

Final Report

Spawning Ground Surveys, 2009-2010 Season Mattole River Watershed



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Final Report: Spawning Ground Surveys 2009-2010 Season, Mattole River Watershed

Abstract

The Mattole Salmon Group (MSG) has conducted annual spawning ground surveys in selected mainstem and tributary reaches in the Mattole River watershed for 29 consecutive seasons, from 1981-82 through 2009-10. Data are used to track long-term trends in escapement and spawner distribution for fall-run chinook salmon (*Oncorhynchus tshawytscha*) and coho salmon (*Oncorhynchus kisutch*). Some data is incidentally collected on steelhead / rainbow trout (*Oncorhynchus mykiss*). The 2009-10 spawning ground surveys covered 55.18 miles of mainstem and tributary habitat with an accumulated total of 128.83 miles surveyed due to repeat surveys in some reaches. This included coverage of approximately 58.1% of the total available habitat in the mainstem (37.75 surveyed miles of the approximately 65 total miles). The percentage of tributary habitat was much lower and is also unknown due to much more stringent property access restrictions in the tributaries as compared to the mainstem. Redd counts are used as an indicator of escapement in index reaches because of the inconsistency of live spawner sightings and the low number of carcass recoveries. The 2009-10 spawner season was characterized by an early mouth opening followed by widely spaced, short rain and flow events of below-average storm intensity. This resulted in relatively short and low stream flows, particularly early in the season and limited opportunities for fish to migrate upstream between peak flows. In particular, there was an extended low-flow period from the mouth opening in early October until mid-December. As a result, fish were trapped below naturally occurring low-flow barriers (the Honeydew Slide and Noonung Cr. gorge) for extended periods. This resulted in a good opportunity for complete surveys as fish held and waited in the few lower-river reaches they occupied. Significant spawning occurred in the lower mainstem during this period. In mid-December, small rain events allowed fish to reach the upper mainstem and tributaries. Closely spaced but small storms resulted in numerous short survey series, with the first large flow of the season occurring much later than normal, on January 19. As a result of the very late flow timing and very low numbers of live coho observed, surveys were continued later than normal in hopes of detecting a late run of coho. Surveys began on November 16, 2009 and continued intermittently as weather allowed through the last survey on February 3, 2010.

Relative to the past 15 years, the Mattole had a diminished chinook salmon run during the 2009-10 season. The number of observed redds was lower than any of those years and the Escapement Index was the second lowest for that period. This suggests that hopes raised by the runs in the mid-2000s for an increasing trend have been premature. Also, coho salmon escapement appears to have decreased relative to the past few low years and was at the lowest point of the past 15 years, with only three live fish and one redd observed. This raises questions about whether the Mattole coho population will persist in the face of the slow pace of recovery and restoration, increasing human development, and climate change.

Introduction and Methods

The 2009-10 season marked the 29th consecutive year of spawning ground surveys in the Mattole River watershed. These surveys provide data on the distribution and relative abundance of live salmon spawners, carcasses, and redds (spawning nests) in key tributaries and selected mainstem reaches. Surveys are conducted by a resident network of trained volunteers and paid personnel

by wading, canoeing or snorkeling specified stream segments one or more times during the salmon spawning season. Surveys are usually conducted from November through late January. Data are used as an indicator of changes or trends in salmon escapement, and for evaluation of progress toward restoration goals. For further background information on the program and its past data as well as data analysis techniques, please refer to the *State of the Salmon* report section on spawner surveys. The report can be found on the MSG website: www.mattolesalmon.org

Protocols

The basic protocols for conducting spawning ground surveys in the Mattole have remained consistent from the 1985-86 season to the present. In the fall of 1997, a detailed, 14-page training manual and new data forms that facilitated the recording of information in the field were developed. Minor updates to the manual and field forms were done in November 1998, 2003 and 2008.

Training

Beginning with the 2004-05 season, MSG established a one-day training session as a prelude to each season's surveys. This training covers the MSG training manual for these surveys, as well as fish identification techniques and carcass handling using an actual salmon carcass (when available) and photos and videos of live fish, redds and carcasses from past survey seasons. As in past years, on-the-job field training and quality control consisted of experienced surveyors accompanying new participants for at least the first few outings of the season or until they demonstrated proficiency. As soon as possible after each survey, the Project Coordinator reviewed data sheets and debriefed surveyors in order to clarify and correct the survey forms as necessary. After data entry, the Project Coordinator thoroughly checked each entry for errors.

Data

All survey forms, maps, photographs, scale samples and ancillary information are kept on file by the MSG. These materials are available for review by contacting the Project Coordinator. In the past, the information gathered in the field each season was entered into a Microsoft Word table and distributed as raw data compilations to agencies, funding entities, and other stakeholders and individuals. This season marks the sixth since the transition of the annual data compilation to an Excel spreadsheet format that allows easier rearrangement of the data, summary analysis and graphical presentation. The *State of the Salmon* report (MSG 2005) further consolidated and analyzed the past ten years of Microsoft Word survey data. Many of the past ten year's spawner survey data are digitized as layers in a Geographic Information System (GIS) maintained by the Mattole Restoration Council (MRC). Future plans are to continue the annual digitization of data into the GIS database and develop a query-able relational database, linked to the GIS database.

Observations of "unknown" and "not determined" were lumped together beginning with the 2004-05 season due to a lack of clear rationale for having them separate and this was continued during the 2009-10 season. These categories have in the past attempted to separate steelhead from chinook and coho when the species identification was unclear. However, in those cases where identification is unclear, the usual confusion is between coho and steelhead, since these two species are the closest in size, coloration and habitat usage relative to chinook. More importantly, the two categories created confusion for surveyors, complicated analysis of the data and introduced an unnecessary opportunity for observer bias. Lumping all unidentified observations into one "unknown species" category eliminates these problems.

Reaches

During the 2009-10 season, the following streams were surveyed at least once. They are listed in order from the headwaters downstream since that is the usual order they are surveyed as they clear up following a storm event. Maps of survey coverage are presented in Figures 3 and 4.

Danny's Creek (river mile 58.4+2.2), Yew Creek (river mile 58.4+0.15), Upper Mattole mainstem from Hulse Creek (river mile 60.5) to Metz Bridge (river mile 57.4), Thompson Creek (river mile 58.4), Baker Creek (river mile 57.6), Upper Mill Creek (river mile 56.2), Vanauken Creek (river mile 54.0), McKee Creek (river mile 52.8), Bridge Creek (river mile 52.1), the mainstem Mattole through Whitethorn (river mile 57.4 to 51.2), the South Fork of Bear Creek (river mile 42.8+6.0), the mainstem from Honeydew Creek (river mile 26.5) to MSG's Petrolia office (river mile 3.8), Clear Creek (river mile 6.1), and Lower Mill Creek (river mile 2.8).

Personnel

Sixteen people were involved in the survey effort during the 2009-10 season. All the surveyors received training in the current protocol, including five new surveyors. MSG's Project Coordinator for Spawner surveys (Campbell Thompson) was involved in 46.55 miles of survey, or about 36% of the total accumulated mileage. This is important for quality assurance and in-the-field training. Many thanks are given to all the people who participated in surveys. In no particular order, they were: Sean James, Jill Grbavac, Brock Nedland, Will Kelly, Nathan Queener, Flora Brain, Kate Cenci, Gary Peterson and John Isom. Particular thanks are due to local volunteer surveyor Tim Day. Thanks also go out to the Americorps Watershed Stewards Program for the contributions of Chris Root, Matt Hannington, Nora Talkington, Vimal Golding and Sarah Burstein.

Results

Tabular summaries of the 2009-10 survey results are appended at the end of this report. Tables were prepared separately for mainstem reaches (Tables 1-3), upper river tributaries (Tables 4-6) and lower river tributaries (Tables 7-9). Within each of these groups, there is a separate table for observations of live fish (Tables 1, 4 and 7), carcasses (Tables 2, 5 and 8), and redds (Tables 3, 6 and 9). A summary of all of the past sixteen years of Mattole spawning ground surveys is presented in Table 10. Table 11 contains the Escapement Index data for all the years of the summary table. Major findings from the 2009-10 season are discussed below and illustrated with selected figures. Interpretations and conclusions are in the following Discussion section. Figure 1 is a chart of river flow during the season and Figure 2 is a chart of river flows during the spawning season comparing 2009-10 with flows for the past four seasons. Figures 3-4 are maps of the area and reaches surveyed in 2009-10. Figure 5 depicts survey effort and coverage for each season since 1994-95. Figures 6-8 show the total number of live fish, redds, and carcasses observed by species for all of the seasons since 1994-95. Figures 9-12 depict the Escapement Index for chinook and coho for four separate subbasins for all seasons since 1994-95.

Survey timing during the 2009-10 season was roughly comparable to inventory efforts in past years. From November 16, 2009 through February 3, 2010, a total of 52 surveys were conducted. Surveys of a given reach were scheduled to maximize the observation of live fish, redds and carcasses. For a complete explanation of the factors involved and how this is accomplished please refer to the *State of the Salmon* report Spawner section on the MSG website.

Run and rainfall/flow timing were lower and later than average during this season. Figure 1 shows the flow (discharge in cubic feet per second) in the mainstem at Ettersburg during the season. A graph comparing flows this season with the past four can be found in Figure 2. The mouth of the river first opened on October 14 and salmon began migrating into the river. However, there was no more rain until early November, and the mouth re-closed on Oct. 20. The fish that had entered the river were trapped by low flows in mainstem pools downstream of Honeydew Creek. (river mile 26.5) Following a second mouth opening on November 6, more fish entered the river but the rains stopped again and fish remained trapped by low flows in the lower mainstem. Surveys commenced on November 16, 2009 with great visibility in the lower river. It was immediately apparent that there were very few coho, and the chinook had not started to spawn yet. By early December many of the first wave of chinook began to spawn in the lower mainstem reach just below Honeydew Creek. Enough rain to create sufficient flows for upstream migration finally arrived in the third week of December and adult fish finally reached the upper mainstem in the Whitethorn area. Rainfall and flows remained below average however, and very few fish were observed in any tributaries, even those that have strong spawning activity every year. However, while storm events were small and resulted in low flows, they were also frequent, resulting in insufficient time for the mainstem and downriver tributaries to clear up sufficiently for survey visibility. This meant few opportunities for spawners to reach their choice of habitat unmolested by poachers and predators, and relatively few opportunities for surveyors to observe them outside of the headwaters reaches. As a result, the amount of stream miles surveyed at least once this season was the lowest in 5 years, while accumulated miles surveyed also declined, although not as much due to many repeat surveys in the headwaters reaches that did clear after storm events. In late December these rains resulted in the first moderate flow of the season. As usual, the rain stopped soon after New Year's Day, and in early January a more complete survey series was done. Chinook continued to arrive in the headwaters in some numbers, as did the beginning of the steelhead run, while coho remained notably few. Late January saw more sustained rain and higher flows. Due to the dry fall and resulting late run timing for both species of salmon, the decision was made to survey later than usual in hopes of detecting a late run of coho. Surveyors at this time (early February) saw the lack of live fish typical of the end of the chinook and coho runs and the arrival in the headwaters of fresh steelhead. The last survey took place on February 3, 2010. Unfortunately, despite the steelhead's status as a Federally listed threatened species here in the Mattole, funding has not been available for continuing the spawner survey program during the majority of the steelhead run, which extends later into the winter months. As a result, just as in past years, this is where the survey season ends, when the majority of the steelhead arrive. However, the extended survey season did allow unusually late surveys that observed many "unknown" species designations and a preponderance of steelhead redds.

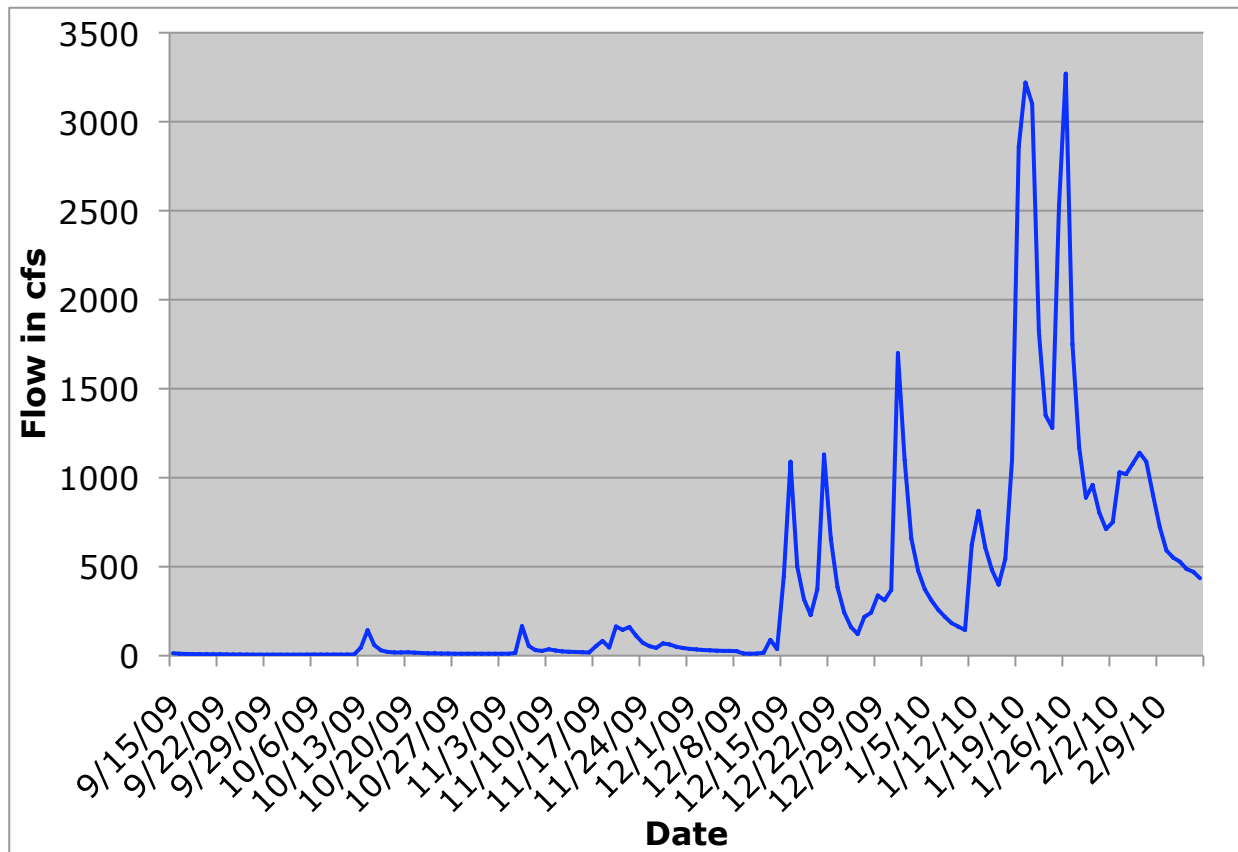


FIGURE 1: Mainstem river flow at Ettersburg during the 2009-10 MSG spawning survey season.

This data is daily mean discharge from an automatic gage operated by the U.S. Geological Service located at the bridge in Ettersburg where the county road (Telegraph Ridge Rd./Wilder Ridge Rd.) crosses the Mattole River. Further information on the gage as well as water temperature and stage height can be found on the internet at:

http://waterdata.usgs.gov/nwis/uv?dd_cd=01%2C02%2C03&format=gif&period=30&site_no=11468900. Similar information is available for a USGS gage near Petrolia.

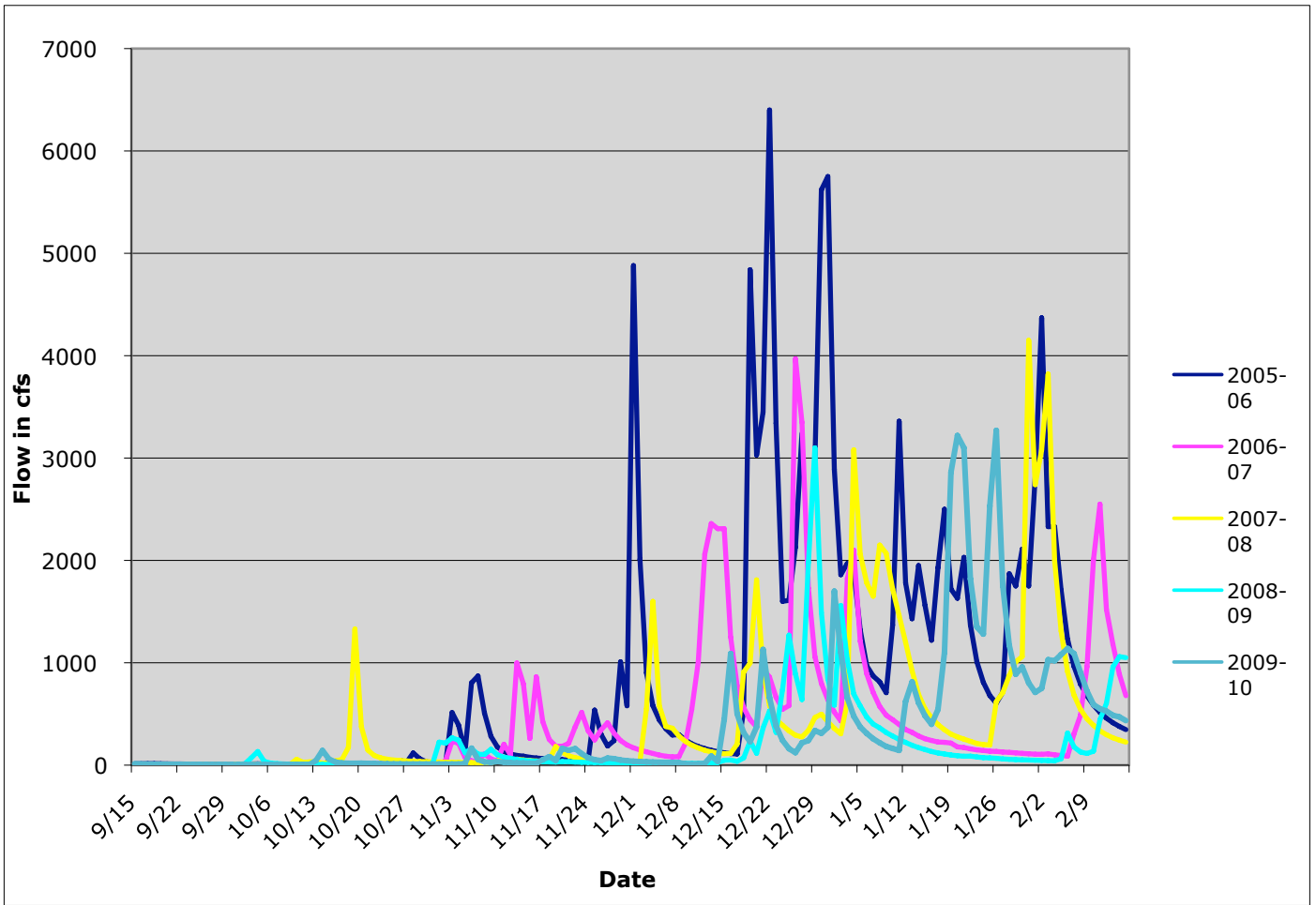


FIGURE 2: Comparison of mainstem flows at Ettersburg during the spawning season, 2005-06 through 2009-10.

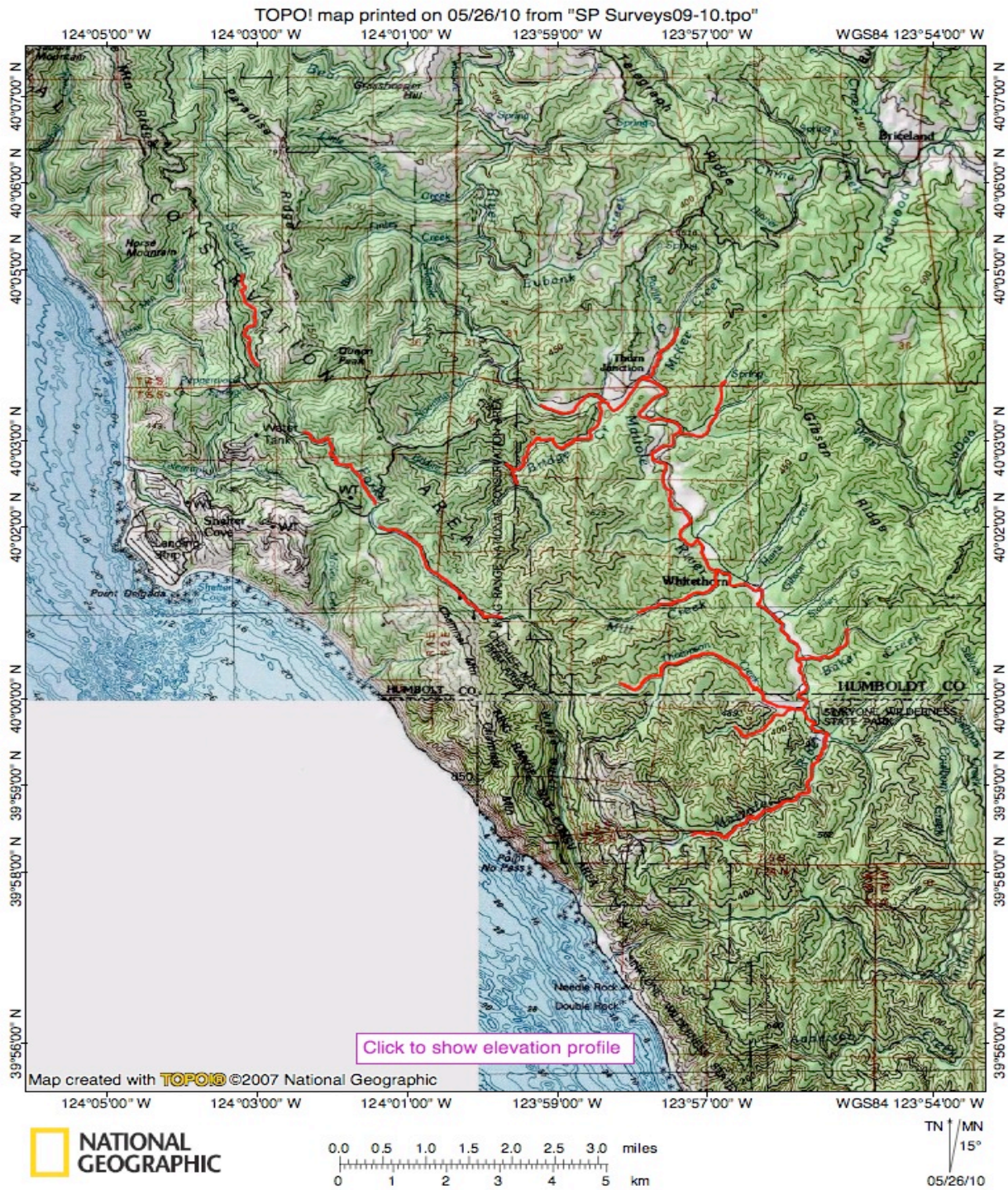


FIGURE 3: Map of surveyed reaches in upper Mattole River. Surveyed reaches are shown in red. Note that base map may be distorted due to formatting of document.

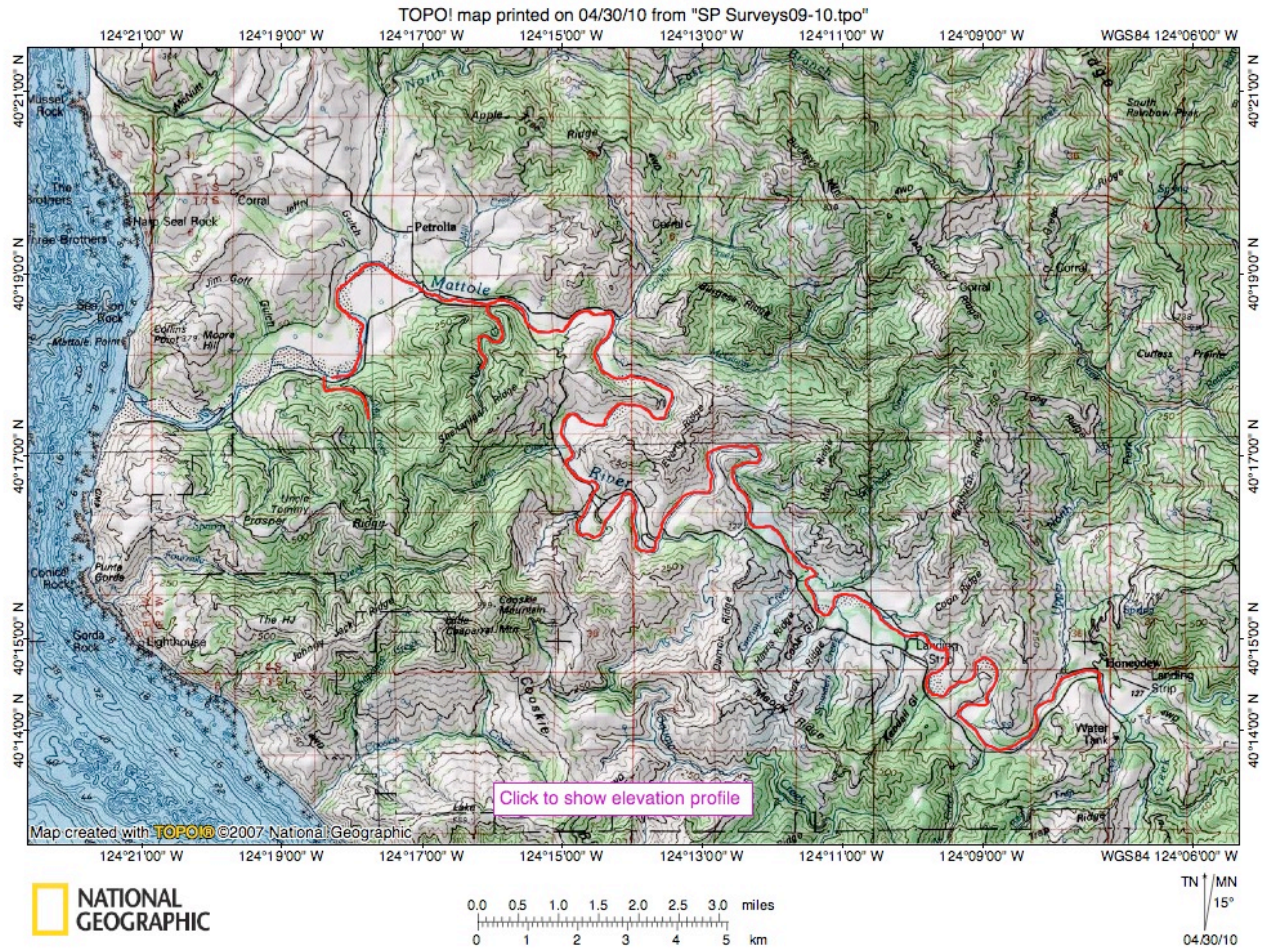


FIGURE 4: Map of surveyed reaches in lower Mattole River. Surveyed reaches are shown in red. Note that base map may be distorted due to formatting of document. Note also that Figure 4 is a different scale than Fig. 3.

Figure 5 shows miles surveyed and accumulated miles from 1994 to 2010. During the 2009-10 season 55.18 miles of mainstem and tributary habitat were inventoried. Some reaches were covered two or more times, resulting in 128.83 accumulated miles of survey. In the mainstem Mattole, 37.75 miles were surveyed (85.06 accumulated miles), comprising about 58.1% of the entire mainstem length. In the tributaries, 17.43 miles were covered (43.77 accumulated miles) in 9 sub-basins containing historically productive salmon habitat. About 28% of the tributary coverage was focused on Bear Creek, the Mattole's third-largest tributary.

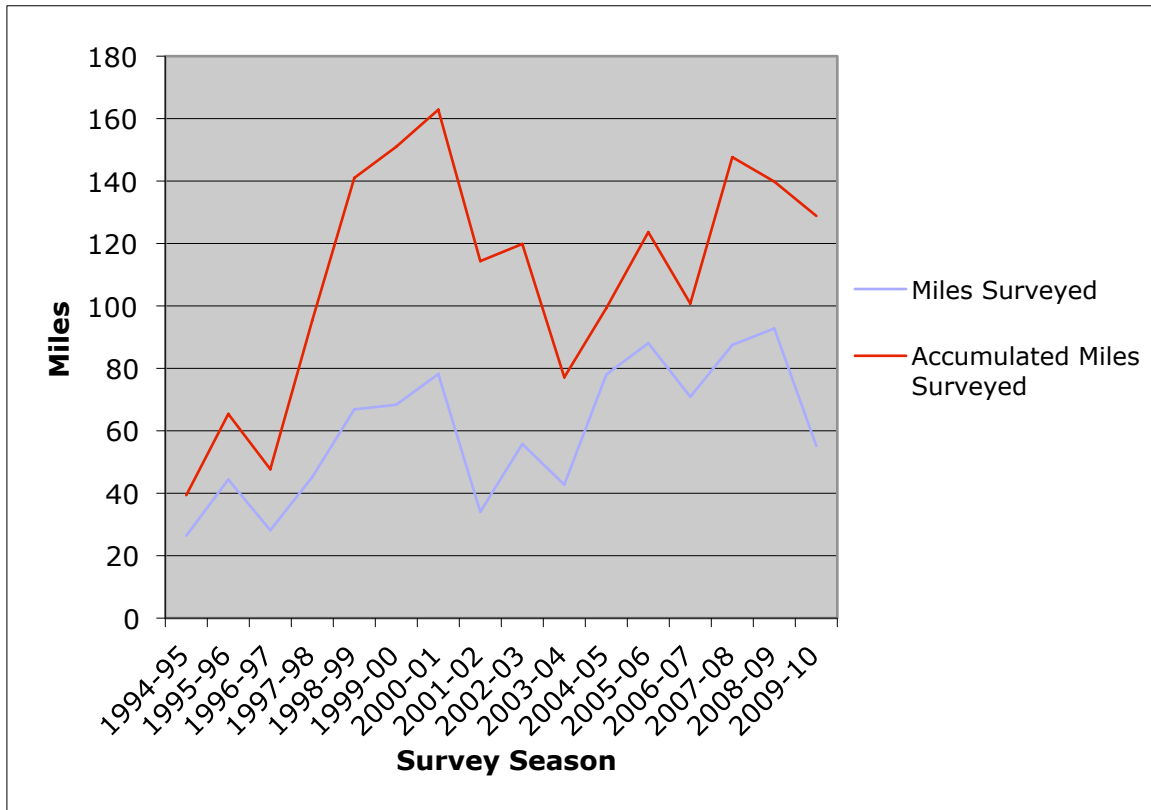


FIGURE 5: Survey effort and coverage for 1994-2010. The red line shows the accumulated miles surveyed each season (survey effort) and the blue line shows the miles of stream that were covered each season (survey coverage).

The 2009-10 accumulated mileage is above the average mileage over the past 15 years. However, the amount of stream surveyed is below the average over the past 15 years. These statistics are largely due to three factors: the storm pattern during this year’s season, availability of experienced personnel, and availability of funding. Low flows during the early season created good visibility in the lower mainstem, which in some seasons is unsurveyable due to turbidity / low visibility throughout the season, but prevented spawners from accessing any reaches besides the lower mainstem, thus limiting surveys. Frequent small storms in the remainder of the season prevented surveys in those reaches that require a week or more to clear up, limiting surveys to headwaters reaches. This resulted in many reaches going unsurveyed throughout the season and thus low total stream length surveyed. Many repeat surveys of short reaches, however, kept the accumulated miles from dropping as much as total coverage. The availability of experienced personnel this season enabled many surveys to take place rapidly in the short breaks between storms. The availability of funding allowed the extension of the survey season to include early February, which also contributed to above average accumulated mileage.

Observations of live fish and carcasses in the “unknown” species category were low relative to positive identifications, reflecting good identification skills amongst the season’s relatively experienced surveyors. The number of “unknown” designations of live fish observed dropped, largely due to the small overall number of live fish observed. These “unknown” fish are frequently seen in large schools, resulting in less certainty about the exact species of each fish, but that was not common during the 2009-10 season. The number of “unknown” redds was considerable due to the difficulty in assigning an unoccupied redd to species, particularly where coho and steelhead are concerned since they have relatively more overlap in their redd

characteristics, timing and habitat selection than chinook. Hence, the surveys during the later part of the season resulted in unusually high numbers of “unknown” species redds.

Live fish observations of chinook were much lower (100) during the 2009-10 season than any season since 2000-01 (Figure 6). As already mentioned, the season’s low flows allowed extensive and repeated surveys of lower mainstem reaches during the period that fish were trapped there by low flow. This allowed thorough observation of species composition and individual size, but also resulted in extensive repeat observations of individual fish. The same reaches were surveyed two times without intervening rainfalls and flows that would have allowed fish to migrate upstream from reach to reach. This was done in order to detect spawning activity in the lower mainstem by fish trapped there for extended periods, but artificially inflated the live fish observations, particularly for chinook because they were the prevalent species present during this period. This would appear to indicate that the overall run was quite low, however, this is countered by the fact that the two middle reaches of the mainstem went unsurveyed this season and these reaches typically produce significant numbers of chinook observations.

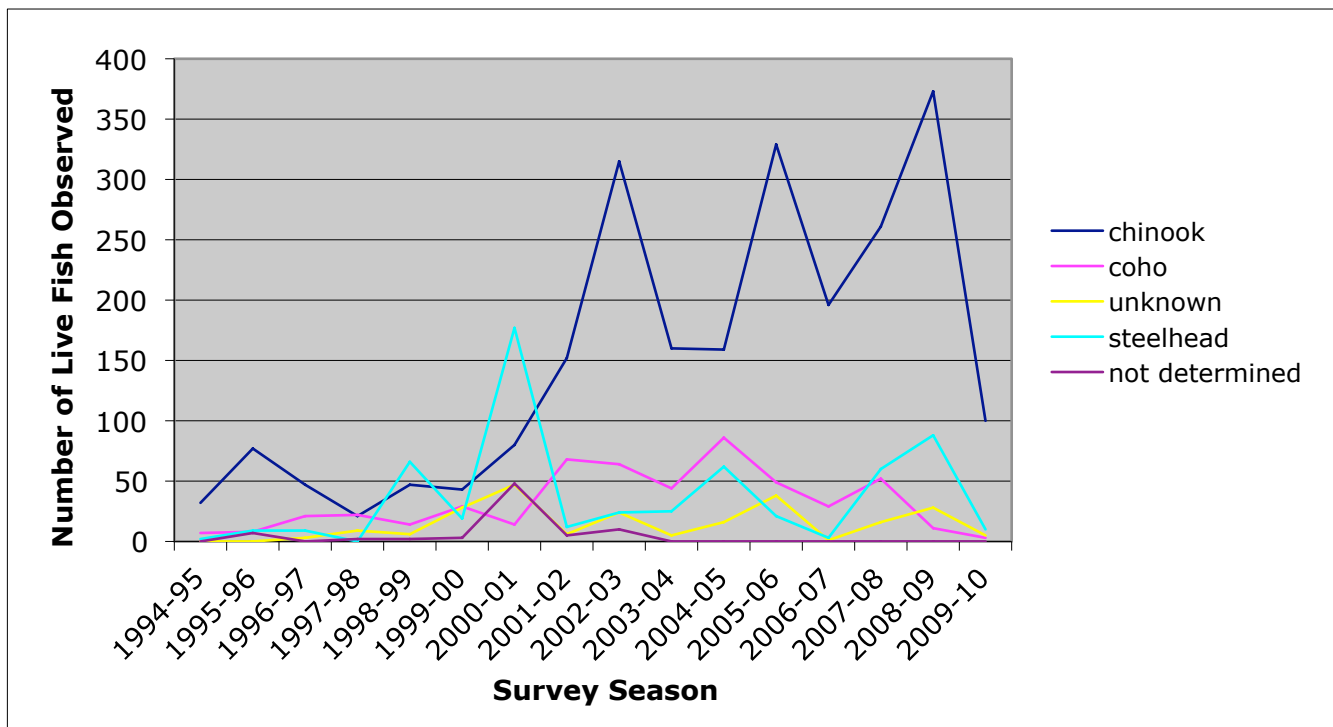


FIGURE 6: Observations of Live Adult Salmonids. Shown by species for all reaches combined for all seasons since 1994-95.

The number of redds observed this season (Figure 7) was lower than recent seasons for both salmon species and higher for steelhead and “unknown”. Unfortunately, for both salmon species there were fewer redds observed during the 2009-10 season than in any season of the past ten years. Coho in particular had fewer redds observed (1) than in any year in the 29 years of surveys. Low flows during the 2009-10 season allowed easy redd detection. The algae covering of the substrate – which forms during summer and causes the surface substrate to have a darker color than gravels that are freshly scoured by spawning activity or high flows – remained in place throughout the spawning season due to the complete lack of significantly high flows that would mobilize bedload and remove the algae. These high flows normally occur in the Mattole by the middle of the spawning season, making redds far less obvious during the later part of the season

than during the early season when the color difference makes redds easily visible. These conditions make it likely that fewer redds went undetected by surveyors than in other years. As a result, the observed drop in the numbers of redds during the 2009-10 season is likely the result of an actual decrease in the escapement rather than an artifact of survey conditions. Observations of steelhead and “unknown” redds was high, particularly during the late-season surveys in late January and early February. The reason for this was discussed in the paragraph above on “unknown” observations.

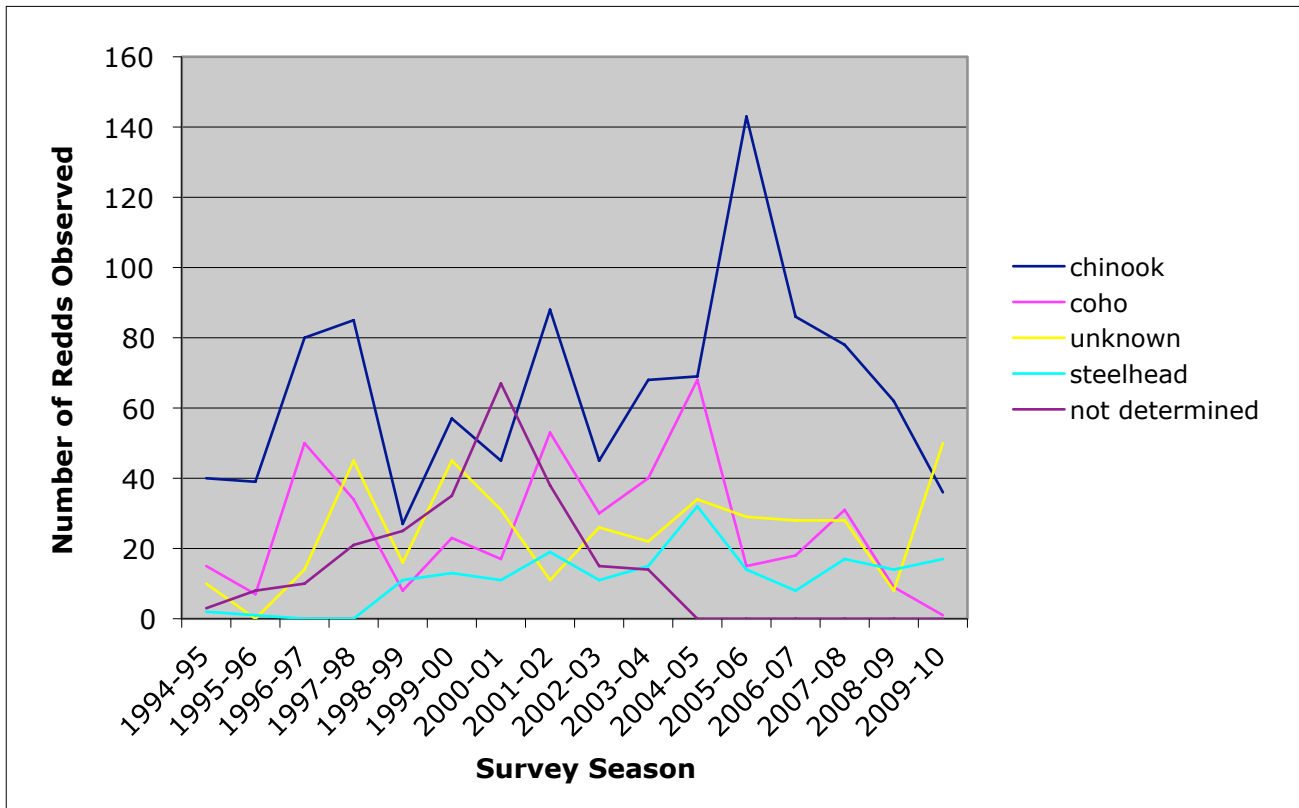


FIGURE 7: Observations of Redds. Shown by species for all reaches combined for all seasons since 1994-95.

Chinook carcass recoveries were lower (20) than the 2008-09 season (Figure 8). The repeat surveys without intervening flow events allowed improved carcass recovery by limiting the role of high flows in removing carcasses from reaches before they could be recovered. The flows kept most fish from reaching the tributaries, thus concentrating spawning in the mainstem and thereby allowing better predator saturation in the areas where spawning occurred. Thus, the observed decline in chinook carcass recoveries is most likely mainly due to decreased escapement. Carcass recoveries of the other species categories were very low due to the following reasons: very low escapement in the case of coho, the relative ease of identifying a carcass to species in the case of “unknown”, and the earliness of the surveys relative to the steelhead run timing as well as their ability to run back to ocean alive after spawning.

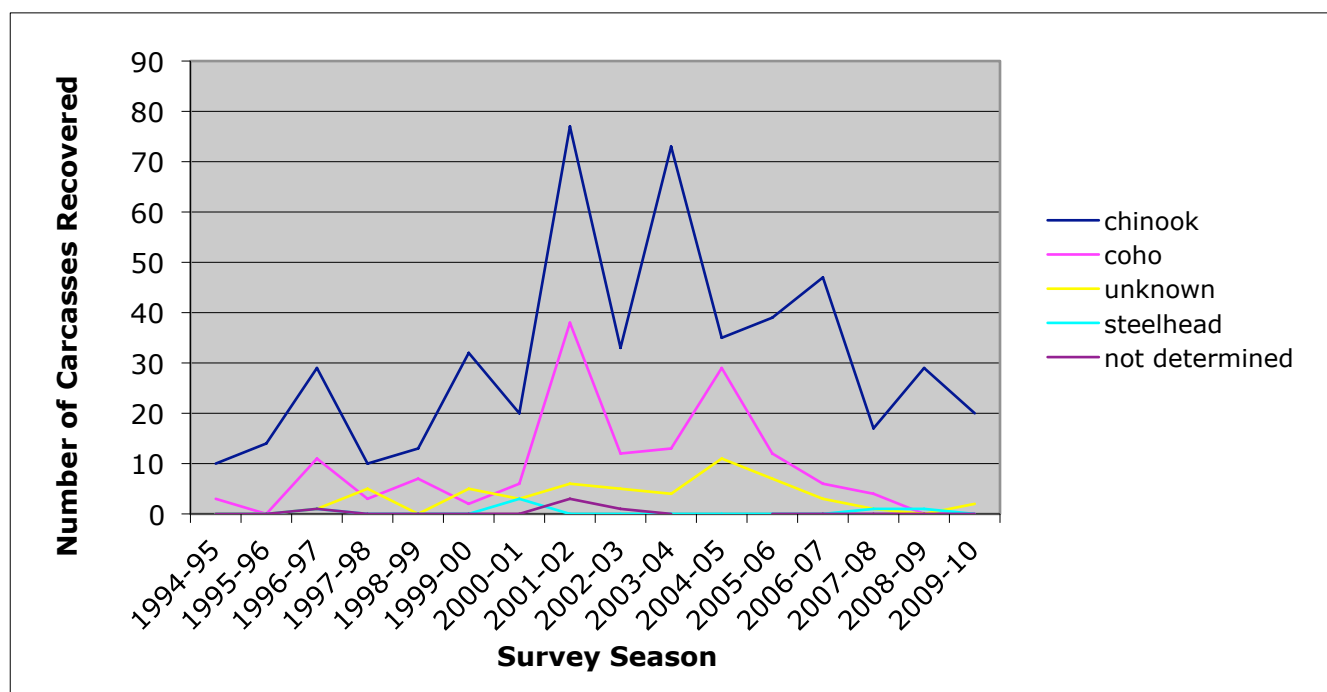


FIGURE 8: Observations of Carcasses. Shown by species for all reaches combined for all seasons since 1994-95.

The comparison between years using numbers of observations as in Figures 6, 7 and 8 is complicated not only by the difference between years in rainfall and flow timing but also by the fact that survey coverage and effort varies by season. Coverage and accumulated miles during 2009-10 were relatively average for the period from 1994 to the present (Figure 5). The fact that survey extent and effort (as indicated by total coverage and accumulated mileage) were average while observations were down would suggest the chinook run was indeed weak and the coho run almost completely missing, relative to past years. In order to compare survey seasons with varying amounts of survey coverage (total miles) and survey effort (accumulated miles) MSG utilizes an “Escapement Index” (EI) – defined as the number of redds for a given species divided by the accumulated miles surveyed for a particular watershed unit – in order to correct for variation in survey effort and a similar ratio using total miles to correct for variation in survey coverage. Please refer to the *State of the Salmon* report for further discussion and explanation.

In the case of this season, using the EI to correct for the amount of survey effort confirms the suggestions drawn from the numbers of observations in Figures 6, 7 and 8. Figure 9, showing the

EI for all reaches combined over the past 16 years, clearly shows that the Mattole chinook run declined relative to the past ten seasons and the coho run was lower than any other year in these records. EI for coho in all reaches combined was 0.008. EI has in the past always been rounded to one decimal place but this season's coho EI is so low it is necessary to shift to three decimal places in order for it to register at all.

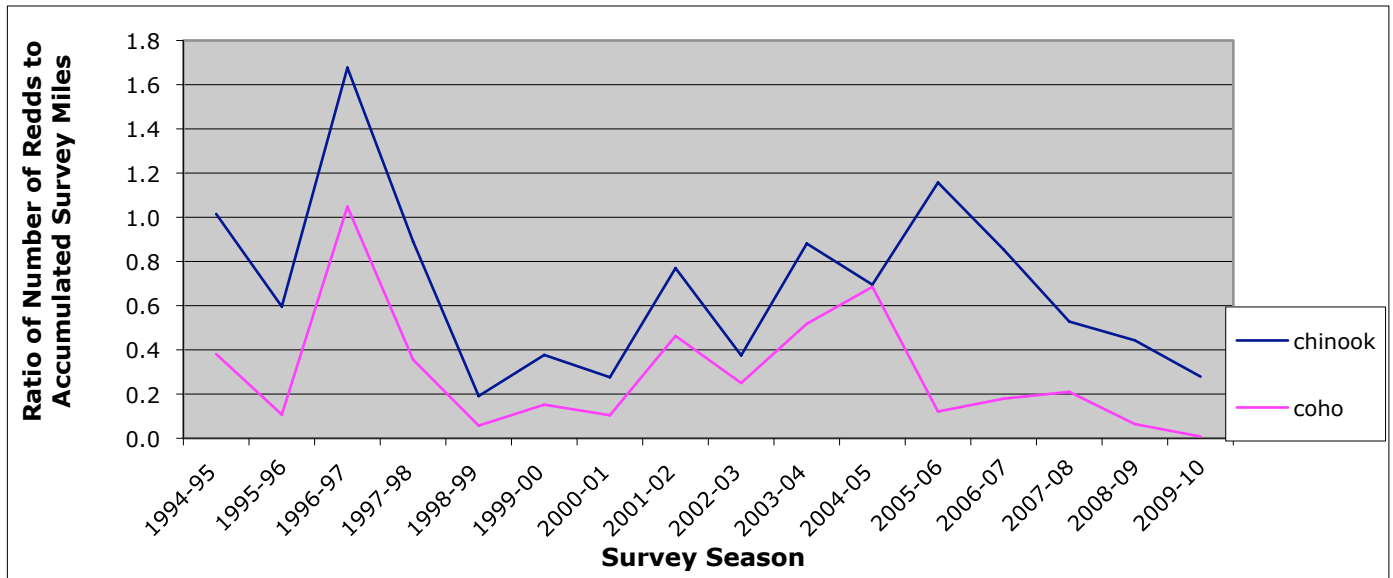


FIGURE 9: Escapement Index for all reaches combined. Shown by species for all reaches combined for all seasons since 1994-95. The EI is a comparison of number of redds observed corrected for amount of survey effort.

Figures 10 and 11 show decreases in the EI for tributaries and the upper mainstem. This is in part due to low flows preventing fish from migrating into these areas and in part due to decreased escapement this season.

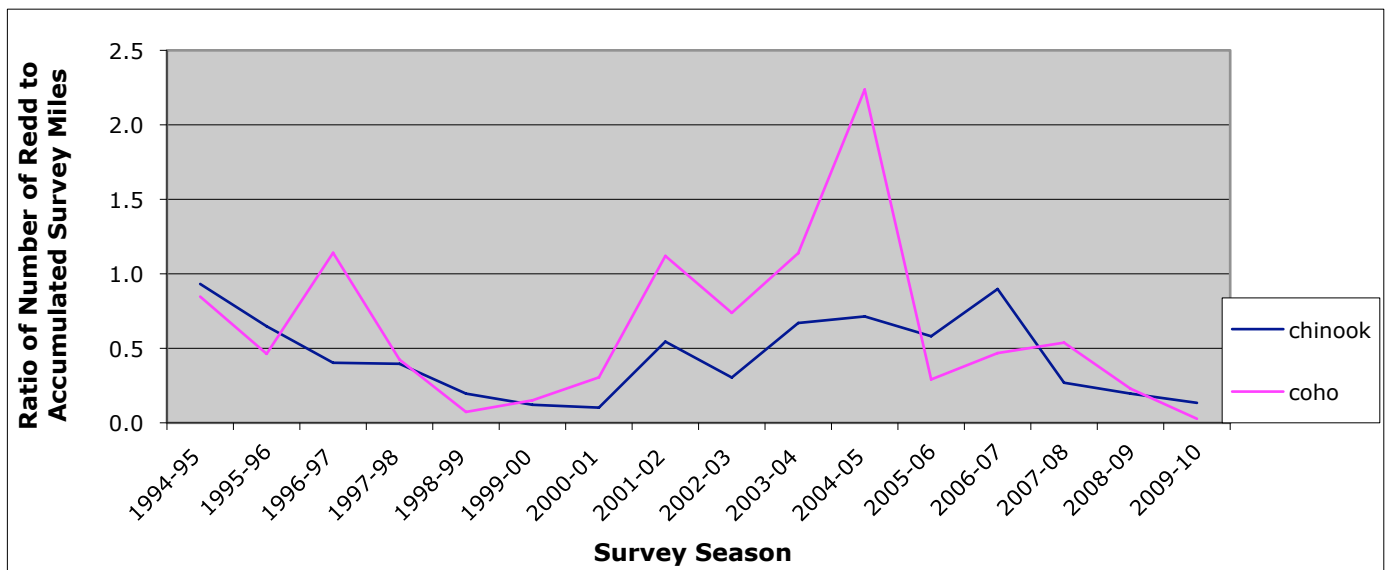


FIGURE 10: Escapement Index for all tributaries (except Bear Creek) combined. Shown by species for all tributary reaches except Bear Creek combined for all seasons since 1994-95. The EI is a comparison of number of redds observed corrected for amount of survey effort.

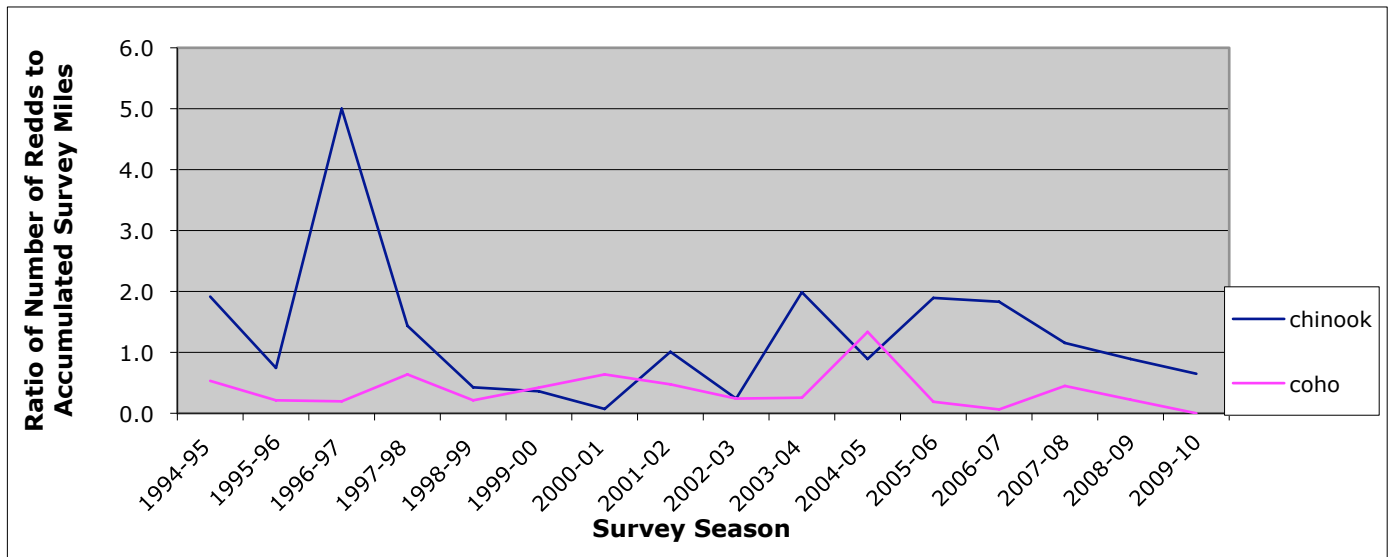


FIGURE 11: Escapement Index for uppermost mainstem Mattole River. Shown by species for all uppermost mainstem reaches (upstream of Metz bridge located at river mile 57.4) combined for all seasons since 1994-95.

Figure 12, showing the EI for Bear Creek, indicates that there were no coho redds observed in this large subbasin during the 2009-10 season despite repeated surveys. The increase in chinook EI for this season represents one redd, as opposed to zero last season. Bear Creek has a history of producing many redd observations in some years and very few in others.

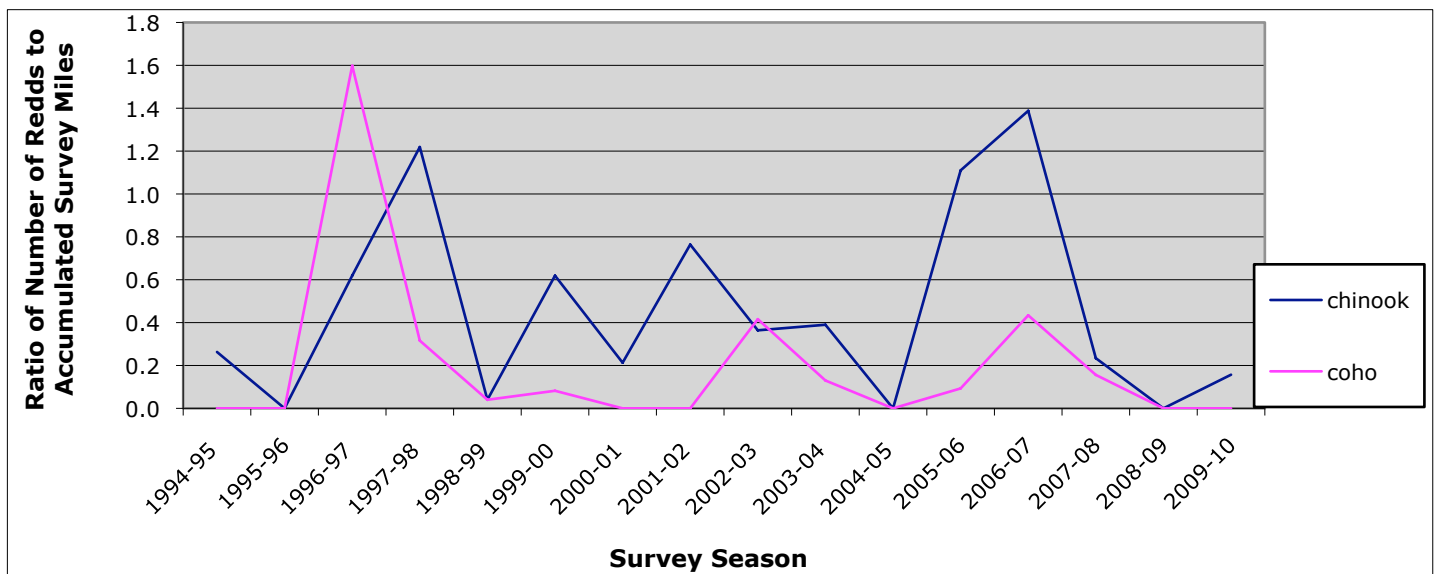


FIGURE 12: Escapement Index for Bear Creek Shown by species for all seasons since 1994-95. Reaches were surveyed in all seasons. The EI is a comparison of number of redds observed corrected for amount of survey effort.

As expected, there were no right maxillary or adipose fin clips recovered. The right maxillary clip was the mark used to indicate adult returns from MSG’s natal-stock propagation (hatchbox) program. A clipped adipose fin indicates the presence of a coded-wire tag applied to the fish as a juvenile. This mark has only been used in the Mattole by the MSG’s downriver rescue rearing

program. Both programs were discontinued by the California Dept. of Fish and Game after the release of the last juveniles in 2004. The majority of returns from the 2004 release were expected during the 2005-06 season as three-year-old fish, however, a minority could have returned during the 2006-07 season since four-year-old returns have been documented in many watersheds, including the Mattole. MSG continues to look for these and other marks in order to detect any straying from watersheds outside the Mattole.

Discussion

Coho

Coho spawning activity was concentrated in one upper tributary, despite limitations to migration posed by low flows. The one observed coho redd was located in the Thompson Creek subbasin (river mile 58.4). This subbasin is usually responsible for more coho redd observations than all other subbasins combined.

Despite the possibility of missed observations, which is true for all salmonid species and in almost every year, the data collected show that the adult coho run was down significantly from recent years by all measures. Compared to the record since 1981, coho observations were lower than in any prior year. Due to survey conditions resulting from low flows and the extended survey season, the possibility of missed observations was lower than in most years. When combined with better conditions for observation and increased survey effort in the headwaters where coho are usually observed in the greatest numbers, these factors indicate that the coho escapement during 2009-10 was at an unprecedented low.

This result in part follows expectations based on the data collected in prior years. The 2009-10 adult coho runs were primarily the progeny of the 2006-07 spawning season, which by most measures was low compared to the past 15 years (see figures above). Analysis of scales from returned coho adults in the Mattole has consistently shown that the large majority of adult returns are three years of age, but some fish return at four years of age. Hence, adult returns in 2009-10 were primarily derived from the juveniles that reared in the summer of 2007. MSG has in the past attributed the overall variation in coho observations during the spawning season to the degree of drought during the summer three years previous. The majority of high-quality coho rearing habitat in the Mattole is located in the headwaters and upper tributaries, also referred to as the Southern subbasin. (Please refer to the *Recovery Strategy for California Coho Salmon*, page 6.28 and the *North Coast Watershed Assessment Program: Mattole Report*, page 17, both available from the CA Dept. of Fish and Game). During the summer of most years, many reaches in the headwaters and upper tributaries dry up or experience very low flows, resulting in the death of most of the season's juvenile coho. 2007 was a below-average summer for flows relative to the past 8 years of summer flows. However, non-riverine factors also influence the number of returning spawners, such as ocean conditions. 2008 and 2009 were considered years of relatively good ocean conditions for juvenile salmonids. All of these factors, the 2007 summer flows and 2008-09 ocean conditions, were expected to result in fairly low but stable coho returns in 2009-10. The observed coho escapement during the 2009-10 season substantially fell short of this expectation, however. This was true all along the California coast. This suggests ocean conditions played a larger role in limiting Mattole coho populations than instream habitat for this cohort and that our understanding of ocean conditions and how they interact with salmonid survival is limited, at best.

Chinook

For chinook, there was a noticeable decrease in observations of live fish, redds, and carcasses from recent years. This was particularly the case for observations of live fish, which in 2008-09 were at the highest level for the entire period since 1994. This decline from the previous years was most likely due to a combination of low escapement and also lack of surveys in two middle mainstem reaches that are important for chinook spawning. The reduced survey coverage in the middle mainstem was counter-balanced by increased survey effort in lower and upper mainstem reaches as a result of the extended low flows which allowed good visibility and frequent repeat surveys. This resulted in multiple observations of individual live fish, improved conditions for carcass observations, and very good conditions for observing redds. However, the number of observations decreased despite these conditions. Redds are generally the most reliable observations for estimating escapement since they have a longer period of time in which they are observable and do not change location once established, eliminating multiple counting of the same redd. Additionally, given the fact that carcass observations were low compared to recent years despite good conditions for their recovery, it is likely that chinook escapement was lower in 2009-10 than in recent years, resulting in relatively fewer carcasses recovered. Comparison to the entire period since 1994 indicates that this year's chinook escapement was similar to that observed in the late 1990s, and also that survey coverage was similar this season to that in the late 1990s. The exception to this comparison being that survey effort was high in the headwaters reaches this season and perhaps as a result, chinook redd observations were also highest in the headwaters reaches this season. On the whole, the 2009-10 chinook escapement, while not as unprecedentedly low as coho escapement, was the second lowest of any other season since 1994, and certainly disappointing relative to the escapements of the mid-2000s.

Analysis of scales from returned chinook adults in the Mattole has consistently shown that the large majority of adult returning spawners are three years of age, but some fish return at four years of age. Hence, adult returns in 2009-10 were primarily derived from the juveniles that hatched and reared in the spring and summer of 2007. Referring to the above figures indicates that the 2006-07 chinook escapement was relatively high in comparison to other years. As discussed above for coho, the summer flows of 2007 resulted in conditions which did not allow many chinook juveniles to rear over the summer in the river that year (this scenario was also observed by Mattole Salmon Group dive surveys that year). Juvenile chinook which rear oversummer in freshwater achieve larger size before entering the ocean which can be expected to contribute greatly to their survival at sea and resulting return to spawn. However, this juvenile life history is less dominant in chinook than in coho. Given this, the majority of chinook young-of-the-year went to sea in Spring of 2007 instead of rearing oversummer in freshwater. Ocean conditions during the summer of 2007 were also poor for juvenile chinook as they were for juvenile coho, which seems to have played a decisive role in shaping the Mattole chinook escapement in 2009-10, as it did for coho.

TABLE 1: Mainstem Mattole 09-10 Spawner Surveys: Live Fish Observed

Survey Reach	Survey Date (m/d/y)	Reach Length (miles)	Survey Personnel	Live Fish Seen (number observed) (RM indicates a right maxillary clip and AD indicates an adipose fin clip)													
				Chinook Males (>22"FL)	Chinook Jacks (<22"FL)	Chinook Females	Chinook Sex Unknown	Marked Chinook	Coho Males (>20" FL)	Coho Jacks (<20"FL)	Coho Females	Coho Sex Unknown	Steelhead Males	Steelhead Females	Steelhead Sex Unknown	Unknown Males	Unknown Females
Upper Mainstem (MS) (from US to DS)																	
MS Mattole: Mendo County Br. to Hulse Cr.	12/18/09	2.37	BN,FB														
MS Mattole: Mendo County Br. to Hulse Cr.	12/23/09	2.37	GP,BN														
MS Mattole: Mendo County Br. to Hulse Cr.	1/4/10	2.37	GP			2											
MS Mattole: Mendo County Br. to Hulse Cr.	1/15/10	2.37	CT														
MS Mattole: Mendo County Br. to white fence	1/29/10	2.66	CT, SB, MH										1				
MS Mattole: Mendo County Br. to Metz Br.	12/19/09	2.12	CT,BN														
MS Mattole: Mendo County Br. to Metz Br.	12/23/09	2.12	CT,WK	3		4	1										
MS Mattole: Mendo County Br. to Metz Br.	1/4/10	2.12	CT,WK	1		3			2								
MS Mattole: Metz Br. to Will Bell Br.	12/24/09	5.04	GP,WK	1													
MS Mattole: Metz Br. to McKee Cr.	1/7/10	5.29	CT, JI	6		3							5				
MS Mattole: McKee Cr. to Huckleberry Ln.	11/23/09	1.63	CT														
MS Mattole: McKee Cr. to Huckleberry Ln.	1/7/10	1.63	CT, JI	1		1											
Lower Mainstem (from US to DS)																	
MS Mattole: Honeydew Cr. to Hadley Br.	11/16/09	6.17	CT,CR			2	26										
MS Mattole: Honeydew Cr. to Hadley Br.	11/25/09	6.17	KC,FB	2		2	2										
MS Mattole: Honeydew Cr. to Hadley Br.	12/1/09	6.17	JG,FB	1	1	1	10										1
MS Mattole: Hadley Br. to AW Way	11/16/09	7.29	JG, FB	1	2	1	6										
MS Mattole: Hadley Br. to AW Way	11/25/09	7.29	SJ, SB														
MS Mattole: Hadley Br. to AW Way	12/2/09	7.29	CT,KC	1	1	2	1										
MS Mattole: AW Way to Hideaway Br.	12/2/09	9.84	SJ,SB				5						1				1
MS Mattole: Hideaway Br. to MSG office	12/4/09	2.75	SJ,SB			4	1										

TABLE 2: Mainstem Mattole 09-10 Spawner Surveys: Carcasses Observed

Survey Reach	Survey Date (m/d/y)	Reach Length (miles)	Survey Personnel	Carcasses (number observed and path numbers)													
				Chinook Males (>22"FL)	Chinook Jacks (<22"FL)	Chinook Females	Chinook Sex Unknown	Marked Chinook	Coho Males (>20" FL)	Coho Jacks (<20"FL)	Coho Females	Coho Sex Unknown	Steelhead Males	Steelhead Females	Steelhead Sex Unknown	Unknown Males	Unknown Females
Upper Mainstem (from US to DS)																	
MS Mattole: Mendo County Br. to Hulse Cr.	12/18/09	2.37	BN,FB														
MS Mattole: Mendo County Br. to Hulse Cr.	12/23/09	2.37	GP,BN														
MS Mattole: Mendo County Br. to Hulse Cr.	1/4/10	2.37	GP														
MS Mattole: Mendo County Br. to Hulse Cr.	1/15/10	2.37	CT				1,3										
MS Mattole: Mendo County Br. to white fence	1/29/10	2.66	CT, SB, MH	1,1													1,3
MS Mattole: Mendo County Br. to Metz Br.	12/19/09	2.12	CT,BN														
MS Mattole: Mendo County Br. to Metz Br.	12/23/09	2.12	CT,WK														
MS Mattole: Mendo County Br. to Metz Br.	1/4/10	2.12	CT,WK	1,1-1,3-2,2		1,1	1,3										
MS Mattole: Metz Br. to Will Bell Br.	12/24/09	5.04	GP,WK	2,3													
MS Mattole: Metz Br. to McKee Cr.	1/7/10	5.29	CT, JI	1,2-1,3		2,3											
MS Mattole: McKee Cr. to Huckleberry Ln.	11/23/09	1.63	CT														
MS Mattole: McKee Cr. to Huckleberry Ln.	1/7/10	1.63	CT, JI				1,3										
Lower Mainstem (from US to DS)																	
MS Mattole: Honeydew Cr. to Hadley Br.	11/16/09	6.17	CT,CR														
MS Mattole: Honeydew Cr. to Hadley Br.	11/25/09	6.17	KC,FB														
MS Mattole: Honeydew Cr. to Hadley Br.	12/1/09	6.17	JG,FB														
MS Mattole: Hadley Br. to AW Way	11/16/09	7.29	JG, FB	1,1													
MS Mattole: Hadley Br. to AW Way	11/25/09	7.29	SJ, SB														
MS Mattole: Hadley Br. to AW Way	12/2/09	7.29	CT,KC														
MS Mattole: AW Way to Hideaway Br.	12/2/09	9.84	SJ,SB														
MS Mattole: Hideaway Br. to MSG office	12/4/09	2.75	SJ,SB														

TABLE 3: Mainstem Mattole 09-10 Spawner Surveys: Definite Fresh Redds Observed

Survey Reach	Survey Date (m/d/y)	Reach Length (miles)	Survey Personnel	Fresh Redds (number of redds and number occupied)							
				Chinook Total	Chinook Occupied	Coho Total	Coho Occupied	Steelhead Total	Steelhead Occupied	Unknown Total	Unknown Occupied
Upper Mainstem (from US to DS)											
MS Mattole: Mendo County Br. to Hulse Cr.	12/18/09	2.37	BN,FB								
MS Mattole: Mendo County Br. to Hulse Cr.	12/23/09	2.37	GP,BN	2	0						
MS Mattole: Mendo County Br. to Hulse Cr.	1/4/10	2.37	GP	4	2						
MS Mattole: Mendo County Br. to Hulse Cr.	1/15/10	2.37	CT	3	0			2	0	3	0
MS Mattole: Mendo County Br. to white fence	1/29/10	2.66	CT, SB, MH					1	0	2	0
MS Mattole: Mendo County Br. to Metz Br.	12/19/09	2.12	CT,BN							2	0
MS Mattole: Mendo County Br. to Metz Br.	12/23/09	2.12	CT,WK	3	2			2	0	2	0
MS Mattole: Mendo County Br. to Metz Br.	1/4/10	2.12	CT,WK							1	0
MS Mattole: Metz Br. to Will Bell Br.	12/24/09	5.04	GP,WK	2	0					1	0
MS Mattole: Metz Br. to McKee Cr.	1/7/10	5.29	CT, JI	4	2					1	0
MS Mattole: McKee Cr. to Huckleberry Ln.	11/23/09	1.63	CT								
MS Mattole: McKee Cr. to Huckleberry Ln.	1/7/10	1.63	CT, JI	3	1						
Lower Mainstem (from US to DS)											
MS Mattole: Honeydew Cr. to Hadley Br.	11/16/09	6.17	CT,CR	1	1						
MS Mattole: Honeydew Cr. to Hadley Br.	11/25/09	6.17	KC,FB								
MS Mattole: Honeydew Cr. to Hadley Br.	12/1/09	6.17	JG,FB	8	0					2	0
MS Mattole: Hadley Br. to AW Way	11/16/09	7.29	JG, FB								
MS Mattole: Hadley Br. to AW Way	11/25/09	7.29	SJ, SB								
MS Mattole: Hadley Br. to AW Way	12/2/09	7.29	CT,KC								
MS Mattole: AW Way to Hideaway Br.	12/2/09	9.84	SJ,SB								
MS Mattole: Hideaway Br. to MSG office	12/4/09	2.75	SJ,SB								

TABLE 4: Upper Mattole River Tributaries: 09-10 Spawner Surveys: Live Fish Observed

Survey Reach	Survey Date (m/d/y)	Reach Length (miles)	Survey Personnel	Live Fish Seen (number observed) (RM indicates a right maxillary clip and AD indicates an adipose fin clip)														
				Chinook Males (>22" FL)	Chinook Jacks (<22" FL)	Chinook Females	Chinook Sex Unknown	Marked Chinook	Coho Males (>20" FL)	Coho Jacks (<20" FL)	Coho Females	Coho Sex Unknown	Steelhead Males	Steelhead Females	Steelhead Sex Unknown	Unknown Males	Unknown Females	Unknown Species & Sex
US tribs (Bear Cr. and up, from US to DS)																		
Danny's Cr.: conf. w/ Thompson Cr. to usual major forks	12/27/09	0.61	CT															
Danny's Cr.: conf. w/ Thompson Cr. to usual major forks	1/14/10	0.61	CT															
Danny's Cr.: conf. w/ Thompson Cr. to usual major forks	1/29/10	0.42	FB, NQ															
Yew Cr.: conf. w/ Thompson Cr. to usual major bend	12/22/09	0.90	CT															
Yew Cr.: conf. w/ Thompson Cr. to usual major bend	1/3/10	0.90	GP, BN															
Yew Cr.: conf. w/ Thompson Cr. to usual major bend	1/14/10	0.90	CT, JG															
Yew Cr.: conf. w/ Thompson Cr. to usual major bend	1/29/10	0.90	FB, NQ															
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	12/19/09	2.20	SJ, WK															
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	12/24/09	2.20	BN, CR															
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	1/5/10	2.20	CT, JI															
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	1/16/10	2.20	FB, NQ															
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	2/2/10	2.20	FB, SB															
Baker Cr.: conf. w/ Mattole to usual major forks	12/28/09	0.94	JG, WK															
Baker Cr.: conf. w/ Mattole to usual major forks	1/3/10	0.94	CT, JI															
Baker Cr.: conf. w/ Mattole to usual major forks	2/3/10	0.94	NQ, VG, MH														1	1
Upper Mill Cr.: conf. w/ Mattole to usual major forks	12/19/09	1.26	FB, NQ															
Upper Mill Cr.: conf. w/ Mattole to usual major forks	12/28/09	1.26	JG, WK															
Upper Mill Cr.: conf. w/ Mattole to usual major forks	1/4/10	1.26	BN, JI															
Upper Mill Cr.: conf. w/ Mattole to usual major forks	2/3/10	1.26	NQ, VG, MH															
Vanauken Cr.: conf. w/ Mattole to usual rd. crossing	12/28/09	1.14	CT, BN															
Vanauken Cr.: conf. w/ Mattole to usual rd. crossing	1/6/10	1.14	CT															
McKee Cr.: conf. w/ Mattole to third major fork	12/28/09	0.91	CT, BN															
McKee Cr.: conf. w/ Mattole to third major fork	1/5/10	0.91	GP															
Bridge Cr.: conf. w/ Mattole to bridges on E. and W. Forks	12/18/09	2.30	CT, WK															
Bridge Cr.: conf. w/ Mattole to bridges on E. and W. Forks	12/26/09	2.30	GP, BN															
Bridge Cr.: conf. w/ Mattole to bridges on E. and W. Forks	1/5/10	2.30	JG, WK															
S. Fork Bear Cr.: Hidden Valley Cr. To forks by Edwards	2/3/10	1.78	FB, SB, NT															
S. Fk. Bear Cr.: Linge/Brown Br. To Shelter Cove Rd.	12/28/09	1.60	GP, CR															
S. Fk. Bear Cr.: Tolkan CG to Queens Mine Rd.	12/29/09	1.50	BN, WK, TD															
S. Fk. Bear Cr.: Tolkan CG to Queens Mine Rd.	1/10/10	1.50	CT, SJ															

TABLE 5: Upper Mattole River Tributaries: 09-10 Spawner Surveys: Carcasses Observed

Survey Reach	Survey Date (m/d/y)	Reach Length (miles)	Survey Personnel	Carcasses (number observed and path numbers)															
				Chinook Males (>22"FL)	Chinook Jacks (<22"FL)	Chinook Females	Chinook Sex Unknown	Marked Chinook	Coho Males (>20" FL)	Coho Jacks (<20"FL)	Coho Females	Coho Sex Unknown	Steelhead Males	Steelhead Females	Steelhead Sex Unknown	Unknown Males	Unknown Females	Unknown Species & Sex	
US tribs (Bear Cr. and up, from US to DS)																			
Danny's Cr.: conf. w/ Thompson Cr. to usual major forks	12/27/09	0.61	CT																
Danny's Cr.: conf. w/ Thompson Cr. to usual major forks	1/14/10	0.61	CT																
Danny's Cr.: conf. w/ Thompson Cr. to usual major forks	1/29/10	0.42	FB, NQ																
Yew Cr.: conf. w/ Thompson Cr. to usual major bend	12/22/09	0.90	CT																
Yew Cr.: conf. w/ Thompson Cr. to usual major bend	1/3/10	0.90	GP, BN																
Yew Cr.: conf. w/ Thompson Cr. to usual major bend	1/14/10	0.90	CT, JG																
Yew Cr.: conf. w/ Thompson Cr. to usual major bend	1/29/10	0.90	FB, NQ																
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	12/19/09	2.20	SJ, WK																
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	12/24/09	2.20	BN, CR																
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	1/5/10	2.20	CT, JI																
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	1/16/10	2.20	FB, NQ																
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	2/2/10	2.20	FB, SB																
Baker Cr.: conf. w/ Mattole to usual major forks	12/28/09	0.94	JG, WK																
Baker Cr.: conf. w/ Mattole to usual major forks	1/3/10	0.94	CT, JI																
Baker Cr.: conf. w/ Mattole to usual major forks	2/3/10	0.94	NQ, VG, MH																
Upper Mill Cr.: conf. w/ Mattole to usual major forks	12/19/09	1.26	FB, NQ																
Upper Mill Cr.: conf. w/ Mattole to usual major forks	12/28/09	1.26	JG, WK																
Upper Mill Cr.: conf. w/ Mattole to usual major forks	1/4/10	1.26	BN, JI																
Upper Mill Cr.: conf. w/ Mattole to usual major forks	2/3/10	1.26	NQ, VG, MH																
Vanauken Cr.: conf. w/ Mattole to usual rd. crossing	12/28/09	1.14	CT, BN																
Vanauken Cr.: conf. w/ Mattole to usual rd. crossing	1/6/10	1.14	CT																
McKee Cr.: conf. w/ Mattole to third major fork	12/28/09	0.91	CT, BN																
McKee Cr.: conf. w/ Mattole to third major fork	1/5/10	0.91	GP																
Bridge Cr.: conf. w/ Mattole to bridges on E. and W. Forks	12/18/09	2.30	CT, WK																
Bridge Cr.: conf. w/ Mattole to bridges on E. and W. Forks	12/26/09	2.30	GP, BN	1,2-1,3				1,3											
Bridge Cr.: conf. w/ Mattole to bridges on E. and W. Forks	1/5/10	2.30	JG, WK	1,3													1,3		
S. Fork Bear Cr.: Hidden Valley Cr. To forks by Edwards	2/3/10	1.78	FB, SB, NT																
S. Fk. Bear Cr.: Linge/Brown Br. To Shelter Cove Rd.	12/28/09	1.60	GP, CR																
S. Fk. Bear Cr.: Tolkan CG to Queens Mine Rd.	12/29/09	1.50	BN, WK, TD																
S. Fk. Bear Cr.: Tolkan CG to Queens Mine Rd.	1/10/10	1.50	CT, SJ																

TABLE 6: Upper Mattole River Tributaries: 09-10 Spawner Surveys: Definite Fresh Redds Observed

Survey Reach	Survey Date (m/d/y)	Reach Length (miles)	Survey Personnel	Fresh Redds (number of redds and number occupied)							
				Chinook Total	Chinook Occupied	Coho Total	Coho Occupied	Steelhead Total	Steelhead Occupied	Unknown Total	Unknown Occupied
US tribes (Bear Cr. and up, from US to DS)											
Danny's Cr.: conf. w/ Thompson Cr. to usual major forks	12/27/09	0.61	CT			1	0				
Danny's Cr.: conf. w/ Thompson Cr. to usual major forks	1/14/10	0.61	CT							1	0
Danny's Cr.: conf. w/ Thompson Cr. to usual major forks	1/29/10	0.42	FB, NQ					1	0	1	0
Yew Cr.: conf. w/ Thompson Cr. to usual major bend	12/22/09	0.90	CT								
Yew Cr.: conf. w/ Thompson Cr. to usual major bend	1/3/10	0.90	GP, BN								
Yew Cr.: conf. w/ Thompson Cr. to usual major bend	1/14/10	0.90	CT, JG								
Yew Cr.: conf. w/ Thompson Cr. to usual major bend	1/29/10	0.90	FB, NQ							5	0
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	12/19/09	2.20	SJ, WK								
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	12/24/09	2.20	BN, CR								
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	1/5/10	2.20	CT, JI	1	0			2	0	2	0
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	1/16/10	2.20	FB, NQ							3	0
Thompson Cr.: conf. w/ Mattole to conf. w/ Danny's Cr.	2/2/10	2.20	FB, SB							5	0
Baker Cr.: conf. w/ Mattole to usual major forks	12/28/09	0.94	JG, WK							1	0
Baker Cr.: conf. w/ Mattole to usual major forks	1/3/10	0.94	CT, JI								
Baker Cr.: conf. w/ Mattole to usual major forks	2/3/10	0.94	NQ, VG, MH					1	0	1	1
Upper Mill Cr.: conf. w/ Mattole to usual major forks	12/19/09	1.26	FB, NQ								
Upper Mill Cr.: conf. w/ Mattole to usual major forks	12/28/09	1.26	JG, WK								
Upper Mill Cr.: conf. w/ Mattole to usual major forks	1/4/10	1.26	BN, JI								
Upper Mill Cr.: conf. w/ Mattole to usual major forks	2/3/10	1.26	NQ, VG, MH							5	0
Vanauken Cr.: conf. w/ Mattole to usual rd. crossing	12/28/09	1.14	CT, BN								
Vanauken Cr.: conf. w/ Mattole to usual rd. crossing	1/6/10	1.14	CT					1	1		
McKee Cr.: conf. w/ Mattole to third major fork	12/28/09	0.91	CT, BN								
McKee Cr.: conf. w/ Mattole to third major fork	1/5/10	0.91	GP								
Bridge Cr.: conf. w/ Mattole to bridges on E. and W. Forks	12/18/09	2.30	CT, WK							1	0
Bridge Cr.: conf. w/ Mattole to bridges on E. and W. Forks	12/26/09	2.30	GP, BN	4	0						
Bridge Cr.: conf. w/ Mattole to bridges on E. and W. Forks	1/5/10	2.30	JG, WK								
S. Fork Bear Cr.: Hidden Valley Cr. To forks by Edwards	2/3/10	1.78	FB, SB, NT							9	0
S. Fk. Bear Cr.: Linge/Brown Br. To Shelter Cove Rd.	12/28/09	1.60	GP, CR								
S. Fk. Bear Cr.: Tolkan CG to Queens Mine Rd.	12/29/09	1.50	BN, WK, TD	1	0						
S. Fk. Bear Cr.: Tolkan CG to Queens Mine Rd.	1/10/10	1.50	CT, SJ					7	0	2	0

TABLE 7: Lower Mattole River Tributaries: 09-10 Spawner Surveys: Live Fish Observed

Survey Reach	Survey Date (m/d/y)	Reach Length (miles)	Survey Personnel	Live Fish Seen (number observed) (RM indicates a right maxillary clip and AD indicates an adipose fin clip)													
				Chinook Males (>22" FL)	Chinook Jacks (<22" FL)	Chinook Females	Chinook Sex Unknown	Marked Chinook	Coho Males (>20" FL)	Coho Jacks (<20" FL)	Coho Females	Coho Sex Unknown	Steelhead Males	Steelhead Females	Steelhead Sex Unknown	Unknown Males	Unknown Females
DS Tribes (from US to DS)																	
Clear Cr.: conf. w/ Mattole to waterfall	1/11/10	1.29	SJ														
Lower Mill Cr.: conf. w/Mattole to past second fork	12/30/09	1.00	BN														

TABLE 8: Lower Mattole River Tributaries: 09-10 Spawner Surveys: Carcasses Observed

Survey Reach	Survey Date (m/d/y)	Reach Length (miles)	Survey Personnel	Carcasses (number observed and path numbers)													
				Chinook Males (>22"FL)	Chinook Jacks (<22"FL)	Chinook Females	Chinook Sex Unknown	Marked Chinook	Coho Males (>20" FL)	Coho Jacks (<20"FL)	Coho Females	Coho Sex Unknown	Steelhead Males	Steelhead Females	Steelhead Sex Unknown	Unknown Males	Unknown Females
DS Tribe (from US to DS)																	
Clear Cr.: conf. w/ Mattole to waterfall	1/11/10	1.29	SJ														
Lower Mill Cr.: conf. w/Mattole to past second fork	12/30/09	1.00	BN														

TABLE 9: Lower Mattole River Tributaries: 09-10 Spawner Surveys: Definite Fresh Redds Observed											
Survey Reach	Survey Date (m/d/y)	Reach Length (miles)	Survey Personnel	Fresh Redds (number of redds and number occupied)							
				Chinook Total	Chinook Occupied	Coho Total	Coho Occupied	Steelhead Total	Steelhead Occupied	Unknown Total	Unknown Occupied
DS Tribe (from US to DS)											
Clear Cr.: conf. w/ Mattole to waterfall	1/11/10	1.29	SJ								
Lower Mill Cr.: conf. w/Mattole to past second fork	12/30/09	1.00	BN								

TABLE 10: Data summary for 1994-95 through 2009-2010 seasons: Spawner Surveys, Mattole River watershed

Spawning ground surveys in the Mattole, ongoing since the 1981-82 season, have focused primarily on assessments of fall-run chinook salmon. Survey effort, coverage and timing have varied somewhat from season to season, depending upon such factors as funding, availability of trained personnel, weather conditions and water visibility. Number of redds per mile was calculated as total redds divided by reach length. Surveys conducted by the Mattole Salmon Group (phone 707-629-3433; fax 707-629-3435; e-mail: msg@mattolesalmon.org). Data summary for 1994-2003 prepared by Gary D. Peterson, MSG fisheries biologist (last updated February 2003), and data summary for 2003-2010 prepared by Campbell Thompson, MSG Project Coordinator and fisheries biologist (last updated April 2010). Starting with 2004-05, UN and ND are lumped together as UN.

Key to Abbreviations: **KS** = king (chinook) salmon; **SS** = silver (coho) salmon; **UN** = unknown if chinook or coho; **SH** = steelhead; **ND** = species not determined

Survey Season & inclusive dates	Survey Reaches (results displayed for 6 mainstem segments, for Bear Creek, & as pooled data for all other Mattole tributaries)	Reach Length (miles)	Accumulated Survey Miles	Live Fish Seen					Carcasses & Skeletons					Number of Definite Redds					Number of Redds Per Mile		
				KS	SS	UN	SH	ND	KS	SS	UN	SH	ND	KS	SS	UN	SH	ND		Total Redds	
1994-95 11/14/94 to 1/23/95	Mattole headwaters index reach (Stanley Creek to Hulse Creek)	4.7	9.4	9	4	-	-	-	1	2	-	-	-	18	5	6	-	3	32	6.8	
	upper mainstem, Whitethorn area to Thorn Jct. (Stanley Cr. to McKee Cr.)	<i>not surveyed</i>																			
	upper mainstem, Thorn Junction index reach (McKee Cr. to "Raintree" area)	1.6	1.6	4	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	3	1.9
	middle mainstem index reach above Ettersburg (Eubanks Cr. to Bear Cr.)	1.6	3.2	2	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	0.6
	middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	0.5	1	-	-	-	-	-	7	-	-	-	-	-	1	-	-	-	-	1	2
	lower mainstem Mattole River (downstream from Honeydew Creek)	0.6	0.6	15	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	3	5
	tributaries (except Bear Creek)	9.8	11.8	2	3	-	2	-	2	1	-	-	-	-	11	10	3	2	-	26	2.7
	Bear Creek (enters Mattole River at Ettersburg)	7.6	11.4	-	-	-	-	-	-	-	-	-	-	-	3	-	1	-	-	4	0.5
ALL REACHES COMBINED 1994-95 SEASON	26.4	39.4	32	7	-	2	-	10	3	-	-	-	-	40	15	10	2	3	70	2.7	
1995-96 12/1/95 to 1/15/96	Mattole headwaters index reach (Stanley Creek to Hulse Creek)	4.7	9.4	6	3	-	-	-	-	-	-	-	-	7	2	-	-	4	13	2.8	
	upper mainstem, Whitethorn area to Thorn Jct. (Stanley Cr. to McKee Cr.)	4.1	4.1	3	-	-	2	-	-	-	-	-	-	1	-	-	1	-	2	0.5	
	upper mainstem, Thorn Junction index reach (McKee Cr. to "Raintree" area)	2.1	4.2	11	-	-	-	-	1	-	-	-	-	3	-	-	-	-	3	1.4	
	middle mainstem index reach above Ettersburg (Eubanks Cr. to Bear Cr.)	4.9	11.3	23	-	-	-	-	7	-	-	-	-	16	-	-	-	-	16	3.3	
	middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	8.2	10.2	3	1	-	-	-	1	-	-	-	-	4	-	-	-	1	5	0.6	
	lower mainstem Mattole River (downstream from Honeydew Creek)	4	4	28	-	-	-	6	2	-	-	-	-	1	-	-	-	-	1	0.3	
	tributaries (except Bear Creek)	7.5	10.8	3	4	-	4	1	3	-	-	-	-	7	5	-	-	2	14	1.9	
	Bear Creek (enters Mattole River at Ettersburg)	8.9	11.4	-	-	-	3	-	-	-	-	-	-	-	-	-	-	1	1	0.1	
ALL REACHES COMBINED 1995-96 SEASON	44.4	65.4	77	8	-	9	7	14	-	-	-	-	39	7	-	1	8	55	1.2		

Survey Season & inclusive dates	Survey Reaches (results displayed for 6 mainstem segments, for Bear Creek, & as pooled data for all other Mattole tributaries)	Reach Length (miles)	Accumulated Survey Miles	Live Fish Seen					Carcasses & Skeletons					Number of Definite Redds					Number of Redds Per Mile	
				KS	SS	UN	SH	ND	KS	SS	UN	SH	ND	KS	SS	UN	SH	ND		Total Redds
1996-97 12/13/96 to 1/10/97	Mattole headwaters index reach (Stanley Creek to Hulse Creek)	4.7	10.2	33	8	2	-	-	27	1	1	-	1	51	2	1	-	9	63	13.4
	upper mainstem, Whitethorn area to Thorn Jct. (Stanley Cr. to McKee Cr.)	<i>not surveyed</i>																		<i>not surveyed</i>
	upper mainstem, Thorn Junction index reach (McKee Cr. to "Raintree" area)	1.6	3.2	3	-	-	-	-	2	-	-	-	-	11	-	-	-	-	11	6.9
	middle mainstem index reach above Ettersburg (Big Finley Cr. to Bear Cr.)	<i>not surveyed</i>																		<i>not surveyed</i>
	middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	<i>not surveyed</i>																		<i>not surveyed</i>
	lower mainstem Mattole River (downstream from Honeydew Creek)	<i>not surveyed</i>																		<i>not surveyed</i>
	tributaries (except Bear Creek)	9.25	14.9	5	3	1	1	-	-	3	-	1	-	6	17	1	-	-	24	2.6
	Bear Creek (enters Mattole River at Ettersburg)	12.6	19.4	1	9	-	-	-	-	7	-	-	-	12	31	12	-	1	56	4.4
ALL REACHES COMBINED 1996-97 SEASON	28.15	47.7	47	21	3	9	-	29	11	1	1	1	80	50	14	-	10	154	5.5	
1997-98 11/28/97 to 1/10/98	Mattole headwaters index reach (Stanley Creek to Hulse Creek)	4.7	18.8	8	9	4	-	-	1	3	-	-	-	27	12	14	-	9	62	13.2
	upper mainstem, Whitethorn area to Thorn Jct. (Stanley Cr. to McKee Cr.)	<i>not surveyed</i>																		<i>not surveyed</i>
	upper mainstem, Thorn Junction index reach (McKee Cr. to "Raintree" area)	1.6	6.4	2	-	1	-	-	2	-	-	-	-	6	-	-	-	-	6	3.8
	middle mainstem index reach above Ettersburg (Big Finley Cr. to Bear Cr.)	4.6	4.6	1	-	-	-	-	1	-	-	-	-	11	-	-	-	-	11	2.4
	middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	8.1	8.1	-	-	2	-	-	2	-	-	-	-	-	-	-	-	-	0	0
	lower mainstem Mattole River (downstream from Honeydew Creek)	<i>not surveyed</i>																		<i>not surveyed</i>
	tributaries (except Bear Creek)	16.35	35.35	-	12	-	-	2	-	-	1	-	-	14	15	5	-	10	44	2.7
	Bear Creek (enters Mattole River at Ettersburg)	9.85	22.15	10	1	-	-	-	4	-	4	-	-	27	7	26	-	2	62	6.3
ALL REACHES COMBINED 1997-98 SEASON	45.2	95.4	21	22	9	-	2	10	3	5	-	-	85	34	45	-	21	185	4.1	

Survey Season & inclusive dates	Survey Reaches (results displayed for 6 mainstem segments, for Bear Creek, & as pooled data for all other Mattole tributaries)	Reach Length (miles)	Accumulated Survey Miles	Live Fish Seen					Carcasses & Skeletons					Number of Definite Redds						Number of Redds Per Mile
				KS	SS	UN	SH	ND	KS	SS	UN	SH	ND	KS	SS	UN	SH	ND	Total Redds	

1998-99 12/4/98 to 1/29/99 (+ spot check on 2/11/99)	Mattole headwaters index reach (Stanley Creek to Hulse Creek)	4.7	18.8	7	2	2	3	-	2	2	-	-	-	8	4	7	3	6	28	6
	upper mainstem, Whitethorn area to Thorn Jct. (Stanley Cr. to McKee Cr.)	4.3	8.6	1	-	-	3	-	2	2	-	-	-	1	-	6	1	1	9	2.1
	upper mainstem, Thorn Junction index reach (McKee Cr. to "Raintree" area)	1.6	5.5	8	1	2	8	-	1	-	-	-	-	1	-	-	-	1	2	1.3
	middle mainstem index reach above Ettersburg (Big Finley Cr. to Bear Cr.)	4.6	9.2	14	-	1	-	-	3	1	-	-	-	6	-	-	-	1	7	1.5
	middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	9.75	21.2	12	-	-	29	-	4	1	-	-	-	2	-	-	-	-	2	0.2
	lower mainstem Mattole River (downstream from Honeydew Creek)	11.5	11.8	1	-	-	8	-	-	-	-	-	-	-	-	-	-	-	0	0
	tributaries (except Bear Creek)	20	40.85	4	6	1	11	-	-	1	-	-	-	8	3	1	5	10	27	1.4
	Bear Creek (enters Mattole River at Ettersburg)	10.4	25.05	-	5	-	4	2	-	-	-	-	-	1	1	2	2	6	12	1.2
ALL REACHES COMBINED 1998-99 SEASON	66.85	141	47	14	6	66	2	13	7	-	-	-	27	8	16	11	25	87	1.3	

1999- 2000 11/24/99 to 1/27/00	Mattole headwaters index reach (Stanley Creek to Hulse Creek)	4.7	16.6	3	7	1	8	1	-	-	-	-	-	6	7	9	3	12	37	7.9
	upper mainstem, Whitethorn area to Thorn Jct. (Stanley Cr. to McKee Cr.)	4.3	8.6	3	2	3	-	-	2	-	-	-	-	6	2	6	-	1	15	3.5
	upper mainstem, Thorn Junction index reach (McKee Cr. to "Raintree" area)	1.6	4.8	10	3	-	-	-	-	-	1	-	-	10	-	2	-	-	12	7.5
	middle mainstem index reach above Ettersburg (Big Finley Cr. to Bear Cr.)	4.6	18.4	12	10	17	4	1	7	-	3	-	-	9	7	8	-	-	24	5.2
	middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	9.75	21.2	7	-	1	3	-	10	-	1	-	-	7	-	3	-	-	10	1
	lower mainstem Mattole River (downstream from Honeydew Creek)	12	24	1	-	-	1	-	2	-	-	-	-	-	-	-	-	-	0	0
	tributaries (except Bear Creek)	18.3	33.15	-	1	-	3	1	2	2	-	-	-	4	5	4	5	15	33	1.8
	Bear Creek (enters Mattole River at Ettersburg)	13.1	24.25	7	6	6	-	-	9	-	-	-	-	15	2	13	5	7	42	3.2
ALL REACHES COMBINED 1999-2000 SEASON	68.35	151	43	29	28	19	3	32	2	5	-	-	57	23	45	13	35	173	2.5	

Survey Season & inclusive dates	Survey Reaches (results displayed for 6 mainstem segments, for Bear Creek, & as pooled data for all other Mattole tributaries)	Reach Length (miles)	Accumulated Survey Miles	Live Fish Seen					Carcasses & Skeletons					Number of Definite Redds						Number of Redds Per Mile
				KS	SS	UN	SH	ND	KS	SS	UN	SH	ND	KS	SS	UN	SH	ND	Total Redds	

2000-2001	Mattole headwaters index reach (Stanley Creek to Hulse Creek)	4.7	14.1	-	5	2	7	-	-	2	-	2	-	1	9	14	8	34	56	11.9	
	upper mainstem, Whitethorn area to Thorn Jct. (Stanley Cr. to McKee Cr.)	4.3	8.6	-	-	-	3	-	-	-	-	-	-	-	-	5	-	3	8	1.9	
	upper mainstem, Thorn Junction index reach (McKee Cr. to "Raintree" area)	1.6	3.2	-	3	-	-	1	-	-	-	-	-	-	-	-	-	1	1	0.6	
	middle mainstem index reach above Ettersburg (Big Finley Cr. to Bear Cr.)	4.6	13.8	-	-	1	1	3	4	1	1	-	-	5	1	2	-	9	17	3.7	
	12/2/00 to 2/2/01	middle mainstem below Ettersburg (Bear Creek to Bundle Prairie Creek)	17.5	46.75	66	2	27	81	27	11	-	2	-	-	27	1	7	-	7	42	2.4
	lower mainstem Mattole River (downstream from Bundle Prairie Cr.)	23.9	42.6	10	-	17	83	17	2	-	-	-	-	7	-	-	-	1	8	0.3	
	tributaries (except Bear Creek)	12.25	19.7	-	4	-	-	-	-	3	-	1	-	2	6	3	3	9	23	1.9	
	Bear Creek (enters Mattole River at Ettersburg)	9.35	14.1	4	-	-	2	-	3	-	-	-	-	3	-	-	-	3	6	0.6	
ALL REACHES COMBINED 2000-2001 SEASON	78.2	162.85	80	14	47	177	48	20	6	3	3	-	45	17	31	11	67	171	2.2		

2001-2002	Mattole headwaters index reach (Stanley Creek to Hulse Creek)	4.7	33.7	87	32	2	2	-	34	28	3	-	1	34	16	2	10	17	79	16.8	
	upper mainstem, Whitethorn area to Thorn Jct. (Stanley Cr. to McKee Cr.)	4.3	11	14	5	4	4	1	18	4	-	-	-	9	-	-	-	-	9	2.1	
	upper mainstem, Thorn Junction index reach (McKee Cr. to "Raintree" area)	1.6	3.2	5	-	-	-	-	2	1	-	-	-	4	-	-	-	-	4	2.5	
	middle mainstem index reach above Ettersburg (Big Finley Cr. to Bear Cr.)	4.6	4.6	-	-	-	-	2	1	-	-	-	-	1	-	-	-	-	1	0.2	
	11/30/01 to 1/24/02	middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	<i>not surveyed</i>																	<i>not surveyed</i>	
	lower mainstem Mattole River (downstream from Honeydew Creek)	<i>not surveyed</i>																			<i>not surveyed</i>
	tributaries (except Bear Creek)	9.95	33.05	10	31	-	3	2	5	5	2	-	2	18	37	9	8	19	91	9.1	
	Bear Creek (enters Mattole River at Ettersburg)	8.9	28.8	36	-	-	3	-	17	-	1	-	-	22	-	-	1	2	25	2.8	
ALL REACHES COMBINED 2001-2002 SEASON	34.05	114.35	152	68	6	12	5	77	38	6	-	3	88	53	11	19	38	209	6.1		

Survey Season & inclusive dates	Survey Reaches (results displayed for 6 mainstem segments, for Bear Creek, & as pooled data for all other Mattole tributaries)	Reach Length (miles)	Accumulated Survey Miles	Live Fish Seen					Carcasses & Skeletons					Number of Definite Redds						Number of Redds Per Mile
				KS	SS	UN	SH	ND	KS	SS	UN	SH	ND	KS	SS	UN	SH	ND	Total Redds	

2002-2003 11/21/02 to 1/20/03	Mattole headwaters index reach (Stanley Creek to Hulse Creek)	4.7	16.6	4	14	3	1	-	4	-	-	-	1	4	4	3	1	1	13	2.8
	upper mainstem, Whitethorn area to Thorn Jct. (Stanley Cr. to McKee Cr.)	4.3	8.75	-	3	1	1	-	11	4	1	-	-	1	1	1	-	1	4	0.9
	upper mainstem, Thorn Junction index reach (McKee Cr. to "Raintree" area)	1.6	3.2	-	-	-	-	-	4	2	-	-	-	1	-	-	-	-	1	0.6
	2003 middle mainstem index reach above Ettersburg (Big Finley Cr. to Bear Cr.)	<i>Not Surveyed</i>																		<i>not surveyed</i>
	11/21/02 to 1/20/03 middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	2.9	2.9	4	1	1	-	2	2	-	1	-	-	1	-	-	-	-	1	0.3
	1/20/03 lower mainstem Mattole River (downstream from Honeydew Creek)	25	46.01	281	18	17	13	8	8	-	-	-	-	24	-	-	-	4	28	1.1
	1/20/03 tributaries (except Bear Creek)	9.15	23.05	16	20	1	8	-	2	4	1	-	-	7	17	13	10	8	55	6
	1/20/03 Bear Creek (enters Mattole River at Ettersburg)	8.1	19.25	10	8	1	1	-	2	2	2	-	-	7	8	9	-	1	25	3.1
ALL REACHES COMBINED 2002-2003 SEASON	55.75	119.85	315	64	24	24	10	33	12	5	-	1	45	30	26	11	15	127	2.3	

2003-2004 12/7/2003 to 1/23/2004	Mattole headwaters index reach (Metz's bridge to Hulse Creek)	5	15.6	58	17	4	-	-	38	6	1	-	-	31	4	10	-	-	45	9
	2003-2004 upper mainstem, Whitethorn area to Thorn Jct. (Upper Mill Cr. to McKee Cr.)	4.2	8.4	17	-	-	6	-	16	-	1	-	-	6	-	1	2	2	11	2.6
	2003-2004 upper mainstem, Thorn Junction index reach (McKee Cr. to "Raintree" area)	1.6	3.2	11	-	-	-	-	8	-	-	-	-	2	-	-	-	-	2	1.3
	2004 middle mainstem index reach above Ettersburg (Big Finley Cr. to Bear Cr.)	4.6	4.7	-	-	-	1	-	-	-	-	-	-	3	-	-	-	-	3	0.7
	12/7/2003 to 1/23/2004 middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	<i>not surveyed</i>																		<i>not surveyed</i>
	1/23/2004 lower mainstem Mattole River (downstream from Honeydew Creek)	<i>not surveyed</i>																		<i>not surveyed</i>
	1/23/2004 tributaries (except Bear Creek)	19.45	29.85	45	25	1	18	-	11	7	2	-	-	20	34	11	13	12	90	4.6
	1/23/2004 Bear Creek (enters Mattole River at Ettersburg)	7.9	15.4	29	2	0	0	-	-	-	-	-	-	6	2	-	-	-	8	1
ALL REACHES COMBINED 2003-2004 SEASON	42.75	77.15	160	44	5	25	-	73	13	4	-	-	68	40	22	15	14	159	3.7	

Survey Season & inclusive dates	Survey Reaches (results displayed for 6 mainstem segments, for pooled upper river tributaries (Bear Creek and up), & as pooled data for lower river tributaries (downstream of Bear Cr.)	Reach Length (miles)	Accumulated Survey Miles	Live Fish Seen				Carcasses & Skeletons				Number of Definite Redds					Number of Redds Per Mile
				KS	SS	UN+ND	SH	KS	SS	UN+ND	SH	KS	SS	UN+ND	SH	Total Redds	

2004-	Mattole headwaters index reach (Metz's bridge to Hulse Creek)	4.49	13.47	11	13	1	2		10	20	3	-		12	18	9	4		43	9.6
	upper mainstem, Whitethorn area to Thorn Jct. (Upper Mill Cr. to McKee Cr.)	4.12	8.24	-	7	-	46		5	1	1	-		2	2	4	7		15	3.6
	upper mainstem, Thorn Junction index reach (McKee Cr. to Huckleberry Ln.)	1.63	3.26	3	-	-	-		-	-	-	-		1	1	-	1		3	1.8
2005	middle mainstem index reach above Ettersburg (Big Finley Cr. to Bear Cr.)	5.1	5.1	39	11	3	2		5	-	-	-		13	-	-	-		13	2.5
	11/20/04 to 1/24/05 middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	18.74	18.74	37	10	9	2		-	-	-	-		11	-	-	-		11	0.6
	lower mainstem Mattole River (downstream from Honeydew Creek)	23.32	23.32	64	11	-	4		2	-	2	-		15	-	-	-		15	0.6
	upper river tributaries (Bear Creek and upstream)	14.74	20.57	2	34	3	4		8	8	2	-		13	47	21	20		101	6.8
	lower river tributaries (downstream of Bear Creek)	5.87	6.6	3	-	-	2		5	-	3	-		2	-	-	-		2	0.3
	ALL REACHES COMBINED 2004-2005 SEASON	78.01	99.3	159	86	16	62		35	29	11	-		69	68	34	32		203	2.6

2005-	Mattole headwaters index reach (Metz's bridge to Hulse Creek)	4.49	15.84	59	8	3	11		11	3	4	0		30	3	8	5		46	10.2
	upper mainstem, Whitethorn area to Thorn Jct. (Upper Mill Cr. to McKee Cr.)	5.29	7.63	40	15	5	2		6	0	0	0		16	0	0	0		16	3.0
	upper mainstem, Thorn Junction index reach (McKee Cr. to Huckleberry Ln.)	1.63	1.63	24	0	1	0		1	0	0	0		12	0	1	0		13	8.0
2006	middle mainstem index reach above Ettersburg (Big Finley Cr. to Bear Cr.)	5.1	5.1	82	1	2	0		3	0	0	0		40	0	2	0		42	8.2
	11/19/05 to 1/25/06 middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	18.74	18.74	25	5	1	0		6	1	0	0		10	0	1	0		11	0.6
	lower mainstem Mattole River (downstream from Honeydew Creek)	26.05	26.05	39	4	19	3		0	0	0	0		1	0	0	0		1	0.0
	upper river tributaries (Bear Creek and upstream)	19.54	41.41	53	16	7	5		11	8	2	0		30	12	17	9		68	3.5
	lower river tributaries (downstream of Bear Creek)	7.24	7.24	7	0	0	0		1	0	1	0		4	0	0	0		4	0.6
	ALL REACHES COMBINED 2005-2006 SEASON	88.08	123.64	329	49	38	21		39	12	7	-		143	15	29	14		201	2.3

Survey Season & inclusive dates	Survey Reaches (results displayed for 6 mainstem segments, for pooled upper river tributaries (Bear Creek and up), & as pooled data for lower river tributaries (downstream of Bear Cr.)	Reach Length (miles)	Accumulated Survey Miles	Live Fish Seen				Carcasses & Skeletons				Number of Definite Redds					Number of Redds Per Mile
				KS	SS	UN+ ND	SH	KS	SS	UN+ ND	SH	KS	SS	UN+ ND	SH	Total Redds	

2006- 2007 11/10/06 to 1/16/07	Mattole headwaters index reach (Hulse Creek to Metz's bridge)	4.49	15.84	35	9	0	2		27	1	0	0		29	1	7	1		38	8.5
	upper mainstem, Whitethorn area to Thorn Jct. (Metz's bridge to McKee Creek)	5.29	6.46	6	2	0	0		1	0	0	0		0	0	2	0		2	0.4
	upper mainstem, Thorn Junction index reach (McKee Creek to Huckleberry Lane)	1.63	1.63	0	0	0	0		0	0	0	0		2	0	0	0		2	1.2
	middle mainstem index reach above Ettersburg (Big Finley Creek to Bear Creek)	5.10	5.10	17	2	0	0		1	0	0	0		4	0	0	1		5	1.0
	middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	18.74	18.74	54	2	0	0		2	0	0	0		12	0	1	0		13	0.7
	lower mainstem Mattole River (downstream from Honeydew Creek)	15.84	15.84	19	2	1	0		0	0	0	0		0	0	1	0		1	0.1
	upper river tributaries (Bear Creek and upstream)	16.40	33.75	65	12	0	1		16	5	3	0		38	17	17	6		78	4.8
	lower river tributaries (downstream of Bear Creek)	3.40	3.40	0	0	0	0		0	0	0	0		1	0	0	0		1	0.3
	ALL REACHES COMBINED 2006-2007 SEASON	70.89	100.76	196	29	1	3		47	6	3	0		86	18	28	8		140	2.0

2007- 2008 11/5/07 to 1/23/08	Mattole headwaters index reach (Hulse Creek to Metz's bridge)	4.49	15.59	15	4	0	1		4	2	0	0		18	7	7	0		32	7.1
	upper mainstem, Whitethorn area to Thorn Jct. (Metz's bridge to McKee Creek)	5.29	10.55	1	2	0	7		3	0	0	0		6	2	3	1		12	2.3
	upper mainstem, Thorn Junction index reach (McKee Creek to Huckleberry Lane)	1.63	3.26	11	3	1	12		3	0	0	0		9	0	0	2		11	6.7
	middle mainstem index reach above Ettersburg (Big Finley Creek to Bear Creek)	5.10	10.20	36	1	0	28		1	0	0	1		19	0	2	2		23	4.5
	middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	18.74	18.74	21	9	0	1		0	0	0	0		4	0	0	1		5	0.3
	lower mainstem Mattole River (downstream from Honeydew Creek)	25.67	39.33	164	18	10	4		3	0	0	0		9	0	3	0		12	0.5
	upper river tributaries (Bear Creek and upstream)	18.76	36.86	13	15	5	3		3	2	1	0		11	22	13	9		55	2.9
	lower river tributaries (downstream of Bear Creek)	7.86	13.12	0	0	0	4		0	0	0	0		2	0	0	2		4	0.5
	ALL REACHES COMBINED 2007-2008 SEASON	87.54	147.65	261	52	16	60		17	4	1	1		78	31	28	17		154	1.8

Survey Season & inclusive dates	Survey Reaches (results displayed for 6 mainstem segments, for pooled upper river tributaries (Bear Creek and up), & as pooled data for lower river tributaries (downstream of Bear Cr.)	Reach Length (miles)	Accumulated Survey Miles	Live Fish Seen				Carcasses & Skeletons				Number of Definite Redds					Number of Redds Per Mile
				KS	SS	UN+ ND	SH	KS	SS	UN+ ND	SH	KS	SS	UN+ ND	SH	Total Redds	

2008- 2009 10/22/08 to 1/20/09	Mattole headwaters index reach (Hulse Creek to Metz's bridge)	4.49	8.98	24	2	1	1		13	0	0	0		8	2	1	2		13	2.9
	upper mainstem, Whitethorn area to Thorn Jct. (Metz's bridge to McKee Creek)	5.29	5.29	0	0	0	0		0	0	0	0		1	0	0	0		1	0.2
	upper mainstem, Thorn Junction index reach (McKee Creek to Huckleberry Lane)	1.63	1.63	0	0	0	0		0	0	0	0		0	0	0	0		0	0.0
	middle mainstem index reach above Ettersburg (Big Finley Creek to Bear Creek)	5.10	5.10	26	0	0	2		6	0	0	0		10	0	0	0		10	2.0
	middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	18.74	18.74	2	0	16	14		1	0	0	0		1	0	0	0		1	0.1
	lower mainstem Mattole River (downstream from Honeydew Creek)	28.39	60.58	320	9	11	64		8	0	0	0		36	0	1	0		37	1.3
	upper river tributaries (Bear Creek and upstream)	20.51	28.78	1	0	0	7		1	0	0	1		4	7	3	7		21	1.0
	lower river tributaries (downstream of Bear Creek)	8.62	10.73	0	0	0	0		0	0	0	0		2	0	3	5		10	1.2
ALL REACHES COMBINED 2008-2009 SEASON	92.77	139.83	373	11	28	88		29	0	0	1		62	9	8	14		93	1.0	

2009- 2010 11/16/09 to 2/3/10	Mattole headwaters index reach (White fence to Metz's bridge)	4.78	18.5	14	2	0	1		8	0	1	0		12	0	10	5		27	5.6
	upper mainstem, Whitethorn area to Thorn Jct. (Metz's bridge to McKee Creek)	5.29	10.33	10	0	0	5		6	0	0	0		6	0	2	0		8	1.5
	upper mainstem, Thorn Junction index reach (McKee Creek to Huckleberry Lane)	1.63	3.26	2	0	0	0		1	0	0	0		3	0	0	0		3	1.8
	middle mainstem index reach above Ettersburg (Big Finley Creek to Bear Creek)	not surveyed		0	0	0	0		0	0	0	0		0	0	0	0		0	0.0
	middle mainstem below Ettersburg (Bear Creek to Honeydew Creek)	not surveyed		0	0	0	0		0	0	0	0		0	0	0	0		0	0.0
	lower mainstem Mattole River (downstream from Honeydew Creek)	26.05	52.97	72	0	2	1		1	0	0	0		9	0	2	0		11	0.4
	upper river tributaries (Bear Creek and upstream)	15.14	41.48	2	1	3	3		4	0	1	0		6	1	36	12		55	3.6
	lower river tributaries (downstream of Bear Creek)	2.29	2.29	0	0	0	0		0	0	0	0		0	0	0	0		0	0.0
ALL REACHES COMBINED 2009-2010 SEASON	55.18	128.83	100	3	5	10		20	0	2	0		36	1	50	17		104	1.9	

TABLE 11: Escapement Index for chinook and coho by reach and combined. See State of the Salmon (MSG 2005) for further information.

Season	Escapement Index (EI) by basin																				Note: EI is number of redds per mile surveyed (accumulated survey miles)	
	Mainstem Metz bridge to Hulse Cr.	Mainstem Metz bridge to Hulse Cr.	Mainstem Finley Cr. to Metz Bridge	Mainstem Big Finley Cr. to Metz Bridge	Mainstem Bear Cr. to Big Finley Cr.	Mainstem Bear Cr. to Big Finley Cr.	Mainstem Honeydew Cr. to Bear Cr.	Mainstem Honeydew Cr. to Bear Cr.	Mainstem mouth to Honeydew Cr.	Mainstem mouth to Honeydew Cr.	All tributaries except Bear Cr.	All tributaries except Bear Cr.	Bear Cr.	Bear Cr.	Upper river tributaries Bear Cr. and US	Upper river tributaries Bear Cr. and US	Lower river tributaries, DS of Bear Cr.	Lower river tributaries, DS of Bear Cr.	All reaches Combined	All reaches Combined	Number of redds, all reaches combined	Number of redds, all reaches combined
	Chinook	Coho	Chinook	Coho	Chinook	Coho	Chinook	Coho	Chinook	Coho	Chinook	Coho	Chinook	Coho	Chinook	Coho	Chinook	Coho	Chinook	Coho	Chinook	Coho
1994-95	1.915	0.532	1.875	0.000	0.313	0.000	1.000	0.000	5.000	0.000	0.932	0.847	0.263	0.000					1.015	0.381	40	15
1995-96	0.745	0.213	0.482	0.000	1.416	0.000	0.392	0.000	0.250	0.000	0.648	0.463	0.000	0.000					0.596	0.107	39	7
1996-97	5.000	0.196	3.438	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.403	1.141	0.619	1.598					1.677	1.048	80	50
1997-98	1.436	0.638	0.938	0.000	2.391	0.000	0.000	0.000	0.000	0.000	0.396	0.424	1.219	0.316					0.891	0.356	85	34
1998-99	0.426	0.213	0.142	0.000	0.652	0.000	0.094	0.000	0.000	0.000	0.196	0.073	0.040	0.040					0.191	0.057	27	8
1999-00	0.361	0.422	1.194	0.149	0.489	0.380	0.330	0.000	0.000	0.000	0.121	0.151	0.619	0.082					0.377	0.152	57	23
2000-01	0.071	0.638	0.000	0.000	0.362	0.072	0.578	0.021	0.164	0.000	0.102	0.305	0.213	0.000					0.276	0.104	45	17
2001-02	1.009	0.475	0.915	0.000	0.217	0.000	0.000	0.000	0.000	0.000	0.545	1.120	0.764	0.000					0.770	0.463	88	53
2002-03	0.241	0.241	0.167	0.084	0.000	0.000	0.345	0.000	0.522	0.000	0.304	0.738	0.364	0.416					0.375	0.250	45	30
2003-04	1.987	0.256	0.690	0.000	0.638	0.000	0.000	0.000	0.000	0.000	0.670	1.139	0.390	0.130					0.881	0.518	68	40
2004-05	0.891	1.336	0.261	0.261	2.549	0.000	0.587	0.000	0.643	0.000	0.714	2.237	0.000	0.000	0.632	2.285	0.303	0.000	0.695	0.685	69	68
2005-06	1.894	0.189	3.024	0.000	7.843	0.000	0.534	0.000	0.038	0.000	0.581	0.291	1.110	0.093	0.724	0.290	0.552	0.000	1.157	0.121	143	15
2006-07	1.831	0.063	0.247	0.000	0.784	0.000	0.640	0.000	0.000	0.000	0.898	0.468	1.388	0.434	1.126	0.504	0.294	0.000	0.854	0.179	86	18
2007-08	1.155	0.449	1.086	0.145	1.863	0.000	0.213	0.000	0.229	0.000	0.269	0.538	0.234	0.156	0.298	0.597	0.152	0.000	0.528	0.210	78	37
2008-09	0.891	0.223	0.145	0.000	1.961	0.000	0.053	0.000	0.594	0.000	0.196	0.229	0.000	0.000	0.139	0.243	0.186	0.000	0.443	0.064	62	9
2009-10	0.649	0.000	0.662	0.000	0.000	0.000	0.000	0.000	0.170	0.000	0.134	0.027	0.157	0.000	0.145	0.024	0.000	0.000	0.279	0.008	36	1