coast sites). For South Coast sites selected from steelhead distributions, steelhead were present at 94% and 89% of sites in the non-Rogue and Rogue basins, respectively (Table 3). The average percent pool occupancy ranged from 30% (Umpqua) to 46% (North Coast) for 1st-3rd order stream sites. Non-Rogue and Rogue basin1st-3rd order stream sites had significantly greater pool occupancy than comparable streams in other MA's (Table 4). There were no differences between 4th-5th order sites (Table 4).

Cutthroat

Cutthroat occurred in 66-94% of 1st-3rd order stream sites (excluding South Coast sites). For South Coast sites selected from steelhead distributions, cutthroat trout were present at 94% and 77% of sites in the non-Rogue and Rogue basins, respectively (Table 3). The average percent pool occupancy ranged from 22% (Umpqua) to 43% (North Coast) for 1st-3rd order stream sites. As with steelhead, there were no differences between 4th-5th order sites (Table 4), and with the exception of Non-Rogue 4th-5th order stream sites (where 91% of pools contained cutthroat) there was no consistent trend of larger streams having great pool occupancy than smaller streams.

Table 3. The occurrence of juvenile salmonids observed by snorkeling or electrofishing in Oregon coastal streams in 2005. sthd=steelhead, cutt=cutthroat. Refer to Table 1 and Methods section for explanation of superscripts at South Coast sites. Cells with no data at South Coast sites are from spatially unbalanced site selection.

	%of sites with at least one Juvenile Fish			Mean Percent Pool Occupancy (and 95% CI)			Median Percent Pool Occupancy		
Monitoring Area	coho	sthd	cutt	coho	sthd	cutt	coho	sthd	cutt
1st - 3rd order streams									
North Coast	78	78	83	63(9)	46(7)	43(7)	87	50	38
Mid Coast	86	75	84	69(8)	32(7)	29(5)	86	22	23
Mid-South Coast	94	78	94	76(10)	42(8)	41(8)	91	45	43
Umpqua	73	66	66	63(11)	30(7)	22(7)	86	24	12
South Coast[3]	81	-	-	75(12)	-	-	94	-	-
South Coast[1]	-	94	94	-	78(8)	42(8)	-	88	43
South Coast[2]	-	89	77	-	67(11)	27(11)	-	76	17
4th - 5th order streams									
North Coast	82	91	91	67(23)	69(16)	72(16)	100	86	83
Mid Coast	67	58	67	43(11)	24(10)	30(3)	57	12	37
Mid-South Coast	91	100	100	66(19)	63(18)	44(11)	67	67	31
Umpqua	50	100	42	31(18)	25(14)	18((12)	11	3.5	0
South Coast[3]	27	-	-	4(4)	-	-	0	-	-
South Coast[1]	-	100	100	-	91(14)	45(24)	-	100	30
South Coast[2]	-	70	30	-	57(25)	12(12)	-	72	0

Table 4. *P*-values for tests of significance (Z statistic) for comparisons of the mean percent pool occupancy by juvenile salmonids for coastal Monitoring Areas sampled in 2005. Significant differences are bolded. Refer to Table 1 for key to header abbreviations and explanation of superscripts at South Coast sites.

	1st-3rd order streams					4th-5th order streams				
Monitoring Area	NC	MC	MS	UMP	SC-NR	NC	MC	MS	UMP	SC-NR
Coho										
Mid Coast	0.3530					0.3586				
Mid-South Coast	0.0692	0.2825				0.3948	0.4456			
Umpqua	0.9561	0.3859	0.0928			0.3905	0.4382	0.3917		
South Coast[3]	0.1252	0.4032	0.9034	0.1482		0.3321	0.3407	0.3323	0.3505	
Steelhead										
Mid Coast	**0.0077**					0.3537				
Mid-South Coast	0.5116	0.0664				0.3898	0.5630			
Umpqua	**0.0024**	0.7165	**0.0290**			0.3729	0.5019	0.3791		
South Coast[1]	**0.0000**	**0.0000**	**0.0000**	**0.0000**		0.3717	0.4977	0.3778	0.4866	
South Coast[2]	**0.0021**	**0.0000**	**0.0005**	**0.0000**	0.0917	0.4234	0.6812	0.4360	0.6595	0.5351
Cutthroat										
Mid Coast	**0.0029**					0.3291				
Mid-South Coast	0.7825	**0.0149**				0.3588	0.4266			
Umpqua	**0.0001**	0.1270	**0.0006**			0.3632	0.4390	0.3961		
South Coast[1]	0.8928	**0.0099**	0.8945	**0.0004**		0.4145	0.5874	0.4892	0.8059	
South Coast[2]	**0.0191**	0.7498	**0.0423**	0.4462	**0.0326**	0.3611	0.4332	0.3924	0.5321	0.3906

Table 5. Differences in the mean percent pool occupancy for juvenile coho in 1st - 3rd order streams sampled in each coastal Monitoring Area for the brood cycle 2002-2005.

Monitoring Area	Difference in means	*P* for difference	
North Coast	7.5	0.233	No difference
Mid Coast	1.5	0.820	No difference
Mid-South Coast	9.5	0.259	No difference
Umpqua	3.1	0.694	No difference
South Coast	8.2	0.297	No difference

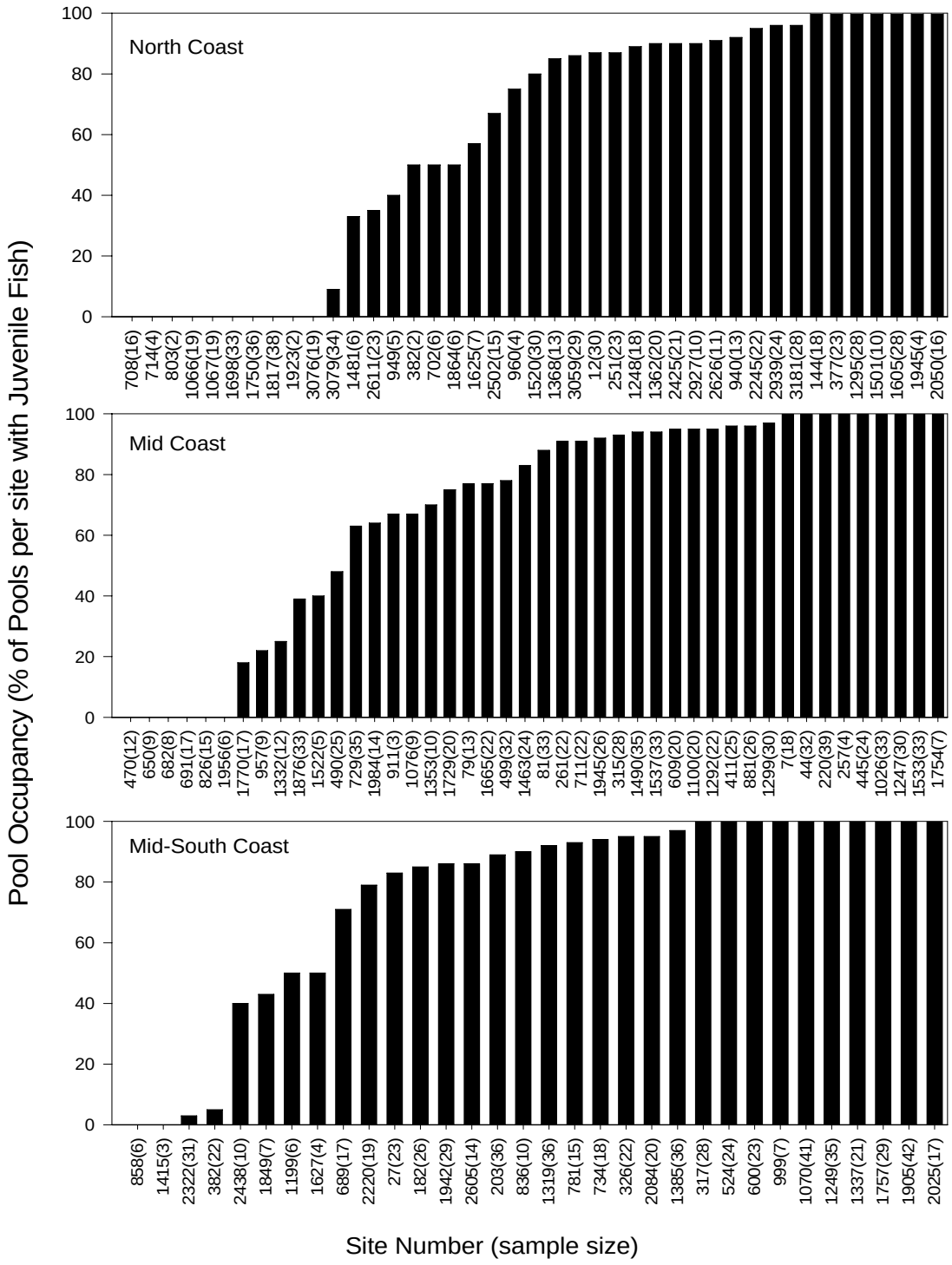

Figure 3. Percent occupancy in pools by juvenile coho in 1st-3rd order stream reaches of the North Coast, Mid Coast, and Mid-South Coast monitoring areas, summer 2005. See Appendix 1 for additional site data.

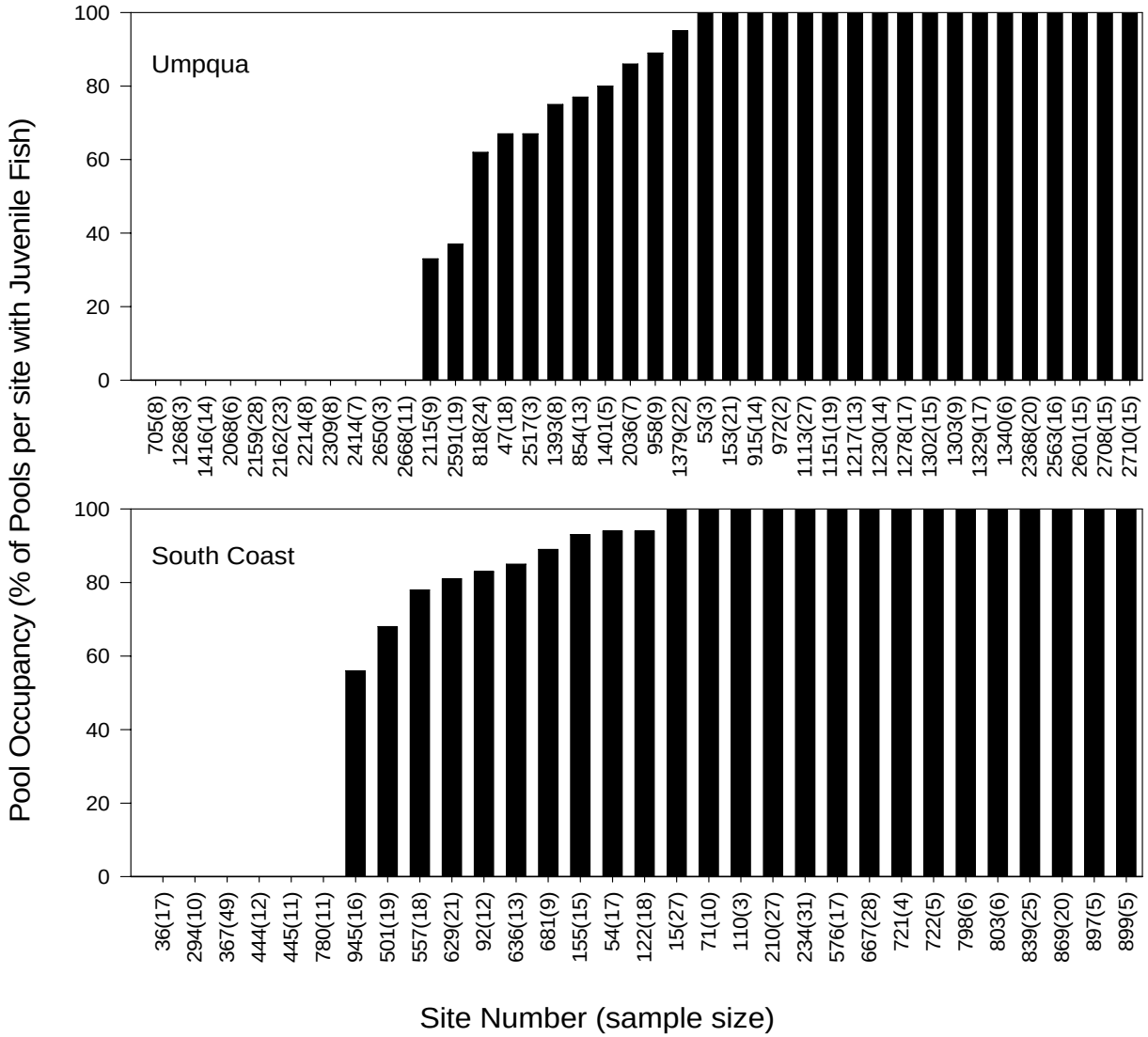

Figure 4. Percent occupancy in pools by juvenile coho in 1st-3rd order stream reaches of the Umpqua and South Coast monitoring areas, summer 2005. See Appendix 1 for additional site data.

Juvenile Salmonid Density

Coho

Average pool densities for coho in 1st-3rd order stream sites (Table 6) were between 0.23 fish/m^2 (Mid Coast) and 0.83 fish/m^2 (South Coast). The three most southern monitoring areas had significantly higher densities than the other MA's in 1st-3rd order stream sites (Table 7). There were no differences in densities at 4th-5th order stream sites.

The percentage of 1st-3rd order stream sites with juvenile coho densities $\geq$0.7 fish/m^2 (Table 6; full seeding level) were greater in the three southern MA's (>32%) than in the two northern MA's. Seeding levels $\geq$0.7 fish/m^2 were not achieved in any MA for 4th-5th order stream reaches. Sites within a monitoring area had a range of juvenile coho densities, illustrating the relative degree to which sites were fully seeded (Figures 5-6).

The results of Z-tests for differences in the mean pool density of juvenile coho observed for the same brood cycles (sample years 2002 and 2005, for fish spawned in 2001 and 2004, respectively) are summarized in Table 8. As in previous brood cycle years comparisons, there were no significant differences in juvenile coho densities between the years at any MA.

Steelhead

Average pool densities of steelhead in 1st-3rd order streams (Table 6) were between 0.04 fish/m^2 (Umpqua and Mid Coast) and 0.09 fish/m^2 (South Coast Rogue basin). South Coast Rogue basin sites had statistically higher steelhead densities than other MA's except the North Coast (Table 7). Steelhead densities in 4th-5th order streams were not different between the MA's. Steelhead densities were low in 4th-5th order sites, ranging between <0.01 -0.07 fish/m^2.

Cutthroat

Average pool densities of cutthroat in 1st-3rd order streams (Table 6) were between 0.01 fish/m^2 (Mid Coast and Umpqua) and 0.03 (North Coast and Mid-South Coast). North Coast densities were greater in 1st-3rd order sites than all other MA's except the Mid-South (Table 7). Average cutthroat densities were low in larger order streams, and did not differ between MA's.

Table 6. Density (fish/m^2) of juvenile fish in pools from snorkeler counts within coastal Monitoring Areas in 2005. sthd=steelhead, cutt=cutthroat. Refer to Table 1 and Methods section for explanation of superscripts at South Coast sites. Cells with no data at South Coast sites are from spatially unbalanced site selection.

Monitoring Area	Percent of sites with mean pool density ≥ 0.7 coho/m^2	Mean density (95% CI) of Juvenile Fish			Median density of Juvenile Fish		
		coho	sthd	cutt	coho	sthd	cutt
1st - 3rd order streams							
North Coast	18	0.36(0.12)	0.07(0.03)	0.03(0.00)	0.26	0.03	0.02
Mid Coast	2	0.23(0.07)	0.04(0.03)	0.01(0.00)	0.15	0.01	0.01
Mid-South Coast	32	0.64(0.22)	0.05(0.03)	0.03(0.02)	0.41	0.03	0.01
Umpqua	34	0.65(0.25)	0.04(0.02)	0.01(0.02)	0.44	0.01	<0.01
South Coast[3]	48	0.83(0.26)	-	-	0.69	-	-
South Coast[1]	0	-	0.06(0.01)	0.02(0.00)	-	0.05	0.01
South Coast[2]	5	-	0.09(0.03)	0.02(0.02)	-	0.08	<0.01
4th - 5th order streams							
North Coast	0	0.05(0.08)	0.01(0.01)	<0.01(0.00)	0.02	<0.01	<0.01
Mid Coast	0	<0.01(0.03)	<0.01(0.00)	<0.01(0.00)	<0.01	<0.01	<0.01
Mid-South Coast	0	0.07(0.03)	0.01(0.01)	<0.01(0.00)	0.03	0.02	<0.01
Umpqua	0	0.04(0.01)	<0.01(0.00)	<0.01(0.00)	<0.01	<0.01	<0.01
South Coast[3]	0	<0.01(0.00)	-	-	<0.01	-	-
South Coast[1]	-	-	0.07(0.04)	<0.01(0.00)	-	0.06	<0.01
South Coast[2]	-	-	0.01(0.01)	<0.01(0.00)	-	<0.01	<0.01

Table 7. *P*-values for tests of significance (Z statistic) for comparisons of the mean density of juvenile salmonids in pools for coastal Monitoring Areas sampled in 2005. Significant differences are bolded. Refer to Table 1 for key to header abbreviations and explanation of superscripts at South Coast sites.

	1st-3rd order streams					4th-5th order streams				
Monitoring Area	NC	MC	MS	UMP	SC-NR	NC	MC	MS	UMP	SC-NR
Coho										
Mid Coast	0.0611					0.3630				
Mid-South Coast	**0.0276**	**0.0004**				0.7382	0.4187			
Umpqua	**0.0480**	**0.0018**	0.9859			0.8027	0.4045	0.6165		
South Coast[3]	**0.0014**	**0.0000**	0.2778	0.2025		0.3258	0.4056	0.3228	0.3271	
Steelhead										
Mid Coast	0.2254					0.3315				
Mid-South Coast	0.3715	0.8141				0.5629	0.4006			
Umpqua	0.0825	0.8041	0.6149			0.3315	0.6547	0.3309		
South Coast[1]	0.4593	0.3819	0.6332	0.0715		0.6547	0.3315	0.6732	0.3340	
South Coast[2]	0.1752	**0.0079**	**0.0278**	**0.0002**	**0.0056**	0.4922	0.4328	0.4829	0.4553	0.9298
Cutthroat										
Mid Coast	**0.0053**					0.3297				
Mid-South Coast	0.7901	0.0804				0.3705	0.8415			
Umpqua	**0.0061**	0.7815	0.0713			0.3361	0.6547	0.3563		
South Coast[1]	**0.0288**	0.8231	0.1176	0.6892		0.4496	0.5271	0.6160	0.5271	
South Coast[2]	**0.0232**	0.8911	0.1080	0.7450	0.9429	0.3297	0.5271	0.3427	0.5271	0.3352

Table 8. Differences in mean density in pools for juvenile coho in 1st - 3rd order streams sampled in each coastal Monitoring Area for the brood cycle 2002-2005.

Comparison	Difference in Means	*P* for difference
North Coast	0.02	0.824
Mid Coast	0.06	0.300
Mid-South Coast	0.21	0.267
Umpqua	0.24	0.119
South Coast	0.36	0.099

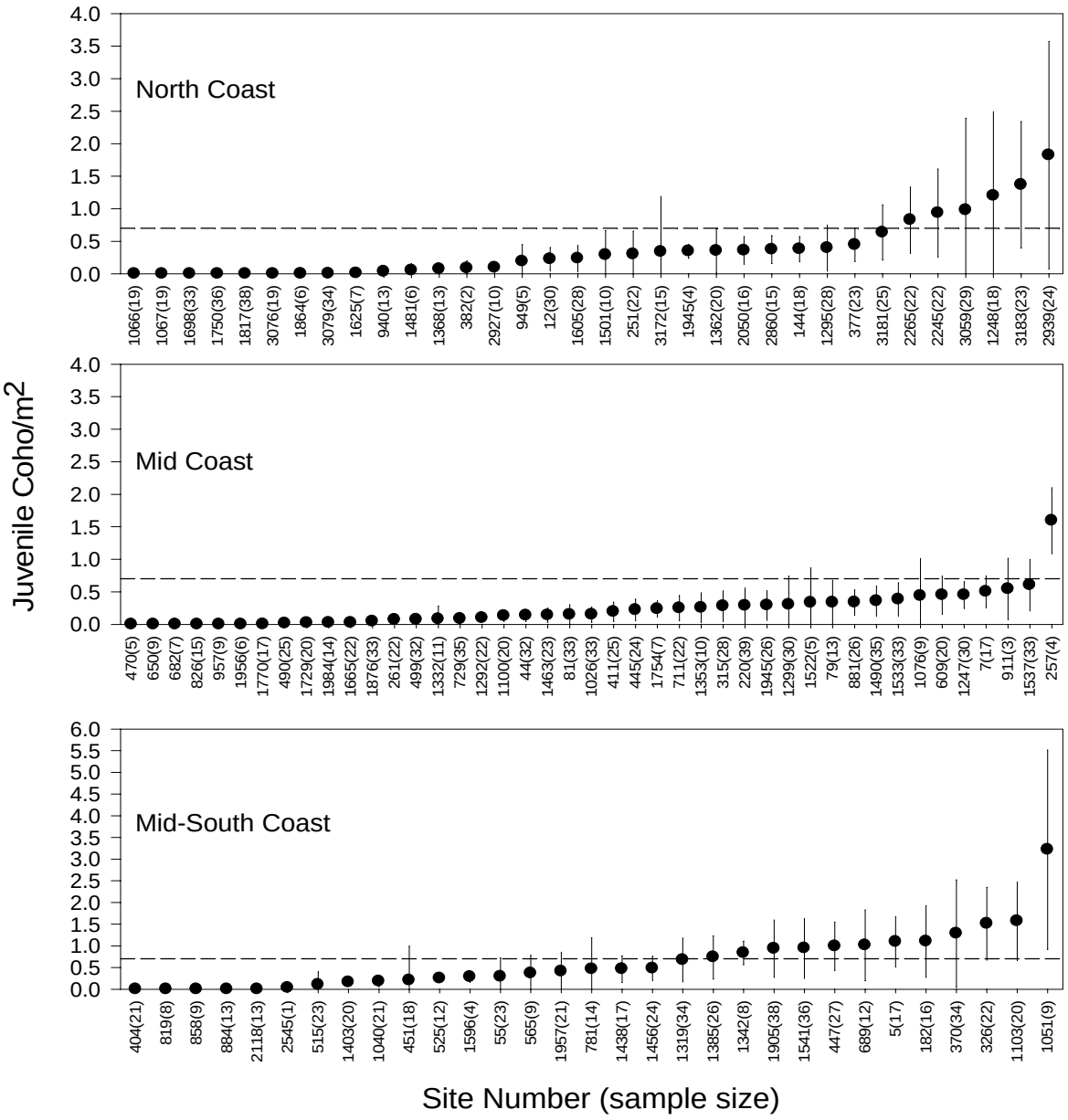

Figure 5. Mean density (and standard deviation) in pools of juvenile coho at 1st-3rd order stream reaches in North Coast, Mid Coast, and Mid-Souh Coast monitoring areas, summer of 2005. The reference line at 0.7 coho/m^2 represents a baseline for full seeding level of juvenile coho in Oregon coastal streams. See Appendix 1 for additional site data.

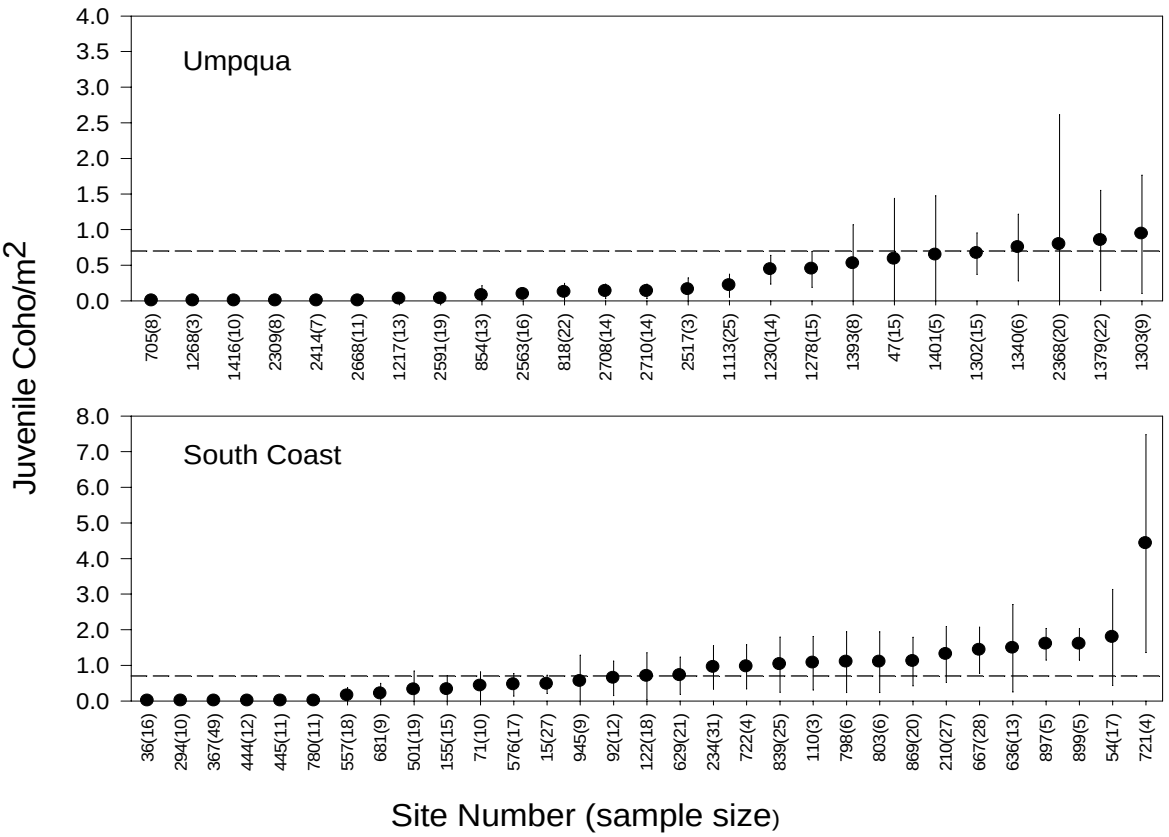

Figure 6. Mean density (and standard deviation) in pools of juvenile coho at 1st-3rd order stream reaches in the Umpqua and South Coast monitoring areas, summer of 2005. The reference line at 0.7 coho/m^2 represents a baseline for full seeding level of juvenile coho in Oregon coastal streams. See Appendix 1 for additional site data.

Juvenile Coho Population Trend and Comparison to Adult Abundance

At the monitoring area scale, juvenile coho pool densities correspond to some extent with adult coho spawner estimates within the same MA's (Oregon Adult Salmon Inventory and Sampling [http://nrimp.dfw.state.or.us/crl/default.aspx?pn=OASIS]. In the North Coast, juvenile coho densities have increased with adult densities, but the data are better fit with a logistic curve that has a density dependent term in the equation (F-test *p* values in Figure 7). For the Mid Coast, adult numbers have increased in recent years but mean MA juvenile densities have remained < 0.4 fish/m^2, suggesting some limitation in fresh water rearing potential, relative to other MA's. A logistic function was only slightly better at fitting these Mid Coast data (Figure 7). The Mid-South Coast has seen greater adult numbers the last few years, with corresponding linear increases in juvenile coho densities. A simple linear regression model explained 67% of the variation in juvenile coho densities, and there is no indication yet that juvenile rearing densities have reached a threshold. The Umpqua and South Coast produce fewer adults per mile than other MA's, but South Coast sites support a greater number of juvenile coho for a given number of adults, relative to other MA's, suggesting greater rearing capacity in South Coast streams (Figure 7).

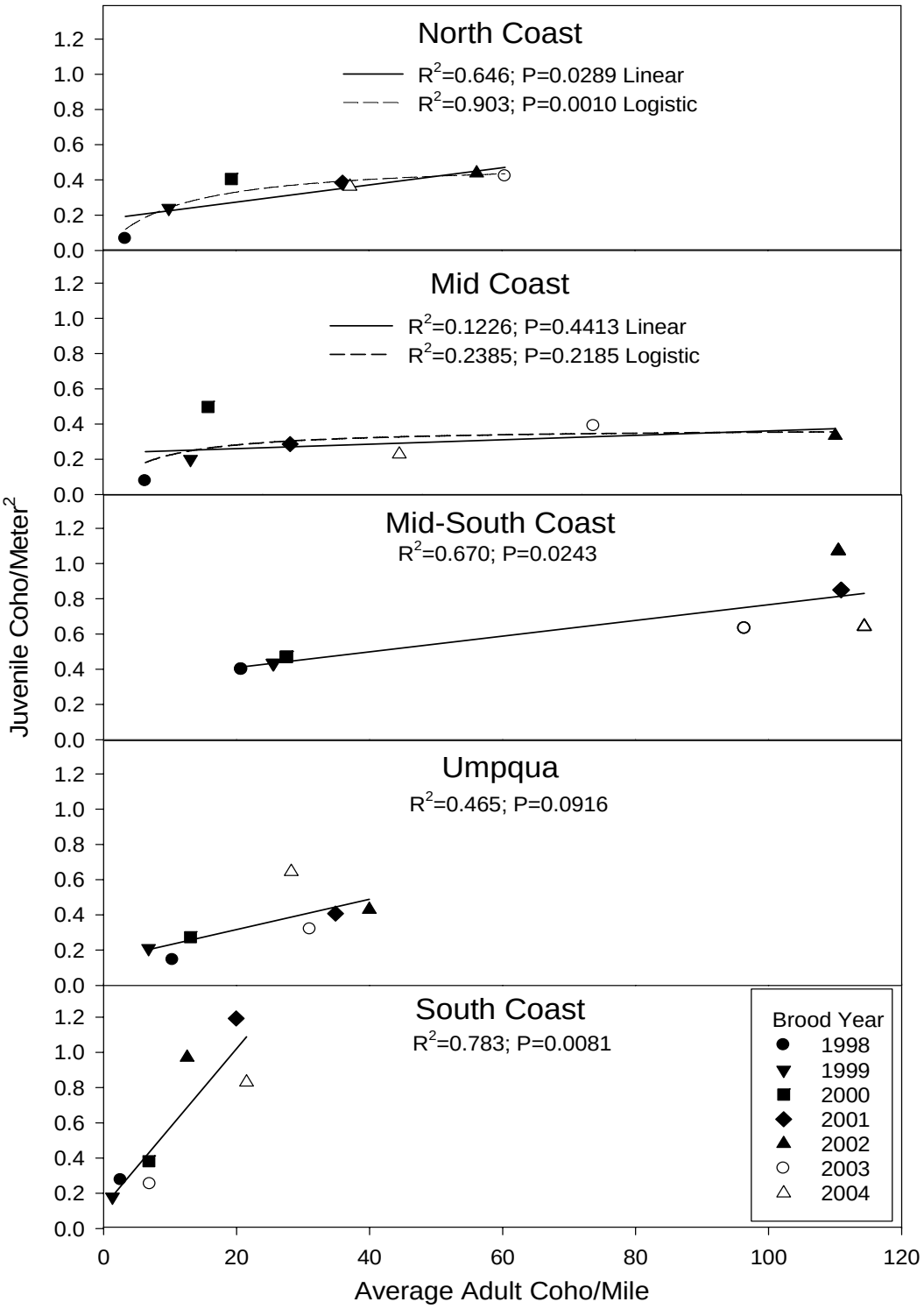

Figure 7. The relationship between the average number of juvenile coho/m^2 in 1st-3rd order stream reaches and the average adults/mile that produced them, for each of the five Monitoring Areas on the Oregon Coast, 1998-2005. Brood year refers to the year adult survey data were collected. Fitted lines are from the linear regression model with results displayed in each panel. A logistic model was also fit to the North and Mid Coast MA's, with results in the respective panels.

References

Jepsen, D. B. and Rodgers, J. D. 2004. Abundance monitoring of juvenile salmonids in Oregon coastal streams, 2002-2003. Monitoring Program Report Number OPSW-ODFW-2003-1, Oregon Department of Fish and Wildlife, Portland.

Appendix

Appendix 1. Location, sample sizes, average density, and percentage of pools containing juvenile salmonids at coastal Monitoring Area sites sampled in 2005. Bolded sites are 4th-5th order streams. Abbreviations for monitoring areas are: NC= North Coast, MC= Mid Coast, MS=Mid-South Coast, UMP=Umpqua, and SC=South Coast. South Coast sub-areas include 1st-3rd order streams within coho distribution (coho), and steelhead streams found in the Rogue basin (R sthd) and non-Rogue basins (NR sthd). Abbreviations for fish species are: Sthd= Steelhead, and Cutt=Cutthroat.

Monitoring Area	Site	Basin Name, Subbasin Name	Reach Name	UTM-east	UTM-north	Density (fish/m^2)		Occupancy (% of pools per site with fish)			
						N pools	Coho	N pools	Coho	Sthd	Cutt
NC	12	Trask River, South Fork	Boundary Cr	457348.6	5022158	30	0.225	30	87	80	90
NC	144	Nestucca River, Mainstem	Nestucca R	461795.8	5016608	18	0.378	18	100	78	61
NC	251	Nestucca River, Mainstem	Horn Cr	427358.8	5007700	22	0.301	23	87	78	65
NC	377	Nestucca River, Mainstem	Powder Cr	448286.6	5010847	23	0.444	23	100	78	96
NC	382	Nestucca River, Mainstem	Mina Cr	451372.2	5010014	2	0.083	2	50	0	0
NC	702	Nestucca River, Beaver Creek	N Beaver Cr	430313	5021375	0	-	6	50	0	67
NC	708	Tillamook River, Mainstem	Joe Cr	435237.5	5024816	0	-	16	0	0	0
NC	714	Tillamook River, Mainstem	Tillamook R	434912.7	5022172	0	-	4	0	0	0
NC	803	Trask River, Mainstem	Bear Cr	439332.7	5029654	0	-	2	0	0	0
NC	940	Nestucca River, Beaver Creek	Beaver Cr	435486.7	5014703	13	0.033	13	92	77	100
NC	949	Neskowin Creek, Mainstem	Sloan Cr	428426.4	4990915	5	0.188	5	40	40	0
NC	960	Neskowin Creek, Mainstem	Prospect Cr	426263.9	4992506	0	-	4	75	0	75
NC	1066	Nehalem River, North Fork	Lost Cr	444161.6	5069962	19	0.000	19	0	16	21
NC	1067	Nehalem River, North Fork	Lost Cr	444060.7	5070843	19	0.000	19	0	16	21
NC	1248	Nehalem River, Rock Creek	Rock Cr, S Fk	466271	5068555	18	1.198	18	89	94	0
NC	1295	Nehalem River, Mainstem	Wolf Cr, N Fk	472596.9	5069572	28	0.397	28	100	21	32
NC	1362	Nehalem River, Salmonberry R	Salmonberry R	462627.8	5061366	20	0.353	20	90	90	20
NC	1368	Nehalem River, Salmonberry R	Salmonberry R	463834.6	5061399	13	0.072	13	85	100	54
NC	1481	Rover Creek, Mainstem	Little Muddy Cr	426890	5090648	6	0.052	6	33	83	33
NC	1501	Necanicum River, Mainstem	Necanicum R	431563.5	5084432	10	0.290	10	100	70	70
NC	1520	Rover Creek, Mainstem	Volmer Cr	429592.3	5084341	0	-	30	80	70	83
NC	1605	Nehalem River, North Fork	Nehalem R, Little N Fk	445503.9	5079392	28	0.234	28	100	36	36
NC	1625	Nehalem River, North Fork	Nehalem R, N Fk	442867.8	5072986	7	0.009	7	57	43	29
NC	1698	Elk River,	Elk River	377610.1	4739545	33	0.000	33	0	18	39

Monitoring Area	Site	Basin Name, Subbasin Name	Reach Name	UTM-east	UTM-north	Density (fish/m^2)		Occupancy (% of pools per site with fish)			
						N pools	Coho	N pools	Coho	Sthd	Cutt
NC	1750	Nehalem River, Mainstem	Brush Creek	383160.5	4726743	36	0.000	36	0	94	58
NC	1817	Kilchis River, Main Stem	Sharp Cr	437287.9	5045051	38	0.000	38	0	26	32
NC	1864	Kilchis River, Main Stem	Kilchis R	438235.5	5045367	6	0.001	6	50	50	50
NC	1923	Kilchis River, Main Stem	Mapes Cr	435079.2	5041309	0	-	2	0	0	0
NC	1945	Tillamook River, Mainstem	Vaughn Cr	433294.3	5040188	4	0.346	4	100	50	75
NC	2050	Nehalem River, Mainstem	Foley Cr	434693.9	5057499	16	0.358	16	100	75	56
NC	2191	Nehalem River, Mainstem	Walker Cr	463048.7	5092724	0	-	25	100	68	52
NC	2245	Nehalem River, Mainstem	Walker Cr	462371.7	5098552	22	0.933	22	95	55	55
NC	2265	Nehalem River, Mainstem	Hamilton Cr	456452.4	5090918	22	0.826	23	100	39	43
NC	2425	Nehalem River, Rock Creek	Illinois River	417728.2	4701878	0	-	21	90	14	19
NC	2502	Nehalem River, Mainstem	Calvin Cr	477264.4	5093654	0	-	15	67	13	13
NC	2611	Nehalem River, Mainstem	Messing Cr	480951.3	5093916	0	-	23	35	22	30
NC	2626	Nehalem River, Mainstem	Deep Cr	476189.9	5086107	0	-	11	91	0	0
NC	2860	Trask River, North Fork	Elkhorn Cr	465409.2	5032137	15	0.372	15	100	100	100
NC	2927	Wilson River, Mainstem	Jordan Cr	454419.2	5042699	10	0.096	10	90	100	90
NC	2939	Wilson River, Mainstem	Ben Smith Cr	459762.3	5047942	24	1.823	24	96	88	21
NC	3059	Trask River, North Fork	Clear Cr, #2	461649.5	5036338	29	0.979	29	86	69	52
NC	3076	Wilson River, Mainstem	Jordan Cr	461752.5	5044252	19	0.000	19	0	0	84
NC	3079	Wilson River, Mainstem	Jordan Cr	461227.1	5043868	34	0.003	34	9	56	91
NC	3172	Nehalem River, Mainstem	Nehalem R	476942	5067334	15	0.337	15	100	53	13
NC	3181	Nehalem River, Mainstem	Castor Cr	478145.6	5064589	25	0.635	28	96	0	7
NC	3183	Nehalem River, Mainstem	Nehalem R	477857.8	5064618	23	1.369	23	100	57	30
NC	**11370**	Nestucca River, Mainstem	Little Nestucca River	429297.2	4998210	10	0.007	10	20	30	30
NC	**11380**	Wilson River, Mainstem	Wilson River	451825.4	5040720	5	0.000	5	0	100	100
NC	**11400**	Nehalem River, Mainstem	Nehalem River	480153.8	5076813	9	0.018	9	78	11	0
NC	**11410**	Trask River, Mainstem	Trask River	443981.6	5032109	7	0.023	7	100	86	86
NC	**11420**	Trask River, North Fork	North Fork Trask River	463740.3	5034590	6	0.122	6	100	50	83
NC	**11450**	Nehalem River, Mainstem	Nestucca River	440346.7	5013989	2	0.014	2	100	100	100
NC	**11460**	Trask River, Mainstem	South Fork Trask River	452490.1	5030538	6	0.026	6	100	100	83
NC	**11480**	Nehalem River, Mainstem	Nehalem River	486575.9	5078142	4	0.000	4	0	0	25
NC	**11490**	Wilson River, Mainstem	Wilson River	441041.2	5034920	4	0.097	4	100	100	100
NC	**11510**	Nestucca River, Mainstem	Nestucca River	430620.4	5009166	5	0.001	5	40	100	100
NC	**11530**	Nestucca River, Mainstem	Nestucca River	449166.9	5010755	6	0.195	6	100	83	83
MC	7	Alsea River, Five Rivers	Preacher Cr	442462.2	4902651	17	0.502	18	100	6	17

Monitoring Area	Site	Basin Name, Subbasin Name	Reach Name	UTM-east	UTM-north	Density (fish/m^2)		Occupancy (% of pools per site with fish)			
						N pools	Coho	N pools	Coho	Sthd	Cutt
MC	44	Alsea River, Five Rivers	Cascade Cr	431433.6	4907344	32	0.135	32	100	22	72
MC	79	Alsea River, Mainstem	Cow Cr	439290.3	4913451	13	0.336	13	77	77	23
MC	81	Alsea River, Five Rivers	Little Lobster Cr	443434.3	4906170	33	0.147	33	88	39	33
MC	220	Siuslaw River, Lake Creek	Rogers Cr	429201.9	4889735	39	0.286	39	100	31	62
MC	257	Siuslaw River, Lake Creek	Deadwood Cr, W Fk	436667.8	4893541	4	1.594	4	100	25	0
MC	261	Siuslaw River, Lake Creek	Deadwood Cr, W Fk	440252.6	4888737	22	0.069	22	91	27	55
MC	315	Siuslaw River, Lake Creek	Bear Cr	445915.4	4889752	28	0.280	28	93	11	36
MC	411	Alsea River, North Fork	Crooked Cr	457246.3	4919071	25	0.193	25	96	88	60
MC	445	Alsea River, South Fork	Swamp Cr	450652.1	4907107	24	0.221	24	100	63	21
MC	470	Siuslaw River, Wolf Creek	Wolf Cr	474465.7	4861781	5	0.000	12	0	0	0
MC	490	Siuslaw River, Wolf Creek	Wolf Cr	465625.3	4863425	25	0.015	25	48	0	20
MC	499	Siuslaw River, Wolf Creek	Swamp Cr	466577	4865889	32	0.071	32	78	0	13
MC	609	Siuslaw River, Mainstem	Clay Cr	454555.1	4861159	20	0.449	20	95	20	30
MC	650	Siuslaw River, South Fork	Siuslaw R, S Fk	483415.7	4847648	9	0.000	9	0	0	0
MC	682	Siuslaw River, Mainstem	Siuslaw R, N Fk	479084.1	4851998	7	0.000	8	0	0	0
MC	691	Siuslaw River, Mainstem	Hawley Cr	483297.7	4855114	0	-	17	0	0	0
MC	711	Siuslaw River, Mainstem	Lawson Cr, Trib B	421956.6	4868080	22	0.249	22	91	77	50
MC	729	Cape Creek, Mainstem	Wapiti Cr	413698.9	4886378	35	0.083	35	63	66	23
MC	826	Tenmile Creek, Mainstem	Mill Cr	414583	4895297	15	0.000	15	0	60	33
MC	881	Siuslaw River, Mainstem	Hadsall Cr, Trib D	432085.3	4871507	26	0.337	26	96	35	23
MC	911	Siuslaw River, Mainstem	Potato Patch Cr	452781.5	4871464	3	0.544	3	67	100	33
MC	957	Siuslaw River, Lake Creek	Deadwood Cr	439879.4	4884655	9	0.000	9	22	0	11
MC	1026	Yaquina River, Elk Creek	Spout Cr	445519.4	4933202	33	0.149	33	100	0	39
MC	1076	Yaquina River, Little Elk Creek	Oglesby Cr	442427.3	4942788	9	0.437	9	67	11	44
MC	1100	Siletz River, Rock Creek	Big Rock Cr	443189.3	4952759	20	0.129	20	95	15	55
MC	1247	Siletz River, Mainstem	Mill Cr, N Fk	439998.1	4957057	30	0.450	30	100	80	53
MC	1292	Siletz River, Mainstem	Euchre Cr	429210	4958458	22	0.098	22	95	95	45
MC	1299	Siletz River, Mainstem	Dewey Cr	425661.8	4952013	30	0.302	30	97	13	13
MC	1332	Yaquina River, Mainstem	W Olalla Cr, Trib A	426778.1	4945669	11	0.080	12	25	0	0
MC	1353	Yaquina River, Mainstem	Abbey Cr	429743.8	4942048	10	0.255	10	70	40	60
MC	1463	Cummins Cr, Mainstem	Cummins Cr	415211.4	4901871	23	0.139	24	83	75	63
MC	1490	Big Cr, Mainstem,Sfk,Dick'S Fk	Big Cr	414063.6	4912318	35	0.358	35	94	26	20
MC	1522	Alsea River, Drift Creek	Horse Cr	428322.4	4931168	5	0.333	5	40	0	80
MC	1533	Alsea River, Drift Creek	Cape Horn Cr	434055.7	4929983	33	0.383	33	100	15	21

Monitoring Area	Site	Basin Name, Subbasin Name	Reach Name	UTM-east	UTM-north	Density (fish/m^2)		Occupancy (% of pools per site with fish)			
						N pools	Coho	N pools	Coho	Sthd	Cutt
MC	1537	Beaver Creek, Mainstem	Elkhorn Cr	422105.3	4927621	33	0.602	33	94	48	33
MC	1665	Alsea River, Five Rivers	Five Rivers	434528.6	4903408	22	0.025	22	77	9	18
MC	1729	Alsea River, South Fork	Box Canyon Creek	423271.7	4679128	20	0.021	20	75	5	20
MC	1754	Alsea River, South Fork	S Fork Chetco River	418701.8	4665406	7	0.235	7	100	14	0
MC	1770	Siuslaw River, Wolf Creek	Wolf Cr	457644.9	4867106	17	0.001	17	18	0	6
MC	1876	Big Creek, Mainstem & S Fk	Big Cr	411595.3	4891212	33	0.044	33	39	33	27
MC	1945	Siletz River, Drift Creek	Drift Cr	432061.8	4972944	26	0.291	26	92	88	46
MC	1956	Siletz River, Mainstem	Wildcat Cr	435177.4	4960914	6	0.000	6	0	67	17
MC	1984	Siletz River, Drift Creek	Drift Cr	422944.3	4973076	14	0.023	14	64	21	14
MC	**12490**	Siuslaw River, Mainstem	Siuslaw River	445859.1	4875840	7	0.000	7	0	0	14
MC	**12510**	Siuslaw River, Mainstem	Siuslaw River	438955.2	4877203	6	0.000	6	0	0	0
MC	**12520**	Alsea River, Mainstem	Alsea River	435739	4914067	6	0.001	6	67	50	50
MC	**12530**	Siuslaw River, Mainstem	Siuslaw River	448093.9	4866838	2	0.000	2	0	0	0
MC	**12560**	Siletz River, Mainstem	Siletz River	435926.7	4953397	7	0.002	7	57	71	57
MC	**12570**	Siuslaw River, Mainstem	Siuslaw River	441978.2	4877838	12	0.000	12	0	17	0
MC	**12580**	Siletz River, Mainstem	Siletz River	425937.6	4957689	3	0.001	3	67	33	67
MC	**12590**	Alsea River, Mainstem	Alsea River	445709.2	4912286	5	0.000	5	60	0	40
MC	**12600**	Yachats River, Mainstem	Yachats River	414855.5	4905920	9	0.045	9	100	44	33
MC	**12610**	Siuslaw River, Mainstem	Wolf Creek	456498.8	4865668	0	-	15	60	7	0
MC	**12630**	Alsea River, Mainstem	Alsea River	433478.8	4911048	0	-	7	43	0	43
MC	**12640**	Siletz River, Mainstem	Siletz River	441454.2	4967136	7	0.002	7	57	71	57
MS	27	Coos River, South Fork	Lake Cr	447080.3	4793925	23	0.338	23	83	43	39
MS	182	Coquille River, South Fork	Ward Cr	399330.3	4766084	24	0.701	26	85	19	4
MS	203	Coquille River, Mainstem	Bear Cr	394765.1	4766446	30	2.970	36	89	25	44
MS	317	Fourmile Cr, Mainstem	Fourmile Cr	389212.7	4761159	28	0.641	28	100	64	36
MS	326	Fourmile Cr, Mainstem	Fourmile Cr	391436.7	4760010	21	1.114	22	95	55	41
MS	382	Coquille River, East Fork	Yankee Run, Trib C	417515.6	4779004	0	-	22	5	0	32
MS	524	Coquille River, North Fork	Middle Cr	422277.5	4787999	24	0.402	24	100	58	50
MS	600	Coquille River, East Fork	Elk Cr	420877.4	4774424	23	0.994	23	100	57	39
MS	689	Coquille River, North Fork	Johns Cr	413716.1	4769824	17	0.497	17	71	29	24
MS	734	Coquille River, Middle Fork	Sandy Cr	428269.1	4762407	16	0.120	18	94	0	22
MS	781	Coquille River, South Fork	Salmon Cr	409609.1	4744205	14	0.242	15	93	73	73
MS	836	Coquille River, South Fork	Coquille R, S Fk	412826.8	4734312	10	0.067	10	90	100	60
MS	858	Sixes River, Main Stem	Sixes R	393274.2	4739671	6	0.000	6	0	100	67

Monitoring Area	Site	Basin Name, Subbasin Name	Reach Name	UTM-east	UTM-north	Density (fish/m^2)		Occupancy (% of pools per site with fish)			
						N pools	Coho	N pools	Coho	Sthd	Cutt
MS	999	Coos River, Millicoma River	Deer Cr, Trib B	423228.2	4829311	7	2.354	7	100	57	71
MS	1070	Coos River, Millicoma River	Elk Cr	424701.7	4818931	40	0.910	41	100	34	0
MS	1199	Coos River, South Fork	Rogers Cr	414926.9	4802068	6	1.318	6	50	17	100
MS	1249	Coquille River, North Fork	Coquille R, N Fk	427083	4796162	32	0.827	35	100	71	74
MS	1319	Coos River, South Fork	Wren Smith Cr	412671.4	4796837	36	0.259	36	92	64	11
MS	1337	Coquille River, North Fork	Coquille R, N Fk	419041.7	4796503	21	0.657	21	100	52	57
MS	1385	Coos River, Millicoma River	Millicoma R, E Fk	429197.5	4807560	36	0.622	36	97	61	64
MS	1415	Coos River, Mainstem	Sullivan Cr	411892.9	4813604	2	0.000	3	0	100	67
MS	1627	Coos River, Mainstem	Cox Canyon	393614.7	4791324	0	-	4	50	0	75
MS	1757	Tahkenitch Creek, Fivemile Cr	Panther Creek	395887.2	4724929	29	0.360	29	100	0	59
MS	1849	Siltcoos River, Maple Creek	Grant Cr	417821.6	4863971	0	-	7	43	0	0
MS	1905	Coos River, South Fork	Williams R	445541.9	4787215	41	1.133	42	100	50	48
MS	1942	Coquille River, Mainstem	Hall Cr	398698.2	4768517	26	0.252	29	86	21	14
MS	2025	Coquille River, North Fork	Middle Cr	415527.9	4780019	17	0.196	17	100	47	47
MS	2084	Sixes River, North Fork	Sixes R, N Fk	401755.1	4746509	20	0.301	20	95	15	10
MS	2220	Sixes River, Mainstem	Chetco River	405933.6	4674653	19	0.053	19	79	100	5
MS	2322	Tenmile Creek, Eel Lake	Eel Cr	404474.2	4826673	0	-	31	3	0	10
MS	2438	Coos River, Millicoma River	Packard Cr	417115.2	4806061	10	0.265	10	40	40	60
MS	2605	Tahkenitch Creek, Fivemile Cr	Tahkenitch Lake	414465.9	4851521	12	0.415	14	86	0	14
MS	**13390**	Coquille River, Mainstem	S Fork Coquille River	409944.9	4754601	10	0.026	10	30	30	20
MS	**13400**	Coos River, Millicoma River	Et Fork Millicoma River	422427.4	4811514	7	0.148	7	100	100	86
MS	**13410**	not identified	Williams River	438610.9	4796951	17	0.369	17	100	94	59
MS	**13430**	Coquille River, Mainstem	E Fork Coquille River	430484.3	4777020	16	0.000	16	0	6	31
MS	**13440**	Coquille River, Mainstem	S Fork Coquille River	412651.3	4735772	11	0.008	11	27	73	27
MS	**13450**	Coquille River, Mainstem	M Fork Coquille River	423786.6	4763202	12	0.089	12	100	58	25
MS	**13470**	Coquille River, Mainstem	S Fork Coquille River	408976.2	4752118	9	0.012	9	67	67	44
MS	**13480**	Coos River, Millicoma River	E Fork Millicoma River	417658.8	4809169	6	0.029	6	100	50	67
MS	**13490**	Coquille River, Mainstem	M Fork Coquille River	438851.8	4757820	28	0.058	28	57	86	25
MS	**13510**	Coquille River, Mainstem	E Fork Coquille River	416833.2	4775041	4	0.041	4	100	100	75
MS	**13520**	Coos River, Mainstem	S Fork Coos River	421976.1	4803923	4	0.005	4	50	25	25
UMP	17	Umpqua River, Elk Creek	Buck Cr	483627.8	4838951	0	-	17	18	0	41
UMP	47	Umpqua River, Elk Creek	Bennet Cr	486822	4828471	15	0.585	18	67	50	11
UMP	53	Umpqua River, Elk Creek	Dodge Canyon	479471.7	4831550	1	0.952	3	100	0	0
UMP	153	Umpqua River, South Umpqua	Elgarose Cr	460635	4786895	0	-	21	100	24	14

Monitoring Area	Site	Basin Name, Subbasin Name	Reach Name	UTM-east	UTM-north	Density (fish/m^2)		Occupancy (% of pools per site with fish)			
						N pools	Coho	N pools	Coho	Sthd	Cutt
UMP	705	Umpqua River, South Umpqua	Middle Cr, S Fk	464706.7	4743386	8	0.000	8	0	75	0
UMP	818	Umpqua River, South Umpqua	Wood Cr	487845.1	4759656	22	0.117	24	63	4	13
UMP	854	Umpqua River, South Umpqua	Canyon Cr	477373.5	4753488	13	0.075	13	77	77	69
UMP	915	Umpqua River, South Umpqua	Wood Cr	467640.5	4736439	13	2.233	14	100	57	7
UMP	958	Umpqua River, South Umpqua	Clear Cr	480004.8	4737943	0	-	9	89	0	89
UMP	972	Umpqua River, South Umpqua	Bull Run Cr	479943.1	4733624	2	4.500	2	100	0	100
UMP	1113	Umpqua River, Mainstem	Wolf Cr	450688.5	4811470	25	0.214	27	100	74	41
UMP	1151	Umpqua River, Mainstem	Lutsinger Cr	442103.3	4831091	16	1.078	19	100	74	63
UMP	1217	Umpqua River, Smith River	Wassen Cr	427363.5	4845195	13	0.023	13	100	23	15
UMP	1230	Umpqua River, Smith River	Gold Cr	441856.4	4858233	14	0.437	14	100	64	36
UMP	1268	Umpqua River, Smith River	Moore Cr	439100.1	4857323	3	0.000	3	0	0	0
UMP	1278	Umpqua River, Smith River	Johnson Cr	434897.7	4852447	15	0.444	17	100	53	41
UMP	1302	Umpqua River, Smith River	Crane Cr	439064.1	4855146	15	0.663	15	100	47	13
UMP	1303	Umpqua River, Smith River	Crane Cr	439410.2	4854316	9	0.935	9	100	33	0
UMP	1329	Umpqua River, Smith River	Big Cr, Trib A	445892.6	4846712	16	1.876	17	100	24	24
UMP	1340	Umpqua River, Smith River	Blind Cr	447785.6	4845876	6	0.749	6	100	50	33
UMP	1379	Umpqua River, Smith River	Scare Cr	439960.7	4847603	22	0.847	22	95	55	64
UMP	1393	Umpqua River, Mainstem	Wells Cr	435809.8	4836901	8	0.521	8	75	63	38
UMP	1401	Umpqua River, Mainstem	Cedar Cr	449343.5	4836895	5	0.642	5	80	20	0
UMP	1416	Umpqua River, Mainstem	Weatherly Cr	446938.5	4839566	10	0.000	14	0	14	0
UMP	2036	Umpqua River, Calapooya Creek	Banks Cr	486475.8	4804777	4	1.289	7	86	0	0
UMP	2068	Umpqua River, Calapooya Creek	Banks Cr	485922.3	4803433	0	-	6	0	0	0
UMP	2115	Umpqua River, Calapooya Creek	Cabin Cr	474449.6	4815414	0	-	9	33	0	0
UMP	2159	Umpqua River, Calapooya Creek	Oldham Cr	483974.4	4811998	0	-	28	0	0	0
UMP	2162	Umpqua River, Calapooya Creek	Oldham Cr	482143.4	4810961	0	-	23	0	0	9
UMP	2214	Umpqua River, North Umpqua	Sutherlin Cr	475677.3	4803826	0	-	8	0	0	13
UMP	2309	Umpqua River, South Umpqua	Falcon Cr	537075	4759974	8	0.000	8	0	38	0
UMP	2368	Umpqua River, South Umpqua	Boulder Cr	517781.2	4768580	20	0.790	20	100	95	90
UMP	2414	Umpqua River, South Umpqua	Black Canyon Cr	525233.6	4754576	7	0.000	7	0	14	0
UMP	2517	Umpqua River, South Umpqua	Shively Cr	486706.3	4748309	3	0.156	3	67	0	0
UMP	2563	Umpqua River, South Umpqua	Cow Cr, W Fk	440293.1	4742050	16	0.090	16	100	69	19
UMP	2591	Umpqua River, South Umpqua	S Myrtle Cr	483565.2	4763065	19	0.027	19	37	5	11
UMP	2601	Umpqua River, South Umpqua	Shively Cr	488730.3	4752667	15	1.149	15	100	47	27
UMP	2650	Umpqua River, Mainstem	Dean Cr	419352.5	4837865	0	-	3	0	0	0

Monitoring Area	Site	Basin Name, Subbasin Name	Reach Name	UTM-east	UTM-north	Density (fish/m^2)		Occupancy (% of pools per site with fish)			
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UMP	2668	Umpqua River, Mainstem	Mill Cr	431950	4828309	11	0.000	11	0	0	9
UMP	2708	Umpqua River, Smith River	Smith R, W Fk	439780.3	4854351	14	0.132	15	100	40	13
UMP	2710	Umpqua River, Smith River	Smith R, W Fk	439765.6	4854502	14	0.132	15	100	40	13
UMP	**14510**	Umpqua River, Mainstem	Calapooya Creek	470887.4	4806054	4	0.000	4	0	0	0
UMP	**14520**	Umpqua River, Mainstem	South Umpqua River	499166.9	4754434	4	0.000	4	0	0	0
UMP	**14530**	Umpqua River, Mainstem	Elk Creek	458345.8	4833495	2	0.000	2	0	0	0
UMP	**14550**	Umpqua River, Mainstem	North Umpqua River	500708.9	4796436	2	0.000	2	50	100	50
UMP	**14560**	Umpqua River, South Fork	Cow Creek	466477.5	4752283	4	0.000	4	0	0	0
UMP	**14570**	Umpqua River, Mainstem	Smith River	445346.1	4852661	14	0.001	14	21	7	0
UMP	**14580**	Umpqua River, Mainstem	South Umpqua River	515238.9	4764518	5	0.009	5	100	100	100
UMP	**14590**	Umpqua River, Mainstem	South Umpqua River	469057.3	4770852	3	0.000	3	0	0	0
UMP	**14600**	Umpqua River, South Fork	Cow Creek	459559.9	4731307	9	0.006	9	67	11	11
UMP	**14610**	Umpqua River, Mainstem	Elk Creek	454710.2	4832545	3	0.000	3	0	0	0
UMP	**14630**	Umpqua River, South Fork	Cow Creek	474285.1	4735055	16	0.460	16	100	19	19
UMP	**14640**	Umpqua River, Mainstem	North Umpqua River	517500.6	4797495	3	0.000	3	33	67	33
SC-coho	15	Rogue River, Mainstem	Grave Cr	477721.5	4719664	27	0.467	27	100	93	33
SC-coho	36	Rogue River, Mainstem	Grave Cr	486190.5	4727234	16	0.000	17	0	88	35
SC-coho	54	Rogue River, Mainstem	Sugarpine Cr	527054.1	4739737	17	1.783	17	94	65	47
SC-coho	71	Rogue River, Mainstem	Elk Cr	526247.3	4734750	10	0.419	10	100	70	40
SC-coho	92	Rogue River, Big Butte Creek	Big Butte Cr, S Fk	534700.4	4711625	12	0.637	12	83	42	50
SC-coho	110	Rogue River, Mainstem	Little Butte Cr, N Fk	535485.1	4696153	3	1.062	3	100	100	0
SC-coho	122	Rogue River, Big Butte Creek	Big Butte Cr, N Fk	538069.4	4711060	18	0.694	18	94	33	11
SC-coho	155	Rogue River, Mainstem	Trail Cr, W Fk	512675.1	4724994	15	0.319	15	93	13	0
SC-coho	210	Rogue River, Mainstem	Evans Cr, W Fk	496286.6	4721645	27	1.305	27	100	52	30
SC-coho	234	Rogue River, Mainstem	Evans Cr, W Fk	491542.7	4723522	31	0.943	31	100	87	42
SC-coho	294	Rogue River, Mainstem	Quartz Cr	461510.8	4713830	10	0.000	10	0	50	30
SC-coho	367	Rogue River, Lobster Creek	Boulder Cr	402752.1	4719774	49	0.000	49	0	55	0
SC-coho	444	Rogue River, Illinois River	Josephine Cr	441254.7	4668604	12	0.000	12	0	33	17
SC-coho	445	Rogue River, Illinois River	Rough & Ready Cr, N Fk	435649.6	4659967	11	0.000	11	0	36	0
SC-coho	501	Rogue River, Illinois River	Grayback Cr	463732.2	4665615	19	0.312	19	68	16	0
SC-coho	557	Rogue River, Illinois River	Dunn Cr	449458.7	4649113	18	0.145	18	78	22	6
SC-coho	576	Rogue River, Illinois River	Illinois R, W Fk	436669.5	4651928	17	0.454	17	100	47	0
SC-coho	629	Rogue River, Mainstem	Soda Cr	540480.6	4688829	21	0.709	21	81	57	24
SC-coho	636	Rogue River, Mainstem	Lake Cr	530906.6	4695184	13	1.481	13	85	8	0

Monitoring Area	Site	Basin Name, Subbasin Name	Reach Name	UTM-east	UTM-north	Density (fish/m^2)		Occupancy (% of pools per site with fish)			
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SC-coho	667	Rogue River, Applegate River	Beaver Cr	495213.4	4662366	28	1.422	28	100	89	54
SC-coho	681	Rogue River, Mainstem	Pleasant Cr	486361.3	4709944	9	0.197	9	89	0	0
SC-coho	721	Rogue River, Mainstem	Louse Cr	473436	4705412	4	4.419	4	100	50	25
SC-coho	722	Rogue River, Mainstem	Louse Cr	472002.9	4704563	4	0.959	5	100	40	40
SC-coho	780	Rogue River, Applegate River	Thompson Cr	480360.6	4663472	11	0.000	11	0	18	73
SC-coho	798	Rogue River, Illinois River	Deer Cr, N Fk	463815.9	4681877	6	1.089	6	100	33	67
SC-coho	803	Rogue River, Illinois River	Deer Cr, N Fk	463855.4	4681531	6	1.089	6	100	33	67
SC-coho	839	Rogue River, Applegate River	Waters Cr	454262.7	4692316	25	1.020	25	100	68	28
SC-coho	869	Rogue River, Applegate River	Waters Cr	454508.3	4690840	20	1.107	20	100	55	30
SC-coho	897	Rogue River, Applegate River	Elliot Cr	458297.8	4689765	5	1.593	5	100	60	20
SC-coho	899	Rogue River, Applegate River	Elliot Cr	458361.3	4689367	5	1.593	5	100	60	20
SC-coho	945	Rogue River, Illinois River	Draper Cr	450613	4681416	9	0.548	16	56	13	0
SC-R sthd	2060	Rogue River, Illinois River	Lawson Creek	407300.6	4701054	12	0.000	12	0	100	8
SC-R sthd	2062	Rogue River, Mainstem	Big Windy Creek	440591.2	4721251	27	0.000	27	0	100	22
SC-R sthd	2063	Rogue River, Wood Creek	Trib of Wood Creek	443723.5	4653885	6	0.276	6	83	17	0
SC-R sthd	2064	Rogue River, Illinois River	Silver Creek	427885.1	4700271	12	0.004	12	25	100	33
SC-R sthd	2067	Rogue River, Applegate River	Little Applegate River	509934.7	4666549	11	0.000	11	0	91	9
SC-R sthd	2068	Rogue River, Taylor Creek	Secret Creek	445676.7	4697089	12	0.000	12	0	75	25
SC-R sthd	2070	Rogue River, Mainstem	Pickett Creek	456717.9	4703218	13	0.416	13	100	77	46
SC-R sthd	2072	Rogue River, Illinois River	West Fork Indigo Creek	428767.1	4709597	25	0.000	25	0	92	64
SC-R sthd	2074	Rogue River, Mainstem	Saunders Creek	389260.1	4699210	43	0.007	43	2	63	5
SC-R sthd	2075	Rogue River, Mainstem	Coyote Creek	473147.4	4725027	21	0.000	21	0	86	57
SC-R sthd	2076	Rogue River, Illinois River	Horse Sign Creek	414291.8	4701905	24	0.000	24	0	92	13
SC-R sthd	2077	Rogue River, Mainstem	Foots Creek	489075.3	4691188	2	0.000	2	0	0	0
SC-R sthd	2078	Rogue River, Mainstem	East Creek	421866.3	4723193	36	0.013	36	6	69	11
SC-R sthd	2079	Rogue River, Illinois River	Left Fork Sucker Creek	466203.4	4656559	22	0.000	22	0	86	68
SC-R sthd	2081	Rogue River, Applegate River	Star Gulch Creek	489589.2	4668814	8	0.010	8	13	100	63
SC-R sthd	2082	Rogue River, Mainstem	Reuben Creek	452720.8	4723310	28	0.177	28	46	93	29
SC-R sthd	**2425**	Rogue River, Applegate River	Applegate River	463315.7	4696665	3	0.000	3	33	100	0
SC-R sthd	**2426**	Rogue River, Illinois River	Illinois River	417728.2	4701878	2	0.000	2	0	100	0
SC-R sthd	**2428**	Rogue River, Illinois River	Illinois River	435368.4	4689515	2	0.000	2	0	100	0
SC-R sthd	**2429**	Rogue River, Illinois River	West Fork Illinois River	445344.5	4661449	8	0.000	8	0	25	0
SC-R sthd	**2430**	Rogue River, Mainstem	Grave Creek	458619.1	4721572	9	0.000	9	11	44	0
SC-R sthd	**2431**	Rogue River, Applegate River	Applegate River	491209.7	4675589	6	0.012	6	17	100	50

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SC-R sthd	**2432**	Rogue River, Illinois River	Illinois River	443128.6	4678943	2	0.000	2	0	100	50
SC-R sthd	**2433**	Rogue River, Applegate River	Applegate River	462476.2	4693567	0	-	2	0	0	0
SC-R sthd	1825	Rogue River, Elk Creek #2	Berry Creek	519352.8	4724639	1	0.000	1	0	0	0
SC-R sthd	1826	Rogue River, Mainstem	Dead Indian Creek	545765.9	4681432	12	0.000	12	0	8	0
SC-R sthd	1827	Rogue River, Big Butte Creek	Fourbit Creek	547030.6	4705256	16	0.000	16	0	38	100
SC-R sthd	1828	Rogue River, Mainstem	South Fork Reese Creek	521461.6	4710477	18	1.087	18	100	61	11
SC-R sthd	1830	Rogue River, Little Butte Creek	Lost Creek	534322.3	4688936	12	0.532	16	100	63	13
SC-R sthd	1831	Rogue River, Elk Creek	Elkhorn Creek	525602.6	4739238	14	0.044	15	33	53	27
SC-R sthd	**2307**	Rogue River, Big Butte Creek	S Fork Big Butte Creek	539831	4708784	4	0.000	5	0	0	20
SC-R sthd	**2308**	Rogue River, Mainstem	Little Butte Creek	514865.7	4700910	0	-	10	0	0	0
SC-NR sthd	1688	Winchuck River, Mainstem	Wheeler Creek	409571	4660287	15	0.000	15	0	87	60
SC-NR sthd	1689	Chetco River, N Fk Chetco River	Bosley Creek	395636.6	4671710	27	0.000	27	0	85	52
SC-NR sthd	1690	Chetco River, South Fork	Quail Prairie Creek	410127.8	4674306	26	0.000	26	0	88	38
SC-NR sthd	1692	Winchuck River, Wheeler Creek	unnamed trib	406443.8	4657563	21	0.000	21	0	48	90
SC-NR sthd	1693	Chetco River, Mainstem	Jack Creek	400311.9	4655261	39	0.355	39	100	74	49
SC-NR sthd	1694	Chetco River, Mainstem	Chetco River	420569.2	4682101	8	0.000	8	0	100	75
SC-NR sthd	1695	Brush Creek, Mainstem	Brush Creek	381995.3	4726960	21	0.150	21	86	95	81
SC-NR sthd	1696	Winchuck River, Mainstem	Sankey Creek	411516.4	4652321	13	0.000	13	0	77	15
SC-NR sthd	1697	Elk River, Mainstem	Blackberry Creek	398530.6	4728471	41	0.000	41	0	68	88
SC-NR sthd	1698	Hunter Creek, Mainstem	Hunter Creek	389368.7	4690908	25	0.000	25	0	96	24
SC-NR sthd	1699	Elk River, Mainstem	Elk River	430028.6	4676433	7	0.000	7	14	71	29
SC-NR sthd	1701	Hunter Creek, Mainstem	Big S Fork Hunter Creek	389805.9	4688708	40	0.001	40	8	65	35
SC-NR sthd	1704	Winchuck River, Mainstem	E Fork Winchuck River	410100	4656571	16	0.012	16	56	88	63
SC-NR sthd	1705	Chetco River, Mainstem	Emily Creek	404727.1	4664186	23	0.022	23	43	83	43
SC-NR sthd	1706	Chetco River, Mainstem	Chetco River	425514.7	4679612	16	0.000	16	0	100	19
SC-NR sthd	1707	Elk River, Panther Creek	West Fork Panther Creek	393621.1	4727251	20	0.209	22	86	73	5
SC-NR sthd	1709	Pistol River, Mainstem	Pistol River	394977.4	4681536	16	0.000	16	6	100	44
SC-NR sthd	1710	Chetco River, Mainstem	Boulder Creek	416200.9	4679164	40	0.000	40	0	100	20
SC-NR sthd	1711	Mussel Creek	unnamed Trib.	390151.8	4719493	13	0.010	13	8	15	54
SC-NR sthd	1712	Winchuck River, Mainstem	Wheeler Creek	410433.4	4662112	25	0.000	25	0	44	56
SC-NR sthd	1713	Pistol River, South Fork	South Fork Pistol River	393585.3	4675086	23	0.000	23	0	96	39
SC-NR sthd	1714	Chetco River, South Fork	South Fork Chetco River	409244.5	4671353	20	0.000	20	0	100	65
SC-NR sthd	1715	Elk River, Mainstem	Elk River	383000.4	4735596	7	0.154	7	71	100	57
SC-NR sthd	1716	Chetco River, Mainstem	Chetco River	424662.7	4669853	24	0.003	24	21	83	8

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SC-NR sthd	1717	Pistol River, South Fork	South Fork Pistol River	393654.9	4679746	18	0.000	18	0	94	61
SC-NR sthd	1718	Chetco River, Mainstem	Mislatnah Creek	411075.3	4682047	30	0.000	30	0	100	30
SC-NR sthd	1720	Chetco River, Mainstem	South Fork Chetco River	414774.8	4666380	22	0.000	22	0	100	18
SC-NR sthd	1721	Chetco River, N Fk Chetco River	unnamed Trib	394295.3	4669652	17	0.000	17	0	100	0
SC-NR sthd	1723	Elk River, Mainstem	Bald Mountain Creek	388832.2	4727619	26	0.000	26	0	0	8
SC-NR sthd	1724	Winchuck River, Mainstem	Wheeler Creek	406976.8	4656514	20	0.000	20	0	95	75
SC-NR sthd	1725	Pistol River, North Fork	North Fork Pistol River	395177.2	4686577	19	0.000	19	0	0	0
SC-NR sthd	**2215**	Pistol River, Mainstem	Pistol River	391748	4680880	23	0.001	23	4	100	30
SC-NR sthd	**2216**	Chetco River, Mainstem	Chetco River	407062.5	4678425	7	0.000	7	0	100	57
SC-NR sthd	**2217**	Chetco River, Mainstem	Chetco River	405253.9	4666739	4	0.000	4	0	100	25
SC-NR sthd	**2218**	Chetco River, Mainstem	Chetco River	409885.5	4680203	5	0.000	5	0	100	100
SC-NR sthd	**2219**	Chetco River, Mainstem	Chetco River	398959.1	4657928	6	0.000	7	0	57	14