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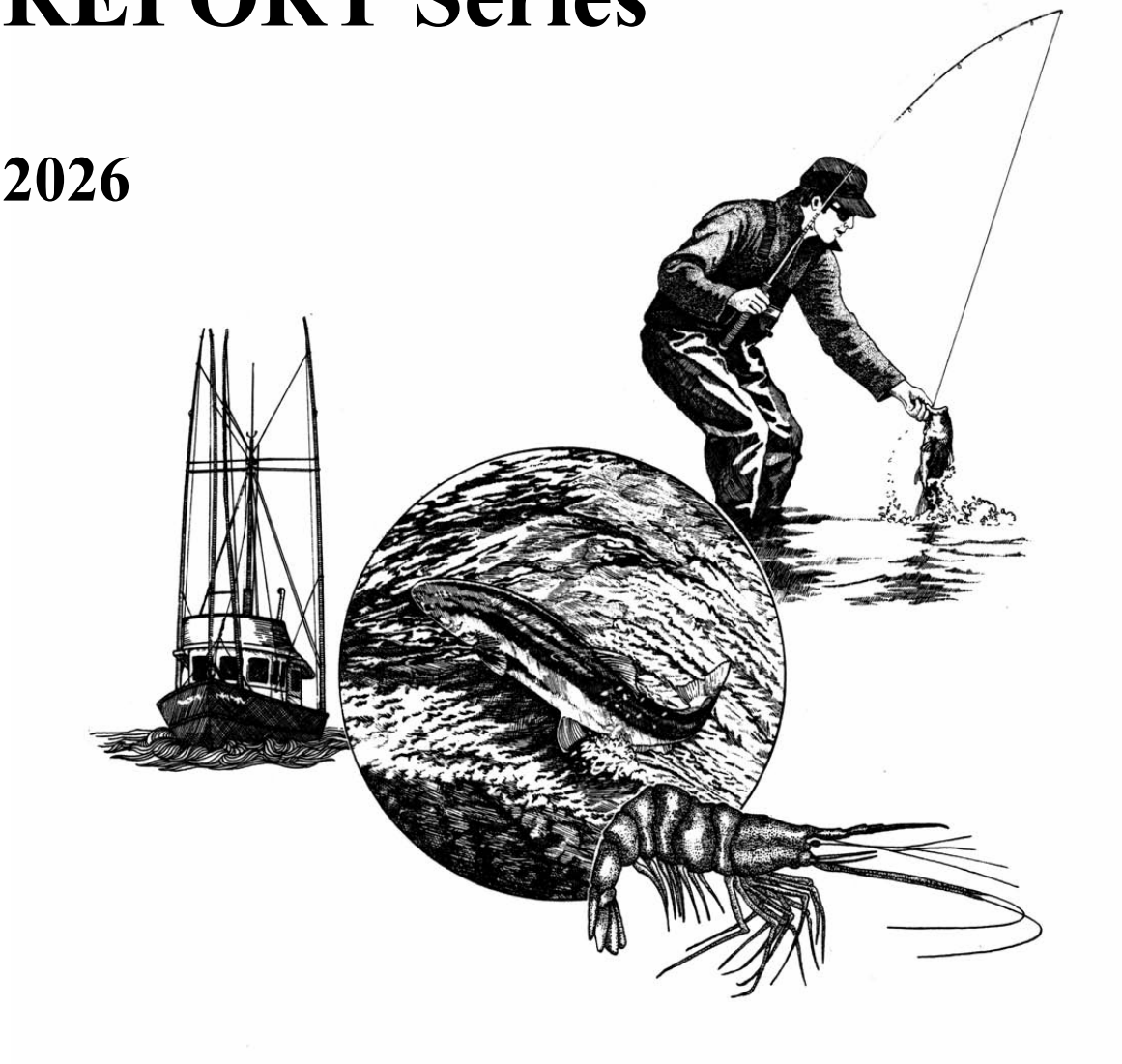
2026



Oregon Department of Fish and Wildlife

Juvenile Salmonid Monitoring in Coastal Oregon and Lower Columbia Streams, 2025 Field Season

Annual Monitoring Report No. OPSW-ODFW-2026-1

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ANNUAL PROGRESS REPORT
FISH RESEARCH PROJECT
OREGON

PROJECT TITLE: Juvenile Salmonid Monitoring in Coastal Oregon and Lower Columbia Streams, 2025 Field Season

PROJECT NUMBER: OPSW-ODFW-2026-1

PROJECT PERIOD: 2025

Prepared by: Ronald J. Constable, Jr. and Erik Suring

Oregon Department of Fish and Wildlife
4034 Fairview Industrial Drive SE
Salem, OR 97302

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SUMMARY

This report analyzed data from snorkel surveys for juvenile Coho Salmon (*Oncorhynchus kisutch*) and steelhead (*O. mykiss)* in 1st – 3rd order coastal Oregon streams. Data has been collected annually for Coho Salmon starting in 1998 and for steelhead starting in 2002. Trends in occupancy (surveys where fish were observed divided by total number of surveys) and relative abundance (expanded snorkel counts) of these species were estimated at the Evolutionarily Significant Unit (ESU), Distinct Population Segment (DPS), and strata scales. For past reports see: https://nrimp.dfw.state.or.us/DataClearinghouse/default.aspx?p=149.

Coho Salmon

Southern Oregon Northern California ESU: In 2025 abundance was 125,215 parr and occupancy was 55%. Abundance estimates have been low since 2010, relative to abundance from 2002-2009. Occupancy has been stable, aside from low estimates in 1998, 2012, and 2021. Occupancy has improved over the last four years from the lowest recorded estimate in 2021.

Oregon Coast Coho ESU: In 2025 the abundance estimate of 3 million parr and the occupancy estimate of 89% were similar to the mean for the ESU. Abundance has ranged between 2.6 and 4.9 million parr, after increasing from a mean of 910,000 in 1998-1999. Mean occupancy was 82% from 2002-2025, after increasing from the low estimates in 1998-2001. Parr per spawner rates suggest freshwater productivity was regulated by density dependence within our sampling frame at the spawner to parr life stage.

Lower Columbia River ESU: In 2025 abundance was 94,954 parr and occupancy was 59%. Both metrics suggested continued improvements from the low estimates in 2016-2018. Parr per spawner rates averaged 44% of the average rate in the OCC.

Steelhead

Klamath Mountains Province DPS: In 2025 the abundance estimate of 125,970 parr and the occupancy estimate of 90% were similar to the mean for the DPS. Abundance has been low in recent years (2014-2025), compared to the years at the start of our monitoring (2002-2013). Site occupancy has increased in the last six years since our lowest estimate was recorded in 2019. Since 2016, abundance and occupancy have been higher in the South Coast Stratum than in the Rogue Stratum.

Oregon Coast DPS: The 2025 abundance estimate of 159,992 parr was below the mean for the DPS. The 2025 occupancy estimate of 84%, was similar to the mean for the DPS. These metrics have been stable in the DPS, compared to the KMP, LCR, and SWW.

Lower Columbia River DPS: In 2025 the abundance estimate of 1,691 parr was the lowest recorded. Occupancy was 54% in 2025, which was similar to the mean for the DPS. Occupancy appears stable in the DPS. Abundance was lower in the last ten years (2016-2025) than in the first ten years (2006-2015), though trend detection was hampered by high variation.

Southwest Washington DPS: In 2025 abundance was 4,512 parr and occupancy was 59%. Abundance has been lower during the last ten years (2016-2025) than in the first ten years of our monitoring (2006-2015) but has improved recently over the low estimates from 2017 to 2019. Occupancy has been more stable, relative to abundance. Like the Lower Columbia River, high variation has hindered trend detection in this DPS.

BACKGROUND AND METHODS

Background and study design

This project was initiated by the Oregon Department of Fish and Wildlife (ODFW) in 1998 as one of the Oregon Plan for Salmon and Watersheds (OPSW) monitoring programs (State of Oregon 1997). Its objective is to determine trends in the distribution and abundance of Coho Salmon (*Oncorhynchus kisutch*) and steelhead (*Oncorhynchus mykiss)* parr in 1st – 3rd order Oregon coastal streams. These data inform conservation efforts and Endangered Species Act (ESA) status reviews. To achieve this objective, snorkel surveys were conducted at selected sites.

Survey site selection used a Generalized Random Tessellation Stratified (GRTS) design (Stevens 2002) to draw random, spatially balanced samples within Coho Salmon and steelhead freshwater rearing distributions. To evaluate status and trend a rotating panel design was incorporated into the site selection process (Stevens 2002). The design emulated the Coho Salmon three-year life cycle (reviewed by Weitkamp et. al 1995); a quarter of selected sites were placed on an annual rotation, a quarter were placed on a three-year rotation, a quarter were placed on a nine-year rotation, and a quarter were surveyed only once. Sites on an annual rotation provided trend detection capability and contributed to the representation of the area needed to estimate status. Sites on three and nine-year rotations augmented the ability to detect trends and the sample size for estimating status. Sites that were visited only once contributed to sample size for status and improved the representation of the rearing distribution. The selection process apportioned sites among 1st – 3rd order streams in the three Coho Salmon Evolutionarily Significant Units (ESUs), the four steelhead Distinct Population Segments (DPSs), and their strata within the boundaries of Western Oregon (Figures 1 and 2, respectively). In all but the KMP Rogue Stratum, steelhead parr are likely the progeny of winter run adults. Steelhead parr in the KMP Rogue Stratum are likely the progeny of winter and summer run adults.

The digital stream distribution network used for our sampling frame has been revised since 1998. In the Oregon portion of the Southern Oregon Northern California Coast Coho ESU (SONCC), sites were originally selected from a 1:100,000 (100k) scale sampling frame of 1st – 3rd order streams within presumed high quality Coho Salmon rearing habitat. In 2002, the scope was expanded to include the presumed steelhead rearing distribution in 1st – 6th order streams within the Oregon portion of the Klamath Mountains Province DPS (KMP). In 2012, the frames were revised based on surveys from 1998-2012 and converted to 1:24,000 (24k) scale. This revision included all putative freshwater Coho Salmon and steelhead habitat. Surveys in 4th – 6th order streams were discontinued in 2012 due to funding constraints. In 2019 the frames were again revised, and the Coho Salmon frame was stratified into high- and low-quality habitats based on Species Distribution Modeling. Distribution and abundance metrics for all years in this report were based on the 2019 revised frame. Coho Salmon metrics on the ESU scale and those based on high quality habitats in the Interior Rogue were comparable for all years. Steelhead metrics were comparable from 2002 to present in both strata of the DPS. A more detailed description of the SONCC/KMP frame history is given by Constable and Suring (2020).

In the Oregon Coast Coho ESU (OCC), sites were originally selected from a 100k sampling frame of 1st – 3rd order streams within the putative Coho Salmon summer rearing distribution. This original sampling frame was designed to include all Coho Salmon rearing habitat in these streams. In 2002, the scope was expanded to include 4th – 6th order streams within steelhead distribution. In 2007, the sampling frame was revised based primarily on 1998-2006 field work and converted to 24k scale. Due to funding constraints, surveys in 4th – 6th order streams were discontinued in 2009. The frame was again revised in 2012, and distribution and abundance metrics for all years in this report were based on the 2012 revision. Metrics for both species were comparable for all years, beginning in 1998 for Coho Salmon and 2002 for steelhead. OCC sampling frame and survey design processes before 2007 were described in detail by Jepsen and Rodgers (2004) and Jepsen and Leader (2007).

The Oregon portions of the Lower Columbia River ESU (LCR), Lower Columbia River DPS (LCR), and the Southwest Washington DPS (SWW) were added to the project in 2006. Sites were originally selected from a 100k scale sampling frame for 1st – 3rd order streams within the putative Coho Salmon rearing distribution and for 4th – 6th order streams within the putative steelhead rearing distribution. In 2007 the sampling frame was revised and converted to a 24k scale. In 2012, due to budget restrictions, surveys in 4th – 6th order streams were discontinued. The frame was again revised in 2012 and metrics for all years in this report were based on this revision. Annual occupancy and abundance metrics for both species in the region were comparable for all years.

Field Sampling

Selected sites were surveyed during the base flow period, usually mid-July to early October. Surveys proceeded in an upstream manner as described by Thurow (1994) and encompassed the GRTS point (x, y coordinates provided by selection process). Site length, pool length, pool depth, and average pool width were measured with either a hip chain, open reel tape, depth staff, or range finder. Pools were defined following the criteria of Moore et al. (1997). Pools ≥6m^2 in surface area and ≥20cm in maximum depth met the size criteria for snorkeling. Pool visibility was subjectively rated by the snorkeler based on their ability to observe and count fish (Rodgers 2000; Crawford 2011). Dive lights were used to improve visibility. All pools with adequate size and visibility were snorkeled and counts were made of juvenile Coho Salmon, juvenile steelhead ≥90 mm in fork length (FL, visually estimated), and cutthroat trout (*O. clarki*) ≥90 mm FL. Due to difficulties distinguishing O. *mykiss* and *O. clarki* <90mm FL, all trout in this range were classified as 0-aged trout and were not identified to species or used in analyses (Hawkins 1997, Roni and Fayram 2000). Target site length was 1km, but this could be adjusted if barriers to anadromy were encountered and to ensure the entirety of the final (most upstream) pool was snorkeled. Approximately 10% of sites were resurveyed by supervisory staff to evaluate adherence to survey protocols, observational difference among snorkelers, and the precision of counts.

From 1998 to 2009, pools that were ≥40cm in maximum depth were snorkeled. This criterion was lowered in 2010 to pools ≥20cm in maximum depth to allow larger and more consistent portions of juvenile salmonid rearing abundances to be sampled

(Constable and Suring 2023) and meet the recommendations of O'Neal (2007). Reports following the 2010 field season provide a primary analysis using the ≥40cm criterion and a secondary analysis using the ≥20cm criterion.

Survey effort goals were to snorkel at least 40 sites in each stratum. Analysis has shown this level of effort was required to meet guidelines recommended by Crawford and Rumsey (2011); for Coho Salmon, 95% confidence intervals for abundance estimates should be ≤30% of the estimate, and occupancy estimates should be sufficiently precise to detect a 15% change in occupancy with 80% certainty.

Data Analysis

Data are summarized by ESU, DPS, and stratum and pertain to 1st – 3rd order streams within rearing distributions (our sampling frame) for each area. Estimates of each metric, variances, and confidence intervals were created using tools developed by the Environmental Protection Agency Design and Analysis Team (Stevens 2002). In comparison tests a p-value ≤ 0.05 was considered to indicate a significant difference. The following metrics were estimated for Coho Salmon and steelhead:

- Site occupancy: The primary metric used to describe distribution. Site occupancy is the percent of sites where at least one individual of the target species was observed. Site occupancy was calculated by dividing the number of sites where the target species was observed by the number of sites surveyed for each stratum, ESU, or DPS.

- Pool frequency: A secondary metric used to describe distribution. Pool Frequency was the average percent of pools in a site that contain at least one individual of the target species. Pool frequency was first calculated at each site by dividing the number of pools where the target species was observed by the total number of surveyed pools. The resulting percent at each site was then averaged to obtain the pool frequency estimate within the stratum, ESU, or DPS.

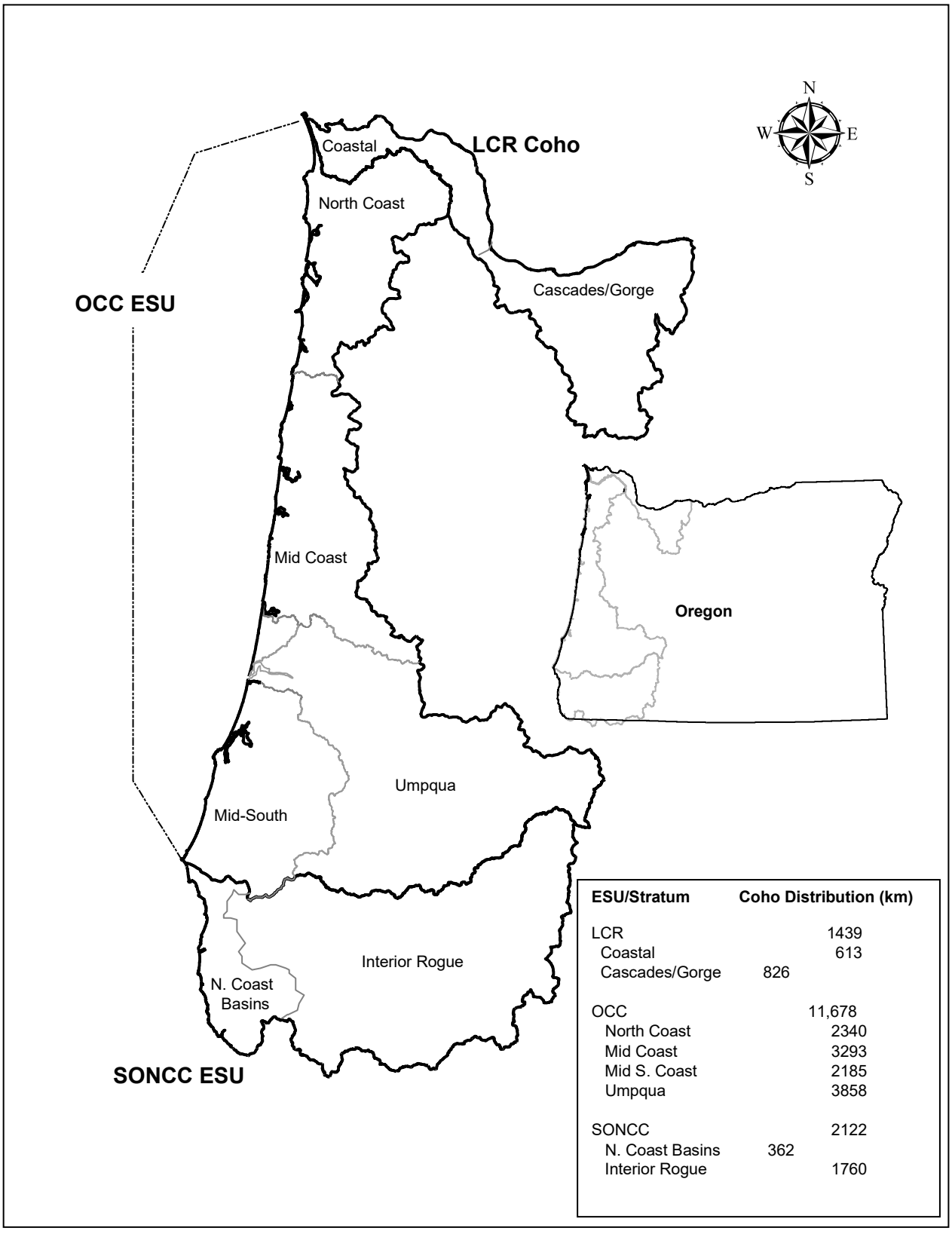
- Abundance: The estimate of the quantity of each target species within a stratum, ESU, or DPS. Abundance was calculated by multiplying the count of target species individuals per kilometer at each site by the site weight. Target species individuals per kilometer was the sum of the snorkel count at the site divided by the length of the site (fish/kilometer). Site weight was the total length of the 1st – 3rd order streams rearing distribution in the stratum, ESU, or DPS divided by the number of surveyed sites in the area. The site weight was adjusted for sites that were non-target e.g., sites that were dry, in tidal zones, or above fish passage barriers, (Stevens 2002). Abundance estimates were based on snorkel counts in pools that meet size criteria; they were appropriate for assessing trends but did not represent total abundance (i.e., counts were not calibrated for detection efficiency or fish occupying habitat units that were not snorkeled). The uncertainty of snorkel counts of Coho Salmon and steelhead parr were quantified by Falcy and Constable (2024).

Density metrics based on pool surface area were discontinued in 2022, based on the results of the Smith River Verification Study (Constable and Suring 2023). Adult spawner data used in plots of Coho Salmon Parr per parental spawner were from the ODFW Oregon Adult Salmonid Inventory and Sampling project (Sounhein et al. 2024).

Abundance trends based on the ≥20cm depth criterion and the ≥40cm depth criterion (differing survey protocols) were compared using a series of linear models, one for each Coho Salmon stratum and steelhead DPS, with the structure: abundance ~ year + survey_method + year*survey_method.

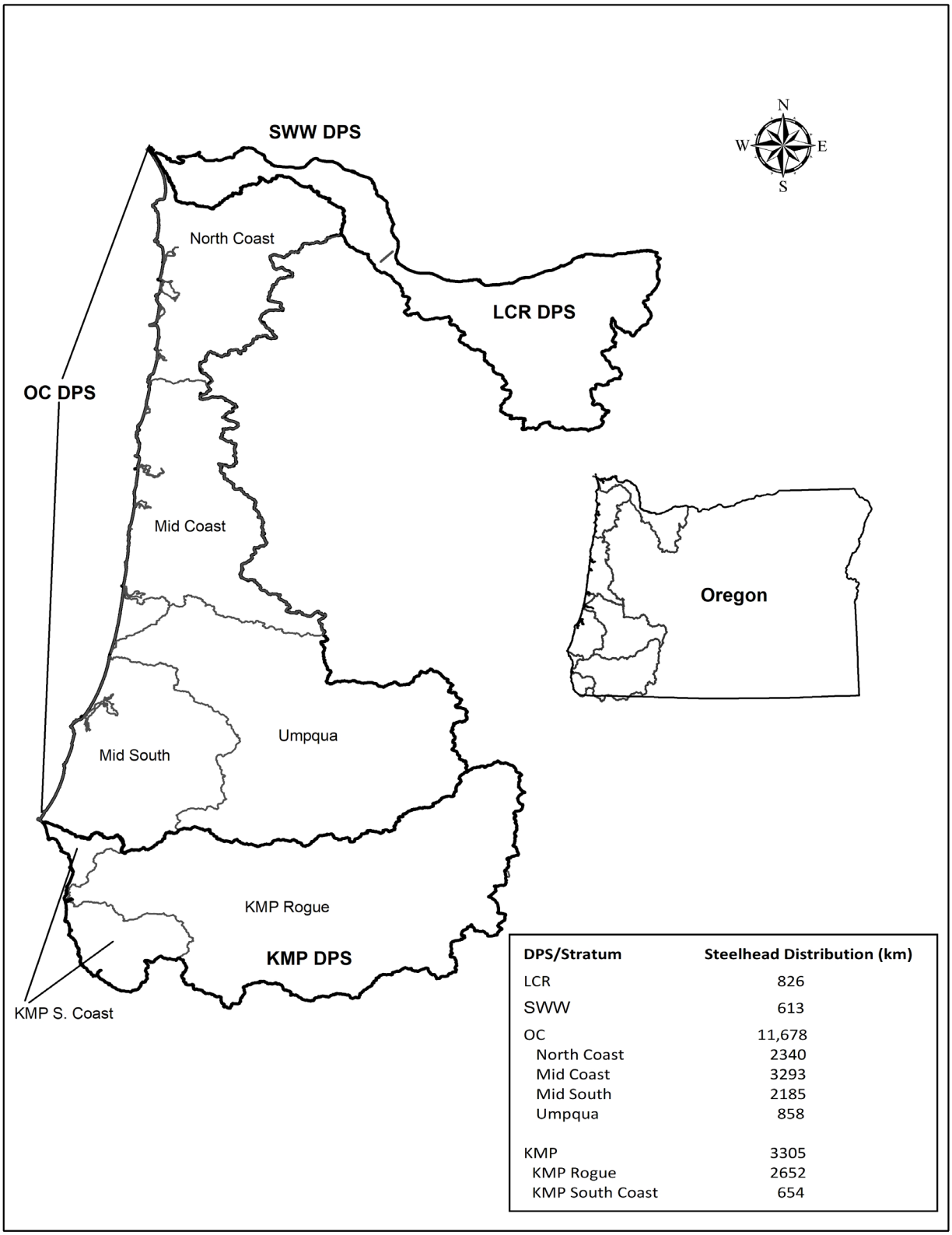
$$Abundance = \alpha + \beta_1 * year + \beta_2 * survey\_method + \beta_3 * year * survey\_method$$

A statistically significant ($p < 0.05$) interaction term between year and survey method suggests a difference in the annual trend between survey methods.



ESU/Stratum	Coho Distribution (km)
LCR	1439
Coastal	613
Cascades/Gorge	826
OCC	11,678
North Coast	2340
Mid Coast	3293
Mid S. Coast	2185
Umpqua	3858
SONCC	2122
N. Coast Basins	362
Interior Rogue	1760

Figure 1. Coho Salmon ESUs and Strata in Western Oregon. The table lists the length of coho salmon rearing distribution within 1st – 3rd order streams within Oregon for each area. The small, unlabeled area between the Mid Coast and Mid-South Coast is the Lakes Stratum, which was incorporated into the Mid-South Coast Stratum for juvenile monitoring.



DPS/Stratum	Steelhead Distribution (km)
LCR	826
SWW	613
OC	11,678
North Coast	2340
Mid Coast	3293
Mid South	2185
Umpqua	858
KMP	3305
KMP Rogue	2652
KMP South Coast	654

Figure 2. Steelhead DPSs and Strata in Western Oregon. The table lists the length of steelhead rearing distribution within 1st – 3rd order streams within Oregon for each area. The small, unlabeled area between the Mid Coast and Mid-South Coast is the Lakes Stratum, which has been incorporated into the Mid-South Coast Stratum for juvenile monitoring.

RESULTS

2025 Survey Effort

In 2025, 521 sites were selected for snorkel surveys. Of these, 190 were not surveyed; 76 due to landowner denials, 39 had insufficient visibility or access, 60 due to time restrictions, and 15 because they were outside the sampling frame (non-target, e.g., above barriers to anadromy or dry). A total of 331 sites were snorkeled, comprising 3,399 pools in 324 km of streams. We met our survey effort goals in five of the eight strata in 2025, missing by 1 site in the Mid-South Coast, 1 site in the Coast Stratum of the LCR, and 9 sites in the Cascade/Gorge Stratum of the LCR (Table 1). As in previous years, a high percentage of sites in the Cascades/Gorge Stratum were not surveyed due to low visibility relative to the other strata.

Table 1. Survey effort goals and status of sites for 2025.

ESU	Stratum	Survey Goal	Snorkeled	Target, non-response	Non-Target
OCC	North Coast	40	42	17	1
	Mid Coast	40	45	11	4
	Mid-South Coast	40	39	17	3
	Umpqua	40	43	17	0
LCR	Coast	40	39	16	4
	Cascades/Gorge	40	31	24	5
SONCC	Interior Rogue	40	43	47	0
	N. Coast Basins	40	49	24	0

Confidence interval goals were met in three of the six of the strata or ESUs (Table 2). Variance partitioning has indicated low precision was primarily due to high variation of Coho Salmon counts among the survey sites, which was likely a natural condition resulting from the distribution of parental spawners and the diversity of habitat quality within our sampling frame (Anlauf-Dunn and Jones 2012). In previous years, counts from initial surveys had a significant relationship to counts from resurveys for both Coho Salmon (Figure 3, left panel) and steelhead (Figure 3, right panel). In 2025, resurveys were limited to the crew training period due to budget constraints and not used to assess the precision of the surveys.

Table 2. Distribution and abundance estimates of Coho Salmon parr in in 1st–3rd order streams of the four strata of the Oregon Coast Coho ESU and in the LCR and SONCC. Estimates are from snorkel surveys from 2025.

Stratum or ESU	Site Occupancy	Mean Pool Frequency	95% CI	Abundance in Snorkel Pools	95% CI
North Coast	93%	86%	± 9%	598,026	± 26%
Mid Coast	93%	89%	± 7%	1,038,089	± 23%
Mid-South Coast	97%	81%	± 9%	865,154	± 30%
Umpqua	79%	63%	± 9%	498,373	± 44%
SONCC	55%	37%	± 10%	125,215	± 36%
LCR	59%	48%	± 9%	94,954	± 31%

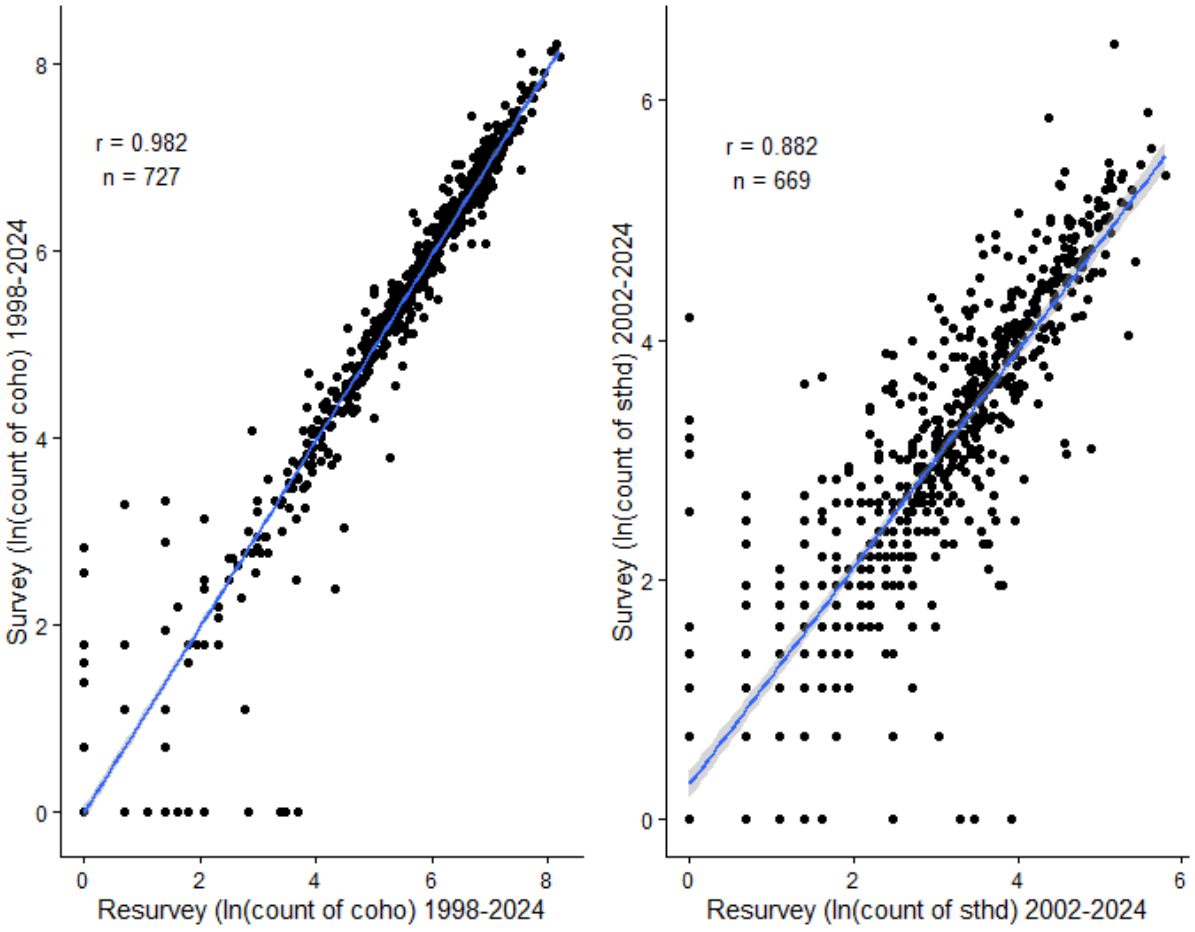


Figure 3. The relationship between Coho Salmon (left panel) and steelhead (right panel) parr counts from surveys and resurveys of the same sampling sites. Data were log transformed to satisfy regression assumptions. Gray shading is the 95% confidence interval.

Coho Salmon Distribution and Abundance Trends

Southern Oregon Northern California Coast

The 2025 abundance estimate was 125,215 parr. Of these, 65% were in high quality habitats of the Interior Rogue Stratum, 20% were in low quality habitats of the Interior Rogue Stratum, and 15% were in the North Coast Basins Stratum. Abundance estimates have been low since 2010, relative to abundance from 2002-2009 (Figure 4). Site occupancy in 2025 was 55%. Site occupancy has improved over the last four years, relative to the low estimate in 2021 (Figure 5).

Oregon Coast Coho

The 2025 abundance estimate was three million parr, very similar to the estimate in 2024. Abundance in the ESU has remained between 2.6 and 4.9 million since the low estimates in the first three years of the study (Figure 4). The Umpqua Stratum abundance estimate in 2025 was lower than the estimate in 2024. In the remaining strata, abundance estimates in 2025 were not significantly different from those in 2024 (Figure 6). Site occupancy for the ESU in 2025 was 89%, similar to estimate in 2024 (Figure 5). Within the strata, site occupancy in the Mid-South Coast was 97%; higher in the highest estimate recorded by our study in this stratum. In the remaining strata, site occupancy estimates in 2025 were not significantly different from those in 2024 (Figure 7). Site occupancy has generally improved since 2003 and is typically highest in the Mid Coast and lowest in the Umpqua. National Marine Fishery Service (NMFS) recovery criterion is to have ≥80% of available habitat occupied (Wainwright et al., 2008). This criterion is assessed by aggregating site occupancy data from our project by 5th field HUC and averaging across the most recent 12-year period. On the ESU scale, site occupancy averaged 84% in the last 15 years. The rate was more variable on the 5th field HUC scale.

Within our survey frame, the number of parr produced per female increased when female spawner abundance decreased and, conversely, decreased when female spawner abundance increased, suggesting a density dependent effect in the OCC (Figures 8 and 9). The average number of parr per female was 63 and ranged from 14 (in the Umpqua, when female spawner abundance was at its highest) to 221 (in the Umpqua, when female spawner abundance was at its lowest). Similar density-dependent effects on recruits per spawner in the OCC have been described by Nickelson and Lawson (1998) and Wainwright et al. (2008). As noted in the Methods section, parr numbers were from un-calibrated visual estimates conducted only in pools meeting protocol criteria. Actual parr abundance was likely to be approximately double the stated amounts (Falcy and Constable 2024).

Lower Columbia River

The 2025 abundance estimate was 94,954 parr, similar to the estimate in 2024 and the average for the ESU over the course of our study. High variance, relative to the other ESUs, has confounded the comparison of abundance among years (Figure 4). Site

occupancy was 59% in 2025, the third highest observed and similar to the estimate in 2024 (Figure 5). The average number of parr produced per female spawner was 30, which was 48% of the average parr per female in the OCC. Parr per female rates in 1st – 3rd order streams of the LCR appeared to be less influenced by female spawner abundance (Figures 10 and 11), compared to results in the OCC. The number of parr per female ranged from 7, when female spawner abundance was at its three highest estimates (2014, 2023, and 2024), to 66, when female spawner abundance was at its second lowest. Data suggest density dependent effects within our frame in the LCR were weaker and less consistent than that observed in the OCC (Figure 11). Differences between the ESUs may be due to 8 additional years of monitoring in the OCC and spawner densities (female spawners/km) in the LCR that average 44% of those in the OCC.

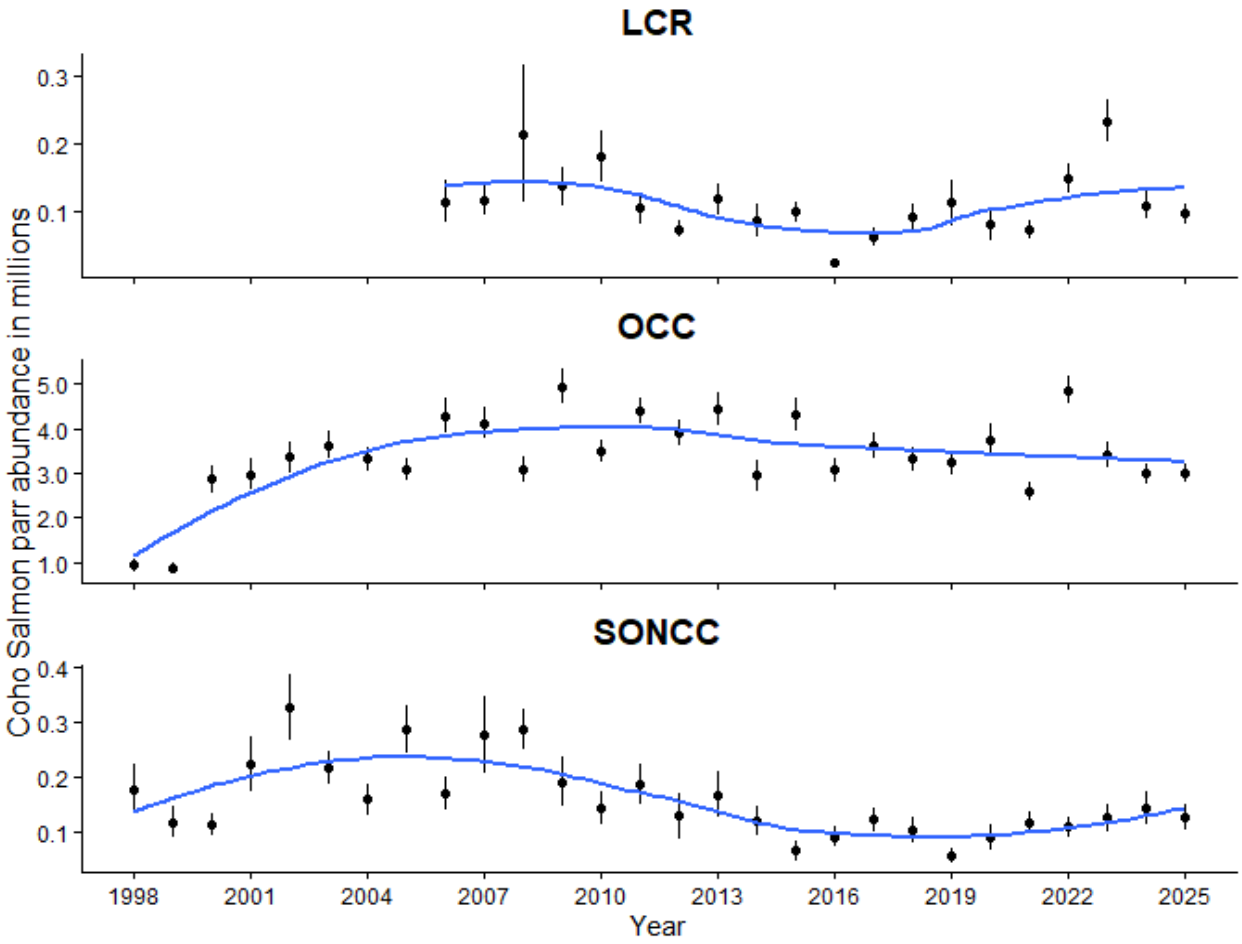


Figure 4. Coho Salmon parr abundance estimates in 1st – 3rd order streams of the three western Oregon Coho ESUs, based on snorkel surveys in from 1998-2025. Bars show the abundance estimate with the 95%CI. Note differences in Y-axis scales among panels.

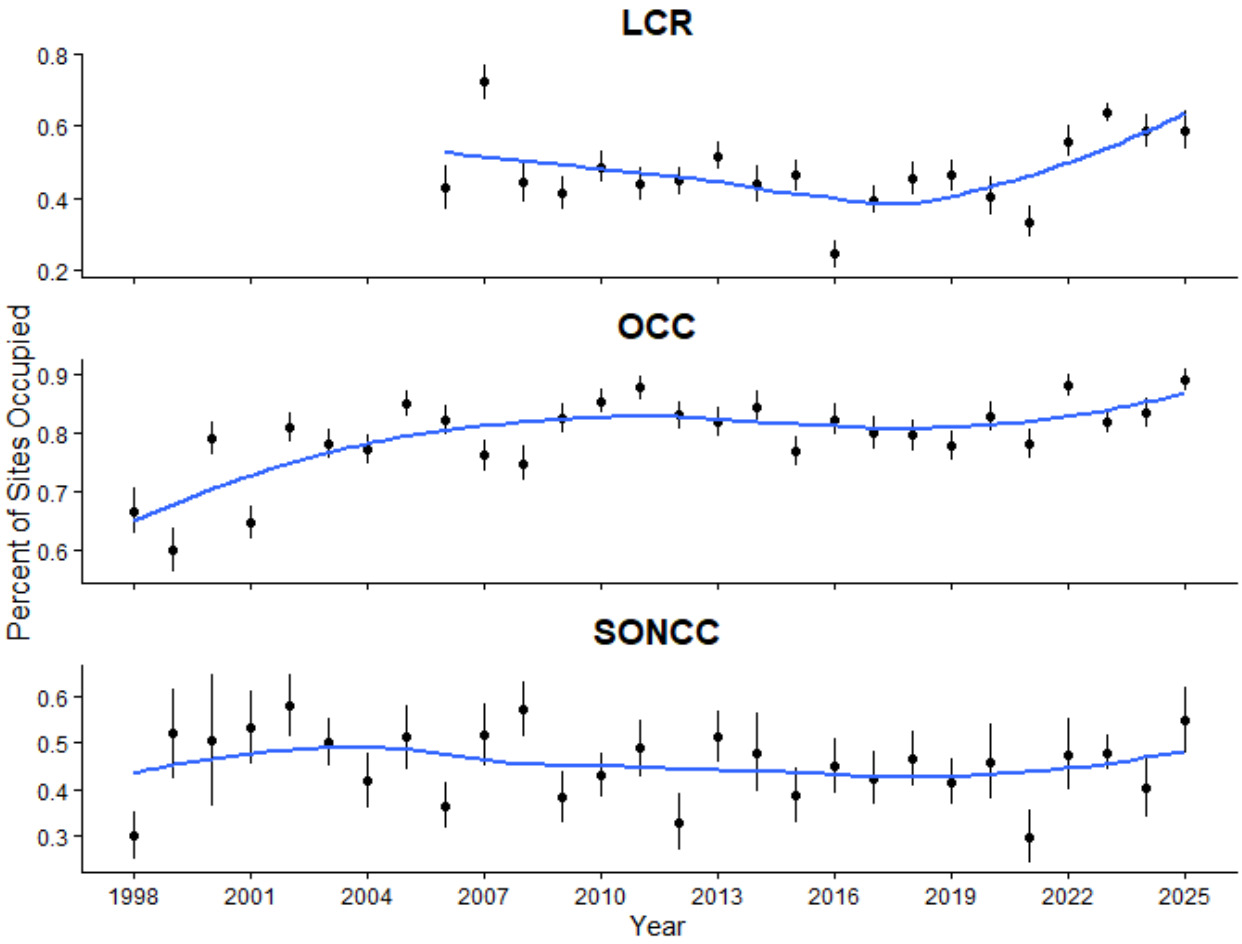


Figure 5. Coho Salmon parr site occupancy estimates in 1st – 3rd order streams of the three western Oregon Coho ESUs based on snorkel surveys from 1998-2025. Bars show the 95%CI. Note differences in Y-axis scales among panels.

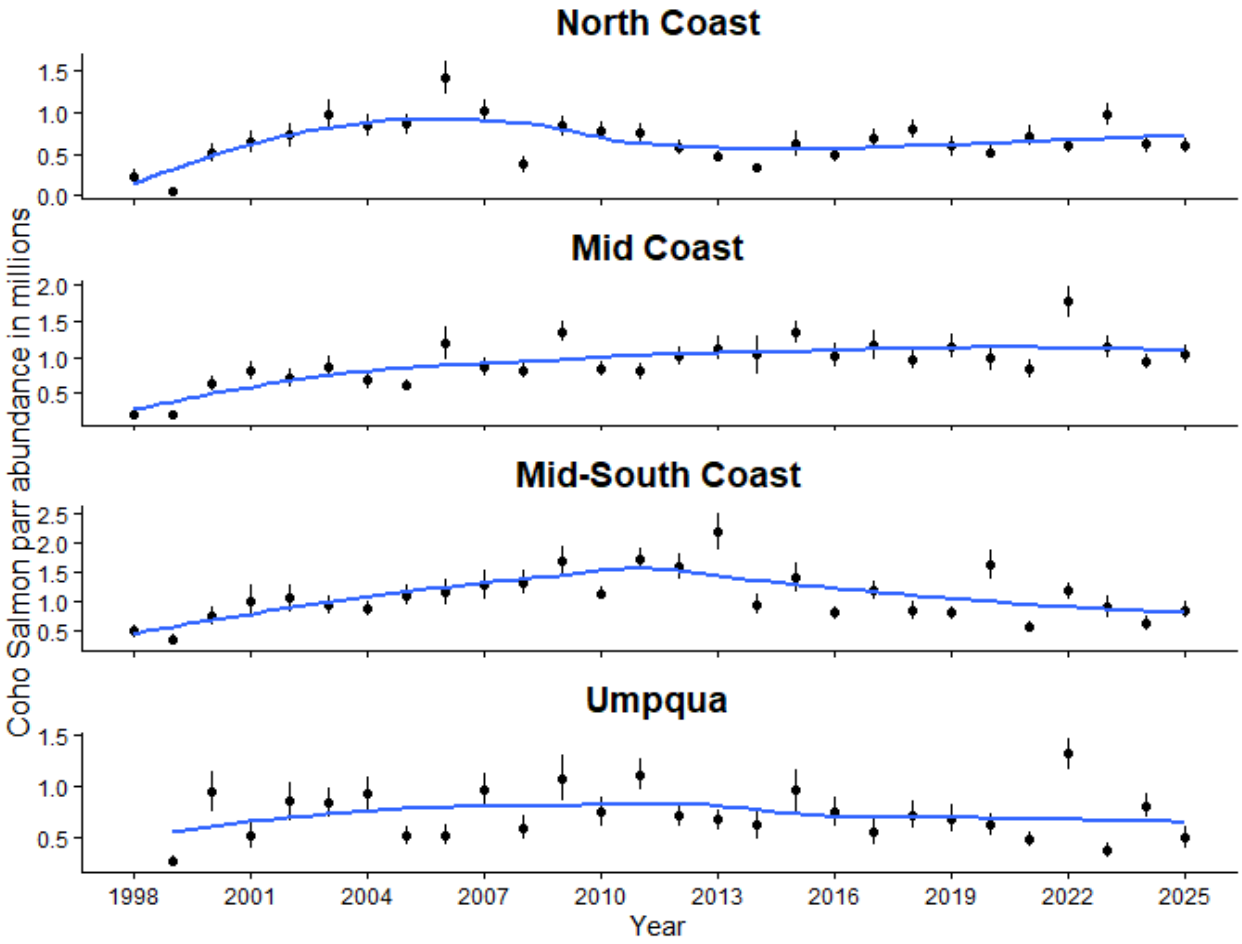


Figure 6. Coho Salmon parr abundance estimates in 1st – 3rd order streams of the four strata of the Oregon Coast Coho ESU, based on snorkel surveys from 1998-2025. Bars show the 95%CI. Note differences in Y-axis scales among panels.

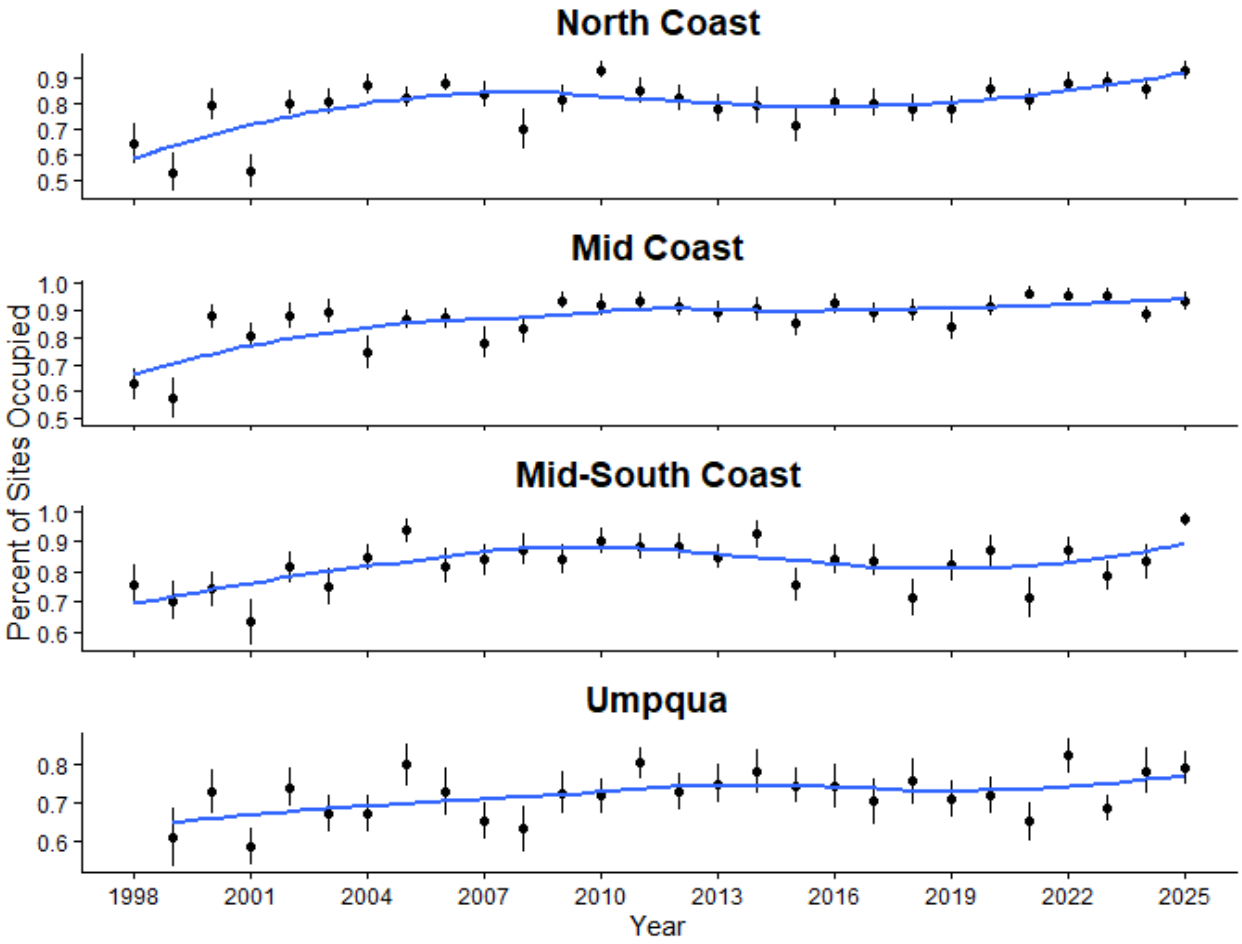


Figure 7. Coho Salmon parr site occupancy in 1st – 3rd order streams of the four strata of the Oregon Coast Coho ESU, based on snorkel surveys in 1st – 3rd order streams from 1998-2025. Bars show the 95%CI. Note differences in Y-axis scales among panels.

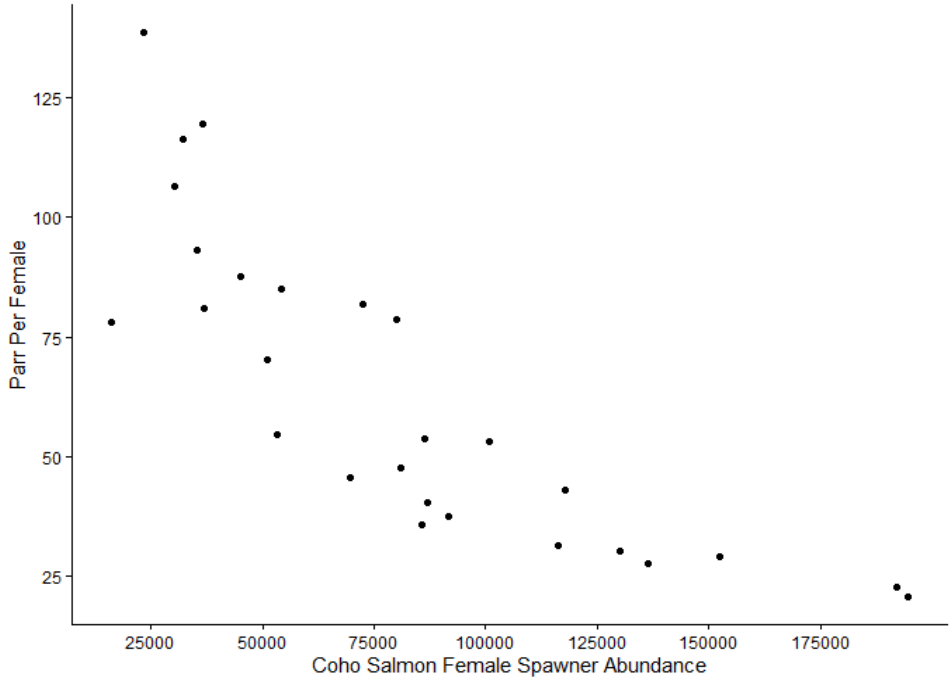


Figure 8. The relationship between the abundance of Coho Salmon female spawners and the number of parr recruits per female spawner in 1st – 3rd order streams of the Oregon Coast Coho ESU for brood years 1998-2024.

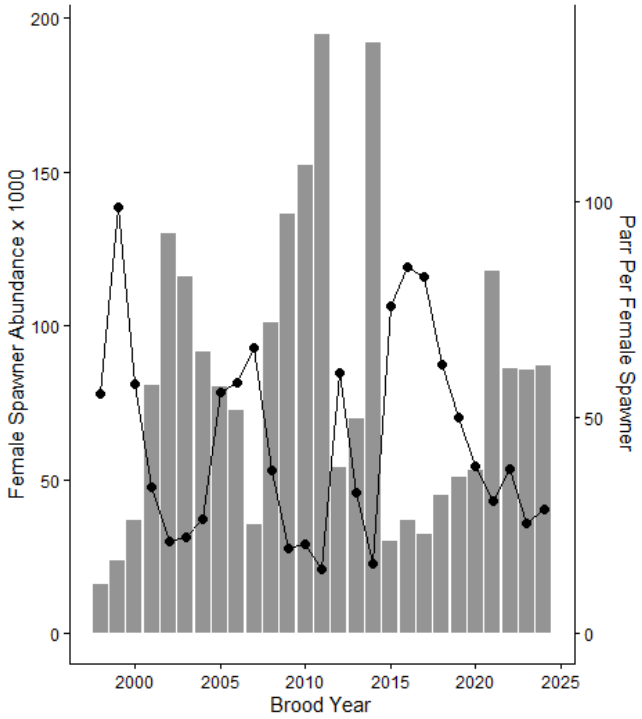


Figure 9. The abundance of Coho Salmon female spawners (gray bars) and the number of parr recruits per female spawner (black dots and line) over time in 1st – 3rd order streams of the Oregon Coast Coho ESU.

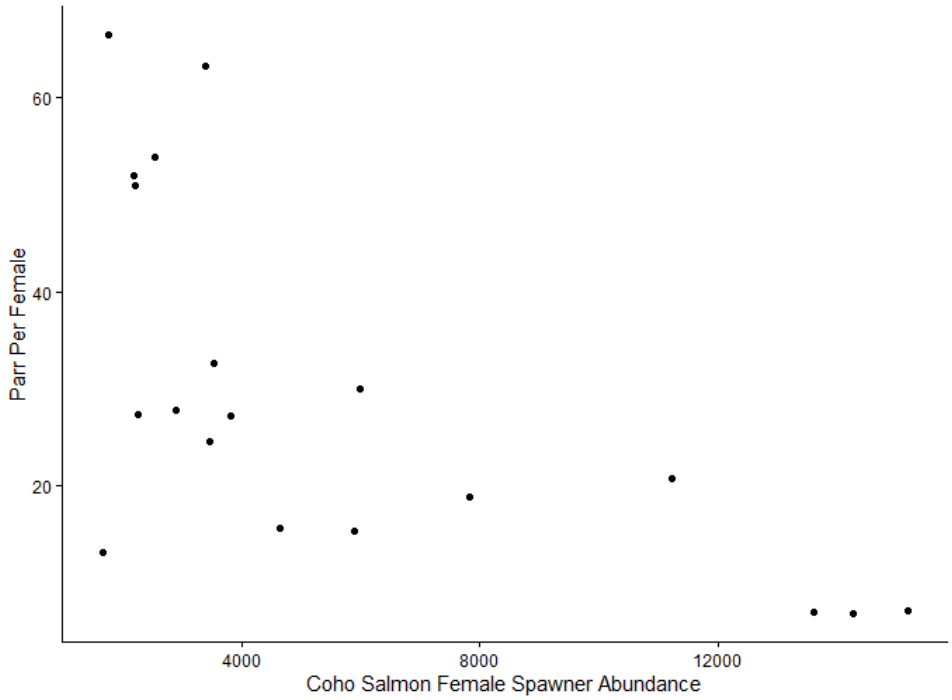


Figure 10. The relationship between the abundance of Coho Salmon female spawners and the number of parr recruits per female spawner in 1st – 3rd order streams of the Lower Columbia River ESU for brood years 2005-2024.

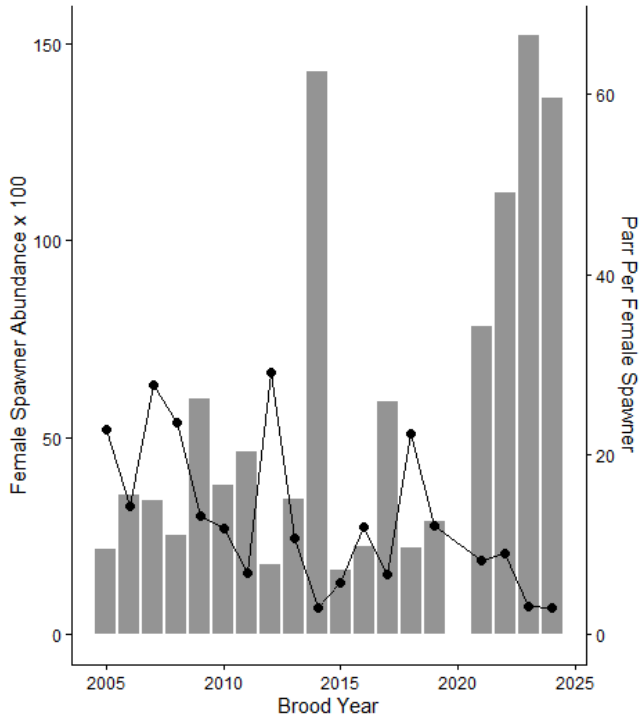


Figure 11. The abundance of Coho Salmon female spawners (gray bars) and the number of parr recruits per female spawner (black dots and line) over time in 1st – 3rd order streams of the Lower Columbia River ESU.

Steelhead Distribution and Abundance Trends

Klamath Mountain Province

The 2025 abundance estimate of 125,970 parr in the KMP was similar to the estimate in 2024 and the mean for the DPS (Figure 12). The South Coast Stratum contained 52% of these fish and had a linear density of 101 parr per kilometer. Abundance in the South Coast Stratum in 2025 was similar the 2024 estimate and to the mean abundance for the stratum. Abundance in the Rogue Stratum in 2025 was 60,124 parr, with a linear density of 22 parr per kilometer. The 2025 site occupancy estimate for the DPS was 90%, also an improvement of the low estimates from 2017-2019 (Figure 13). Site occupancy was 85% in the Rogue Stratum and 91% in the South Coast Stratum for 2025. Occupancy and abundance in Rogue Stratum have improved over the last five years from the low estimates recorded in 2016-2020.

Oregon Coast

The 2025 steelhead abundance estimate was 159,992 parr, which was below the mean for the DPS. In most years, abundance was higher in the Mid Coast, relative to the other strata, but in 2025 the Umpqua and the North Coast had the highest estimates. In 2025 site occupancy was 84%, similar to the mean for all years. Among the strata, site occupancy has typically been highest in either the Mid-South or Mid Coast, lowest in the Umpqua, and most variable in the North Coast. Data from 2025 followed this trend, with site occupancy highest in the Mid-South Coast.

Lower Columbia River

Abundance in 2025 was 1,691 parr, the lowest estimate observed. Confidence intervals that were ~50% of the abundance estimates have hindered the comparisons of abundances and the detection of trends in the DPS, but a declining trend was suggested by estimates in the last six years that were <50% of average. In 2025 site occupancy was 54%, which was similar to the mean for the DPS. Site occupancy was lowest in the LCR, when compared to the other Western Oregon Steelhead DPSs.

Southwest Washington

The 2025 abundance estimate of 4,512 parr, which was low compared to the previous four years, but an improvement over the consecutive low estimates from 2017 to 2019. Similar to the LCR, confidence intervals >50% of the abundance estimate have hindered trend comparisons in this DPS. In 2025 site occupancy was 59%. This estimate was similar to the mean for the DPS. Site occupancy has shown an increasing trend over the last five years when compared to the low estimates observed from 2015 to 2019.

Table 3. Distribution and abundance estimates for juvenile steelhead (≥90cm in fork length) in 1st – 3rd order streams of eight strata of Western Oregon Steelhead DPS, based on snorkel surveys for 2025.

Stratum	Site Occupancy	Mean Pool Frequency	95% CI	Abundance in Snorkel Pools	95% CI
North Coast	73%	43%	19%	41,122	46%
Mid Coast	91%	41%	19%	34,266	37%
Mid-South Coast	92%	53%	15%	43,122	42%
Umpqua	79%	37%	21%	41,483	34%
KMP Rogue	89%	52%	15%	60,124	31%
KMP South Coast	91%	76%	10%	65,846	25%
Lower Columbia	54%	20%	39%	1,691	52%
Southwest WA	59%	31%	26%	4,512	51%

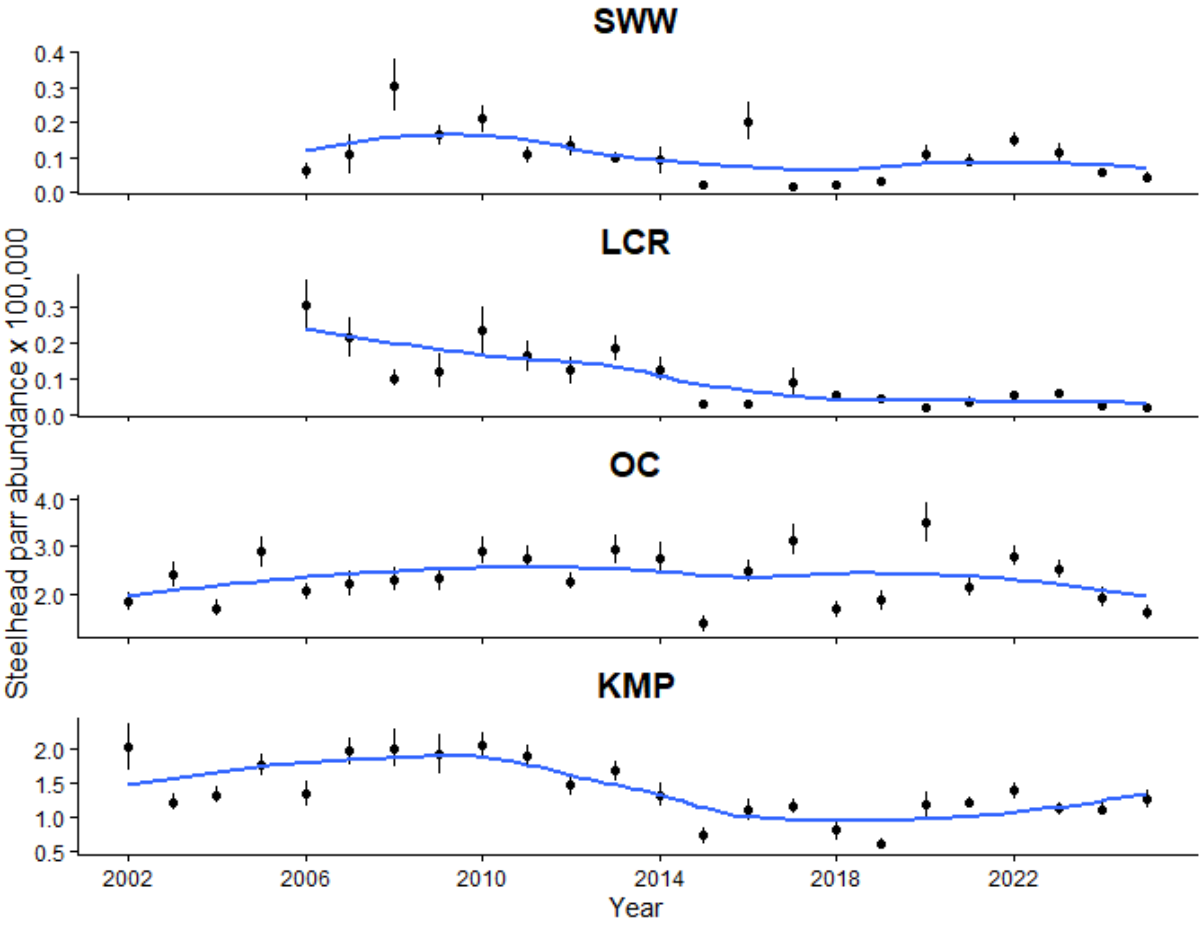


Figure 12. Juvenile steelhead (≥90cm in fork length) abundance estimates in 1st – 3rd order streams of the four western Oregon DPSs, based on snorkel surveys in years 2002-2025. Bars show the 95% CI. Note differences in Y-axis scales among panels.

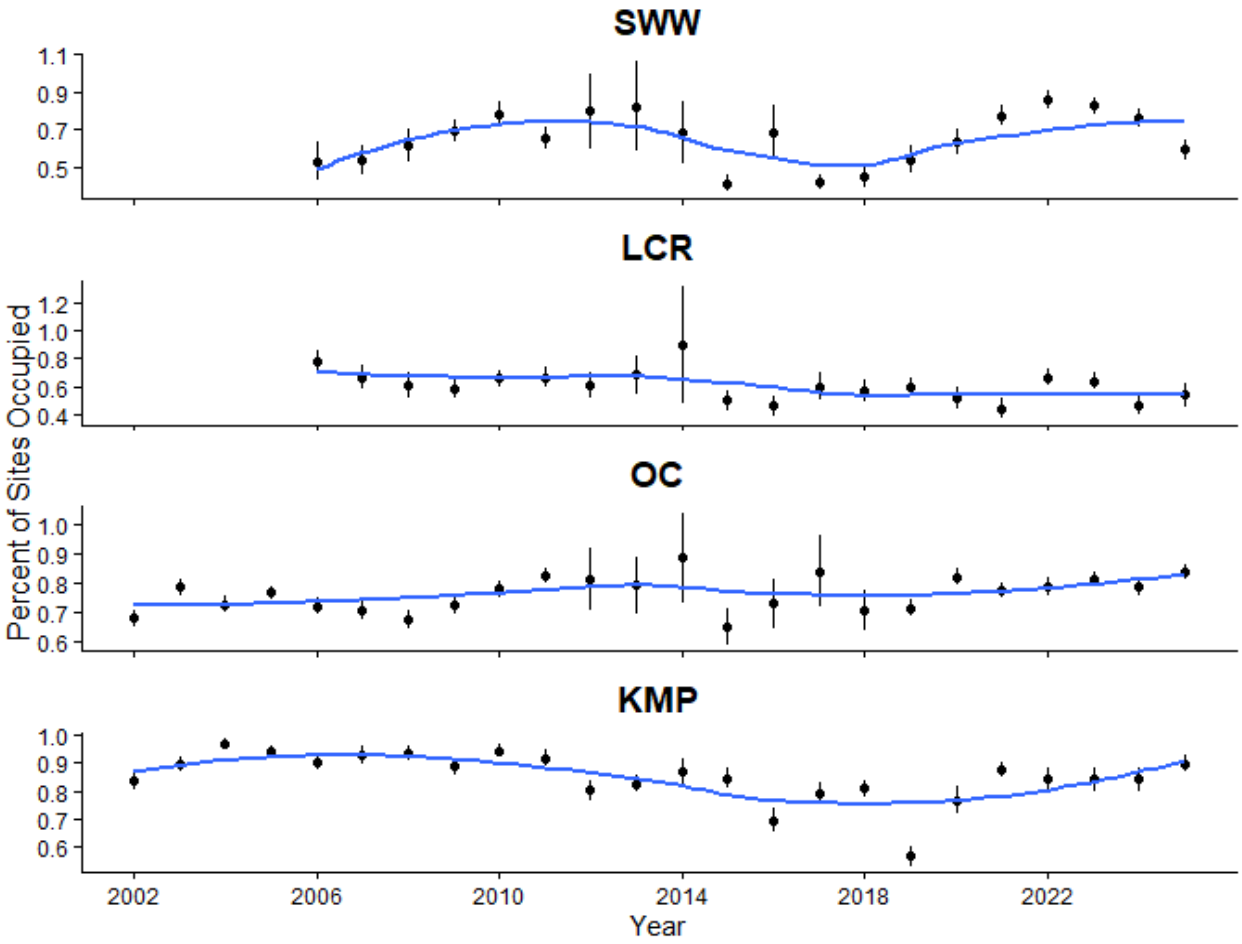


Figure 13. Juvenile steelhead (≥90cm in fork length) site occupancy in 1st – 3rd order streams of the four western Oregon DPS, based on snorkel surveys in years 2002-2025. Bars show the 95%CI. Note differences in Y-axis scales among panels.

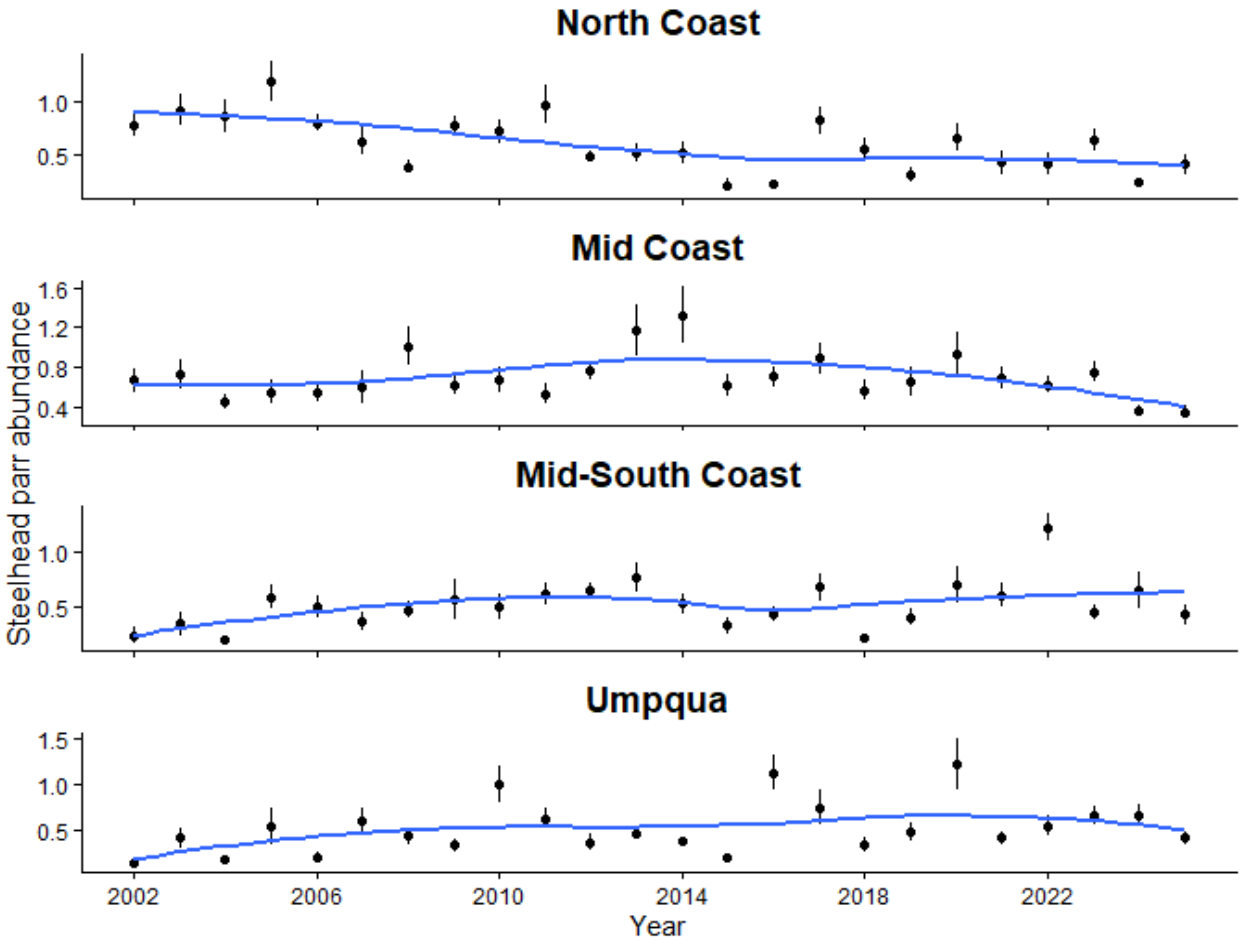


Figure 14. Juvenile steelhead (≥90cm in fork length) abundance estimates in 1st – 3rd order streams of the four strata of the OC DPS, based on snorkel surveys in years 2002-2025. Bars show the 95% CI. Note differences in Y-axis scales among panels.

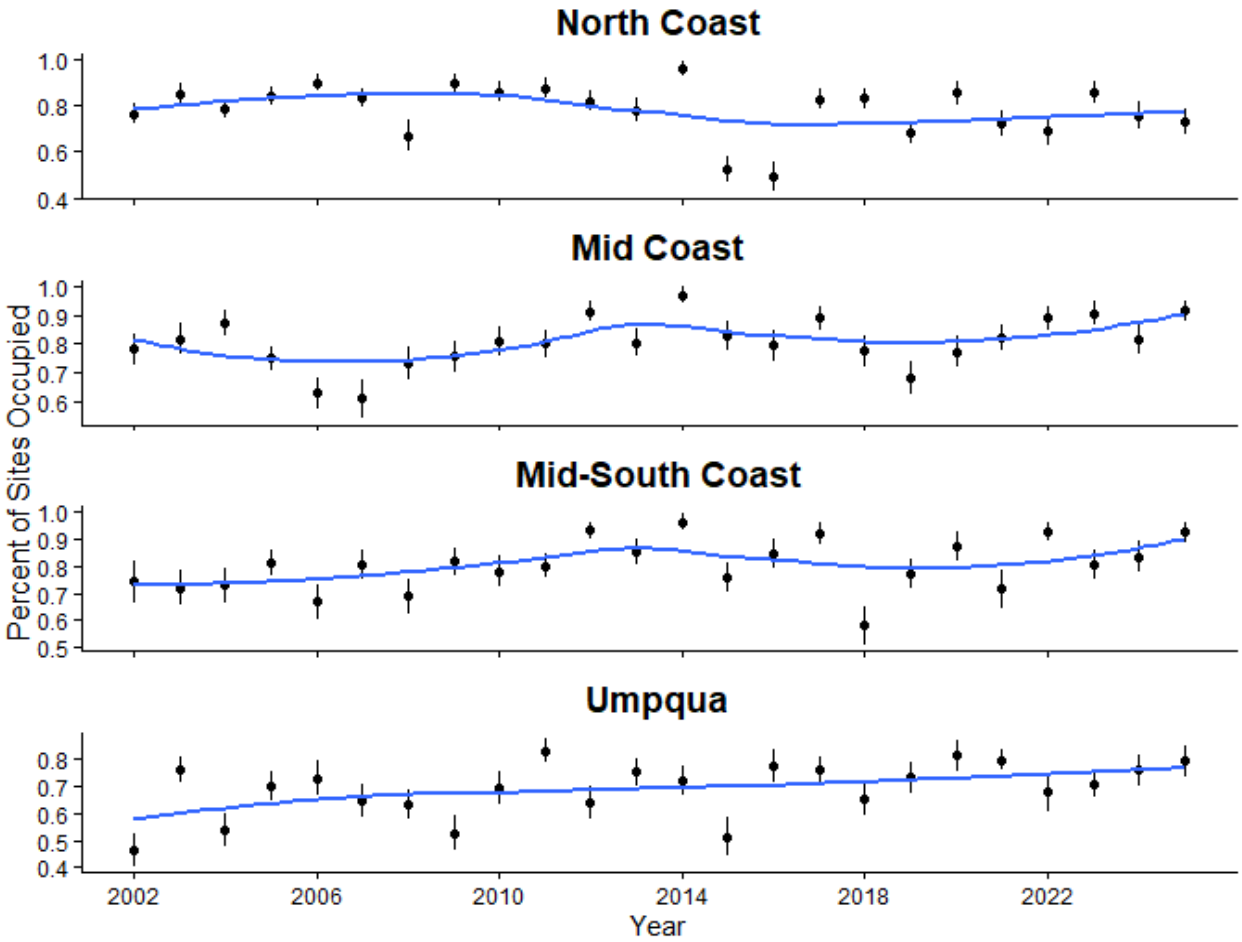


Figure 15. Juvenile steelhead (≥90cm in fork length) site occupancy in 1st – 3rd order streams of the four strata of the OC DPS, based on snorkel surveys in years 2002-2025. Bars show the 95%CI. Note differences in Y-axis scales among panels.

Effects of Pool Depth on Survey Effort and Snorkel Counts

Applying the 20cm criterion in 2025 increased the number of snorkeled sites by 7 and the number of snorkeled pools by 747 (22%), over the 40cm criterion. Using the 20cm criterion resulted in a <2% increase in Coho Salmon site occupancy in the North and Mid Coast, and a 1% decrease in site occupancy in the LCR. Steelhead site occupancy increased by 5% in the North and Mid-South Coast, 3% in the Mid Coast, 2% in the LCR, 1% in the SWW, and was unchanged in the KMP. Paired t-tests indicated the 20cm criterion produced higher abundance estimates of Coho Salmon (Table 4) and steelhead (Table 5) with proportionally smaller 95% confidence intervals in most strata. This result was consistent with previous years. Abundance trends based on the 20cm and 40cm criteria were similar within the steelhead DPSs and within all Coho Salmon strata except for the Mid-South Coast (Figure 16). In the Mid-South Coast the trend line from the 20cm criterion was more negative than the trendline from the 40cm criterion (β_3 = 70762, p = 0.01).

Table 4. Comparison of estimates of Coho Salmon abundance in pools using a maximum depth of ≥20cm and in pools using a maximum depth of ≥40cm.

Stratum	2025 Coho Estimates				
	Pools ≥40cm Max Depth		Pools ≥20cm Max Depth		95% CI Difference
	Estimate	95% CI	Estimate	95% CI	
North Coast	598,026	26%	653,567	24%	1.7%
Mid Coast	1,038,089	23%	1,292,344	22%	1.3%
Mid-South Coast	865,154	30%	948,905	30%	0.1%
Umpqua	489,373	44%	555,731	40%	4.5%
SONCC	125,215	36%	140,341	38%	-2.2%
Lower Columbia	94,954	31%	100,114	31%	-0.1%

Table 5. Comparison of estimates of steelhead abundance in pools using a maximum depth of ≥20 and in pools using a maximum depth of ≥40cm.

Stratum	2025 Steelhead Estimates				
	Pools ≥ 40cm Max Depth		Pools ≥ 20cm Max Depth		95% CI Difference
	Estimate	95% CI	Estimate	95% CI	
North Coast	41,122	46%	42,814	43%	2.6%
Mid Coast	34,266	37%	39,186	37%	-0.3%
Mid-South Coast	43,122	42%	46,728	41%	0.8%
Umpqua	41,483	34%	45,963	32%	1.5%
KMP Rogue	60,124	31%	61,578	31%	0.2%
KMP South Coast	65,846	25%	67,353	24%	0.7%
Lower Columbia DPS	1,691	52%	1,773	49%	3.2%
Southwest WA DPS	4,512	51%	4,507	50%	0.6%

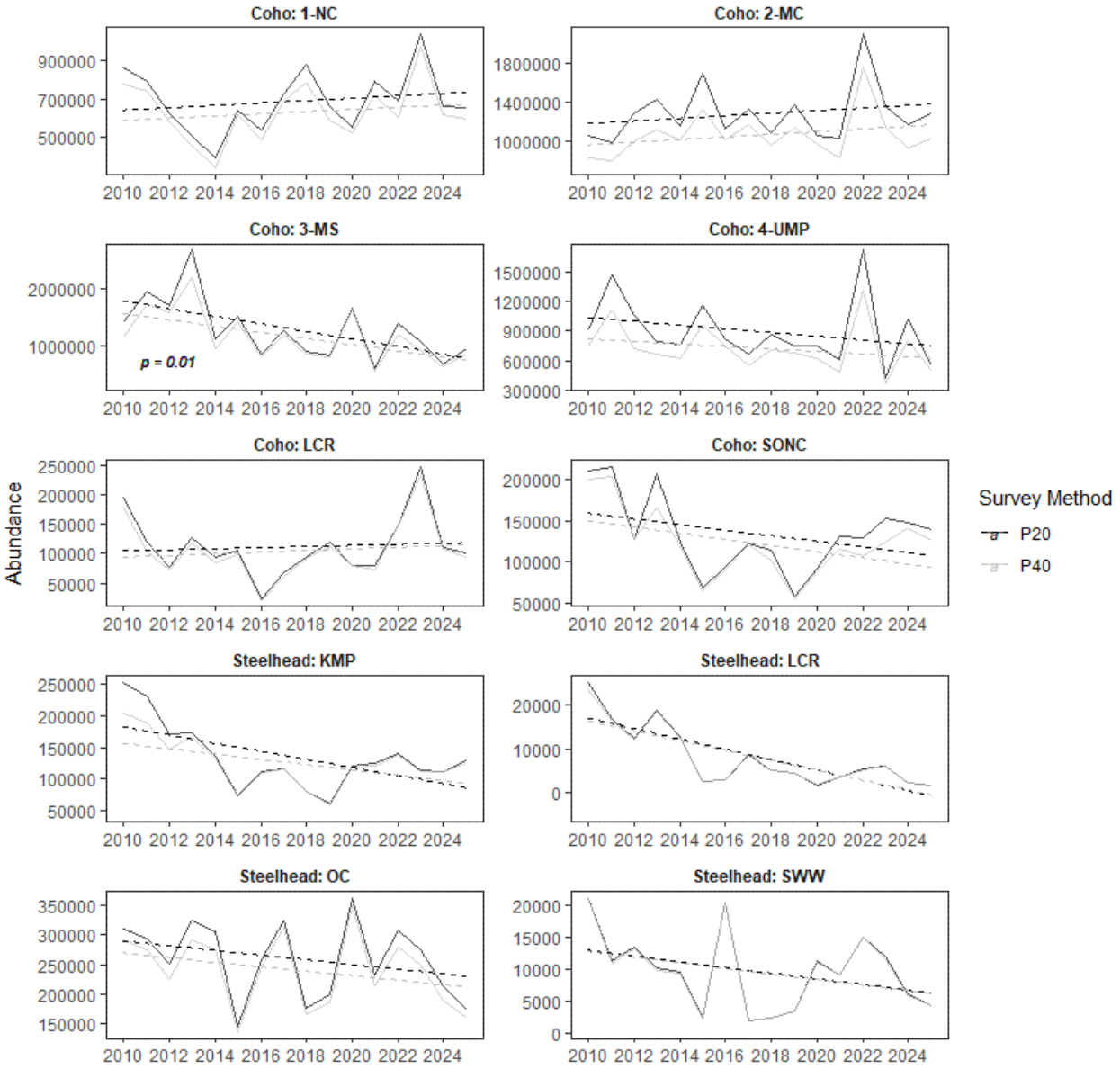


Figure 16. Comparisons of abundance trends within Coho Salmon and steelhead monitoring areas from 2010-2025 using the 20cm (black lines) and 40cm (grey lines) pool depth criterion. Data were from snorkel surveys in 1st – 3rd order streams. Statistically significant p-values (< 0.05) for the interaction model term (year*survey_method) are printed on the sub-plot. P-values > 0.05 are not displayed.

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APPENDIX 1 COHO SALMON METRICS

Table 6. Estimated metrics and associated 95% confidence intervals for Coho Salmon parr in the Oregon portion of the Southern Oregon Northern California Coho ESU. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Southern Oregon Northern Californian Coho ESU Coho Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
1998	176,522	51%	0.051	49%	30	35%
1999	116,557	51%	0.218	73%	52	37%
2000	112,029	37%	0.061	78%	51	56%
2001	223,607	45%	0.265	46%	53	29%
2002	325,508	37%	0.442	37%	58	23%
2003	215,030	28%	0.413	34%	50	20%
2004	157,239	36%	0.148	40%	42	28%
2005	286,009	30%	0.296	37%	51	27%
2006	168,501	34%	0.110	42%	37	28%
2007	276,186	51%	0.227	40%	52	26%
2008	285,760	26%	0.360	43%	57	21%
2009	190,112	46%	0.141	42%	38	29%
2010	140,949	43%	0.056	41%	43	23%
2011	185,972	38%	0.114	50%	49	25%
2012	128,124	65%	0.045	52%	33	37%
2013	166,543	50%	0.323	95%	51	22%
2014	118,403	46%	0.062	52%	48	35%
2015	64,231	55%	0.026	68%	39	30%
2016	89,967	38%	0.083	53%	45	27%
2017	120,803	37%	0.074	46%	42	26%
2018	101,893	46%	0.053	53%	47	26%
2019	54,890	51%	0.040	47%	42	23%
2020	88,396	50%	0.075	54%	46	35%
2021	115,541	34%	0.080	63%	30	38%
2022	107,170	34%	0.085	44%	48	33%
2023	123,757	42%	0.058	50%	48	16%
2024	141,180	41%	0.086	48%	40	32%
2025	125,215	36%	0.121	41%	55	26%

Table 7. Estimated metrics and associated 95% confidence intervals for Coho Salmon parr in the Oregon Coast Coho ESU. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Oregon Coast Coho ESU Coho Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
1998	935,199	30%	0.212	26%	67	11%
1999	884,929	26%	0.158	24%	60	13%
2000	2,861,072	20%	0.265	16%	79	7%
2001	2,969,004	24%	0.407	18%	65	9%
2002	3,355,610	21%	0.511	20%	81	6%
2003	3,632,891	18%	0.556	19%	78	6%
2004	3,319,231	16%	0.454	14%	77	6%
2005	3,086,536	15%	0.461	19%	85	5%
2006	4,285,481	18%	0.462	14%	82	6%
2007	4,120,906	17%	0.470	17%	76	7%
2008	3,097,981	18%	0.341	17%	75	8%
2009	4,941,814	16%	0.600	14%	83	6%
2010	3,503,440	13%	0.392	17%	86	5%
2011	4,393,927	13%	0.478	14%	88	5%
2012	3,898,052	15%	0.383	12%	83	5%
2013	4,436,290	17%	0.613	15%	82	6%
2014	2,944,019	24%	0.250	20%	84	7%
2015	4,329,397	17%	0.407	16%	77	6%
2016	3,069,097	17%	0.273	18%	82	6%
2017	3,619,893	17%	0.252	16%	80	7%
2018	3,313,424	16%	0.297	14%	80	7%
2019	3,232,929	16%	0.241	15%	78	7%
2020	3,760,165	18%	0.258	19%	83	6%
2021	2,602,575	16%	0.292	15%	78	6%
2022	4,870,824	12%	0.526	14%	88	4%
2023	3,410,988	17%	0.349	18%	82	5%
2024	3,000,881	15%	0.347	14%	84	6%
2025	2,990,642	14%	0.371	14%	89	4%

Table 8. Estimated metrics and associated 95% confidence intervals for Coho Salmon parr in the North Coast Stratum of the Oregon Coast Coho ESU. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

North Coast Stratum Coho Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
1998	238,372	71%	0.117	45%	64	25%
1999	61,228	57%	0.064	73%	53	29%
2000	513,448	39%	0.236	30%	79	14%
2001	650,882	40%	0.411	39%	53	23%
2002	728,083	39%	0.352	31%	80	12%
2003	976,142	33%	0.485	26%	80	13%
2004	842,367	30%	0.454	22%	87	9%
2005	853,247	28%	0.394	27%	82	9%
2006	1,406,547	28%	0.597	23%	88	7%
2007	1,017,969	24%	0.717	27%	83	13%
2008	370,797	48%	0.156	53%	70	22%
2009	829,855	30%	0.627	29%	82	13%
2010	775,036	25%	0.394	21%	93	7%
2011	742,914	30%	0.476	28%	85	12%
2012	577,017	33%	0.331	25%	82	12%
2013	459,220	29%	0.317	33%	78	14%
2014	337,136	28%	0.223	47%	79	18%
2015	618,560	47%	0.492	32%	71	18%
2016	485,460	33%	0.219	32%	80	13%
2017	690,210	30%	0.225	24%	80	14%
2018	784,995	28%	0.413	24%	78	13%
2019	588,926	39%	0.290	28%	78	14%
2020	521,331	27%	0.236	28%	85	11%
2021	716,662	32%	0.471	22%	81	11%
2022	602,660	28%	0.383	21%	88	9%
2023	971,987	27%	0.618	23%	88	9%
2024	614,145	33%	0.493	21%	85	10%
2025	598,026	26%	0.527	21%	93	8%

Table 9. Estimated metrics and associated 95% confidence intervals for Coho Salmon parr in the Mid Coast Stratum of the Oregon Coast Coho ESU. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Mid Coast Stratum Coho Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
1998	201,219	46%	0.173	57%	63	18%
1999	201,765	49%	0.076	46%	58	26%
2000	636,561	34%	0.215	35%	88	11%
2001	803,171	31%	0.497	27%	80	12%
2002	717,782	35%	0.288	28%	88	10%
2003	873,357	35%	0.336	30%	89	9%
2004	672,677	32%	0.385	26%	74	16%
2005	610,126	27%	0.230	30%	86	8%
2006	1,187,999	39%	0.440	26%	87	9%
2007	857,588	29%	0.494	35%	78	14%
2008	805,066	27%	0.350	31%	83	12%
2009	1,345,667	21%	0.578	28%	93	7%
2010	834,439	24%	0.480	27%	92	9%
2011	802,427	27%	0.336	22%	93	7%
2012	1,009,801	23%	0.447	21%	91	8%
2013	1,117,548	29%	0.706	20%	89	9%
2014	1,025,977	51%	0.202	32%	90	10%
2015	1,335,493	22%	0.348	30%	85	10%
2016	1,019,727	31%	0.423	29%	92	8%
2017	1,173,889	35%	0.318	33%	89	9%
2018	959,394	28%	0.278	27%	90	9%
2019	1,151,923	27%	0.389	22%	84	11%
2020	982,718	36%	0.245	20%	91	8%
2021	835,531	28%	0.273	27%	96	5%
2022	1,759,535	23%	0.583	19%	96	5%
2023	1,146,185	25%	0.338	23%	95	6%
2024	937,635	23%	0.414	26%	88	7%
2025	1,038,089	23%	0.501	22%	93	7%

Table 10. Estimated metrics and associated 95% confidence intervals for Coho Salmon parr in the Mid-South Coast Stratum of the Oregon Coast Coho ESU. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Mid South Coast Stratum Coho Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
1998	495,608	40%	0.370	33%	76	17%
1999	358,029	46%	0.404	36%	70	18%
2000	763,557	40%	0.442	27%	74	15%
2001	998,651	56%	0.470	43%	63	24%
2002	1,057,355	45%	0.958	33%	81	12%
2003	946,047	34%	1.074	41%	75	16%
2004	880,565	31%	0.631	32%	85	10%
2005	1,114,794	29%	0.643	34%	94	8%
2006	1,176,018	37%	0.472	26%	82	14%
2007	1,285,252	38%	0.482	32%	84	12%
2008	1,329,052	31%	0.698	26%	88	11%
2009	1,691,157	30%	0.843	26%	84	11%
2010	1,141,767	20%	0.431	28%	90	9%
2011	1,733,106	21%	0.699	32%	88	9%
2012	1,595,194	28%	0.394	16%	88	9%
2013	2,192,920	29%	0.943	24%	85	10%
2014	963,062	35%	0.272	36%	93	10%
2015	1,415,931	33%	0.426	25%	76	14%
2016	812,154	28%	0.293	31%	84	11%
2017	1,198,942	25%	0.329	23%	84	12%
2018	855,895	36%	0.314	35%	71	17%
2019	809,809	25%	0.171	31%	82	13%
2020	1,636,225	30%	0.337	30%	87	12%
2021	574,107	34%	0.294	35%	71	19%
2022	1,191,902	24%	0.462	22%	87	9%
2023	929,708	41%	0.452	58%	79	12%
2024	644,252	37%	0.317	34%	83	14%
2025	865,154	30%	0.375	33%	97	4%

Table 11. Estimated metrics and associated 95% confidence intervals for Coho Salmon parr in the Umpqua Stratum of the Oregon Coast Coho ESU. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Umpqua Stratum Coho Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
1999	263,907	44%	0.144	46%	61	25%
2000	947,507	40%	0.213	33%	73	16%
2001	516,299	47%	0.265	40%	58	17%
2002	852,391	44%	0.558	46%	74	14%
2003	837,345	35%	0.458	27%	67	14%
2004	923,622	36%	0.404	26%	67	15%
2005	508,369	35%	0.645	39%	80	14%
2006	514,918	39%	0.368	33%	73	17%
2007	960,097	34%	0.275	41%	65	15%
2008	593,066	41%	0.223	33%	63	19%
2009	1,075,136	42%	0.453	30%	73	15%
2010	752,199	39%	0.291	54%	72	13%
2011	1,115,480	28%	0.477	26%	80	11%
2012	716,040	29%	0.349	30%	73	13%
2013	666,602	27%	0.498	42%	75	13%
2014	617,845	44%	0.295	37%	78	15%
2015	959,413	43%	0.401	33%	74	12%
2016	751,757	39%	0.174	45%	74	16%
2017	556,851	45%	0.164	31%	70	18%
2018	713,140	38%	0.226	34%	76	16%
2019	682,272	40%	0.128	38%	71	14%
2020	619,890	36%	0.237	53%	72	14%
2021	476,275	31%	0.203	40%	65	16%
2022	1,316,727	22%	0.603	32%	82	11%
2023	363,109	40%	0.137	36%	68	10%
2024	804,849	30%	0.215	30%	78	15%
2025	489,373	44%	0.177	47%	79	11%

Table 12. Estimated metrics and associated 95% confidence intervals for Coho Salmon parr in the Oregon portion of the Lower Columbia River Coho ESU. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Lower Columbia River Coho ESU Coho Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
2006	113,374	54%	0.103	69%	43	28%
2007	115,289	39%	0.130	39%	72	13%
2008	214,467	96%	0.076	73%	44	26%
2009	136,558	41%	0.068	48%	41	22%
2010	179,989	42%	0.108	41%	49	18%
2011	103,458	45%	0.188	97%	44	22%
2012	72,323	33%	0.066	26%	45	17%
2013	117,372	39%	0.078	36%	52	15%
2014	84,705	57%	0.052	42%	44	23%
2015	97,896	28%	0.116	34%	46	19%
2016	21,627	55%	0.011	57%	24	31%
2017	61,780	43%	0.050	42%	39	20%
2018	90,675	41%	0.069	38%	45	20%
2019	112,044	61%	0.096	59%	46	19%
2020	80,242	63%	0.065	45%	41	26%
2021	72,295	38%	0.079	49%	33	25%
2022	147,215	30%	0.083	30%	56	15%
2023	233,268	27%	0.189	31%	64	8%
2024	107,542	37%	0.212	34%	59	15%
2025	94,954	31%	0.178	29%	59	18%

APPENDIX 2 STEELHEAD METRICS

Table 13. Estimated metrics and associated 95% confidence intervals for steelhead parr in the Oregon portion of the Klamath Mountains Province Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Klamath Mountains Province Steelhead DPS Steelhead Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
2002	202,091	34%	0.091	28%	83	8%
2003	121,823	19%	0.059	20%	90	6%
2004	131,678	18%	0.069	20%	97	4%
2005	177,326	18%	0.062	16%	94	5%
2006	133,153	28%	0.052	23%	90	7%
2007	196,727	20%	0.098	29%	93	7%
2008	200,838	27%	0.057	21%	93	5%
2009	191,378	31%	0.057	22%	89	7%
2010	205,008	20%	0.065	24%	94	5%
2011	188,466	18%	0.060	19%	92	6%
2012	146,020	20%	0.038	27%	80	9%
2013	167,523	18%	0.034	18%	83	7%
2014	131,396	26%	0.059	34%	87	11%
2015	71,675	30%	0.026	25%	85	8%
2016	109,079	28%	0.028	26%	70	12%
2017	115,284	21%	0.029	22%	79	10%
2018	79,917	35%	0.018	32%	81	8%
2019	59,402	26%	0.014	24%	57	13%
2020	118,462	32%	0.022	21%	77	13%
2021	120,542	15%	0.029	17%	88	6%
2022	138,561	17%	0.034	16%	84	9%
2023	111,993	16%	0.023	19%	84	10%
2024	111,148	18%	0.026	32%	84	10%
2025	125,970	20%	0.032	22%	90	7%

Table 14. Estimated metrics and associated 95% confidence intervals for steelhead parr in the Rogue Stratum of the Klamath Mountains Province steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Klamath Mountains Province Rogue Stratum Steelhead Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
2002	76,150	23%	0.080	38%	78	10%
2003	42,583	32%	0.056	26%	87	8%
2004	76,930	27%	0.069	25%	96	5%
2005	105,148	26%	0.064	19%	94	5%
2006	86,038	42%	0.052	28%	90	8%
2007	107,054	26%	0.107	33%	91	9%
2008	125,545	41%	0.056	25%	92	7%
2009	116,343	44%	0.061	24%	87	8%
2010	149,522	25%	0.067	28%	93	6%
2011	122,431	20%	0.065	21%	90	8%
2012	74,258	27%	0.028	41%	77	12%
2013	71,877	23%	0.028	23%	78	10%
2014	77,646	42%	0.063	40%	83	14%
2015	51,751	40%	0.025	31%	80	11%
2016	48,920	47%	0.020	37%	66	16%
2017	25,358	33%	0.022	32%	76	12%
2018	22,670	39%	0.012	39%	77	10%
2019	22,006	51%	0.007	34%	45	21%
2020	41,849	85%	0.017	35%	71	18%
2021	52,730	21%	0.021	22%	85	8%
2022	53,169	36%	0.024	25%	80	12%
2023	34,680	33%	0.014	33%	81	13%
2024	51,093	29%	0.054	22%	81	13%
2025	60,124	31%	0.027	28%	89	8%

Table 15. Estimated metrics and associated 95% confidence intervals for steelhead parr in the South Coast Stratum of the Klamath Mountains Province steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Klamath Mountains Province South Coast Stratum Steelhead Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
2002	125,941	53%	0.130	32%	100	0%
2003	79,240	22%	0.069	20%	100	0%
2004	54,748	19%	0.070	23%	100	5%
2005	72,178	24%	0.057	20%	93	9%
2006	47,115	24%	0.053	18%	93	8%
2007	89,672	32%	0.058	33%	100	0%
2008	75,293	27%	0.061	24%	100	0%
2009	75,035	39%	0.043	35%	97	5%
2010	55,486	21%	0.057	24%	100	0%
2011	66,034	35%	0.042	27%	97	5%
2012	71,762	31%	0.073	30%	90	11%
2013	95,646	28%	0.055	25%	100	0%
2014	53,750	35%	0.044	22%	100	0%
2015	19,924	31%	0.027	23%	100	0%
2016	60,159	39%	0.060	35%	85	13%
2017	89,926	24%	0.058	27%	89	13%
2018	57,247	46%	0.045	50%	94	8%
2019	37,396	28%	0.039	33%	100	0%
2020	76,612	27%	0.047	21%	100	0%
2021	67,812	22%	0.057	29%	97	5%
2022	85,393	15%	0.072	18%	100	0%
2023	77,313	19%	0.061	15%	98	4%
2024	60,056	23%	0.032	22%	95	6%
2025	65,846	25%	0.053	33%	91	8%

Table 16. Estimated metrics and associated 95% confidence intervals for steelhead parr in the Oregon Coast Steelhead DPS. Data are from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Oregon Coast Steelhead DPS Steelhead Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
2002	183,127	20%	0.035	26%	68	9%
2003	241,263	22%	0.035	17%	79	7%
2004	169,713	21%	0.032	17%	73	7%
2005	288,482	22%	0.047	26%	77	6%
2006	204,924	17%	0.028	19%	72	8%
2007	219,687	25%	0.030	21%	71	8%
2008	229,564	20%	0.030	21%	68	9%
2009	230,839	21%	0.043	19%	72	8%
2010	290,410	19%	0.034	20%	78	7%
2011	275,137	19%	0.038	14%	83	5%
2012	226,411	14%	0.032	15%	81	25%
2013	292,388	21%	0.047	17%	79	24%
2014	274,672	24%	0.029	18%	88	34%
2015	136,759	23%	0.015	28%	65	18%
2016	247,939	19%	0.020	17%	73	22%
2017	313,308	20%	0.021	16%	84	29%
2018	166,980	20%	0.018	19%	71	19%
2019	185,529	22%	0.014	17%	72	8%
2020	349,654	24%	0.030	23%	82	7%
2021	213,708	20%	0.031	34%	77	6%
2022	279,329	15%	0.029	20%	79	7%
2023	250,284	16%	0.033	28%	81	6%
2024	191,414	22%	0.026	23%	79	7%
2025	159,992	20%	0.019	16%	84	6%

Table 17. Estimated metrics and associated 95% confidence intervals for steelhead parr in the North Coast Stratum of the Oregon Coast Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Oregon Coast DPS North Coast Stratum Steelhead Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
2002	78,929	30%	0.045	27%	76	11%
2003	92,603	33%	0.064	22%	85	11%
2004	86,962	36%	0.057	24%	78	10%
2005	119,816	32%	0.063	32%	84	9%
2006	80,719	21%	0.052	26%	90	8%
2007	63,054	41%	0.058	35%	83	10%
2008	38,537	33%	0.027	32%	67	20%
2009	78,581	23%	0.093	26%	89	10%
2010	72,465	32%	0.046	27%	86	10%
2011	97,859	38%	0.072	20%	88	10%
2012	48,895	19%	0.042	22%	82	11%
2013	52,914	33%	0.059	33%	78	12%
2014	51,744	41%	0.042	33%	96	7%
2015	21,374	61%	0.015	59%	53	21%
2016	21,794	39%	0.012	51%	49	26%
2017	82,636	33%	0.026	24%	83	11%
2018	56,101	35%	0.033	29%	83	11%
2019	31,098	46%	0.022	21%	68	13%
2020	66,189	39%	0.046	50%	85	12%
2021	43,266	52%	0.028	34%	72	16%
2022	41,169	51%	0.023	46%	69	18%
2023	64,847	32%	0.043	26%	86	11%
2024	23,664	31%	0.027	38%	76	16%
2025	41,122	46%	0.023	30%	73	15%

Table 18. Estimated metrics and associated 95% confidence intervals for steelhead parr in the Mid Coast Stratum of the Oregon Coast Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Oregon Coast DPS Mid Coast Stratum Steelhead Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
2002	66,430	37%	0.045	46%	78	13%
2003	72,304	43%	0.032	30%	82	13%
2004	45,177	31%	0.046	28%	87	11%
2005	54,855	43%	0.043	66%	75	11%
2006	54,216	35%	0.028	39%	63	17%
2007	59,856	58%	0.027	44%	61	22%
2008	100,926	38%	0.053	36%	73	15%
2009	62,299	35%	0.044	41%	76	14%
2010	67,516	39%	0.037	26%	81	12%
2011	52,865	39%	0.034	30%	80	12%
2012	76,011	26%	0.051	26%	91	8%
2013	117,147	43%	0.064	31%	80	11%
2014	132,749	43%	0.039	34%	97	6%
2015	61,922	37%	0.025	47%	83	12%
2016	70,337	30%	0.033	27%	79	13%
2017	88,425	37%	0.026	32%	89	9%
2018	56,095	36%	0.017	32%	78	14%
2019	65,430	44%	0.016	32%	68	16%
2020	92,358	51%	0.026	47%	77	14%
2021	69,100	33%	0.029	28%	82	11%
2022	61,901	28%	0.022	30%	89	9%
2023	74,933	27%	0.034	37%	90	9%
2024	35,712	27%	0.021	31%	81	13%
2025	34,266	37%	0.023	30%	91	8%

Table 19. Estimated metrics and associated 95% confidence intervals for steelhead parr in the Mid-South Coast Stratum of the Oregon Coast Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Oregon Coast DPS Mid-South Coast Stratum Steelhead Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
2002	24,780	56%	0.031	76%	74	20%
2003	35,029	61%	0.038	53%	72	18%
2004	20,175	36%	0.017	49%	73	17%
2005	59,501	37%	0.048	64%	81	11%
2006	49,995	40%	0.024	59%	67	20%
2007	37,347	40%	0.016	48%	81	13%
2008	47,327	31%	0.032	40%	69	19%
2009	57,144	63%	0.029	37%	82	12%
2010	50,341	44%	0.016	36%	78	15%
2011	62,044	29%	0.026	40%	80	11%
2012	64,541	25%	0.025	28%	93	7%
2013	76,866	36%	0.035	26%	85	11%
2014	53,432	35%	0.024	42%	96	7%
2015	33,641	46%	0.015	48%	76	15%
2016	44,131	29%	0.013	53%	84	13%
2017	67,770	39%	0.020	34%	92	9%
2018	21,626	43%	0.008	45%	58	23%
2019	41,030	36%	0.008	40%	77	14%
2020	70,142	45%	0.014	44%	87	12%
2021	60,655	36%	0.035	51%	71	19%
2022	121,949	21%	0.069	32%	92	7%
2023	45,043	31%	0.047	96%	81	14%
2024	65,997	50%	0.037	56%	83	13%
2025	43,122	42%	0.019	41%	92	8%

Table 20. Estimated metrics and associated 95% confidence intervals for steelhead parr in the Umpqua Stratum of the Oregon Coast Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Oregon Coast DPS Umpqua Stratum Steelhead Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
2002	12,988	49%	0.018	66%	46	26%
2003	41,325	54%	0.014	26%	76	13%
2004	17,399	39%	0.009	43%	54	23%
2005	54,311	73%	0.038	41%	70	15%
2006	19,994	51%	0.012	44%	73	18%
2007	59,431	49%	0.022	40%	65	19%
2008	42,774	42%	0.012	49%	63	17%
2009	32,815	40%	0.016	47%	53	25%
2010	100,089	40%	0.035	54%	69	18%
2011	62,369	37%	0.026	30%	83	10%
2012	36,549	46%	0.011	34%	64	19%
2013	45,461	28%	0.030	31%	75	13%
2014	36,747	27%	0.016	35%	72	15%
2015	19,823	46%	0.006	42%	51	28%
2016	111,676	34%	0.018	24%	77	16%
2017	74,476	51%	0.013	33%	76	14%
2018	33,158	47%	0.013	47%	65	18%
2019	47,971	42%	0.009	44%	73	16%
2020	120,965	46%	0.032	34%	81	14%
2021	40,687	35%	0.033	85%	79	9%
2022	54,310	41%	0.015	48%	68	21%
2023	65,460	32%	0.017	33%	71	14%
2024	66,042	33%	0.023	49%	76	16%
2025	41,483	34%	0.014	31%	79	14%

Table 21. Estimated metrics and associated 95% confidence intervals for steelhead parr in the Oregon portion of the Lower Columbia River Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Lower Columbia River Steelhead DPS Steelhead Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
2006	30,142	47%	0.045	30%	78	18%
2007	21,259	51%	0.036	43%	67	26%
2008	9,965	47%	0.010	88%	61	31%
2009	11,920	80%	0.015	56%	58	24%
2010	23,497	55%	0.034	31%	66	19%
2011	16,102	53%	0.036	51%	67	23%
2012	12,148	64%	0.024	40%	61	31%
2013	18,283	40%	0.023	40%	68	40%
2014	12,495	49%	0.015	32%	89	93%
2015	2,676	52%	0.007	37%	50	30%
2016	2,905	42%	0.006	39%	46	29%
2017	8,870	88%	0.013	67%	60	33%
2018	5,067	41%	0.011	46%	57	28%
2019	4,441	45%	0.011	50%	60	21%
2020	1,913	44%	0.004	60%	52	28%
2021	3,474	71%	0.006	44%	44	32%
2022	5,253	41%	0.009	38%	67	18%
2023	5,943	33%	0.026	88%	64	18%
2024	2,348	88%	0.010	62%	47	29%
2025	1,691	52%	0.007	52%	54	30%

Table 22. Estimated metrics and associated 95% confidence intervals for steelhead parr in the Oregon portion of the Southwest Washington Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Southwest Washington Steelhead DPS Steelhead Parr Estimates						
Year	Abundance	±95% CI	Density	±95% CI	Percent Site Occupancy	±95% CI
2006	6,333	74%	0.014	71%	53	39%
2007	10,874	103%	0.017	75%	54	31%
2008	30,671	50%	0.023	43%	62	27%
2009	16,540	35%	0.027	44%	69	18%
2010	20,996	38%	0.036	35%	79	18%
2011	10,815	41%	0.029	41%	66	17%
2012	13,339	45%	0.024	30%	80	50%
2013	9,824	30%	0.023	37%	83	59%
2014	9,411	82%	0.021	46%	68	49%
2015	2,422	74%	0.007	80%	42	23%
2016	20,362	52%	0.022	28%	69	41%
2017	2,026	42%	0.004	54%	42	20%
2018	2,525	48%	0.003	54%	45	24%
2019	3,524	52%	0.003	39%	54	27%
2020	11,209	42%	0.012	36%	64	22%
2021	9,157	36%	0.013	46%	78	14%
2022	15,020	28%	0.025	34%	86	11%
2023	11,481	41%	0.027	34%	83	11%
2024	5,833	32%	0.019	40%	77	12%
2025	4,512	51%	0.012	52%	59	18%

APPENDIX 3 CUTTHROAT TROUT METRICS

Table 23. Estimated metrics and associated 95% confidence intervals for Cutthroat Trout in the Klamath Mountains Province Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Klamath Mountains Province DPS Cutthroat Trout Estimates				
Year	Abundance	±95% CI	Percent Site Occupancy	±95% CI
2002	26,190	47%	49	15%
2003	24,584	23%	72	8%
2004	19,470	22%	83	8%
2005	29,484	27%	81	8%
2006	23,028	20%	76	10%
2007	93,837	20%	93	5%
2008	51,650	20%	85	8%
2009	67,305	21%	86	6%
2010	42,911	32%	77	8%
2011	38,414	33%	79	9%
2012	60,582	24%	86	8%
2013	57,488	19%	83	7%
2014	68,926	31%	87	10%
2015	62,309	23%	82	8%
2016	54,852	19%	85	7%
2017	99,774	18%	94	4%
2018	86,158	19%	97	5%
2019	88,627	24%	89	6%
2020	52,926	25%	79	12%
2021	43,988	17%	91	5%
2022	42,051	23%	92	6%
2023	42,894	18%	78	17%
2024	45,535	20%	79	10%
2025	50,112	21%	95	4%

Table 24. Estimated metrics and associated 95% confidence intervals for Cutthroat Trout in the Rogue Stratum of the Klamath Mountains Province Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Klamath Mountains Province Rogue Stratum Cutthroat Trout Estimates				
Year	Abundance	±95% CI	Percent Site Occupancy	±95% CI
2002	9,394	37%	40	20%
2003	9,556	37%	57	15%
2004	11,711	27%	76	15%
2005	19,603	37%	75	13%
2006	15,616	26%	67	16%
2007	32,809	31%	91	8%
2008	31,157	24%	82	11%
2009	28,639	24%	77	11%
2010	33,372	39%	69	14%
2011	28,163	42%	75	13%
2012	39,217	31%	81	11%
2013	38,763	25%	78	10%
2014	56,950	37%	87	12%
2015	44,560	31%	78	11%
2016	35,637	21%	85	9%
2017	53,807	26%	95	5%
2018	56,246	26%	96	4%
2019	47,614	30%	87	8%
2020	25,453	47%	74	16%
2021	28,876	24%	90	6%
2022	28,339	31%	91	8%
2023	25,232	26%	76	15%
2024	31,472	26%	75	13%
2025	35,152	27%	96	5%

Table 25. Estimated metrics and associated 95% confidence intervals for Cutthroat Trout in the South Coast Stratum of the Klamath Mountains Province Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Klamath Mountains Province South Coast Stratum Cutthroat Trout Estimates				
Year	Abundance	±95% CI	Percent Site Occupancy	±95% CI
2002	16,797	70%	80	20%
2003	15,028	28%	93	6%
2004	7,759	36%	92	8%
2005	9,881	32%	93	8%
2006	7,412	30%	93	8%
2007	61,028	25%	100	0%
2008	20,494	33%	91	10%
2009	38,666	31%	100	0%
2010	9,539	39%	94	7%
2011	10,251	36%	94	8%
2012	21,365	34%	90	11%
2013	18,725	25%	97	5%
2014	11,976	31%	100	0%
2015	17,749	24%	97	6%
2016	19,215	36%	93	9%
2017	45,967	23%	96	7%
2018	29,912	29%	94	8%
2019	41,012	37%	97	5%
2020	27,473	25%	100	0%
2021	15,112	18%	95	7%
2022	13,712	25%	95	6%
2023	17,662	24%	100	0%
2024	14,063	33%	95	6%
2025	14,960	35%	93	7%

Table 26. Estimated metrics and associated 95% confidence intervals for Cutthroat Trout in the Oregon Coast Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Oregon Coast DPS Cutthroat Trout Estimates				
Year	Abundance	±95% CI	Percent Site Occupancy	±95% CI
2002	185,362	16%	86	5%
2003	139,426	16%	88	5%
2004	108,613	13%	87	5%
2005	139,004	15%	83	6%
2006	165,524	13%	94	3%
2007	138,489	15%	88	5%
2008	165,531	16%	83	5%
2009	179,238	15%	89	4%
2010	217,071	15%	88	4%
2011	195,781	14%	87	5%
2012	151,043	18%	87	5%
2013	151,133	17%	81	6%
2014	217,156	26%	88	6%
2015	199,273	21%	88	5%
2016	168,186	20%	89	5%
2017	290,105	19%	93	4%
2018	172,715	16%	88	5%
2019	138,288	15%	85	6%
2020	166,131	16%	86	6%
2021	153,296	16%	86	6%
2022	228,873	12%	88	5%
2023	220,725	18%	83	6%
2024	180,057	15%	88	5%
2025	167,270	17%	89	5%

Table 27. Estimated metrics and associated 95% confidence intervals for Cutthroat Trout in the North Coast Stratum of the Oregon Coast Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Oregon Coast DPS North Coast Stratum Cutthroat Trout Estimates				
Year	Abundance	±95% CI	Percent Site Occupancy	±95% CI
2002	92,204	26%	85	9%
2003	56,766	26%	94	6%
2004	23,025	26%	83	9%
2005	61,754	20%	88	8%
2006	40,682	21%	93	6%
2007	27,939	32%	86	10%
2008	31,559	39%	77	15%
2009	31,459	30%	79	13%
2010	43,242	24%	81	8%
2011	38,346	30%	78	13%
2012	17,545	37%	72	14%
2013	24,326	40%	71	15%
2014	27,747	35%	88	13%
2015	33,831	51%	79	13%
2016	43,668	34%	76	13%
2017	85,102	21%	93	7%
2018	43,424	24%	95	6%
2019	30,945	29%	83	11%
2020	42,950	24%	88	9%
2021	33,520	26%	95	6%
2022	37,870	37%	83	11%
2023	61,522	29%	95	6%
2024	32,555	35%	91	8%
2025	40,472	44%	87	9%

Table 28. Estimated metrics and associated 95% confidence intervals for Cutthroat Trout in the Mid Coast Stratum of the Oregon Coast Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Oregon Coast DPS Mid Coast Stratum Cutthroat Trout Estimates				
Year	Abundance	±95% CI	Percent Site Occupancy	±95% CI
2002	42,740	27%	93	8%
2003	36,998	32%	95	7%
2004	17,632	32%	79	14%
2005	28,294	26%	84	9%
2006	63,502	22%	98	4%
2007	58,180	25%	93	8%
2008	51,144	26%	93	6%
2009	62,001	30%	98	4%
2010	49,203	25%	92	8%
2011	69,715	30%	91	8%
2012	34,707	29%	87	10%
2013	45,596	37%	80	13%
2014	81,852	59%	90	10%
2015	100,111	35%	98	4%
2016	33,555	32%	92	8%
2017	44,845	24%	93	7%
2018	62,559	28%	93	8%
2019	42,002	30%	89	9%
2020	56,334	31%	86	12%
2021	65,281	30%	96	5%
2022	83,557	19%	100	0%
2023	71,113	36%	83	13%
2024	55,362	33%	88	9%
2025	51,070	31%	98	4%

Table 29. Estimated metrics and associated 95% confidence intervals for Cutthroat Trout in the Mid-South Coast Stratum of the Oregon Coast Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Oregon Coast DPS Mid-South Coast Stratum Cutthroat Trout Estimates				
Year	Abundance	±95% CI	Percent Site Occupancy	±95% CI
2002	29,588	36%	85	14%
2003	30,811	36%	78	16%
2004	35,347	23%	97	5%
2005	31,032	29%	97	6%
2006	34,607	26%	94	8%
2007	26,900	35%	87	12%
2008	57,823	32%	91	10%
2009	36,431	19%	87	11%
2010	57,263	35%	93	7%
2011	31,067	27%	93	8%
2012	31,947	20%	95	6%
2013	49,563	27%	88	13%
2014	47,351	30%	96	10%
2015	42,075	31%	95	4%
2016	29,642	30%	100	8%
2017	53,224	21%	97	7%
2018	25,855	28%	82	14%
2019	32,663	26%	92	7%
2020	28,344	23%	94	8%
2021	25,079	28%	83	13%
2022	61,598	19%	90	8%
2023	39,837	35%	89	11%
2024	49,132	24%	95	6%
2025	37,882	27%	92	8%

Table 30. Estimated metrics and associated 95% confidence intervals for Cutthroat Trout in the Umpqua Stratum of the Oregon Coast Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Oregon Coast DPS Umpqua Stratum Cutthroat Trout Estimates				
Year	Abundance	±95% CI	Percent Site Occupancy	±95% CI
2002	20,830	32%	79	8%
2003	14,852	23%	84	10%
2004	32,608	23%	91	6%
2005	17,924	64%	68	19%
2006	26,732	33%	91	10%
2007	25,471	24%	84	10%
2008	25,005	21%	71	12%
2009	49,347	35%	88	9%
2010	67,363	31%	87	10%
2011	56,654	23%	88	10%
2012	66,844	36%	91	10%
2013	31,648	28%	85	11%
2014	60,206	36%	81	13%
2015	23,255	41%	82	13%
2016	61,322	43%	89	10%
2017	106,934	46%	92	8%
2018	40,878	42%	84	11%
2019	32,678	33%	78	14%
2020	38,504	39%	81	14%
2021	29,416	35%	73	15%
2022	45,849	28%	80	15%
2023	48,253	44%	73	15%
2024	43,008	26%	83	12%
2025	37,846	29%	81	12%

Table 31. Estimated metrics and associated 95% confidence intervals for Cutthroat Trout in the Oregon portion of the Lower Columbia River Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Lower Columbia River Steelhead DPS Cutthroat Trout Estimates				
Year	Abundance	±95% CI	Percent Site Occupancy	±95% CI
2006	6,897	54%	71	15%
2007	14,773	31%	83	11%
2008	7,995	49%	88	10%
2009	11,647	39%	85	10%
2010	13,410	49%	78	11%
2011	13,335	37%	72	12%
2012	7,654	35%	73	11%
2013	10,934	30%	83	9%
2014	10,068	24%	92	7%
2015	6,759	47%	78	10%
2016	4,454	41%	72	12%
2017	7,572	34%	85	8%
2018	11,148	36%	82	8%
2019	9,548	65%	78	9%
2020	6,889	28%	91	6%
2021	12,996	38%	79	10%
2022	11,258	32%	85	8%
2023	7,754	35%	89	6%
2024	8,033	35%	80	14%
2025	4,851	35%	81	15%

Table 32. Estimated metrics and associated 95% confidence intervals for Cutthroat Trout in the Oregon portion of the Southwest Washington Steelhead DPS. Data were from un-calibrated snorkel surveys in 1st – 3rd order streams. The 95% confidence interval is expressed as a percent of the estimate.

Southwest Washington DPS Cutthroat Trout Estimates				
Year	Abundance	±95% CI	Percent Site Occupancy	±95% CI
2006	19,105	59%	90	10%
2007	6,468	36%	77	18%
2008	22,901	34%	88	12%
2009	14,151	46%	86	10%
2010	13,152	39%	76	17%
2011	9,650	37%	71	16%
2012	9,302	41%	73	17%
2013	8,759	38%	83	11%
2014	8,013	56%	86	15%
2015	10,125	46%	81	13%
2016	11,521	40%	85	12%
2017	9,966	32%	82	11%
2018	6,959	36%	78	13%
2019	13,211	40%	89	8%
2020	11,311	44%	85	12%
2021	15,950	40%	80	12%
2022	10,788	34%	86	10%
2023	12,133	23%	96	4%
2024	13,309	34%	92	7%
2025	13,904	56%	89	10%

4034 Fairview Industrial Drive SE
Salem, Oregon 97302