Scott River Watershed
Adult Coho Spawning Ground Surveys

November 2004 – January 2005

Prepared by the Siskiyou RCD

For

United States Fish and Wildlife Service
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Acknowledgments

The RCD would like to thank the many landowners who made this survey effort possible. In addition this effort was made possible by the contributions of the following people:

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Gary Black
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Cooperators include: local landowners, California Dept. of Fish and Game (CDFG), United States Forest Service (USFS), United States Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), Americorps Watershed Stewards Project, and the Siskiyou RCD.

Photos provided courtesy of Jennifer Silveira, USFWS

Abstract

Adult coho spawning ground surveys were completed in a total of 47.20 stream miles (44.45 miles of tributaries, and 2.75 miles of mainstem) in the Scott River Watershed. Live coho salmon were spotted in the Scott River as early as October 22nd, 2004, with radiotag verification on October 26th, 2004. The survey season was November 16th, 2004– January 14th, 2005. Total counts for the season were 960 redds, 569 Carcasses, and 1577 live fish counts (although some live fish were likely counted twice during weekly surveys).

Adult coho spawning ground and carcass surveys were completed in the Scott River Mainstem and the following tributaries: East Fork Scott, Grouse Creek, Kangaroo Creek, Rail Creek, South Fork Scott, Sugar Creek, French Creek, Miners Creek, Paynes Creek (trib to French), Etna Creek, Patterson Creek, Kidder Creek, Shackleford, and Mill Creek (trib to Shackleford), Canyon Creek, Boulder Creek, Kelsey Creek and Kelsey spawning channel, Middle Creek, Tompkins Creek, and Mill Creek (Scott Bar). Spot surveys were completed at the mouths of Fox Creek, Boulder Creek, tributaries to the South Fork Scott.

Exceptional survey conditions allowed for the observation of coho salmon in the river, on redds, and as carcasses. This allowed for proper ID of fish, migration timing, and spawning. Several factors contributed to exceptional survey conditions during the survey period. Prior to December, flows were stable and visibility was excellent. However, fish passage was limited in many tributaries due to seasonal flow barriers at the mouths of the tributaries. Heavy rains during the first week of December (Dec 6th – 8th) brought fish into the system and reconnected most of the perennial streams, providing access for spawning salmon. Good visibility was restored shortly thereafter.

Adult coho spawning was well distributed throughout the sub-basin, with spawning occurring in many of the tributaries investigated. The only tributaries which did not show coho spawning activity were: Middle Creek, Fox Creek, Boulder Creek (Scott), Boulder Creek (S. Fork) , and Paynes Creek. The heaviest spawning activity observed was in the lower sections of Patterson, Shackleford-Mill, French-Miners, Kidder, Etna Creek, and Sugar Creek.

Population estimates were developed for selected reaches in French, Miners, Shackleford, and Mill Creek, using mark and recapture techniques. The Peterson and Schaefer estimate were utilized. Peterson estimates were as follows: Middle French 181 adults (Confidence Interval = 156-209), Miners = 221 (193-252), Lower Shackleford = 201 (174-230), and Lower Mill = 337 (299-374). Schaefer estimates were: Middle French 163 adults (confidence interval = 140-190), Miners = 133 (112-157), Lower Shackleford = 110 (91-133), and Lower Mill = 307 (274-343).

Introduction

Coho salmon (*Oncorhynchus kisutch*) in the Klamath River Basin, the Southern Oregon-Northern California Coast ESU, were listed as threatened by the National Marine Fisheries Service in 1997. In 2001 the State of California began considering a listing of the species as threatened, and in August of 2004 the California Fish and Game Commission acted to add the coho to the list of endangered and threatened species. The listing became effective March 30th, 2005.

Adult coho spawning ground surveys have been performed cooperatively in the Scott River Watershed annually since the winter of 2001-2002. Scott River adult coho spawning ground surveys began in December 2001 as a cooperative effort between local landowners, agencies, and concerned volunteers. The purpose of the 2001-2002 survey effort was to document where adult coho salmon held and spawned throughout the basin, as well as establish index reaches for future monitoring. This survey provided invaluable information on tributaries used for adult coho spawning, as well as insight into the timing of the Scott River Adult Coho run. In addition, some of the first genetic samples were collected on Scott River coho, providing information on the relationship of Scott River coho to other coho in the Klamath Basin.

These annual spawning ground surveys are one part of the ongoing effort by the Scott River Watershed Council (SRWC) and Siskiyou RCD (RCD) to understand the life history of coho salmon in the Scott River Basin. Additional planned studies include summer juvenile habitat utilization surveys, and juvenile outmigrant trapping on tributaries.

Spawning ground and carcass surveys in the Scott River Watershed aim to address the following goals:

- Determine and map the distribution and upper extent of coho spawning.
- Determine the timing of adult coho migration and spawning.
- Estimate populations utilizing different tributaries.
- Sample biological parameters.
- Observe spawning habitats utilized by coho salmon.

During the surveys of 2001-2002, index reaches were established to document trends in coho spawning, (Canyon Cr., Lower Masterson, Mid French Cr., Lower Sugar Cr., Lower S. Fork, and Upper S. Fork). These index reaches, and other reaches, have been surveyed annually since 2001. However, these index reaches are not fully representative of the distribution of coho throughout the basin, or the variation in stream habitat present throughout the basin. Various factors in 2001 contributed to the survey effort being incomplete: lack of time to coordinate access, a small available budget, lack of available trained personnel during key spawning periods, and adverse flow conditions (ie. multiple storm runoff events). In addition, during the early fall of 2001 flow conditions were not ideal for adult migration and distribution. The summer of 2001 was a drought year, with large stretches of the Scott River Mainstem and alluvial tributaries drying up.

Connectivity was not restored to the main Scott River until November 22nd, 2001, and significantly later for tributaries. This likely led to spawning in non-ideal conditions, and prevented spawning in some of the more likely tributaries (ie. Patterson Creek).

Therefore, in order to fully document the extent of coho spawning distribution and timing, the survey effort has been expanded significantly since 2001. The subsequent surveys of 2002-2003 and 2003-2004 had wider spatial distribution of reaches, and covered more mileage. However, the coho runs during those years were too small to adequately document the full distribution and timing of the coho spawning.

The 2004-2005 adult coho run (return run from the 2001-2002 brood year) was expected to be a large run. Therefore, extra effort was made to document the timing and full extent of spawning distribution in the Scott River. Many of the reaches previously established were significantly expanded in the effort to survey as much mileage as possible. In addition, population estimates through mark and recapture efforts were planned for selected tributaries, and data on habitat specific feature collected.

This extensive survey of adult spawning distribution and habitat utilization allows for the identification of areas of essential habitat. This will allow for the development of more effective, targeted restoration measures. In addition, it provides information on areas of habitat that will be fully seeded by juveniles for the next year. This will allow for the selection of reaches for further habitat utilization studies (winter and summer habitat).

Exceptional survey conditions during the winter of 2004-2005 allowed for the observation of coho salmon in the river, on redds, and as carcasses. This allowed for proper ID of fish, migration timing, and spawning. Several factors contributed to exceptional survey conditions during the survey period. Prior to December, flows were stable and visibility was excellent. However, fish passage was limited in many tributaries due to seasonal flow barriers at the mouths. Heavy rains during the first week of December (Dec 6th – 8th) brought fish into the system and reconnected most of the perennial streams, providing access for spawning salmon. Flows receded significantly following the rains. By December 12th flows were down, streams were safe to wade, and there was excellent visibility for both redd and fish identification. From the end of the rains on Dec 8th, until the end of the survey period (Jan 14th) flows were stable with no significant rain events to cause turbidity or obscure visibility.

Project Objectives:

1) Document the presence of coho salmon in streams within the historic range of distribution and in new tributaries not previously documented within the Scott River system. Survey "index reaches", as delineated in the 2001-2002 survey, once per week once the spawning begins (December 1, 2004-January 31, 2005), or as determined by run timing.

2) Document the distribution and upper extent of spawning in each of the tributaries where adult coho salmon were observed.

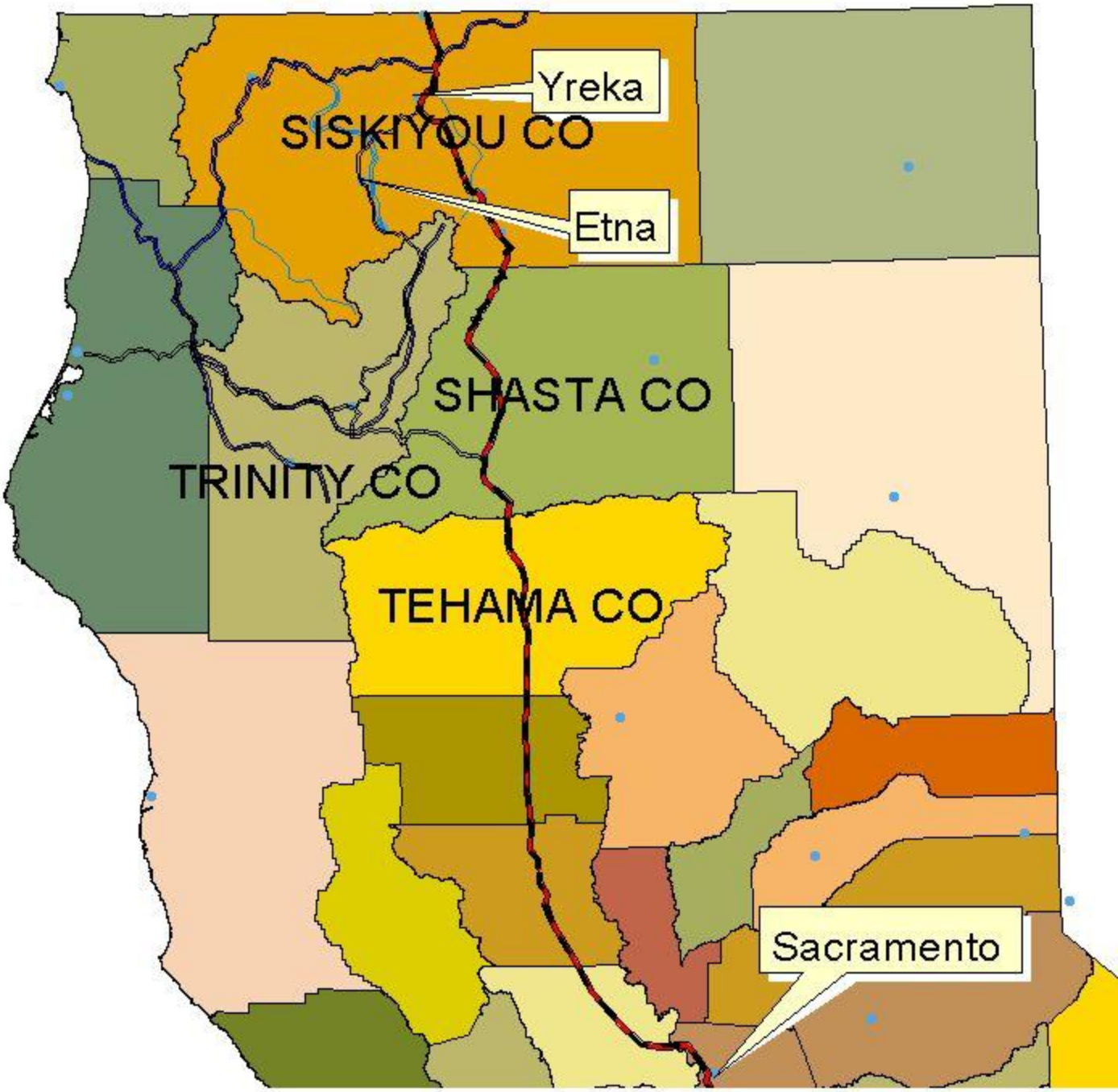
3) Determine the run timing and duration of adult coho salmon spawning in the Scott River.

4) Collect two sets of tissue samples for DNA analysis to understand the genetic relationship of the Scott River coho salmon to other stocks and collect two sets of scale samples to understand the life history of the Scott River coho salmon. One set of tissue and scale samples will go to NOAA Fisheries and one to CDFG.

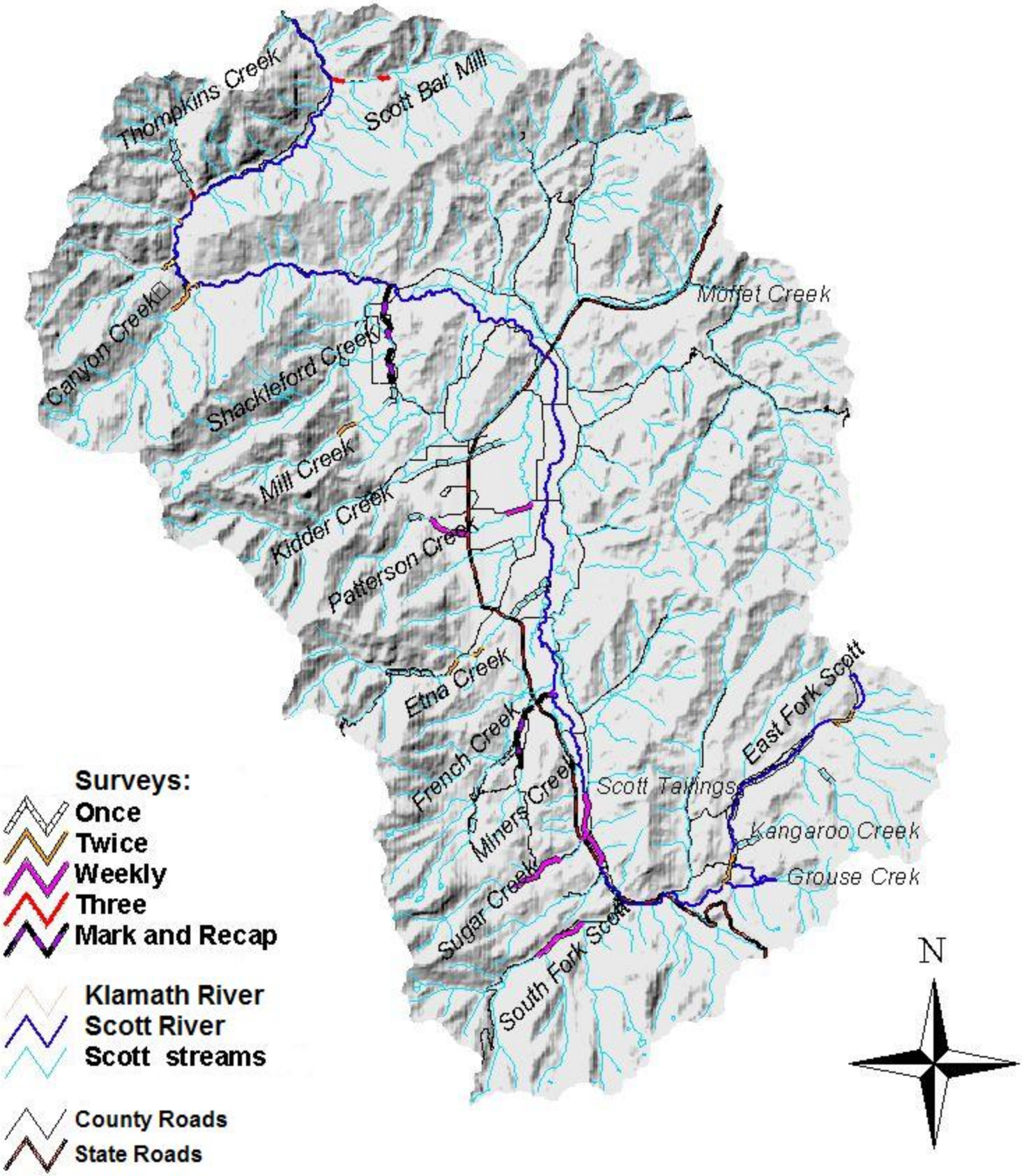
5) Determine additional site specific information as they relate to spawning: Redd composition, substrate composition, temperature and stream gradient.

6.) Population Estimates: Complete mark and recapture in Shackleford-Mill and French-Miners Creek.

Scott River 2004/2005 Adult Coho Surveys
Map # 1
Vicinity Map



Scott River 2004/2005 Adult Coho Surveys
Map # 2
Reach Locations



Methods

Project Location
This data collection effort took place in the Scott River sub-basin of the Klamath River Basin. The Scott River is located in Siskiyou County, CA. The Scott River drains approximately 813.5 square miles. See Map #1.

Survey Locations
Adult coho spawning ground and carcass surveys were completed in the Scott River mainstem and the following tributaries: East Fork Scott, Rail Cr, Grouse Cr., Kangaroo Cr., South Fork Scott, Sugar Creek, French Creek, Miners Creek, Paynes Creek (tributary to French), Etna Creek, Patterson Creek, Kidder Creek, Shackleford, Mill Creek (tributary to Shackleford), Emigrant Creek, Canyon Creek, Boulder Creek (Scott Canyon), Kelsey Creek and spawning channel, Middle Creek, Tompkins Creek, and Mill Creek (Scott Bar). Surveys were completed in all streams surveyed in the 2001-2002 season, with the exception of Wooliver Creek, and streams which did not regain connectivity during the survey season (Nov 16th – Jan 14th). Effort was made to survey all stream reaches from 2001, where access and connectivity allowed. See Map #2 for locations of 2004-2005 reaches.

The following streams were surveyed in 2001, but not surveyed this season due to a lack of connectivity throughout the season; Moffet Creek, McAdams Creek, Rattlesnake Creek. An estimated 92 miles of tributary are available for coho spawning. A total of 47.2 miles was surveyed at least once during the season, including 2.75 miles of mainstem Scott River and 44.45 miles of tributary.

Survey Schedule
Mark and recapture reaches and other important reaches were surveyed weekly. Index reaches were surveyed weekly except for the following: Canyon Creek was surveyed three times, Lower Masterson was surveyed twice, and Lower South Fork was surveyed once. Other streams were surveyed one to three times, depending on access and crew availability. A total of 44.45 miles of tributary were surveyed (48.4 % of available). However, the lack of connectivity of Moffet-McAdams, and other tributaries reduced the potential available habitat by ~40 miles (according to Maurer 2003). During the survey period 16.0 miles of tributary were surveyed weekly for an eight week period. An additional 31.2 miles of tributary were surveyed at least once.

See Table I, Survey Reach Descriptions, for a description of each reach, and survey frequency.

Table I. Survey Reach Description

Watershed	Reach Description	Begin Mile	End Mile	Survey Schedule	Survey Crew	Total Miles
Mill Cr. (Scott Bar						
Lower	Lowest ½ mile up of Mill Creek	0.4	0	3 surveys	CDFG	0.4
Upper	From RM 2.5 to RM 1.8	2.5	1.8	3 surveys	CDFG	0.7
Tompkins Creek						
Lower.	Lowest 1.25 miles of Thompkins Creek	1.8	0	Twice	CDFG	1.8
Upper	From USFS road # 46N64 crossing to Potato Patch	2	1	Once	USFS	1.0
Middle Creek	Lowest .4 miles of Middle Creek	0.4	0	Twice	USFS/RCD	0.4
Kelsey Creek	Lower Kelsey from barrier to mouth	0.6	0	Twice	USFS/RCD	0.6
Kelsey Spawning Channel	Spawning channel	0.2	0	Twice	USFS/RCD	0.2
Canyon Creek	From the uppermost Maurer property line to the mouth of Canyon Creek	1.1	0	Three Surveys	RCD/NOAA	1.1
Boulder Creek	County bridge to mouth	0.2	0	Twice	USFS/RCD	0.2
Shackleford-Mill Creek						
Lower Shackleford-Mill	From Milepost 2 on Dangel lane to mouth (expanded reach)	2.17	0	Weekly (Mark and Recap)	RCD	2.17
Upper Shackleford	Below the falls	5	4.5	Once	RCD	0.5
Lower Mill	From the QV road bridge to road crossing ~ 300 meters below conf of Shackleford (expanded reach)	1.6	0	Weekly (Mark and Recap)	RCD	1.6
Middle Mill	From the Quartz Valley Rd bridge to above Emigrant Cr.	3.1	1.7	Surveyed once(Redd count only)	RCD	1.4
Emmigrant Creek(trib to Mill)	Confluence with Mill Creek to County Road	0.1	0	Surveyed once(Redd count only)	RCD	0.1
Upper Mill Creek	From county road crossing to 1/2 mile above	3.8	3.3	Twice	RCD	0.5
Kidder Creek						
Lower	Below Hwy 3 bridge			Once	RCD	1.1
Middle	Above Hwy 3 bridge outside of Greenview			Once	RCD	0.8

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Watershed	Reach Description	Begin Mile	End Mile	Survey Schedule	Survey Crew	Total Miles
Upper	Upper FGS property			Once	RCD	0.5
Patterson(Etna)						
Lower	Confluence of Johnson and Patterson Creek to 1/2 mile below Hwy 3(Note this reach is split with lack of access in the center)	1.05 1.5	0 1.25		RCD	1.30
Mid (FGS)	From Upper Youngs Diversion to Hwy 3 (New Reach)	6.2	4.6	Weekly	RCD/FGS	1.6
Upper (FGS)	From the Falls down	7.9	7.6	Once	RCD	0.3
Etna Creek						
Lower	200 yards below Highway 3 to mouth (New Reach)	2.25	0	Once	RCD	2.25
Middle	From Etna City Diversion to End of FGS property above town; Schmalenberg and Mattson Propery near Ruffy Gap	5.2 4.1	4.6 3.7	Twice	RCD	1
Upper	From Mill Creek to Alder Creek	8	6.35	Once	RCD	1.65
Ruffy Gap (Trib to Etna)	area above mouth	0.2	0	Once	RCD	0.2
French Creek						
Lower	Hwy 3 to mouth (New Reach 2003)	0.7	0	Weekly (Mark and Recap)	RCD	0.7
Middle(	Confluence w/Miners to bottom of Tobias. (Expanded Reach)	2.43	0.8	Weekly (Mark and Recap)	RCD	1.63
North Fork Area	From below North Fork to confluence of French and Miners	3.43	2.43	Once	RCD	1
Paynes Creek Area	French Creek from 1/4 mile above Paynes Creek to 1/4 mile below (New Reach)	5.25	4.75	Once	RCD	0.5
Duck Lake Area	Above and below mouth of Duck Lake	6.3	5.8	Once	RCD	0.5
Miners Creek	Confluence with French Creek to upper Phelps Property(above second Miners Cr. Road bridge) Expanded Reach in 2003	0.9	0	Weekly (Mark and Recapture	RCD	0.9

Watershed	Reach Description	Begin Mile	End Mile	Survey Schedule	Survey Crew	Total Miles
Paynes Cr.	Lowest .2 miles	0.2	0	Once	RCD	0.2
North Fork French Cr.	Timber Products	0.7	0	Once	TP	0.7
Mainstem Tailings	From .30 miles below Wildcat Cr. To 1/2 mile upstream from Messner gulch.	55	52.25	Weekly	RCD	2.75
Sugar Creek						
Lower	From Hwy 3 to mouth	0.7	0	Weekly	RCD	0.7
Upper	From bridge crossing on Rd # 40N23 to cattle guard on Sugar Cr. Rd.	4	1.9	Weekly	RCD/FGS /NOAA	2.1
Wildcat	Mouth up 2 mile			Spot survey once	RCD	
South Fork						
Lower S. Fork	USFS piece	0.7	0.3	Once	RCD/NOAA	0.4
Upper S. Fork	800 meters above Fox Cr. to Boulder Cr.	4	2.1	Weekly	RCD/FGS/NOAA	1.9
Boulder Creek	Mouth area			Once		0
Fox Creek	Mouth Area			Once		0
East Fork						
E. Fork-Lower Masterson	Beginning 1.4 miles above mouth of Grouse Cr.	6.3	4.9	twice	RCD	1.4
East Fork-Upper	AP Cattle Ranch	12.1	7	Once	RCD	5.1
Upper East Fork	Confluence of Crater and Houston Creek	13.8	12.8	twice	RCD	1.0
Grouse Cr.	lower .6mile	0.6	0	twice	RCD	0.6
Kangaroo Cr. - Lower	Lower 1 mile of creek	1.1	0.1	Once	RCD	1
Kangaroo Cr. - Upper	USFS piece	2.1	1.4	Once	RCD/USFS	0.5
Rail Creek(new)	Rd 41N39 to end of USFS land	1.25	1.75	once	RCD/USFS	0.5
				Total		47.20

Crew training

Crew training was organized by California Dept. of Fish and Game (CDFG) and the Siskiyou RCD. Training was held on November 17th at the Siskiyou RCD office. Training included: Fish ID, tissue and scale sampling techniques, identification of marks and tags that have been applied throughout the Klamath Basin, GPS use and naming conventions, data sheets, and redd identification. See Appendix A, Training Materials.

All Siskiyou RCD field crew members had participated in the Adult Chinook Spawning Ground Surveys (CDFG) for several years, and had participated in the Scott River Adult Coho Spawning Ground surveys in previous years.

Table II. Training Participant List.

Name		Affiliation
Crystal	Bowman	Siskiyou RCD
John	Bowman	Siskiyou RCD
Susan	Corum	United States Forest Service
Amaria	Crocoll	Americorps
Bobbie	DiMonte	NOAA
Donald	Flickinger	NOAA
Christen	Hardee	Volunteer
James	Lee	FruitGrowers Supply Co.
Beth	Marder	Siskiyou RCD
Christan	Norman	Americorps
Megan	Payne	United States Forest Service
Mark	Pisano	California Dept. of Fish and Game
Danielle	Quigley-Yokel	Siskiyou RCD
Jim	Whelan	California Dept. of Fish and Game
Erich	Yokel	Siskiyou RCD

Spawning Ground and Carcass Surveys

Stream surveys were completed by a two person field crew. A stream survey is completed by walking instream, or on the bank (to avoid disturbing redds) beginning upstream and moving downstream. Crew members walk on opposite sides of the stream, looking for redds and fish. The location of any fish, redd, or carcasses was recorded by GPS, and noted on the data sheet. In addition, flagging was hung at redds to mark for the next survey crew, preventing double counting of redds. Carcasses are processed, then chopped to prevent double counting. Tissue and scale samples were taken from a subset of carcasses, and the species, sex, fork length, and any marking recorded on the data sheet. One member of each crew had a State of California Scientific Collection Permit, or went on the survey with a CDFG employee.

During redd surveys, the following data was collected on redds, if it did not disturb the spawning fish: redd length, width, pott depth, and substrate composition. Substrate composition categories are: Sand (<.2 cm), small gravel (.2-5 cm), large gravel (6-9 cm), small cobble (10-13 cm), and large cobble (> 13 cm).

See Appendix A for sample datasheets.

Tissue and Scale Sample Collection

Two sets of tissue and scale samples were taken from a subset of carcasses retrieved. During the first part of the survey season (November 16th – December 15th) scale and tissue samples were taken from all carcasses. After that point in the season, carcasses were so abundant that the protocol was changed to collect five (5) samples per reach per survey. This protocol change was initiated to ensure that surveys could be completed in one day, which was especially important in mark and recapture reaches. In addition, NOAA fisheries indicated that 50-75 sets of genetic samples would be sufficient for their analysis.

Tissue samples were collected by clipping a one cm^2 piece of operculum tissue. Samples were placed in absorptive paper, and placed into labeled envelopes. Scale samples were collected below the dorsal fin, but above the lateral line. Samples were collected by scraping with a knife blade in the direction from head to tail. Scale samples were placed in a labeled scale envelope. Both sets of samples were either picked up by, or hand delivered to Mark Pisano (CDFG).

GPS Data Collection

Hand-held Global Positioning System (GPS) units were used to record the location of the beginning and end of each survey reach, and location of each carcass, redd, and live fish identified. However, beginning December 15th, a modification was made to the protocol due to the large number of spawning fish. At this point all redds continued to be marked, with the exception of some reaches with heavy use. In this case redds were grouped if found within 10 meters of each other. Only carcasses which were sampled were marked, and live fish sighting were grouped. The exception to this was if the fish or carcass was found in a unique location, or beyond the upper extent previously observed. In that case a GPS point was taken.

GPS waypoints were assigned an ID based on a stream code, sequential number, and a letter code denoting carcass (C), redd (R), or live fish (F).

Ex.) F C 0 4 C = French Creek # 4 Carcass

In addition, the GPS coordinates in Lat/Long were recorded on the field data sheet, along with the ID code assigned to that data point. See Appendix A for further detail on naming conventions.

Fish ID and Mark Identification

Fish ID

Positive identification of coho salmon was a crucial step in conducting the spawning ground surveys, and the collection of the tissue and scale samples. Mark Pisano, Biologist-CDFG, provided hatchery carcasses of all three species (coho, Chinook, and steelhead) present in the Scott River Watershed, to ensure that the crew was fully aware of key identifying features.

The following characteristics are used to identify coho salmon:

Gums: Coho salmon have white gums at the base of the teeth only; typically the rest of the gum is gray.

Spots: These spots are black in color and can vary from circular to irregularly shaped spots. Both sexes have spots on the back, dorsal fin, and upper lobe of the caudal fin, with no spots on the lower lobe.

Color: Many coho salmon, both male and female, can exhibit extremely brilliant pink to red coloration of the lower 2/3 of the body.

Kype: Both males and females can have a fairly pronounced kype

Nares: Nares are enlarged and white in coloration. This characteristic is useful in identification of live fish due to the visibility.

Caudal Peduncle: the caudal peduncle is thicker than that of a Chinook. This is most noticeable when picking up a carcass, making it difficult to hold in one hand.

Anal Fin: The anal fin of coho salmon have 12-17 rays, and the outermost rays are longer than the inner rays, which is not the case with Chinook or steelhead.

Sex: Males generally are larger, have larger hooked kypes, and brilliant pink to red coloration. To verify the sex the anal opening was squeezed to determine the presence of milt (male) or eggs (female).

Origin: Hatchery fish are identified by either the lack of an adipose fin, or by a maxillary clip. (Right maxillary clip = Trinity River Hatchery, Left maxillary clip = Iron Gate Hatchery) Adipose clipped fish have the snout removed and submitted to CDFG for coded-wire tag recovery.

Mark Identification
During this season, many tags were applied to Klamath River adult coho by various agencies throughout the Klamath Basin.

California Department of Fish and Game
The California Dept of Fish and Game (CDFG) applied floy tags on the right side of approximately 336 unmarked coho returning to Iron Gate Hatchery. This tagging was conducted from October 29th – December 16th, 2004. In addition, the United States Fish and Wildlife Service (USFWS) tagged 40 Iron Gate Hatchery coho with radio transmitters and spaghetti tags. These fish were then given an anterior caudal clip and returned to the Klamath River mainstem below Iron Gate Hatchery (Mark Hampton-CDFG Pers. Communication).

Karuk Tribe
The Karuk Tribe applied radio tags to eighteen (18) coho at Ishi Pishi Falls (near Somes Bar), between October 12th and 21st. Radio tagged fish were marked with spaghetti tags, and each fish had a unique radio signal. A total of nine (9) of these tagged fish entered the Scott River. The first tagged fish entered the Scott River on October 26th, 2004.

All field crew were notified to look for these tags, and trained in the identification of tags.

Mark and Recapture
French-Miners Creek and Shackleford-Mill were selected for an pilot effort to conduct mark and recapture surveys in the same method as that completed by CDFG during the annual Fall Chinook Spawning Ground Surveys. These tributaries were selected based on known habitat quality, expected large runs, and the nearly full coverage granted by landowners. Estimates were completed on a reach basis, rather than tributary basis because different flow conditions, instream conditions, and predation rates contributed to different efficiencies.

Individually numbered tags were applied to each fresh carcass found during each survey. Tags are applied to the inside lower right jaw. The tag number applied was recorded on the field data sheet. All carcasses were inspected for tags upon retrieval. Recaptured carcasses were recorded on the field data sheet. This data was used to generate both Peterson and Schaefer population estimates for individual reaches. See Appendix B – Redd and Carcass Information and Appendix C – Population Estimates.

Temperature Data
Stream temperature data was collected in Sugar Creek, French Creek, Mill Creek, Shackleford-Mill, and the South Fork of the Scott River during the survey period. Data collection was done using Onset HoboTemps continuous dataloggers. Data was collected at hourly intervals. See Appendix D - Stream Temperature Data.

Results

Run Timing and Duration of Coho Spawning

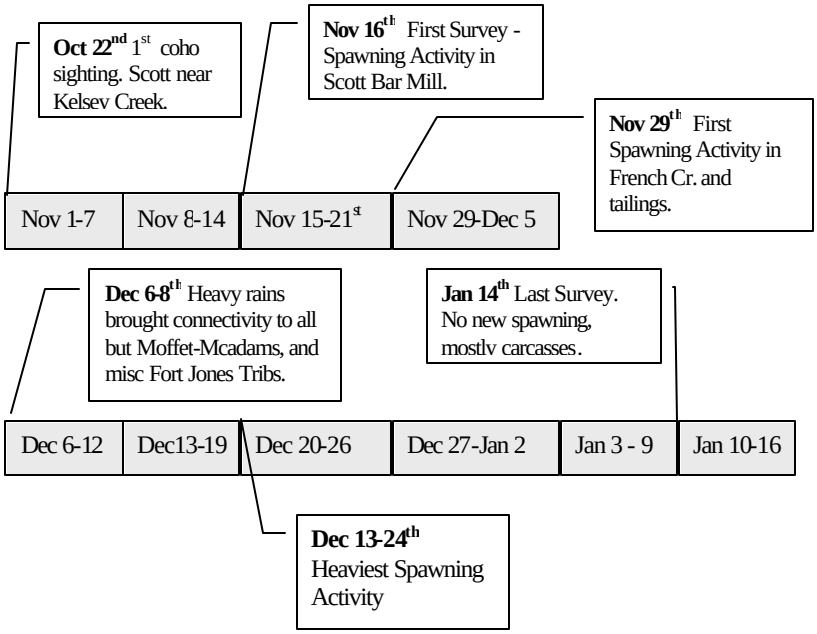


Figure I. Adult coho spawning run timing in the Scott River – 2004.

Initial Coho Sightings

The first sighting of live coho adults in the Scott River was October 22nd, 2004, in the Scott River near Kelsey Creek. (California Dept. of Fish and Game – Fall Chinook Spawning Ground Surveys). Coho radiotagged by the Karuk tribe entered the Scott River on October 26th, and many fish were observed holding in the Scott River canyon between George Allen Gulch (RM 7.8) and Pat Ford (RM 4.9) until the rains in early December. One radiotagged fish was documented above the mouth of Sugar Creek (RM 54) on December 5th, and likely spawned there. Following the rains of December 6th – 8th, most of the major tributaries to the Scott River regained connectivity. During this period, coho dispersed throughout the basin. Radiotagged coho were known to have entered French Creek, Shackleford-Mill, Mill Creek (Scott Bar) and Patterson Creek, following the rains of December 6th – 8th.

Initial Spawning Period
The first spawning activity was documented in Scott Bar Mill Creek on November 16th, 2004 with spawning documented in French Creek, and the Scott tailings (~RM 55) by Nov 29th. By December 3rd fish had been spotted as far upstream in the system as the East Fork near Grouse Creek (61.4 miles from the mouth of the Scott). During this period seasonal low flow barriers prevented access to Shackleford-Mill, Patterson, Etna, Kidder, and Moffet-McAdams Creek, Rattlesnake, and Indian Cr. In addition, low flows combined with beaver activity prevented access into Sugar Creek, and hindered access to French Creek.

Connectivity Restored to Valley Tributaries
Heavy rainfall from December 6th-8th restored connectivity to Shackleford-Mill, Kidder, Patterson, and Etna Creek, and provided better access to Sugar and French Creek. However, connectivity did not return to Moffet-McAdams, Rattlesnake, or Indian Creek during the survey period (November 16th – January 14th). The week following the rains (December 13th-19th) coho were seen actively spawning in the following tributaries: French-Miners, Shackleford-Mill, Sugar Creek, South Fork, East Fork, Patterson Creek, Kelsey Creek and Kelsey spawning channel, and Scott Bar Mill Creek. The peak spawning period occurred between December 13th and 24th.

The fish died off relatively close together, directly following the peak spawning period. Large numbers of carcasses were found beginning on December 20th. Little new redd activity or fresh fish were observed after early January.

Redd Survey Results
The survey season lasted from November 16th – January 14th, 2005. During this period a total of 960 redds, 569 carcasses, and 1577 live fish were identified. However, in reaches surveyed weekly (French-Miners Cr., Shackleford-Mill, Sugar Creek), some fish were likely double counted. This is because fish generally spawn for several days, and could still be on the redd during the next survey.

In addition, due to landowner concerns, only redd counts were completed in Middle Mill and Emmigrant Creek. This affected the live count for Shackleford-Mill. Finally, some reaches were not surveyed until the peak of activity had passed, and many fish were dead already (Lower Kidder, Lower Patterson, Lower Etna). Table III documents the redds, carcasses and live fish identified during the survey season. Some reaches designated in 2001 were expanded in 2004. To allow comparison with 2001, Table III shows redd counts for these shorter 2001 reaches separately. However, the live fish and carcass data could not be extracted from the longer 2004 reaches, so they are included with the 2004 reaches' data.

Table III. Results by Reach 2004-2005

Stream	Reach	Description	Mileage	Live Fish	Carcass	Redds
Boulder Creek(Scott)	Lower	Lower Bridge to Scott	0.20	0	0	0
Canyon Creek **(Index)**	Lower	Lower 1.1 miles	1.10	7	2	2
Clarks Creek		TP property	NS	NC	NC	NC
East Fork -Lower Masterson (**INDEX)**		~ 1 mile above Grouse Cr. To below Grouse	1.40	45	3	23
East Fork Upper Masterson		Above Rail Creek to Kangaroo Creek	5.10	5	0	1
East Fork*	Upper	Gregg Ranch	1.00	0	0	0
Emmigrant (trib to Mill)	Lower	Mouth up	0.10	NS	NS	10
Etna*	Lower	Hwy 3 to mouth	2.25	4	19	50
Etna	Middle	Split Reach (**formerly Lower Etna**)	1.00	9	2	7
Etna	Upper	Mill Creek to City Diversion	1.60	0	0	0
French Creek	Lower	Hwy 3 to mouth	0.70	58	16	20
French Cr. **(INDEX)**	MID	From confluence with Miners down	0.80	a	a	22
French Creek	Middle	From bottom of Mid-to just above Hwy 3	0.83	142	82	27
French Creek	Upper	Upper Bridge to Horse Range	NA	NA	NA	NA
French Creek*	Upper	Paynes Creek area	0.50	5	0	2
French Creek*	Upper	Duck Lake area	0.50	0	0	0
French Creek		Below N Fork to mouth of Miners	1.00	35	0	1
Grouse Creek (trib to East Fork)		Lower	0.60	0	0	0
Horse Range Cr. (trib to French)			NA	NA	NA	NA
Indian Creek	Upper		NC	NC	NC	NC
Johnson Creek	Upper		NS	NS	NS	NS
Kangaroo	Middle	USFS	0.50	0	0	0
Kangaroo*	Lower		1.00	0	3	22
Kelsey Creek		Barrier to mouth	0.60	2	0	1
Kelsey Spawning Channel		USFS artificial spawning channel	0.20	4	0	28
Kidder Creek	Lower	Below Hwy 3	1.10	13	5	56
Kidder Creek	Middle	Mid Kidder - above Hwy 3	0.80	2	1	7
Kidder Creek	Upper	Upper FGS	0.50	2	0	0
Mcadams			NC	NC	NC	NC
Meamber Gulch	Lower		NC	NC	NC	NC
Middle Creek	Lower		0.40	0	0	0

Scott River Adult Coho Surveys 2004-2005

Stream	Reach Description		Mileage	Live Fish	Carcass	Redds
Mill Creek (Shackleford)	Middle	Above Quartz Valley Road Bridge	1.40	NS	NS	72
Mill Creek (Shackleford)	Upper	Lowest FGS to Bridge	0.50	5	0	5
Mill Creek (Shackleford)	Lower a	Lower .6 miles of Mill Creek	0.60	a	a	29
Mill Creek (Shackleford)*	Lower b	From Quartz Valley Rd Bridge to top of Lower a	1.00	273	154	98
Miners Creek	Lower a	lowest .3 mi	0.30	a	a	24
Miners Creek	Lower b	Upper Phelps to top of Lower a	0.60	281	100	19
Moffet Creek	Middle	USFS	NC	NC	NC	NC
North Fork French	Lower		0.70	8	0	0
Patterson*	Lower		1.30	199	9	232
Patterson	Middle	Lower FGS to Hwy 3	1.60	29	34	19
Patterson	Upper	Uppermost FGS from Falls down	0.30	4	3	6
Patterson (Fort Jones)	Lower		NC	NC	NC	NC
Rail Creek	Upper	USFS	0.50	0	0	0
Rattlesnake Creek	Upper		NC	NC	NC	NC
Ruffy Gap (trib to Etna)		Lowest	0.20	0	0	Dry
Scott Bar Mill	Lower	Lower	0.40	14	1	15
Scott Bar Mill	Upper	Upper	0.70	0	0	0
Shackleford - 2004*	Lower	Mile 2 to Lower Bridge	1.67	170	86	70
Shackleford	Lower	Lower Bridge to Scott	0.50	a	a	6
Shackleford	Upper	Shackleford at the falls	0.50	0	0	1
Tompkins Creek	Lower	Mouth up	1.80	12	2	8
Tompkins Creek	Upper	Low water crossing to Potatoe Patch	1.00	0	0	0
South Fork **(Index)**	Lower	USFS	0.40	4	0	0
South Fork **(INDEX)**	Upper	Above Fox Creek to Boulder Creek	1.90	48	10	15
Sugar Creek **(INDEX)**	Lower	Hwy 3 to mouth	0.70	111	17	26
Sugar Creek	Upper	From Upper FGS bridge to CattleGuard	2.10	32	7	14
Scott River Tailings		Rm 53.45-52.35	1.10	-	-	2
Scott River Talings- 2004*		Rm 55-53.45	1.65	54	8	19
Scott River Canyon		Various	-	-	5	-
Wildcat		Lower 2 miles	-	-	-	1
		Totals	47.20	1577	569	960

a - Some reaches designated in 2001 were expanded in 2004. For these reaches, live fish counts and carcass counts are included under the longer 2004 reach designation.

NC= Not connected NA = No access NS = not surveyed

* = New reach in 2004

Shaded reaches surveyed in 2001-2002

Flow Conditions

Survey conditions were ideal for both redd and fish identification. During the early period of the survey (November 16th – Dec 8th) flows were slightly above summer baseflow conditions. These low, clear flows made redds extremely clear, and low water contributed to ease of fish ID. Following the rains of December 6 – 8th, flows stabilized quickly, and turbidity cleared up. From the end of the rains on December 8th, until the end of the survey period, flows were stable, and good visibility was restored.

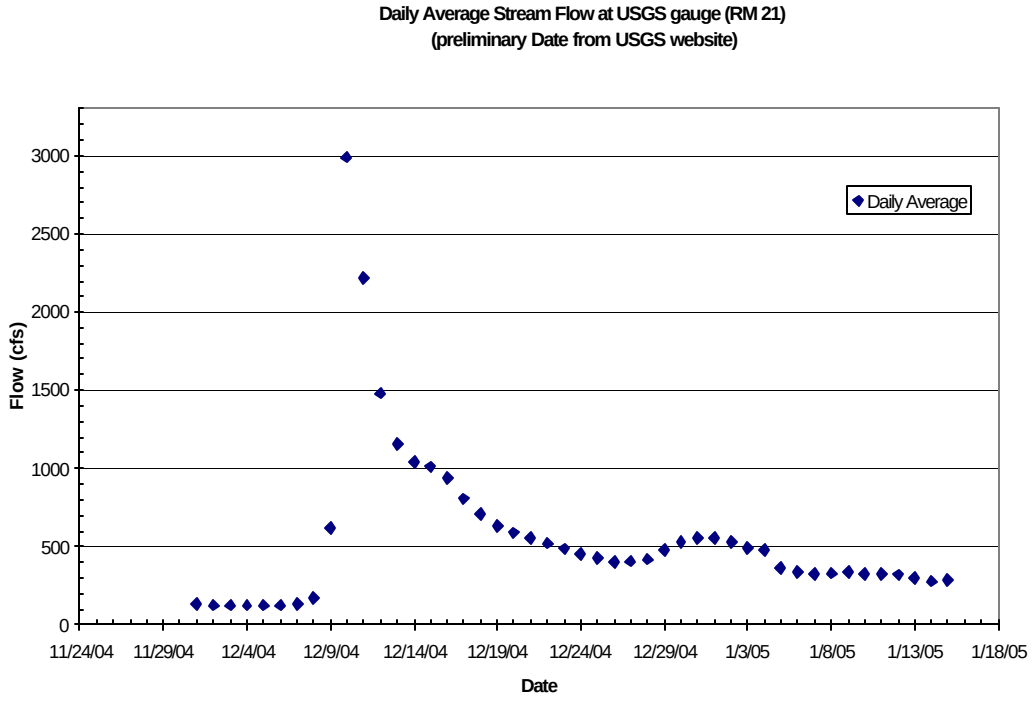


Figure II. Streamflow at USGS gauge during survey period.

(Note: USGS data is preliminary only.)

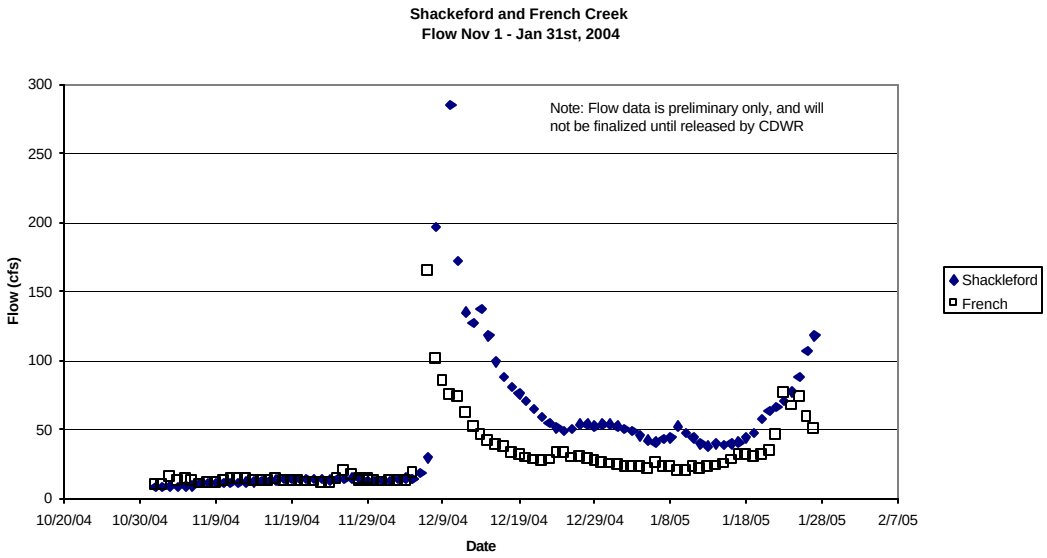


Figure III. Flow Data for Shackleford and French Creek.

(Note: this is preliminary estimated data only, and not final until released by the California Department of Water Resources

Comparison to 2001-2002 Survey Results (Same Brood Year of Coho)

Survey results for the 2004-2005 survey season are not directly comparable to those of 2001-2002 for the following reasons: Due to the short time frame, volunteer nature, and flow conditions experienced during the 2001-2002 surveys, most reaches were surveyed at most 3 times, including the index reaches. Flow conditions varied greatly during the 2001-2002 survey period, with multiple winter storms in December making the stream impossible to survey. In contrast, during the surveys of 2004-2005. flow conditions were stable throughout the survey period, with the exception of the period directly following the rains of Dec 6-8th. This led to nearly ideal survey conditions, and the RCD had sufficient funding, access, and time to survey many reaches on a regular basis.

A comparison of just the reaches surveyed in both 2001 and 2004 shows an increase in redds from 206 in 2001 to 458 in 2004. (See Table IV.)

Observations from Spawning Ground Surveys

Positive Identification of Fish

In all reaches surveyed weekly, identification of fish and redds has a high degree of confidence. In reaches surveyed weekly, redds with fish identified on them ranged from 62-84% of total redds. In many cases, a redd identified without a fish one week would have a coho on it the next week.

In addition; the Chinook run had ended well before coho entered the valley tributaries. (Nov 22nd survey of mainstem near Horn Lane found no Chinook activity). During the Fall Chinook spawning period, most of the tributaries were not connected. A total of 569

coho carcasses and one (1) steelhead carcass, and zero (0) Chinook carcasses were found during the survey period. This supports that the observed spawning was coho rather than Chinook or steelhead.

Finally, coho spawning observed was in markedly different habitat than that generally utilized by Chinook salmon. In general, coho spawning was observed in side channels with a component of riparian cover, or in main channel with overhead cover. The heaviest spawning occurred in low gradient reaches, with superimposition of redds occurring in many locations.

Factors which contributed to redds without a positive fish ID are: reaches surveyed after or at the tail end of the peak spawning activity (lower Kidder, lower Etna, lower Kangaroo, and second surveys in Tompkins Creek and lower Scott Bar Mill), the tendency of the fish to spook and return to redds later, and the availability of suitable habitat for fish to take cover in. This is especially true in Patterson, Miners, and French, where many pools with complex cover elements exist.

Redd Observations

During the survey period, many reaches had observations of multiple fish on a single redd (as many as six fish in some cases). This occurred most frequently in lower Sugar Creek, Miners Creek, lower Patterson, lower Shackleford, and lower Mill Creek (Shackleford). In addition, superimposition of redds occurred in many reaches. This occurred more frequently in the reaches which showed heavy spawning activity.

In the more heavily utilized stream reaches, spawning occurred in side-channels (lower Patterson, mid-French, Miners, lower Shackleford.) It was observed during the cold period in early January that some of these side channels might experience surface dewatering of redds, as well as surface freezing. It is unknown what affect this might have on eggs buried 6-10 inches below the surface.

Extent of Coho Spawning Distribution

During the survey season effort was made to survey all reaches established in 2001, index and others, to compare the return run from that brood year. In addition, effort was made to survey as high in each tributary as coho spawning might occur, in order to document the upper extent of spawning. Survey efforts in Shackleford-Mill, Sugar Creek, Patterson Creek, and French Creek, were extensive, and covered a great deal of available habitat. Surveys in the East Fork, Miners Creek, and Kidder Creek were limited by access, and do still do not fully represent the available spawning habitat.

The spawning distribution proved to be more extensive than in 2001. Spawning was well distributed in 2004, with spawning found higher in some tributaries than previously observed (Upper Mill Creek, Upper East Fork, Upper Sugar Creek). In addition, spawning was observed in stream reaches not previously observed (Upper Mill Creek, Canyon Creek, Lower Kidder Creek, Lower Tompkins), as well as in newly documented reaches established in 2004 (Lower Etna, Lower Patterson, Middle Patterson, extended

tailings reach). See Table IV. For a visual representation of the 2004-2005 spawning distribution, see Map #3.

No spawning was documented in Grouse Creek, Middle Creek, Boulder Creek (Scott Canyon), lower Boulder Creek (S. Fork) or Paynes Creek, or the mouth of Fox or Boulder Cr. No spawning was observed in the survey reach on Rail Creek. Coho were observed holding and spawning in the lower 200 feet of Rail Creek. (G. Black pers. comm.) However, no formal survey was completed in this section of Rail Creek.

Table IV. Redds by Survey Year 2001-2004

Stream	Reach	Description	2004 Mileage	2001	2002	2003	2004
Boulder Creek(Scott)		Lower Bridge to Scott	0.20	0	0	0	0
Clarks Creek		TP property	NS	NS	0	NS	NC
Canyon Creek (**INDEX)**	Lower	Lower 1.1 miles	1.10	0	0	0	2
East Fork - 2001 Spot survey		From Bridge	-	5	-	-	-
East Fork -Lower Masterson **(INDEX**		~ 1 mile above Grouse Cr. To below Grouse	1.40	22	0	NS	23
East Fork Upper Masterson		Above Rail Creek to Kangaroo Creek	5.10	13	0	NA	1
East Fork*	Upper	Gregg Ranch	1.00	NS	NS	NS	0
Emmigrant (trib to Mill)	Lower	Mouth up	0.10	NS	0	0	10
Etna*	Lower	Hwy 3 to mouth	2.25	NS	NS	NS	50
Etna	Middle	Split Reach (**formerly Lower Etna**)	1.00	NS	0	0	7
Etna	Upper	Mill Creek to City Diversion	1.60	1	0	NS	0
French Cr. -2001 Spot survey		From Bridge	-	1	-	-	-
French Creek	Lower	Hwy 3 to mouth	0.70	NS	NS	0	20
French Cr. **(INDEX)**	Mid	From confluence with Miners down	0.80	24	1	1	22
French Creek	Middle	From bottom of Mid-to just above Hwy 3	0.83	NS	NS	NS	27
French Creek	Upper	Upper Bridge to Horse Range	NA	2	NS	NA	NA
French Creek	Upper	Paynes Creek area	0.50	NS	NS	NS	2
French Creek	Upper	Duck Lake area	0.50	NS	NS	NS	0
French Creek		Below N Fork to mouth of Miners	1.00	NS	NS	NS	1
Grouse Creek (trib to East Fork)		Lower	0.60	NS	0	NS	0
Horse Range Creek(trib to French Cr.)			NS	NS	0	NA	NA
Indian Creek	Upper		NS	NS	0	NC	NC
Johnson Creek	Upper		NS	NS	0	NS	NS
Kangaroo	Middle	USFS	0.50	NS	0	0	0
Kangaroo*	Lower		1.00	NS	NS	NS	22
Kelsey Creek		Barrier to mouth	0.60	0	0	0	1
Kelsey Spawning Channel		USFS artificial spawning channel	0.20	0	4	0	28
Kidder Creek	Lower	Below Hwy 3	1.10	NS	0	0	56
Kidder Creek	Middle	Mid Kidder - above Hwy 3	0.80	NS	0	0	7
Kidder Creek	Upper	Upper FGS	0.50	0	NS	NS	0
Mcadams			NS	NS	0	NC	NC
Meamber Gulch	Lower		NS	NS	0	NC	NC
Middle Creek			0.40	0	0	0	0
Mill Creek (Shackleford)	Middle	Above Quartz Valley Road Bridge	1.40	NS	12	1	72

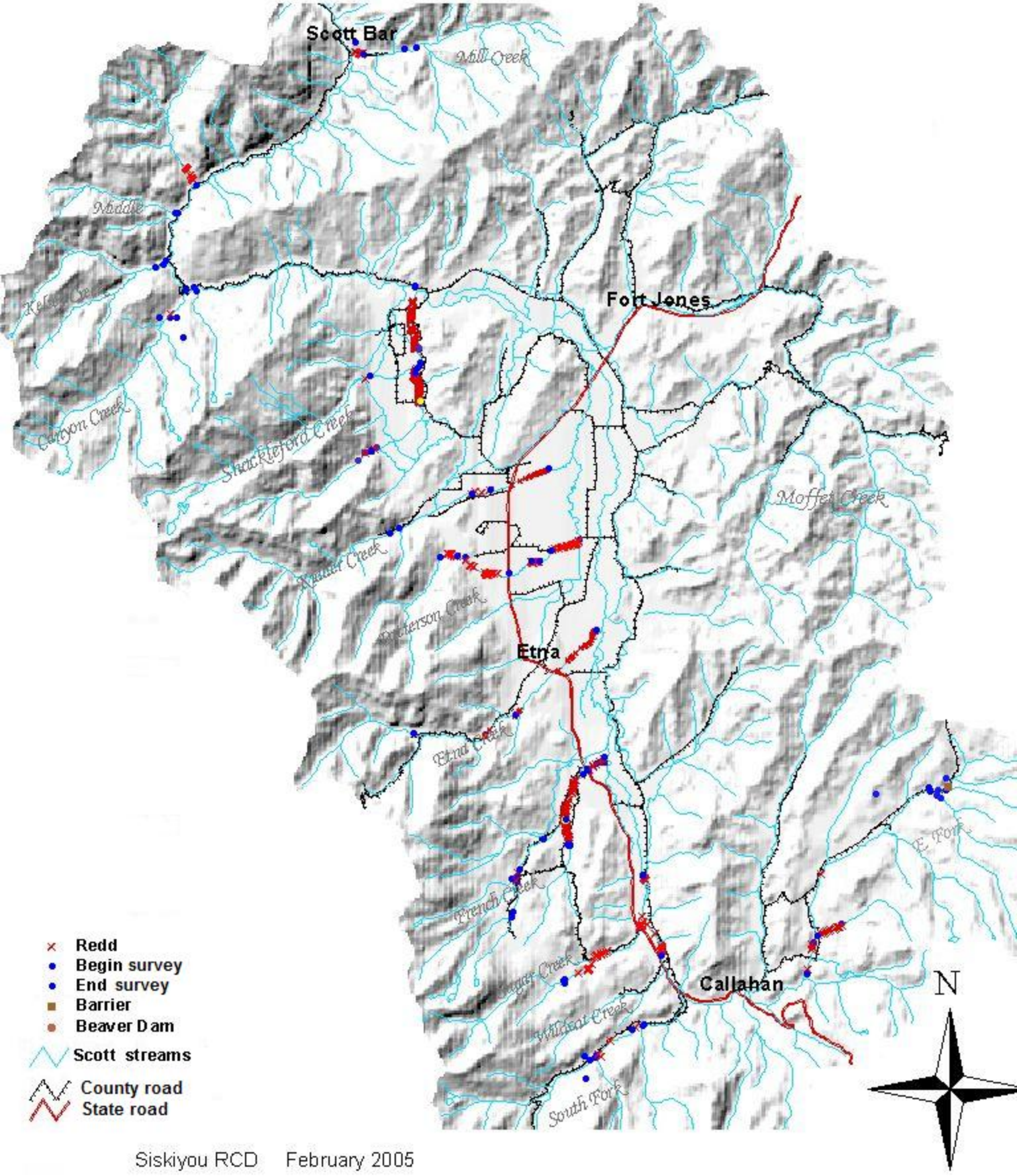
Table IV. continued) Redds by Survey Year 2001-2004

Stream	Reach	Description	Mileage	2001	2002	2003	2004
Mill Creek (Shackleford)	Upper	Lowest FGS to Bridge	0.50	0		0	5
Mill Creek (Shackleford)	Lower a	Lower .6 miles of Mill Creek	0.60	30	0	2	29
Mill Creek (Shackleford)*	Lower b	From Quartz Valley Rd Bridge to top of Lower a	1.00	NS	NS	NS	98
Miners Creek	Lower a	Lowest .3 mi	0.30	14	0	1	24
Miners Creek	Lower b	Upper Phelps to top of Lower a	0.60	NS	NS	1	19
Moffet Creek	Middle	USFS	NS	3	NS	NC	NC
North Fork French			0.70	NS	0	NS	0
Patterson	Lower		1.30	1	0	NS	232
Patterson*	Middle	Lower FGS to Hwy 3	1.60	NS	NS	NS	19
Patterson	Upper	Uppermost FGS from Falls down	0.30	1	0	NS	6
Patterson (Fort Jones)	Lower		NS	NS	0	NC	NC
Rail Creek	Upper	USFS	0.50	NS	NS	0	0
Rattlesnake Creek	Upper		NS	NS	0	NC	NC
Ruffy Gap (trib to Etna		Lowest	0.20	NS	0	NS	Dry
Scott Bar Mill	Lower	Lower	0.40	1	0	0	15
Scott Bar Mill	Upper	Upper	0.70	NS	0	0	0
Shackleford - 2004	Lower	Mile 2 to Lower Bridge	1.67	NS	NS	1	70
Shackleford	Lower	Lower Bridge to Scott	0.50	1	0	0	6
Shackleford	Upper	Below falls	0.50	0	0	NS	1
Thompkins Creek	Lower	Mouth up	1.80	0	0	0	8
Thompkins Creek	Upper	Low water crossing to Potato Patch	1.00	NS	NS	0	0
Sugar Creek (**INDEX)**	Lower	Hwy 3 to mouth	0.70	21	0	0	26
South Fork **(INDEX**)	Lower	USFS	0.40	17	0	0	0
South Fork		Above Fox Creek[a]	-	26	NS	NS	0
South Fork (**INDEX**)	Upper	Above Fox Creek to Boulder Creek	1.90	25	0	0	15
Boulder Creek (trib to South Fork)		Lower mouth section	spot	1		0	0
Sugar Creek	Upper	From Upper FGS bridge to CattleGuard	2.10	2	0	0	14
Scott Canyon		Reach 2	-	1	-	-	-
Scott River Tailings*		Rm 53.45-52.35	1.10	NS	0	0	2
Scott River Talings- 2004		Rm 55-53.45	1.65	NS	NS	NS	19
Wildcat Creek		Lower 2 miles	spot	NS	0	0	1
		Totals	47.20	212	17	7	960

NC= Not connected, NA = No access, NS = Not Surveyed * = New reach in 2004

a = surveyed in 2004 as part of the Upper South Fork Shaded reaches = surveyed in 2001-2002

Scott River Adult Coho Survey 2004-2005
Map # 3
Redd Distribution



Siskiyou RCD February 2005

Tissue and Scale Sample Collection

A total of 569 coho carcasses were found in the Scott River watershed. Of those identified, 315 (55.3 %) were female, (43.5%) were male, and six were of unknown sex due to predation. The average fork length for female carcasses was 67.6 cm, with a range of 54-81 cm. The average fork length for males was 70.3 cm, with a range of 42-81cm. One jack coho carcass was identified, with a fork length of 42 cm. In addition, during the survey period, one steelhead carcass was found on the Scott River mainstem. Scale samples and the head were submitted to CDFG. Predation of carcasses was high, especially during the early part of the survey period, when fewer carcasses were available.

Tissue and scale samples were collected from a total of 136 carcasses (73 female, 63 male) throughout the basin. All sample sets were submitted to Mark Pisano (CDFG). These samples will be submitted to NOAA and CDFG labs for genetic analysis, and scale sample analysis. To date this analysis has not been completed. See Appendix D, Carcass Sample List, for location and date of carcass sampled.

Stream Temperature

Stream Temperature data was collected at hourly intervals from November – January 31st. Temperature data was collected in the lower South Fork, Lower Sugar Creek, Mid-French, and Lower Mill. The datalogger deployed in Sugar Creek malfunctioned, and some data from the key spawning period was lost.

There is significant variation in temperatures between the tributaries. Sugar Creek and French Creek are coldest, with temperatures ranging between .5° C - 4.3°C during the spawning period. This data is supported by observations of Sugar Creek and French Creek being iced over during surveys. During the survey of November 24th, 2004, lower Sugar Creek had sheets of ice on the edges, as thick as ½ to ¾ of an inch. During surveys on January 13th, 2005, Miners Creek had sheets of ice over 70-80% of the stream, and French Creek had ice over 30% of the stream, measuring ¾ of an inch thick.

Frozen side channel of French Creek – January 6th, 2005

Shackleford and Mill were surveyed during the same period (January 11th and 12th), and showed no evidence of icing over. Temperatures in Mill Creek during the same period ranged from 5.3 - 8 °C. Hand held thermometer recordings in Mill Creek showed temperatures of 6 - 7°C degrees during the survey period. See Figure IV for temperature data during the survey period.

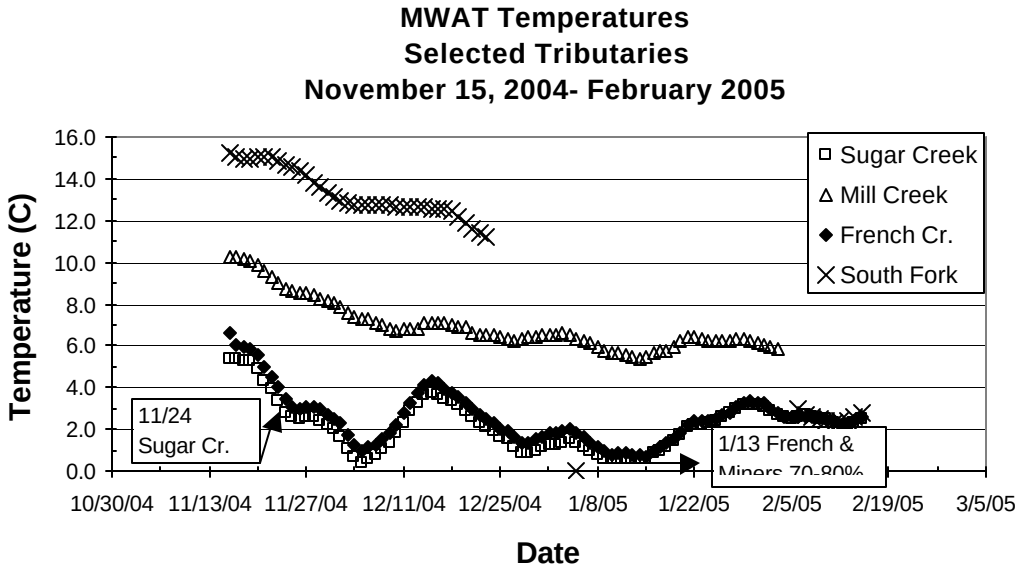


Figure IV**. Stream Temperatures in selected tributaries.**

Site Specific Factors

During the redd surveys, redd dimensions (length, width, pott depth), and substrate composition were measured when it would not cause disturbance to the spawning fish. See Table V for average conditions by reach.

Table V. Site Specific Factors - Average Redd Conditions						
Stream	**Reach**	**Ave Length (M)**	**Ave Width (M)**	**Ave Pott Depth (m)**	**Substrate Dominant/Sub-dominant**	**Total Redds Measured**
Canyon	Lower	2.10	1.30	0.23	2/3	2
East Fork						
East Fork	Lower	2.43	1.17	0.19	4	10
E. Fork	U. Masterson	2.00	1.20	0.20	2	1
Kangaroo	Lower	2.50	1.38	0.14	2/3	22
Etna Creek						
Etna	Lower	2.18	1.27	0.21	2/3	23
Etna	Middle	2.57	1.25	0.18	2/3	7
French Creek						
French	Lower	2.60	1.06	0.19	2/3	20
French	MID	2.78	1.30	0.14	2/1	49
French	Paynes Area	2.38	1.13	0.14		2
French	N.Fork area	1.00	1.00	0.10	2/1	1
Miners	Lower	2.43	1.19	0.16	2	39
Kidder Creek						
Kidder	Lower	1.79	1.00	0.25	3/2	17
Kidder	Middle	1.30	0.81	0.15	2/3	4
Patterson Creek						
Patterson	Lower	1.77	1.01	0.20	2/3	12
Patterson	Middle	2.45	0.86	2.22	3/2	19
Patterson	Upper	2.15	1.10	0.34	2/3	12
Shackleford-Mill Creek						
Mill	Lower	2.84	1.22	0.17	2/3	121
Mill	upper	2.30	1.15	0.19	3/2	5
Shackleford	Lower	2.93	1.14	0.25	2/3 & 3/2	76
Shackleford	upper	1.5	0.8	0.2	3	1
Sugar Creek						
Sugar	Lower	2.54	1.33	0.17	2/1 & 2/3	18
Sugar	Upper	2.23	1.09	0.18	2/3	28
Other Reaches						
Scott	Tailings	3.55	1.63	0.15	2/3	21
Scott Bar Mill	Lower	2.29	1.10	0.36	4	15
Thompkins	Lower	1.38	0.84	0.24	3/4	7
Substrate	1 = sand (< .2cm), 2 = small gravel (.2-5 cm), 3 = large gravel (6-9 cm), 4 = sm cobble (10-13 cm), 5 = Lg cobble (> 13cm)					

Mark and Recapture – Population Estimates
Mark and recapture studies were completed in Shackleford-Mill and French-Miners Creek. Population estimates were generated for individual reaches using Peterson and Schaefer estimates. Mark and recapture was completed in Lower French Creek (.70 Mi), Middle French Creek (1.62 Mi.), Miners Creek (.9 Mi), Lower Shackleford-Mill (2.17 Mi) and Lower Mill Creek (1.6 Mi).

Lower French Creek was dropped from the population estimate due to: low number of marked carcasses (< 25) and a missed survey week.

Mark and Recapture of Coho Carcasses
A weekly survey of all mark and recapture reaches was completed to get tagged fish out, and to recover tagged fish. This was six weeks in French Creek, and four weeks in Shackleford-Mill. Large amounts of spawning and good survey conditions in these reaches allowed for relatively high rates of carcass capture and recapture.

The short duration of spawning (December 13th – Jan 11th in Shackleford) and clustered period of die-off of spawners (Dec 20th –Jan 6th for Shackleford) along with the use of a weekly survey (rather than semi-weekly) caused the number of mark and recapture trials to be reduced to a relatively small number. Additionally, the relatively small reach size created a small sample size per reach, increasing the error in estimates.

Population Estimates
The mark and recapture data collected was utilized for estimates using two equations: the Peterson Estimate and the Schaeffer Estimate.

The Peterson equation estimates the population using all the data as a single trial

$$N = MC/R$$
(Equation 3.5 Ricker 1975)

N = size of population
M = number of fish marked
C = catch or sample taken for census (total number of carcasses)
R = number of recaptured marks

The Schaefer equation stratifies the data over time. The use of individually numbered tags allows for the recording of when a fish is both marked and recaptured.
Schaefer Equation:

$$N = ? (R_{ij} * Mi/R_i * C_j/R_j)$$
Equation 3.19 (Ricker 1975)

For the Schaefer estimate, the periods of marking is designated by i , and periods of recapture designated by j.
M_i = number of fish marked in the ith period of marking
M= total number marked

C_j = number of fish caught and examined in the j^{th} period of recovery
R_{ij} = number of fish marked in the i^{th} marking period which are recaptured in the j^{th} recovery period
R_i = total recaptures of fish tagged in the i^{th} period
R_j = total recaptures during the j^{th} period.

The above data is arranged into a table, as shown in Appendix C.

The Schaefer equation produces estimates for each survey period (week). In this way the Schaefer estimate compensates for different mark and recapture rates experienced during the season.

Table VI contains the results of the Peterson and Schaefer estimates.

Table VI. Population Estimates from Mark and Recapture Data.

Reach	Peterson (Confidence Interval)	Schaefer (Confidence Interval)	Marks	Recaps	Live count	Redd count	Carcass count
Mid-French	181 (156-209)	163 (140-190)	70	50	142	49	82
Miners Creek	221 (193-252)	133 (112-157)	71	47	281	43	100
Lower Mill	337 (299-374)	307 (274-343)	142	115	273	127	154
Lower Shackleford	201 (174-230)	110 (91-133)	63	40	170	76	86

The Population Estimates and field data collected for these reaches agree within reason. In Shackleford- Mill the estimated fish population, based on redd counts is 254 adult fish (redd count x 2) for Lower Mill, and 152 adult fish for Lower Shackleford. This is extremely close to the live counts for those reaches. In Lower Mill these numbers are also close to the Scheafer estimate. In Lower Shackleford the number agrees with the average between the Peterson and Schaefer. In French Creek, the live count agrees with the estimates, but exceeds the expected population based on redd count. This in part may be due to superimpostion of redds, as well as incidences of multiple fish on redds. The estimates are furthest off in Miners Creek. This may be due to various factors, including: superimpostion of redds, short period of marking (especially Shackleford-Mill), multiple fish on redds, and during the last survey completed 25 of the 71 marked carcasses were still not recovered, 19 from the previous survey week. However the stream was 70-80% iced over, with no visibility through ice. Due to this, only 6 carcasses were retrieved.

Extent of Spawning Distribution and Habitat Characterization by Stream

Flow conditions during the survey period (November 16^{th} – January 14^{th}) allowed for distribution of coho spawning throughout most of the basin. Coho were observed in all tributaries surveyed with the exception of: Middle Creek, Boulder Creek(Scott), Boulder Creek (S. Fork), Paynes Creek, Grouse Creek and Rail Creek (with the exception of

spawning observed in an unsurveyed reach.). In addition, lack of connectivity prevented access to Moffet-McAdams, Rattlesnake Cr., Indian Creek, and Patterson Cr. (Fort Jones) The following are descriptions of spawning distribution, and habitat characterization by tributary, for selected survey reaches.

French Creek

French-Miners Creek was surveyed in six reaches totaling 5.93 miles. Three reaches were surveyed weekly for mark and recapture: Lower French Creek, Mid- French Creek, and Miners Creek. Additional reaches surveyed once were French Creek near Paynes Creek, French Creek near Duck Lake Creek, French Creek below the North Fork, the North Fork French Creek, and lower Paynes Creek. See Map #4 for reach locations and redd distribution. The upper extent of spawning documented was approximately ¼ mile upstream from the confluence of Paynes Creek. However, the heaviest spawning activity was French Creek below the confluence of French and Miners Creek, and in lower Miners Creek. Surveys have never been completed in Miners Creek above the .9 mile point; spawning likely occurs above this point.

Habitat Characterization - Mid French

The section from Miner's Cr. confluence to the lower Miner's Cr. Road bridge (Index Reach in 2001) offers a combination of frequent occurrence of spawning gravels with exceptional cover. Large amounts of the available spawning gravels appeared to have a high occurrence of fine sediment interspersed, with the occurrence of sand (DG) in many redds. This reach has a relatively mature riparian corridor mostly comprised of alders with an under story of willows, small trees, shrubs and blackberries. The channel is relatively well populated with small and larger wood, creating several log jams. A large amount of stable undercut banks exist and overhanging terrestrial vegetation is prevalent. The majority of the spawning coho were observed utilizing areas of suitable gravel adjacent to the channel margins, perhaps to gain the benefit of terrestrial cover and areas sheltered by wood. The one observed side channel had limited spawning, probably because this was one of the few areas that did not offer any overhead cover.

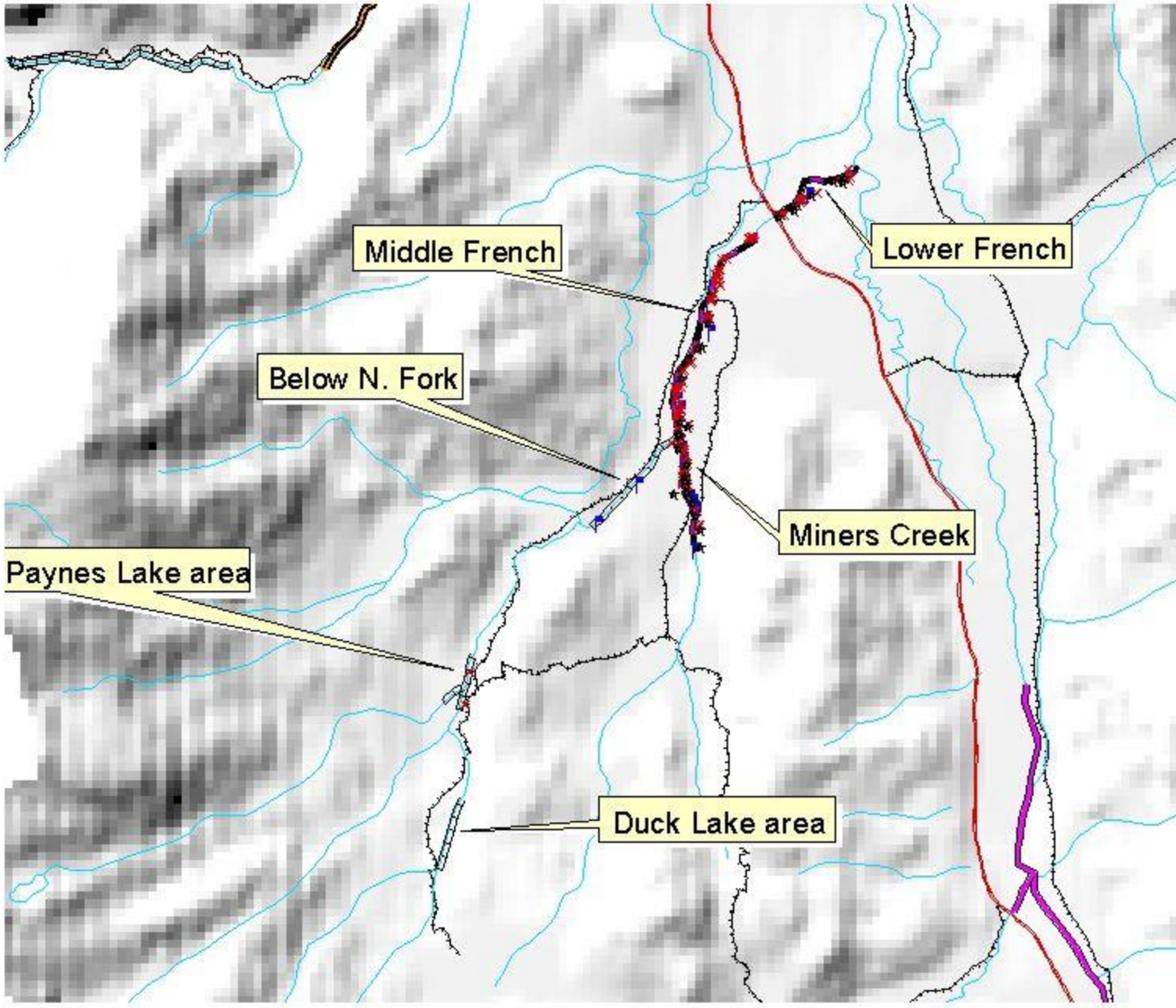
From the Miner's Cr. Road bridge down there is a younger riparian corridor that consists mostly of willows and small alder. This area has good to excellent occurrence of spawning gravel and several areas of utilized side channel / ditch inlet. Most side channel/ ditch inlet locations were utilized by at least a pair of salmon. Spawning was usually along a margin, near optimal overhead cover.

Shackleford-Mill Creek

Shackleford

Two reaches were surveyed in Shackleford Creek. See Map #5 for reach locations. The lower reach was established as a mark and recapture reach. Spawning was documented in the upper reach, below the falls.

Scott River 2004/2005 Adult Coho Surveys
Map # 4
French and Miners Creek



- Carcass
- Fish
- Redd

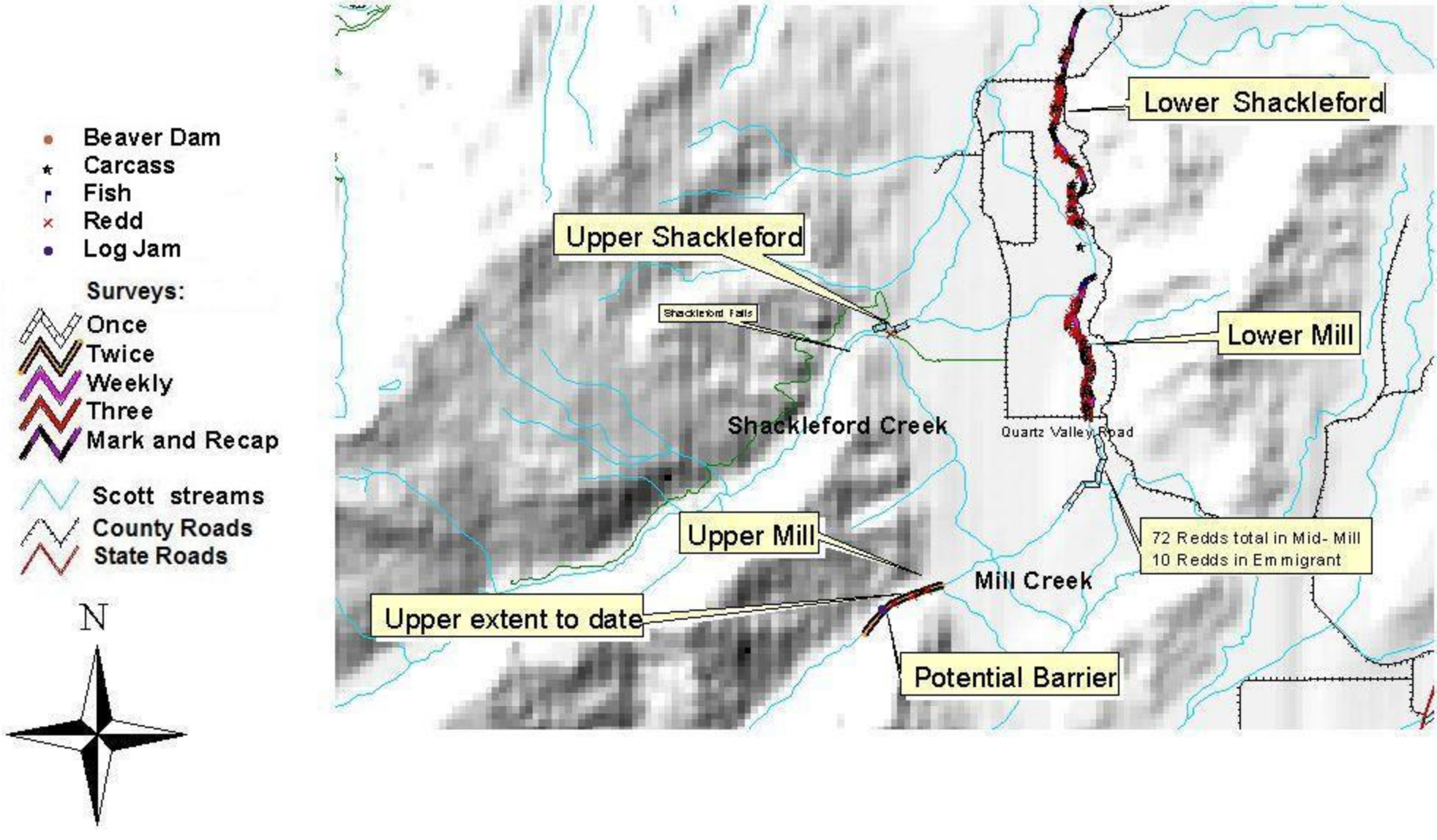
Surveys:

- Once
- Twice
- Weekly
- Three
- Mark and Recap

- Scott streams
- County Roads
- State Roads

N

Scott River 2004/2005 Adult Coho Surveys
Map # 5
Redds - Shackleford-Mill



Mill Creek
Three reaches were surveyed in Mill Creek. The lower reach (2 mi) was established as a mark and recapture reach. See Map #5 for reach locations

Habitat Characterization –Lower Mill Creek
This reach exhibited large amounts of suitable sorted spawning gravel. Most of the available gravel appeared to be low in interspersed fine sediment. Coho were observed spawning throughout the reach, mostly utilizing channel margins and side channels that offered direct cover from riparian vegetation (mostly willow, alder, sedge, blackberry), due to the small channel size and ideal substrate (gravels). Coho were also found in more mid-channel locations without direct cover from the surrounding riparian. The riparian corridor is mostly intact but less mature and not as wide as some reaches surveyed. Moderate amounts of small wood and larger wood were interspersed throughout reach.

The existence of a huge beaver dam at the lower end of the reach created an area that has multiple side-channels surrounded by cover (mostly willow) creating a point on the stream that has greatly increased habitat for spawning and rearing.

Habitat Characterization - Lower Shackleford
The stream channel is considerably larger (flow volume and wetted width) than Lower Mill Cr. because of the influence of Shackleford Creek. This reach maintains a good riparian corridor and decent wood occurrence, until the last 1/3 mile. The last 1/3 mile of Shackleford has no riparian or channel structure. Overall the reach has excellent gravel quality and occurrence with little fine sediment. Spawning was throughout this reach, with side-channels highly favored. Also main stem margins were utilized in association with overhead cover**.** Relatively large amounts of side-channels that were connected during the time of spawning started to become de-watered due to low flows caused by extreme cold weather.

East Fork Scott

The East Fork Scott River was surveyed in three reaches: Lower Masterson Road, Upper Masterson Road, and the Upper East Fork (including sections of Houston and Crater Cr.), for a total of 6.5 miles. In addition, reaches in Rail Creek, Grouse Creek and Kangaroo Creek were surveyed, for a total of 2.6 miles. See Map #6 for reach locations, and redd distribution. The biggest gap in this survey effort was the lower five miles from Grouse Creek to the confluence with the South Fork. Spawning likely occurs in this reach, however, access was not granted to survey.

The Upper East Fork reach encompassed the confluence with Crater Creek and Houston Creek, and ½ mile downstream. (RM 13) No fish were observed in this reach, and it is probably more suitable for steelhead spawning. The farthest upstream spawning was documented at River Mile 8.0, although live fish were sighted at River mile 10.2. Observed spawning was approximately 2 miles higher than previously documented. The most spawning activity was observed in the section one mile upstream of the confluence with Grouse Creek. In addition, spawning activity was documented in the lowest 1 mile of Kangaroo Creek.

South Fork Scott

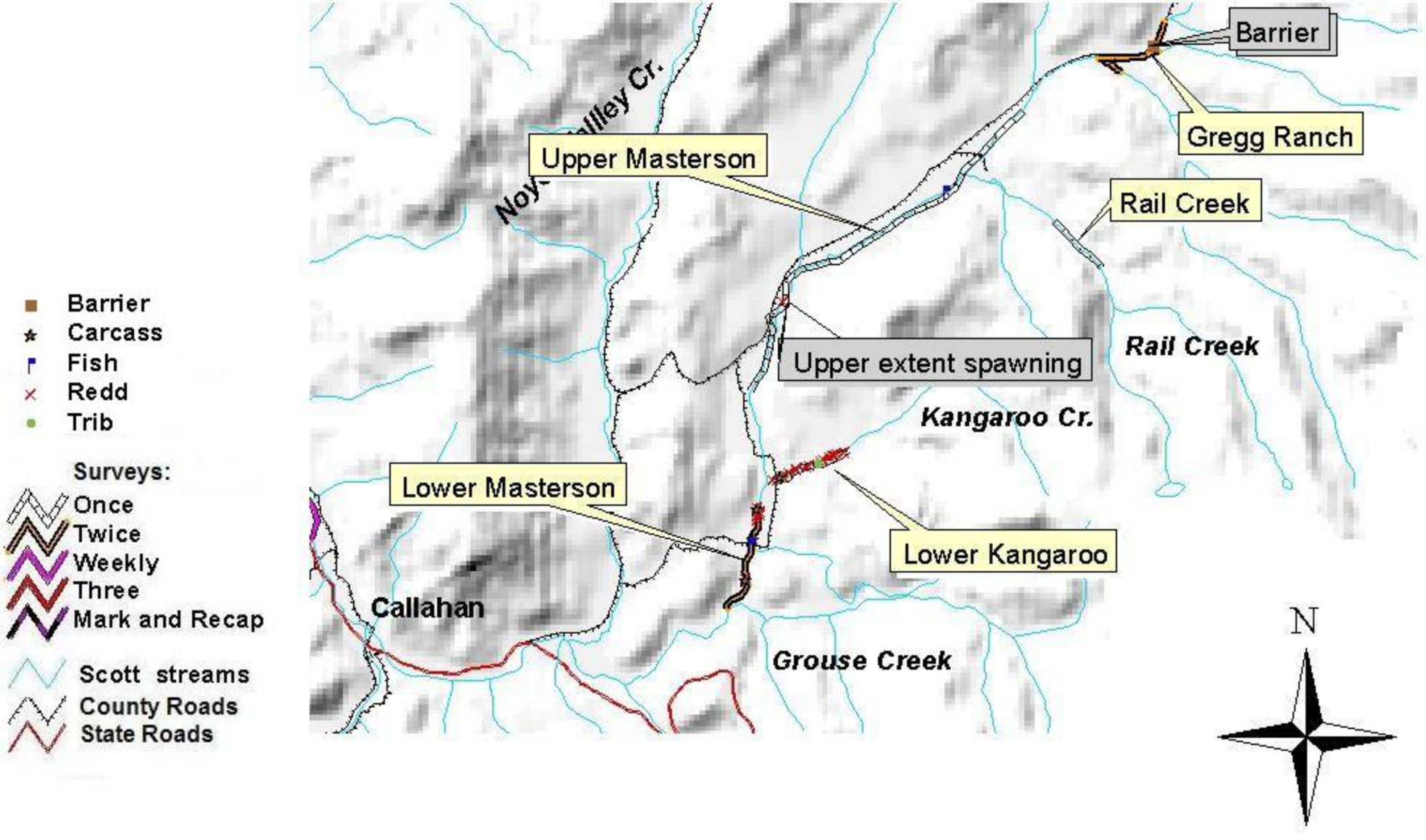
The South Fork Scott River was surveyed in two reaches totaling 2.3 miles. See Map #7 for reach locations, and redd distribution. The Lower South Fork reach is approximately .4 miles on USFS land just behind the town of Callahan. The Upper South Fork reach begins 800 meters upstream from Fox Creek and goes to Boulder Creek. The biggest gap in the survey is approximately 2 miles between Boulder Creek and the lower South Fork, due to lack of access. Spawning likely occurred in this reach, as coho carcasses were observed from the road. Spot surveys were completed at the mouths of Fox and Boulder Creek, but no fish or spawning activity was observed.

During this survey period no spawning was observed in the Lower South Fork reach. The uppermost extent of spawning was in the Upper South Fork Reach, 300 meters below Fox Creek. This is lower than that documented in 2001. Overall the number of redds observed in 2004 was significantly lower than in 2001 (10 vs 68). The spawning habitat available in the South Fork of the Scott is not comparable to that found in many other tributaries (such as Shackle-ford Mill or French Creek). This is due to the higher gradient, and larger substrate size. Flow conditions during the spawning period of 2004 likely contributed to a greater dispersion of coho salmon than 2001, which was a drought year. Flows during December 2004 allowed coho access to areas of suitable habitat throughout the watershed.

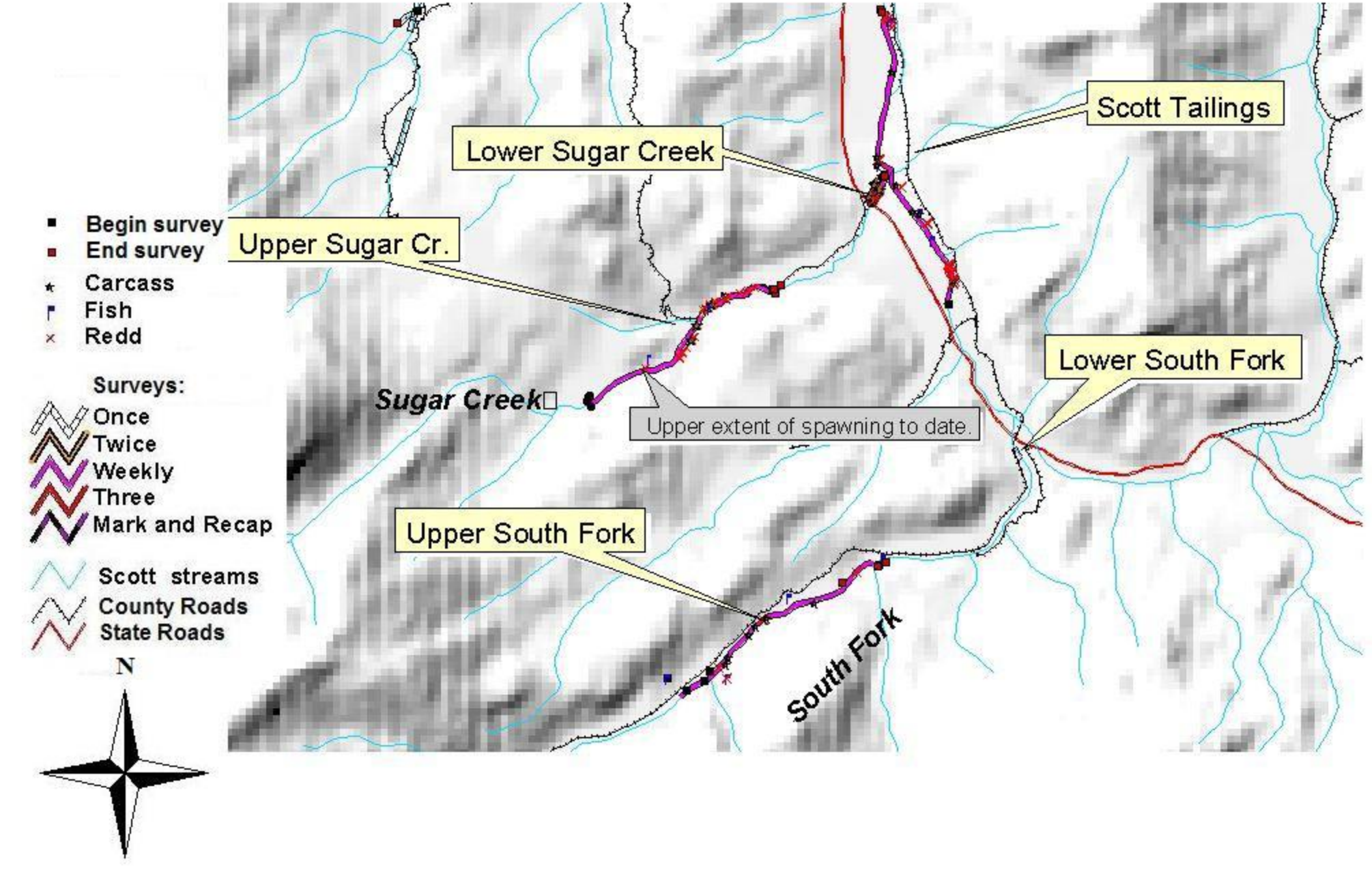
Habitat Characterization – Upper South Fork

This reach appears to be largely limited for spawning by the area of sufficient sorted gravels and side channel occurrence. The small amount of side channels in the surveyed area – both natural and ditch inlets – were usually occupied with at least a single redd. Additionally, one ditch inlet possibly had multiple redds. A few redds were observed in margins of the main channel when suitable gravel was associated with overhead cover. A large part of the reach did not have much suitable gravel. This is likely caused by a higher gradient channel and a stream structure impacted by historic mining and upslope management. Overhead cover in South Fork included terrestrial vegetation and an assortment of small and larger woody debris.

Scott River 2004/2005 Adult Coho Surveys
Map # 6
East Fork Scott River



Scott River 2004/2005 Adult Coho Surveys
Map # 7
Sugar Creek, Tailings, South Fork



Coho male in side channel of South Fork Scott River – December 23, 2004

Sugar Creek

Sugar Creek was surveyed in two reaches totaling 2.8 miles: Lower Sugar Creek is Hwy 3 to the mouth, and Upper Sugar Creek is from mile 2 to mile 4. See Map # 7 for reach locations, and redd distribution. Low flows and a beaver dam at the mouth created a barrier to passage until the early December rains. The Lower Sugar Creek was heavily used for spawning, with multiple fish on redds, and redd superimposition occurring. The uppermost extent of spawning documented was 3.48 miles from the mouth of Sugar Creek, above the confluence of Tiger Fork. Upper Sugar Creek received more spawning activity than observed in 2001.

Habitat Characterization – Lower Sugar Creek

This section of Sugar Creek contains areas with abundant spawning gravels and received a high concentration of coho spawners. Fish were observed creating large redds, superimposing redds, and utilizing non-standard pairing (up to six fish on "1 redd"). It appeared that the redds on Sugar Cr. were less directly associated with a component of overhead cover. Many of the redds did have riparian cover (alders, willows, sedges) in their vicinity. But, there were also redds that were near the middle of the channel with the closest cover being offered by the riparian vegetation. The spawners would quickly utilize this bank cover if startled – darting to undercut banks with terrestrial vegetation which are common in this section.

Habitat Characterization – Upper Sugar Creek

This reach is higher gradient with larger size substrate (large cobble and boulder). Upper Sugar Creek has many significant pools, and few areas of suitable spawning substrate. During this spawning season, most suitable substrate was utilized by coho. Cover is abundant throughout the reach, consisting of undercut banks, woody debris, and riparian vegetation. Sand, primarily decomposed granite (DG) is present throughout most of the reach.

Scott River Mainstem – Tailings Reach

The tailings reach was a total of 2.75 miles, beginning approximately 0.4 miles downstream from the confluence of Wildcat Creek to 1.5 miles downstream from Sugar Creek. See Map #7 for reach location, and redd distribution. Following the rains of December 6th – 8th flows were too high to safely survey this reach. Spawning was documented in the reach during late November through early December. This may be due in part to a beaver dam at the mouth of Sugar Creek, which prevented access to Sugar Creek until after December 10th. Most of the spawning occurred in the upper section of the reach (above Sugar Creek) which had not been surveyed previous to 2004.

Habitat Characterization – Tailings Reach

Main portions of the stream had large amounts of sorted gravels in the pool tail outs that appeared to be suitable size for coho salmon but these tail out locations contained absolutely no cover and the coho salmon did not utilize these sorted gravels. These areas of sorted gravel are would be suitable habitat for Chinook salmon if access were possible during the Chinook spawning season. The coho salmon that were observed on redds were mostly utilizing side-channels that had smaller volumes of flow – this was seen in natural side-channels and locations such as Farmer's ditch inlet. The coho spawning in the side-channels were mostly spawning directly under cover – almost always offered by terrestrial vegetation (alders, blackberries, sedges, willows). Smaller amounts of the spawning coho were utilizing the extreme margin of the mainstem river in areas that they found suitable spawning gravels under direct cover. It appeared that the main driving force to spawning location was the presence of gravels directly associated with overhead cover. Large sections of this survey reach were devoid of spawning, despite suitable gravels, possibly due to lack of available cover.

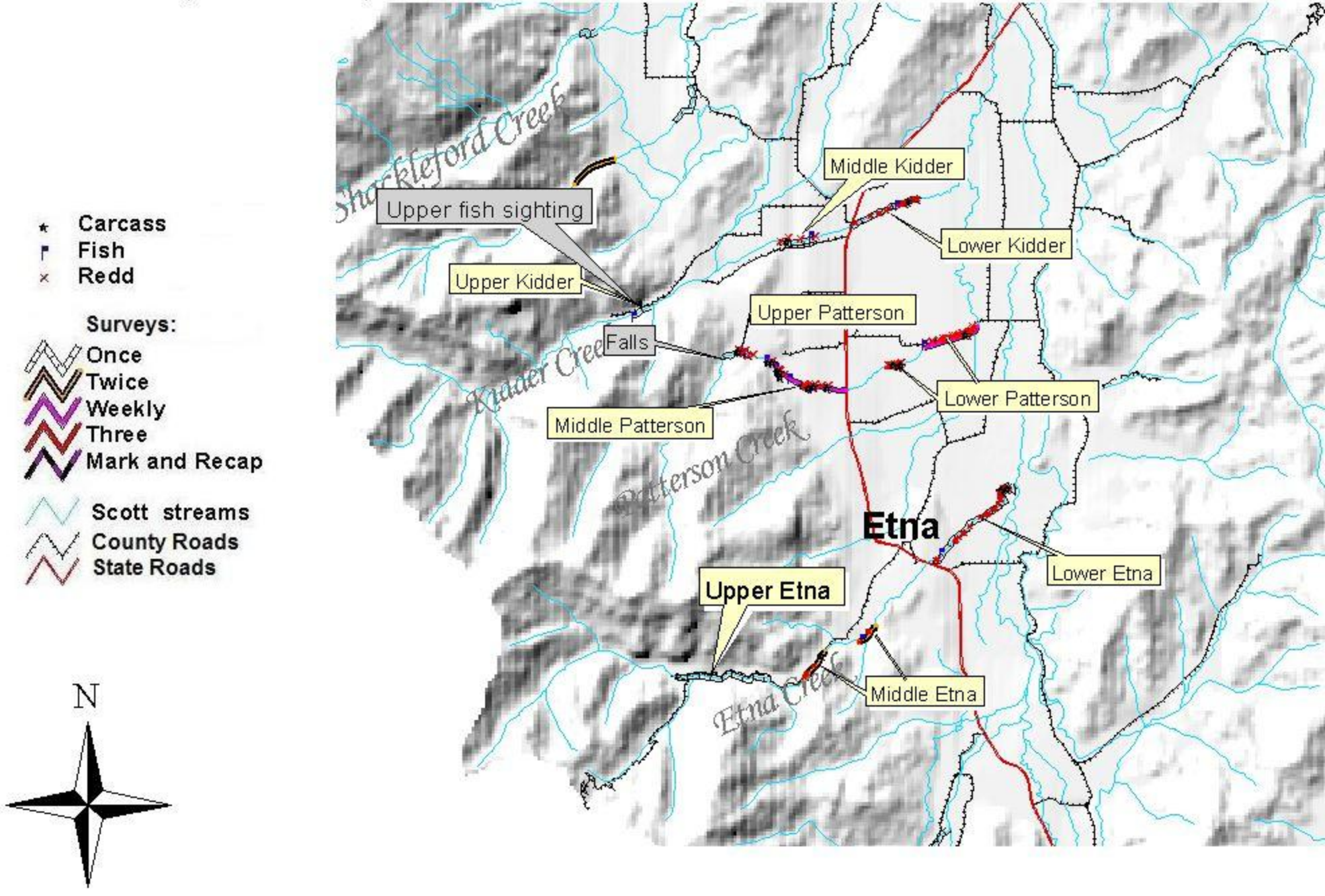
Etna Creek

Three reaches were surveyed on Etna Creek totaling 4.9 miles, and an additional .2 miles of Ruffy Gap Creek, which was dry at the time of survey. The upper extent of the survey was at the confluence of Mill Creek, at river mile 8.0. See Map #8 for reach locations and redd distribution. The fish ladder at the Etna City Diversion was not in place during the first survey on December 17th, but was in place at some point after that. The upper extent of spawning was documented at the Etna City Diversion (RM 5.5). The heaviest spawning activity was in the lower 2.25 miles below the Hwy 3 bridge.

Habitat Characterization –Lower Etna

Near the confluence with the Scott River, abundant sorted spawning gravels and over hanging cover was present, although spawning density was not high. The locations where spawning density was highest was where channel shaping had occurred during the summer of 2004. In these areas the gravels were looser, and the size of sorted gravels was suitable for coho spawning. As the gradient increased closer to HWY 3, available spawning gravels were limited to active side channels. The main channel was dominated by oversized material for spawning. Both side channels and the main channel were lacking overhanging vegetation throughout the reach. The surveyed reach loses connectivity in June and remains dry until December.

Scott River 2004/2005 Adult Coho Surveys
Map # 8
Kidder, Patterson, Etna Creek



Habitat Characterization –Middle Etna

The two reaches surveyed between the Etna City Diversion and Etna City were believed to be limited in spawning by the lack of suitable gravels. The area surveyed was a relatively large high gradient channel that contained substantial amounts of cobble. There is a good to excellent amount of cover from wood and riparian vegetation throughout the reach. The few redds observed were located in 1) the margin of the main channel under cover or 2) in the one side channel surveyed, which had limited cover.

Patterson Creek

Three reaches were surveyed on Patterson Creek, totaling 2.9 miles. See Map #8 for reach locations. The lower reach (Lower Patterson) was a split reach, due to lack of access. The upper extent of spawning documented was approximately ¼ mile downstream from the falls at river mile 7.7. The heaviest spawning occurred in the lower reach, just upstream from the confluence of Johnson and Patterson Creeks.

Habitat Characterization – Lower Patterson

Quality sorted gravels and gradient were found throughout the two surveyed reach segments. Adequate to abundant overhanging vegetation was also present throughout the lower surveyed reaches. Coho primarily selected spawning along the margins of the stream, but the center of the stream was utilized as well. There were areas where sorted gravels were present and overhanging vegetation was plentiful throughout. The biggest concern related to spawning conditions in Patterson Creek was the lack of flow between rain events (exacerbated by cold dry conditions). If coho did not access Patterson during a one week period after the rains event in early December, access was limited. By December 20th, flows were less then 2 cfs in the lower reaches, even after all stockwater diversions were voluntarily shut off to aid the coho. The low flows may have had an impact on some of the redds, which appeared to dry out, and then freeze in the cold weather.

Coho pair in Lower Patterson Cr.

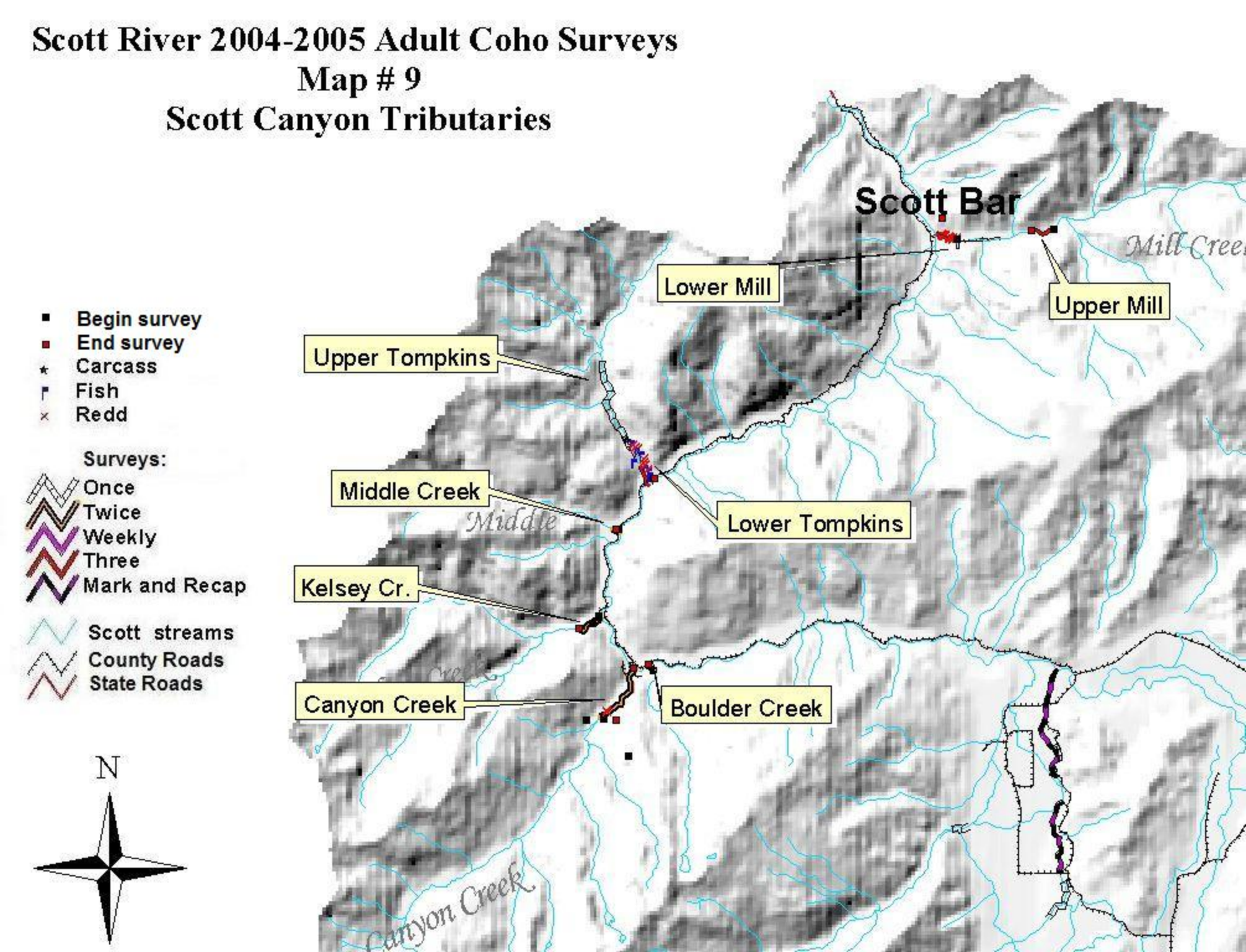
Habitat Characterization –Middle Patterson
This reach is relatively low gradient, with abundant suitable gravels. Gravels in this reach appear clean, with little sediment. Cover is abundant, in the form of woody debris, log jams, and riparian vegetation.

Kidder Creek

Three reaches were surveyed on Kidder Creek, totaling 2.40 miles. The highest survey reach was at 8.0 miles from the mouth. See Map #8 for reach locations. The upper extent of spawning documented was approximately one mile upstream from Hwy 3. However, a coho pair was seen 4 miles upstream from Hwy 3. The heaviest spawning activity was in the 1.1 mile reach below Hwy 3.

Habitat Characterization –Lower and Middle Kidder Creek
The Lower Kidder Creek reach is low gradient, and contained the best spawning gravels found in Kidder Creek. Quality gravels were found in the lower gradient reaches where the active channel was confined and slightly entrenched. Overhanging vegetation was present in both Lower and Middle Kidder, as were adequate sorted gravels. Coho preferred the margins where spawning gravels were present. Some channel shaping had occurred in Lower Kidder during the fall of 2004, which loosened the gravels in the lower reaches surveyed. This area was preferred by coho, and many of the redds were superimposed. Spawning sites were selected in locations where flows were slower then usual. The redds (potts) through this reach seemed deeper, perhaps because the gravels

Scott River 2004-2005 Adult Coho Surveys
Map # 9
Scott Canyon Tributaries



were loose. Spawning activity notably decreased in locations where channel disturbance did not occur, potentially due to a lack of suitable gravels.

Most of the spawning was on margins and side channels (in both Lower and Middle Kidder). The active channel was wide, with little available cover. Available spawning gravels decreased as gradient increased. Oversized cobble dominated the channel from .4 miles below HWY 3 through the Middle Kidder Creek reach located .5 miles above Hwy 3. Again cover and available spawning gravels were scarce. The surveyed reach loses connectivity in June and remains dry until December.

Scott Canyon Tributaries

Scott Bar Mill, Tompkins Creek, Middle Creek, Kelsey Creek, Canyon Creek and Boulder Creek were surveyed in the Scott River Canyon. Two reaches were surveyed in each of Tompkins Creek and Scott Bar Mill. Spawning was documented in Scott Bar Mill, Tompkins Creek, Kelsey Creek and Kelsey Spawning Channel and Canyon Creek. See Map #9 for reach locations and redd distribution.

Mill Creek (Scott Bar)

Two reaches of Mill Creek near the town of Scott Bar were surveyed three times during the 2004-2005 season. The first survey occurred on November 22nd, and the last on December 28th, 2004. Lower Scott Bar Mill starts approximately 0.2 miles from the confluence and ended at approximately RM .5. Upper Scott Bar Mill began at approximately RM 2.5 and ended at RM 1.8. Lower Scott Bar Mill was heavily utilized in areas where suitable spawning gravel was present. No coho salmon or redds were observed in Upper Scott Bar Mill this season. However, several coho carcasses were observed in the section of Mill Creek between the Upper and Lower reach, where the road was close to the stream.

Habitat Characterization –Lower Scott Bar Mill Creek

This reach is low gradient, with pockets of abundant spawning gravels separated by larger cobble. The riparian corridor consists of large and small woody vegetation thick enough to prevent access to the stream in some places. Numerous redds and coho carcasses were found throughout this reach with redd superimposition occurring in some cases. Coho salmon redds and carcasses were observed below this reach down to the low water crossing near the confluence with the Scott River. Due to lack of access, the stream below this reach was not surveyed on foot, but portions were observable from the road.

Habitat Characterization –Upper Scott Bar Mill Creek

No coho were observed in this section of the creek in spite of apparently suitable spawning gravel. However two "test" redds were observed. This has a slightly steeper gradient than Lower Scott Bar Mill, riparian cover is present throughout the reach. Small woody debris and several pools are scattered throughout, providing potential rearing and holding habitat.

Discussion

Run Timing and Duration

Based on observations during the fall Chinook surveys, and Karuk Tribe radiotagging studies, adult coho entered the Scott River as early as October 22nd. Small amounts of mainstem spawning activity occurred prior to the heavy rainfalls of December 6th – 8th, indicating that coho hold in the mainstem until conditions were suitable for moving into the tributaries (ie. flow conditions). Radiotags and observations from the Fall Chinook Surveys (CDFG) documented adult coho holding in the Scott Canyon during most of November. The peak of the spawning period occurred after the tributaries regained connectivity, during the last two weeks of December, with little spawning activity following that period. It is highly likely that if rain and flow conditions allow, in any given year, spawning would occur earlier than that observed in 2004-2005.

Stream Temperature

Water temperature during incubation directly affects the rate of embryonic development, the timing of egg hatch, and the survival of embryos. Hatching and emergence time vary inversely with incubation temperatures (Konecki et al 1995). The affect of incubation temperatures on emergence timing can impact survival at the fry stage. Increased incubation temperatures can lead to early emergence and a longer growing season, and therefore higher over-wintering survival rates.

It has been shown that 2-8°C is the optimal temperature range for incubation (Tang et al 1987), which was the observed range in Scott River tributaries during most of the survey period. However, eggs incubated around 2°C will have a significantly longer incubation period than eggs incubated at 8°C. Studies of coho salmon in Washington State (Tang et al 1987) showed that eggs held at 2.5°C hatched in 162 days, while eggs held at 8.4°C hatches in 58 days. The observed 4°C difference in Mill Creek versus French and Sugar could lead to Mill Creek fish emerging in around ½ the time.

Population Estimates

Conditions were ideal for mark and recapture surveys during the 2004-2005 adult coho spawning period. High spawning activity in the mark and recapture reaches, as well as low flow during the survey period, led to relatively high mark and recapture rates. However, the relatively short window of spawning activity (4 weeks in Shackleford-Mill) resulted in few marked trials (ie. marked carcasses by stratified week) being out, increasing the error in the estimates. For future survey years, changing the mark and recapture schedule to semi-weekly should be considered.

The population estimate effort should be expanded in 2007-2008 to include reaches in Patterson, Etna, Kidder, South Fork, East Fork and Sugar Creek. The spawning period of 2007-2008 is selected, because it is the next cycle of this brood year. Returning spawner numbers are expected to be sufficient to complete mark and recapture studies. However, given the consistent spawner return in Shackleford-Mill Creek (present in all three brood years), population estimates could be attempted in each survey season.

Other Observations

During the survey period flow conditions were relatively stable, and overall fairly low. The USGS gauge was less than 500 cfs for much of the spawning period. It was observed in the lower alluvial reaches (Lower Patterson, Lower Shackleford, Middle French and Miners Creek), that during periods of extremely low temperatures flows dropped enough to lead to potential dewatering and surface freezing of side channels. It is unknown what affect this will have on survival of the eggs buried in the redds.

Flow conditions vary from year to year, and the potential dewatering of redds might not be an issue in other water years.

Recommendations

Based on the surveys completed during the 2004-2005 coho season, the following recommendations are made:

Future Adult Coho Spawning Ground Surveys.

Survey efforts should be closely coordinated with the Fall Chinook survey crews, to determine when coho first enter the Scott River. Maintenance of a proposed video weir at Young's Dam will help determine when coho first enter the upper Scott Valley, and provide a count for fish utilizing this section of the valley (Scott River RM 47 – 56, French Creek, Sugar Creek, East and South Fork, Wildcat Creek).

The following reaches should be established/retained as permanent index reaches: Lower Masterson, Lower Sugar, Middle French, Middle Patterson, Lower Shackleford, Lower Mill. These reaches are selected based on the high quality of habitat available for spawning. These reaches would be especially valuable during the two heavily impacted brood years coming up, as fish would be expected to utilize the best habitat available.

Additional effort should be made to document the full distribution of spawning in Kidder Creek, and the East Fork Scott River. After that point in time an index reach for Kidder Creek and the East Fork should be established. An index reach should also be established on the South Fork. However, effort should be made to acquire more access in the lower two miles of the South Fork.

Summer Habitat Utilization Surveys – Summer 2005

It is recommended that summer habitat utilization surveys be completed in all streams surveyed during the 2004/2005 adult coho surveys. Attempts should be made to survey as many representative reaches as possible, with the following being the highest priority; Lower East Fork, Upper and Lower Sugar, Middle and Upper French, Middle and Lower Patterson, Lower Shackleford, Lower Mill, Upper Mill, Lower Scott Bar Mill and Lower Tompkins Creek. These reaches were selected based on the spawning observed, known habitat quality based on habitat typing, and an attempt to include reaches representative of the variety of habitats in the Scott River Basin.

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Tang, J., M.D. Bryant, and E.L. Brannon. 1987 Effect of temperature extremes on the mortality and development rates of coho salmon embryos and alevins. Progressive Fish Culturist 49:167-174.

United States Geological Survey – Flow data for Fort Jones Gauge
http://waterdata.usgs.gov/ca/nwis/uv/?site_no=11519500

California Data Exchange Center – Flow data for Shackleford and French Cr.

http://cdec.water.ca.gov/cgi-progs/queryF?s=FCC
http://cdec.water.ca.gov/cgi-progs/queryF?s=SCK

Appendix A – Training Materials

Training Agenda
GPS conventions
Fish ID
Field Data form 2004-2005

Scott River Adult Coho Spawning Ground Survey Training
November 17th, 2004
Siskiyou RCD Office
Etna

9:30	Meet at RCD office
	Introductions
	Purpose/Objectives
	Data Sheets/maps
	Carcass Tagging
	Sample disposition
10:30	Split into groups for the following sessions:
	Fish ID and tissue and scale collection - Mark Pisano(CDFG) and Erich Yokel (RCD)
	GPS data collection/naming conventions - Danielle Quigley
11:30	Meet back together
	Sign up sheets with contact information
	Pass out survey Kits and notebooks
11:45	Break for lunch
12:30	Short field survey (for those needing it)

Scott River Adult Coho Surveys 2004-2005

Project Objectives:

1) Document the presence of coho salmon in streams within the historic range of distribution and in new tributaries not previously documented within the Scott River system. Survey "index reaches", as delineated in the 2001-2002 survey, once per week once the spawning begins (December 1, 2002-January 31, 2003), or as determined by run timing.

2) Document the extent of coho spawning distribution in each of the tributaries where adult coho salmon were observed.

3) Determine the run timing and duration of adult coho salmon spawning in the Scott River.

4) Collect two sets of tissue samples for DNA analysis to understand the genetic relationship of the Scott River coho salmon to other stocks and collect two sets of scale samples to understand the life history of the Scott River coho salmon. One set of tissue and scale samples will go to NOAA Fisheries and one to CDFG.

5) Determine additional site specific information as they relate to spawning: velocity, substrate composition, temperature and stream gradient.

Redd Identification and Marking

Redd identification will follow the standard identification process used during the Fall Chinook salmon surveys. Redds will be counted if they are nearly completed and if there is an **80%** confidence by the surveyor that it is a redd. Redds with coho salmon on them are counted as "**Redds with Fish**" and distinguished from "**Redds without Fish**" in the field notes.

Redd Identification

The redd is the "nest" where the eggs have been deposited. The female coho salmon constructs her redd similarly to that of other salmonids. She selects an appropriate site, usually with the right size of gravel (generally 1/2"-4" diameter), depth and velocity of water (1-3 fps), then begins by digging a depression (pott) and depositing some of her eggs while the male fertilizes them. She then moves slightly upstream, digging another depression and at the same time backfilling and covering the eggs she has deposited. The eggs are buried in the cleaned gravel several inches to a foot or more deep. Over the course of several days, the female continues to deposit her eggs, working in an upstream direction. When the redd is completed it looks like a tear-dropped shaped mound of gravel extending downstream, approximately 4-5 feet long and 2-3 feet wide, below the last excavation, or pott (approx. 3-8 inches deep). The gravels are generally uniform in size and are often very shiny from recently being moved.

Flagging the Redd
Redds will be marked with hot pink flagging hung on the bank opposite the head of the pott of each redd to prevent duplicate counting on subsequent passes. The flag will be labeled with:

- ♦ date
- ♦ site code
- ♦ surveyors initials.

Data collection
The following information will be recorded on the data sheets; Length and width of the redd, depth of the pott, and dominant substrate composition

Location by GPS
Hand-held Global Positioning System (GPS) units will used when possible to record the location electronically (waypoint) of each carcass, redd or live fish. GPS waypoints will labeled with a stream code, sequential number and a single letter code, denoting carcass (C), redd (R), or fish (F), as well as the beginning and end of each reach surveyed (B or E). Other sites were noted with an (S), for "special".

Ex.: S F K 0 7 R = South Fork #7 Redd

All GPS units will set prior to the survey using Datum WGS 84 and coordinates in Lat/Long (h.ddd°mm.mmm). In addition, all sightings should also be field mapped.

Fish Identification (See Fish ID Sheet)
Morphological variation present in both coho and chinook requires utilizing a suite of characteristics to confirm the identity of coho salmon.. The following characteristics can be used:

Size – coho salmon adults are generally smaller than Chinook.

Gums - White gums at the base of the teeth have been acknowledged as the most reliable characteristic for identification of coho.

Spots - These are black in color and can vary from circular spots to irregularly shaped spots and are generally small in size.

Color - Coho salmon, both male and female, can exhibit extremely brilliant pink to red coloration over the lower 2/3rds of the body. In contrast, most chinook exhibit olive to red coloration and usually only in males.

Kype - Both males and females have a fairly pronounce kype, with the male being larger and more hooked than the female. In chinook only the male has a kype and it is much less pronounced than coho.

Nares -Nares are enlarged and white in coloration.

Anal fin – The lowest rays of anal fin of coho salmon are nearly as long as the upper rays. Fold the anal fin over to line up the lower rays with the upper rays.

Caudal Peduncle - The caudal peduncle of a coho is generally thicker than that of a chinook. It will be noticeable when picking up the carcass as it is difficult to grip the coho by the peduncle.

Sex - Males are identified by their larger more hooked kype, brilliant pink to red coloration and larger size.
Females are identified by their smaller kype, slightly duller coloration and smaller body size.
Jacks (2 yr. old males) are distinguished from other males and females by their smaller size (<40cm).
Additionally, if there is doubt on the sex of a carcass the anal opening can be squeezed to determine the presence of milt, which indicates a male. In, addition, the carcass can be opened up with a knife in order to view the egg skeins (female) or milt sacs (male).

Origin – Hatchery fish are identified by either the lack of an adipose fin or by a maxillary clip (right indicating Trinity River Hatchery and left indicating Irongate Hatchery). **For adipose clipped fish the head will sampled (cut off with a knife) to determine the hatchery origin by coded-wire tag.**

Scott River Watershed Adult Coho Salmon Spawning Survey 2004-2005
GPS Codes for Streams

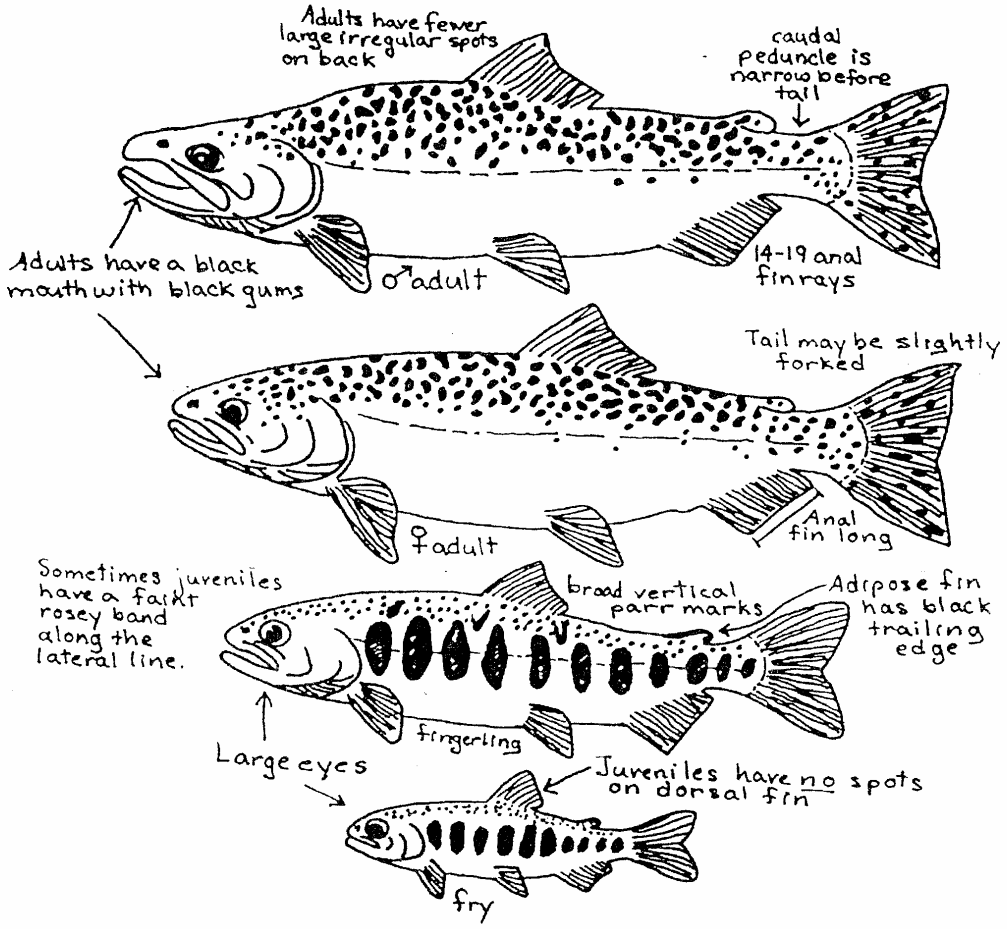
Datum for all Garmin GPS units should be set at WGS84, and Projection in Lat/Long Decimal Degrees

Naming Convention: S F K 0 7 R = South Fork # 7 Redd

Last Character is: R = Redd – individual
F = Fish(if on fish on Redd use R), indicate # of fish in notes
C = Carcass

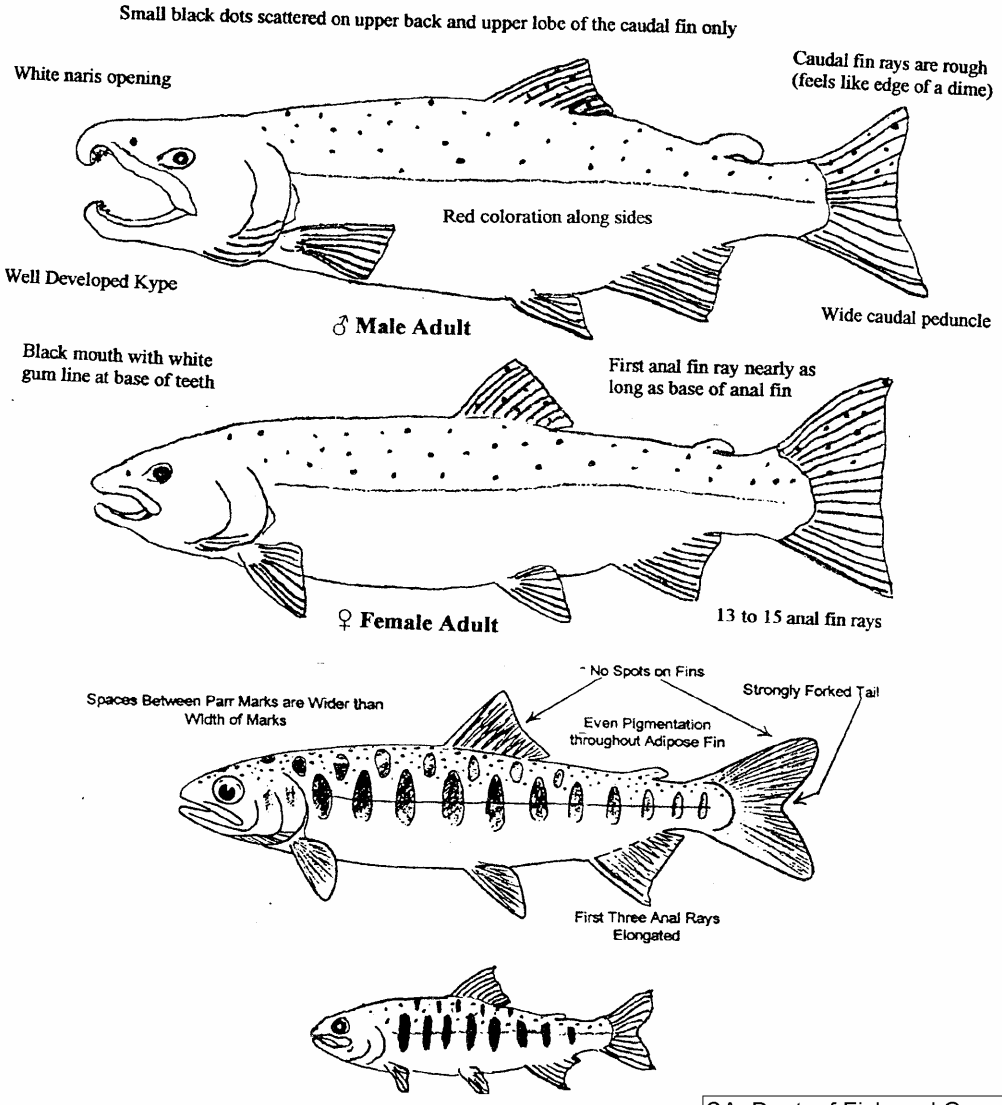
Boulder Cr. (South Fork)	BOU
Boulder Cr.(Scott)	SRB
Canyon Cr.	CAN
Clark Cr.	CLA
East Fork Scott	EFK
Emigrant Creek	EMI
Etna Cr.	ETN
French Cr.	FRE
Grouse Creek	GRO
Horse Range Cr.	HRC
Indian Creek	IND
Johnson Creek	JOH
Kangaroo Cr.	KAN
Kelsey Channel	KCH
Kelsey Creek	KEL
Kidder Creek	KID
McAdams Cr.	MCA
Meamber Gulch	MEA
Middle Creek	MID
Mill Cr. (Scott Bar)	SBM
Mill Creek	SML
Miners Cr.	MIN
Moffet Creek	MOF
North Fork French	NFF
Patterson Creek (Scott)	PSR
Patterson Creek(Etna)	PAT
Rattlesnake Cr.	RAT
Ruffy Gap Trib	RUF
Shackleford	SHK
Shackleford-Mill	SHM
South Fork Scott	SFK
Sugar Creek	SUG
Thompkins Creek	TOM
Wildcat Cr.	WIL
Wooliver	WOO
Scott River Tailings	TAI

Chinook



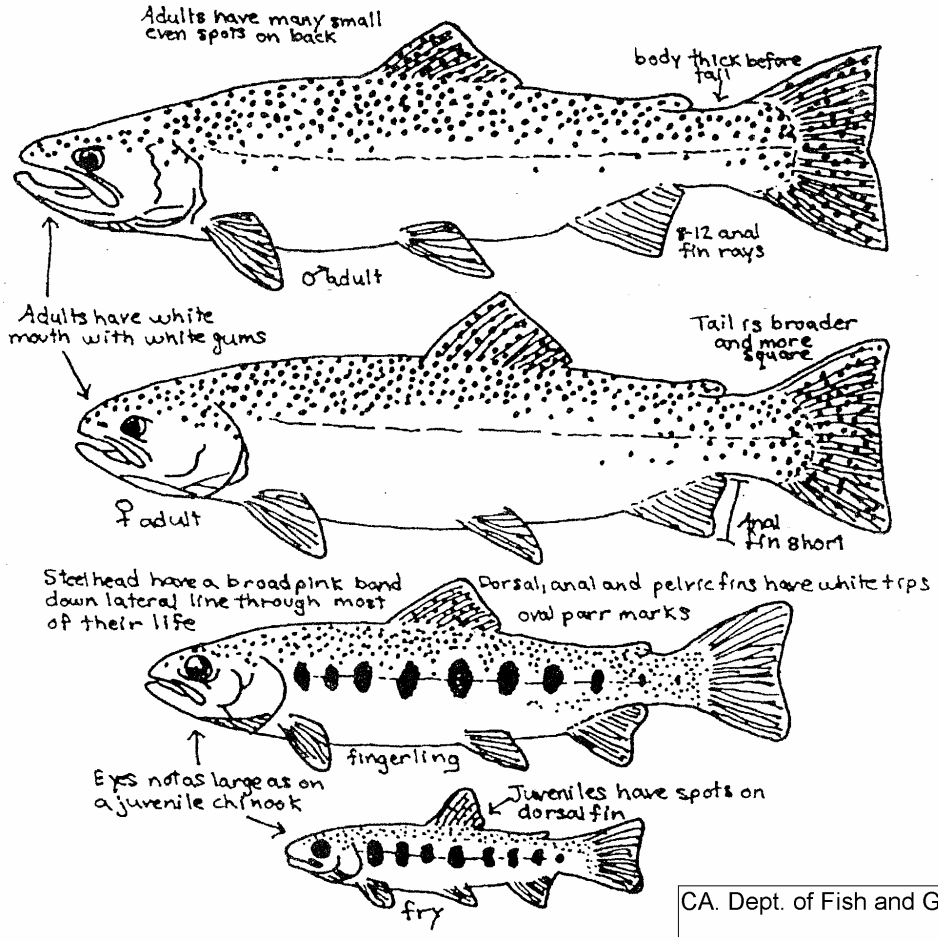
CA. Dept. of Fish and Game - KRP

Coho



CA. Dept. of Fish and Game - KRP

Steelhead



CA. Dept. of Fish and Game - KRP

2004-2005 Scott River Adult Coho Salmon Spawning Survey **Data Form** Page_____of_____

Stream _____Reach_____ GPS Unit # _____ Datum:_____

Date_____ Weather_____ Start Time_____ Air Temp ^{o}F_____ H_2O Temp ^{o}F_____ _____

End Time_____Air Temp ^{o}F_____ H_2O Temp ^{o}F_____

Crew_____ Field Notebook #_____

ALL	REDDS/LIVE FISH						CARCASSES					ALL		
Site #	HT* P,R,F	# Fish	Redd Length M	Redd Width M	Pott Depth M	SUB* D/S	FL CM	Sex M/F Unk	Ad Clip Y/N	Left Max. Clip Y/N	Other Clips Y/N	Lat	Long	Notes Ref. Field Notebook #/pg

Habitat Type: P=Pool R=Riffle F=Flatwater
S=Side Channel (i.e. S/R)

Substrate: 1= <0.2cm SAND 2=0.2-5cm SM. GRAVEL 3=6-9cm LG.GRAVEL 4=10-13cm SM COBBLE 5=>13cm LG. COBBLE

Appendix B – Redd and Carcass Information

Table of Sampled Carcasses
Table of Carcass data by Survey and Reach
Table of Redd data by Survey and Reach

Table of Sampled Carcasses

Date	Location	Description	Sex	Fork Length	Tag	Clips	Tissue	Scale	Lattitude (WGS 84)	Longitude (WGS 84)	Disposition	Collector	GPS Code
12/20/04	E. Fork	Lower Masterson	M	61	None	None	y	y	41 19.873	104 43.176	Picked up by M Pisano	D Yokel	by hand
12/20/04	E. Fork	Lower Masterson	F	62	None	None	y	y	41 19.211	104 43.326	Picked up by M Pisano	D Yokel	by hand
12/3/04	E. Fork	Lower Masterson	F	66	None	None	y	y	41 19.587	122 43.309	Picked up by M Pisano 12/07/04	D. Yokel	EFK01C
12/28/04	Etna Creek	Lower Etna	F	69	None	None	y	y	41 28.602	122 51.158	Picked up by M. Pisano	G. Black	ETN84C
12/28/04	Etna Creek	Lower Etna	F	69	None	None	y	y	41 28.588	122 51.158	Picked up by M. Pisano	G. Black	ETN84C
12/28/04	Etna Creek	Lower Etna	F	61	None	None	y	y	41 28.588	122 51.103	Picked up by M. Pisano	G. Black	ETN82C
1/5/05	Etna Creek	Lower Etna	F	67	None	None	y	y	41 28.584	122 51.182	Delivered to M.Pisano by E Yokel	G. Black	MET01C
1/5/05	Etna Creek	Lower Etna	M	73	None	None	y	y	41 28.581	122 51.185	Delivered to M.Pisano by E Yokel	G. Black	MET02C
1/5/05	Etna Creek	Lower Etna	F	71	None	None	y	y	41 28.565	122 51.215	Delivered to M.Pisano by E Yokel	G. Black	MET04C
1/5/05	Etna Creek	Lower Etna	M	76	None	None	y	y	41 28.559	122 51.222	Delivered to M.Pisano by E Yokel	G. Black	MET05C
1/5/05	Etna Creek	Lower Etna	F	68	None	None	y	y	41 28.553	122 51.226	Delivered to M.Pisano by E Yokel	G. Black	MET06C
12/31/04	Etna Creek	Mid-FGS/USFS	F	68	None	None	y	y	41 26.088	122 54.839	Picked up by M Pisano Jan 4th, 2005	E Yokel	ETN18C
12/14/04	French Creek	Hwy 3 - mouth	M	61	None	None	y	y	41 24.766	122 51.333	Picked up by M Pisano	E. Yokel	FRE44C
12/14/04	French Creek	Hwy 3 - mouth	M	77	None	None	y	y	41 24.110	122 52.061	Picked up by M Pisano	E. Yokel	FRE35C
11/29/04	French Creek	Hwy 3 to mouth	F	64	None	None	y	y	41 24.9683	104 50.01	Lock Box @ RCD/picked up by Pisano	G Black	by hand
11/29/04	French Creek	Hwy 3 to mouth	F	66	None	None	y	n	42 24.9833	104 50.855	Lock Box @ RCD/picked up by Pisano	G Black	by hand
11/29/04	French Creek	Hwy 3 to mouth	F	63	None	None	y	y	42 24.9833	104 50.855	Lock Box @ RCD/picked up by Pisano	G Black	by hand
12/22/04	French Creek	Lower French	M	68	None	None	y	y	41 24.811	122 51.289	Picked up by M Pisano Jan 4th, 2005	C Bowman	FRE56R
12/30/04	French Creek	Lower French	F	76	None	None	y	y	41 24.942	122 50.933	Picked up by M Pisano Jan 4th, 2005	C. Bowman	FRE08C
12/30/04	French Creek	Lower French	M	73	None	None	y	y	41 24.863	122 51.193	Picked up by M Pisano Jan 4th, 2005	C. Bowman	FRE06C
12/30/04	French Creek	Lower French	F	67	None	None	y	y	41 24.730	122 51.466	Picked up by M Pisano Jan 4th, 2005	C. Bowman	FRE02C

Date	Location	Description	Sex	Fork Length	Tag	Clips	Tissue	Scale	Lattitude (WGS 84)	Longitude (WGS 84)	Disposition	Collector	GPS Code
12/30/04	French Creek	Lower French	M	75	None	None	y	y	41 24.942	122 50.933	Picked up by M Pisano Jan 4th, 2005	C. Bowman	FRE08C
12/30/04	French Creek	Lower French	F	70	None	None	y	y	41 24.812	122 51.309	Picked up by M Pisano Jan 4th, 2005	C. Bowman	FRE03C
12/21/04	French Creek	Mid-French	F	56	None	None	y	y	41 24.066	122 52.048	Picked up by M Pisano	E Yokel	FRE15C
12/21/04	French Creek	Mid-French	M	72	None	None	y	y	41 24.066	122 52.048	Picked up by M Pisano	E Yokel	FRE16C
12/30/04	French Creek	Mid-French	F	72	None	None	y	y	41 23.921	122 52.109	Picked up by M Pisano Jan 4th, 2005	E Yokel	FRE62C
12/30/04	French Creek	Mid-French	M	68	None	None	y	y	41 23.904	122 52.143	Picked up by M Pisano Jan 4th, 2005	E Yokel	FRE61C
12/30/04	French Creek	Mid-French	M	65	None	None	y	y	41 23.718	122 52.276	Picked up by M Pisano Jan 4th, 2005	E Yokel	FRE60C
12/30/04	French Creek	Mid-French	F	71	None	None	y	y	41 23.660	122 52.311	Picked up by M Pisano Jan 4th, 2005	E Yokel	FRE60C
12/30/04	French Creek	Mid-French	M	67	None	None	y	y	41 23.370	122 52.306	Picked up by M Pisano Jan 4th, 2005	E Yokel	FRE56C
1/6/05	French Creek	Mid-French	M	73	None	None	y	y	41 23.440	122 52.291	Picked up by M. Pisano	E Yokel	FRE04C
1/6/05	French Creek	Mid-French	M	64	None	None	y	y	41 23.367	122 52.302	Picked up by M. Pisano	E Yokel	FRE03C
1/6/05	French Creek	Mid-French	F	55	None	None	y	y	41 23.367	122 52.302	Picked up by M. Pisano	E Yokel	FRE03C
1/6/05	French Creek	Mid-French	F	71	None	None	y	y	41 23.361	122 52.293	Picked up by M. Pisano	E Yokel	FRE02L
1/6/05	French Creek	Mid-French	M	66	None	None	y	y	41 23.361	122 52.293	Picked up by M. Pisano	E Yokel	FRE02C
12/30/04	Miners Creek	Miners Creek	F	69	None	None	y	y	41 22.995	122 52.231	Picked up by M Pisano Jan 4th, 2005	C. Bowman	MIN02C
12/30/04	Miners Creek	Miners Creek	F	71	None	None	y	y	41 23.008	122 52.234	Picked up by M Pisano Jan 4th, 2005	C. Bowman	MIN05C
12/30/04	Miners Creek	Miners Creek	F	61	None	None	y	y	41 22.961	122 52.204	Picked up by M Pisano Jan 4th, 2005	C. Bowman	MIN03C
12/30/04	Miners Creek	Miners Creek	F	64	None	None	y	y	41 23.008	122 52.234	Picked up by M Pisano Jan 4th, 2005	C. Bowman	MIN05C
12/30/04	Miners Creek	Miners Creek	F	69	None	None	y	y	41 22.860	122 52.166	Picked up by M Pisano Jan 4th, 2005	C. Bowman	MIN04C
1/7/05	Kangaroo	Lower Kangaroo	F	74	None	None	y	y	41 20.175	122 42.936	Picked up by M. Pisano	C. Bowman	KAN17C
12/28/04	Kidder Creek	Above Hwy 3	M	68.5	None	None	y	y	41 32.382	122 55.593	Picked up by M. Pisano	G. Black	KDR74C
12/24/04	Kidder Creek	Lower Kidder Creek	F	76	None	None	y	y	41 33.035	122 52.911	Delivered to M.Pisano by E Yokel	G. Black	LKC01C
12/24/04	Kidder Creek	Lower Kidder Creek	F	65	None	None	y	y	41 33.024	122 53.016	Delivered to M.Pisano by E Yokel	G. Black	LKC05R

Date	Location	Description	Sex	Fork Length	Tag	Clips	Tissue	Scale	Lattitude (WGS 84)	Longitude (WGS 84)	Disposition	Collector	GPS Code
12/24/04	Kidder Creek	Lower Kidder Creek	F	71	None	None	y	y	41 32.992	122 53.126	Delivered to M.Pisano by E Yokel	G. Black	LKC09C
12/24/04	Kidder Creek	Lower Kidder Creek	F	74	None	None	y	y	41 32.991	122 53.122	Delivered to M.Pisano by E Yokel	G. Black	LKC08C
12/24/04	Kidder Creek	Lower Kidder Creek	F	67	None	None	y	y	41 32.979	122 53.166	Delivered to M.Pisano by E Yokel	G. Black	LKC10C
1/5/05	Mill Creek	Lower Mill	M	65	None	LM	y	y	41 35.402	122 57.689	Picked up by M. Pisano	E Yokel	SML04C
1/5/05	Mill Creek	Lower Mill	M	52	None	None	y	y	41 35.419	122 57.683	Picked up by M. Pisano	E Yokel	SML05C
1/5/05	Mill Creek	Lower Mill	M	61	None	None	y	y	41 35.078	122 57.676	Picked up by M. Pisano	E Yokel	SML02C
1/5/05	Mill Creek	Lower Mill	M	72	None	None	y	y	41 35.329	122 57.642	Picked up by M. Pisano	E Yokel	SML03C
1/5/05	Mill Creek	Lower Mill	M	70	None	None	y	y	41 35.329	122 57.642	Picked up by M. Pisano	E Yokel	SML03C
12/20/04	Mill Creek	Lower Mill	F	67	None	None	y	y	41 35.603	122 57.846	Picked up by M Pisano	C Bowman	MIL87C
12/20/04	Mill Creek	Lower Mill	M	73	None	None	y	y	41 35.315	122 57.622	Picked up by M Pisano	C Bowman	MIL72C
12/20/04	Mill Creek	Lower Mill	M	68	None	None	y	y	41 35.199	122 57.639	Picked up by M Pisano	C Bowman	MIL65C
12/20/04	Mill Creek	Lower Mill	M	79	None	None	y	y	41 35.435	122 57.678	Picked up by M Pisano	C Bowman	MIL80C
12/20/04	Mill Creek	Lower Mill	M	72	None	None	y	y	41 35.338	122 57.657	Picked up by M Pisano	C Bowman	MIL75C
1/6/05	Miners Creek	Miners Creek	M	71	None	None	y	y	41 23.073	122 52.252	Picked up by M. Pisano	C. Bowman	MIN04C
1/6/05	Miners Creek	Miners Creek	F	64	None	None	y	y	41 23.073	122 52.252	Picked up by M. Pisano	C. Bowman	MIN04C
1/6/05	Miners Creek	Miners Creek	M	69	None	None	y	y	41 22.998	122 52.344	Picked up by M. Pisano	C. Bowman	MIN02C
1/6/05	Miners Creek	Miners Creek	F	63	None	None	y	y	41 23.108	122 52.257	Picked up by M. Pisano	C. Bowman	MIN05C
1/6/05	Miners Creek	Miners Creek	F	60	None	None	y	y	41 23.054	122 52.242	Picked up by M. Pisano	C. Bowman	MIN03C
12/21/04	Miners Creek	Phelps to Mouth	M	70	None	None	y	y	41 22.769	122 52.127	Picked up by M Pisano	C Bowman	MIN42C
12/21/04	Miners Creek	Phelps to Mouth	F	57	None	None	y	y	41 22.662	122 52.122	Picked up by M Pisano	C Bowman	MIN41C
12/21/04	Miners Creek	Phelps to Mouth	M	58	None	None	y	y	41.23.011	122 52.230	Picked up by M Pisano	C Bowman	MIN48C
12/21/04	Miners Creek	Phelps to Mouth	M	79	None	None	y	y	41 22.935	122 52.182	Picked up by M Pisano	C Bowman	MIN45C
12/16/04	Miners Creek		M	68	None	None	y	y	41 23.299	122 52.297	Picked up by M Pisano	C. Bowman	MIN79C
12/16/04	Miners Creek		M	79	None	None	y	y	41 22.899	122 52.172	Picked up by M Pisano	C. Bowman	MIN57C
1/4/05	Patterson	Above Hwy 3	M	73	None	None	y	y	41 30.528	122 55.881	Picked up by M. Pisano	C. Bowman	PAT71C
1/4/05	Patterson	Above Hwy 3	M	72	None	None	y	y	41 30.528	122 55.881	Picked up by M. Pisano	C. Bowman	PAT71C
1/4/05	Patterson	Above Hwy 3	F	67	None	None	y	y	41 30.384	122 55.721	Picked up by M. Pisano	C. Bowman	PAT73R
1/4/05	Patterson	Above Hwy 3	F	77	None	None	y	y	41 30.392	122 55.770	Picked up by M. Pisano	C. Bowman	PAT72C
1/4/05	Patterson	Above Hwy 3	F	66	None	None	y	y	41 30.392	122 55.770	Picked up by M. Pisano	C. Bowman	PAT72C
12/24/04	Patterson	Below Hwy 3	M	72	None	None	y	y	41 31.049	122 51.789	Picked up by M Pisano Jan 4th, 2005	G Black	PAT09C
12/24/04	Patterson	Below Hwy 3	F	76	None	None	y	y	41 30.968	122 51.894	Picked up by M Pisano Jan 4th, 2005	G Black	PAT14C
12/24/04	Patterson	Below Hwy 3	M	72	None	None	y	y	41 30.960	122 51.933	Picked up by M Pisano Jan 4th, 2005	G Black	PAT17C

Date	Location	Description	Sex	Fork Length	Tag	Clips	Tissue	Scale	Lattitude (WGS 84)	Longitude (WGS 84)	Disposition	Collector	GPS Code
12/24/04	Patterson	Below Hwy 3	M	74	None	None	y	y	41 30.960	122 51.934	Picked up by M Pisano Jan 4th, 2005	G Black	PAT18C
12/24/04	Patterson	Below Hwy 3	F	72	None	None	y	y	41 30.961	122 51.933	Picked up by M Pisano Jan 4th, 2005	G Black	PAT19C
1/4/05	Patterson	Below Hwy 3	M	71	None	None	y	y	41 30.494	122 53.267	Picked up by M. Pisano	G. Black	PAT54C
1/4/05	Patterson	Below Hwy 3	M	71	None	None	y	y	41 31.470	122 53.311	Picked up by M. Pisano	G. Black	PAT50C
1/4/05	Patterson	Below Hwy 3	F	63	None	None	y	y	41 30.482	122 53.411	Picked up by M. Pisano	G. Black	PAT45C
1/4/05	Patterson	Below Hwy 3	F	71	None	None	y	y	41 30.484	122 53.296	Picked up by M. Pisano	G. Black	PAT51C
12/15/04	Patterson	FGS lower property above Hwy 3	M	72	None	None	y	y	41.503	122.921	Picked up by M Pisano	D. Yokel	PAT52C
12/22/04	Patterson	Lower FGS	M	79	None	None	y	y	41 30.151	122 54.733	Picked up by M Pisano Jan 4th, 2005	C Bowman	PAT69R
1/10/05	Patterson	Mid Patterson	M	72	None	None	y	y	41 30.535	122 55.905	Picked up by M. Pisano	C. Bowman	PAT21C
1/10/05	Patterson	Mid Patterson	F	64	None	None	y	y	41 30.152	122 54.688	Picked up by M. Pisano	C. Bowman	PAT24C
1/10/05	Patterson	Mid Patterson	F	61	None	None	y	y	41 30.139	122 55.072	Picked up by M. Pisano	C. Bowman	PAT23C
1/10/05	Patterson	Mid Patterson	M	73	None	None	y	y	41 30.139	122 55.072	Picked up by M. Pisano	C. Bowman	PAT23C
1/10/05	Patterson	Mid Patterson	F	63	None	None	y	y	41 30.320	122 55.644	Picked up by M. Pisano	C. Bowman	PAT22C
12/27/04	Patterson	Upper Patterson	F	76	None	None	y	y	41 30.700	122 56.56	Picked up by M Pisano Jan 4th, 2005	G Black	UPC24C
1/3/05	S Fork Scott	Upper S. Fork	M	72	None	None	y	y	41 17.251	122 50.639	Picked up by M. Pisano	E Yokel	SFK42C
1/3/05	S Fork Scott	Upper S. Fork	M	73	None	None	y	y	41 17.202	122 50.722	Picked up by M. Pisano	E Yokel	SFK41C
1/3/05	S Fork Scott	Upper S. Fork	F	69	None	None	y	y	41 17.145	122 50.789	Picked up by M. Pisano	E Yokel	SFK40C
1/3/05	S Fork Scott	Upper S. Fork	F	66	None	None	y	y	41 16.920	122 50.016	Picked up by M. Pisano	E Yokel	SFK38C
1/3/05	S Fork Scott	Upper S. Fork	F	72	None	None	y	y	41 16.971	122 50.988	Picked up by M. Pisano	E Yokel	SFK39C
12/6/04	S. Fork	Fox-Boulder	M	68	None	None	y	y	41 17.381	122 50.141	Picked up by M Pisano	E Yokel	SFK04C
11/19/04	Scott Reach 5	Kelsey Cr - Tompkins Creek.(below Middle Creek)	F	72	None	None	y	y	None	None	Lock Box @ RCD/picked up by Pisano	CDFG	None
11/19/04	Scott Reach 8	Meamber Bridge to USGS	M	None			y	y	None	None	Lock Box @ RCD/picked up by Pisano	CDFG	None
11/22/04	Scott Reach 8	Meamber Bridge to USGS	F	71	None	None	Y	Y	None	None	Lock Box @ RCD/picked up by Pisano	CDFG	None
11/29/04	Scott Tailings	Bowen to Alexander	F	68	None	None	y	y	41 20.496	122 49.092	Picked up by M Pisano 12/07/04	E. Yokel	TAI03C
11/29/04	Scott Tailings	Bowen to Alexander	M	66	None	None	y	y	41 20.569	122 49.46	Picked up by M Pisano 12/07/04	E. Yokel	TAI02C
11/29/04	Scott Tailings	Bowen to Alexander	M	61	None	None	y	y	41 21.344	122 49.351	Picked up by M Pisano 12/07/04	E. Yokel	TAI01C

Date	Location	Description	Sex	Fork Length	Tag	Clips	Tissue	Scale	Lattitude (WGS 84)	Longitude (WGS 84)	Disposition	Collector	GPS Code
12/6/04	Scott Tailings	Bowen to Alexander	M	75	None	R Max	y	y	41 19.779	122 48.752	Picked up by M Pisano 12/07/04	C. Bowman	TAI33C
12/6/04	Scott Tailings	Bowen to Alexander	F	74	None	None	y	y	41 20.277	122 49.082	Picked up by M Pisano 12/07/04	C. Bowman	TAI38C
12/6/04	Scott Tailings	Bowen to Alexander	F	61	None	None	y	y	41 20.296	122 49.156	Picked up by M Pisano 12/07/04	C. Bowman	TAI39C
12/6/04	Scott Tailings	Bowen to Alexander	M	71	None	None	y	y	41 20.706	122 49.487	Picked up by M Pisano 12/07/04	C. Bowman	TAI41C
12/6/04	Scott Tailings	Bowen to Alexander	M	76	None	None	y	y	41 20.644	122 49.496	Picked up by M Pisano 12/07/04	C. Bowman	TAI42C
12/29/04	Shackleford-Mill	Lower Mill	F	62	None	None	y	y	41 34.968	122 57.658	Picked up by M Pisano Jan 4th, 2005	C Bowman	MIL98C
12/29/04	Shackleford-Mill	Lower Mill	F	62	None	None	y	y	41 34.937	122 57.645	Picked up by M Pisano Jan 4th, 2005	C Bowman	MIL97C
12/29/04	Shackleford-Mill	Lower Mill	F	70	None	None	y	y	41 34.980	122 57.667	Picked up by M Pisano Jan 4th, 2005	C Bowman	MIL99R
12/29/04	Shackleford-Mill	Lower Mill	F	65	None	None	y	y	41 34.937	122 57.645	Picked up by M Pisano Jan 4th, 2005	C Bowman	MIL97C
12/29/04	Shackleford-Mill	Lower Mill	F	54	None	None	y	y	41 34.980	122 57.667	Picked up by M Pisano Jan 4th, 2005	C Bowman	MIL99R
12/20/04	Shackleford-Mill	Lower Shackleford-Mill	M	75	None	None	y	y	41 37.347	122 57.928	Picked up by M Pisano	E Yokel	SHM80C
12/28/04	Shackleford-Mill	Lower Shackleford-Mill	F	76	None	None	y	y	41 36.380	122 57.757	Picked up by M Pisano Jan 4th, 2005	C Bowman	SHK090C
12/28/04	Shackleford-Mill	Lower Shackleford-Mill	F	77	None	None	y	y	41 36.380	122 57.757	Picked up by M Pisano Jan 4th, 2005	C Bowman	SHK90C
12/28/04	Shackleford-Mill	Lower Shackleford-Mill	M	78	None	None	y	y	41 36.360	122 57.719	Picked up by M Pisano Jan 4th, 2005	C Bowman	SHK89C
12/28/04	Shackleford-Mill	Lower Shackleford-Mill	F	72	None	None	y	y	41 36.380	122 57.757	Picked up by M Pisano Jan 4th, 2005	C Bowman	SHK90C
12/28/04	Shackleford-Mill	Lower Shackleford-Mill	M	73	None	None	y	y	41 36.380	122 57.757	Picked up by M Pisano Jan 4th, 2005	C Bowman	SHK90C
1/4/05	Shackleford-Mill	Lower Shackleford-Mill	F	69	None	None	y	y	41 36.668	122 57.797	Picked up by M. Pisano	E Yokel	SHM02C
1/4/05	Shackleford-Mill	Lower Shackleford-Mill	F	79	None	None	y	y	41 36.652	122 57.812	Picked up by M. Pisano	E Yokel	SHM08C
1/4/05	Shackleford-Mill	Lower Shackleford-Mill	M	73	None	None	y	y	41 36.623	122 57.808	Picked up by M. Pisano	E Yokel	SHM07C
1/4/05	Shackleford-Mill	Lower Shackleford-Mill	M	79	None	None	y	y	41 36.484	122 57.806	Picked up by M. Pisano	E Yokel	SHM05C
1/4/05	Shackleford-Mill	Lower Shackleford-Mill	F	71	None	None	y	y	41 36.658	122 57.808	Picked up by M. Pisano	E Yokel	SHM06C
1/11/05	Shackleford-Mill	Lower Shackleford-Mill	M	66	None	None	y	y	41 37.680	122 57.850	Picked up by M. Pisano	E. Yokel	SHM03C
1/11/05	Shackleford-Mill	Lower Shackleford-Mill	F	58	None	None	y	y	41 37.680	122 57.927	Picked up by M. Pisano	E. Yokel	SHM02C

Date	Location	Description	Sex	Fork Length	Tag	Clips	Tissue	Scale	Lattitude (WGS 84)	Longitude (WGS 84)	Disposition	Collector	GPS Code
12/22/04	Sugar Creek	Lower Sugar	M	78	None	None	y	y	41 20.458	122 49.497	Picked up by M Pisano Jan 4th, 2005	E Yokel	SUG12C
12/22/04	Sugar Creek	Lower Sugar	M	80	None	None	y	y	41 20.433	122 49.498	Picked up by M Pisano Jan 4th, 2005	E Yokel	SUG09C
12/31/04	Sugar Creek	Lower Sugar	F	71	None	None	y	y	41 20.470	122 49.477	Picked up by M. Pisano	E Yokel	SUG52C
12/31/04	Sugar Creek	Lower Sugar	F	68	None	None	y	y	41 20.448	122 49.487	Picked up by M. Pisano	E Yokel	SUG51C
1/10/05	Sugar Creek	Lower Sugar	F	71	None	None	y	y	41 20.496	122 49.460	Picked up by M. Pisano	C. Bowman	SUG03C
1/10/05	Sugar Creek	Lower Sugar	F	65	None	None	y	y	41 20.496	122 49.460	Picked up by M. Pisano	C. Bowman	SUG03C
1/10/05	Sugar Creek	Lower Sugar	M	71	None	None	y	y	41 20.411	122 49.522	Picked up by M. Pisano	C. Bowman	SUG02C
1/10/05	Sugar Creek	Lower Sugar	M	72	None	None	y	y	41 20.411	122 49.522	Picked up by M. Pisano	C. Bowman	SUG02C
1/10/05	Sugar Creek	Lower Sugar	M	78	None	None	y	y	41 20.411	122 49.522	Picked up by M. Pisano	C. Bowman	SUG02C
11/24/04	Sugar Creek	Marx Bridge to Mouth	M	78	None		y	n	41 20.515	122 49.446	Lock Box @ RCD/picked up by Pisano	D Yokel	SUG02C
11/24/04	Sugar Creek	Marx Bridge to Mouth	M?	None			y	n	41 20.515	122 49.446	Lock Box @ RCD/picked up by Pisano	D Yokel	SUG02C
11/16/04	Tompkins Cr.	Lower	F	72	None	None	y	y	41.691	123.106	Delivered to M.Pisano	J. Whelan	TOM01C
12/29/04	Tompkins Cr.	Lower	M	68	None	None	y	y	41.692	123.098	Delivered to M.Pisano	J. Whelan	TOM01C

Table of All Carcass Data

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
11/29/2004	French	Lower	-	F	64	N	N	N	N	NO			yes
11/29/2004	French	Lower	-	F	66	N	N	N	N	NO			yes
11/29/2004	French	Lower	-	F	63	N	N	N	N	NO			yes
12/14/2004	French	Lower	Fre44c	M	61	N	N	N	N	4392		1/13/2005	yes
12/22/2004	French	Lower	Fre56R	M	68	N	N	N	N	4186			yes
12/22/2004	French	Lower	-	F	57	N	N	N	N	NO			No
12/30/2004	French	Lower	FRE03C	F	70	N	N	N	N	4264			yes
12/30/2004	French	Lower	FRE02C	F	67	N	N	N	N	4340			yes
12/30/2004	French	Lower	FRE08C	M	75	N	N	N	N	4369		1/13/2005	yes
12/30/2004	French	Lower	FRE06C	M	73	N	N	N	N	4373		1/13/2005	yes
12/30/2004	French	Lower	FRE08C	F	76	N	N	N	N	4439			yes
12/30/2004	French	Lower	-	M	74	N	N	N	N	4442			no
12/30/2004	French	Lower	-	M	64	N	N	N	N	4454			no
12/30/2004	French	Lower	-	M	UNK	U	U	U	U				no
1/13/2005	French	Lower	-	M	74	N	N	N	N	NO			no
1/13/2005	French	Lower	-	F	71	N	N	N	N	NO			no
16													
12/14/2004	French	Middle	FRE35C	M	77	N	N	N	N	4380			no
12/21/2004	French	Middle	FRE16C	F	72	N	N	N	N	4382		12/30/2005	yes
12/21/2004	French	Middle	FRE15C	F	56	N	N	N	N	4396		12/30/2005	yes
12/30/2004	French	Middle	-	F	68	N	N	N	N	4378		1/6/2005	no
12/30/2004	French	Middle	FRE61C	M	68	N	N	N	N	4379		1/6/2005	YES
12/30/2004	French	Middle	-	M	56	N	N	N	N	4384		1/6/2005	no
12/30/2004	French	Middle	-	F	66	N	N	N	N	4386			No
12/30/2004	French	Middle	-	F	65	N	N	N	N	4389			YES
12/30/2004	French	Middle	FRE62C	F	72	N	N	N	N	4391			YES
12/30/2004	French	Middle	FRE56C	M	67	N	N	N	N	4397		1/6/2005	YES
12/30/2004	French	Middle	FRE60C	F	71	N	N	N	N	4398		1/6/2005	YES
12/30/2004	French	Middle	-	M	58	N	N	N	N	F001			No
12/30/2004	French	Middle	-	M	72	N	N	N	N	F002		1/6/2005	No
12/30/2004	French	Middle	-	F	71	N	N	N	N	F003			No
12/30/2004	French	Middle	-	F	69	N	N	N	N	F004		1/6/2005	No
12/30/2004	French	Middle	-	M	72	N	N	N	N	F005		1/6/2005	No

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
12/30/2004	French	Middle	-	M	72	N	N	N	N	F006		1/6/2005	No
12/30/2004	French	Middle	-	M	71	N	N	N	N	F007		1/6/2005	No
12/30/2004	French	Middle	-	F	67	N	N	N	N	F008		1/6/2005	No
12/30/2004	French	Middle	-	F	70	-	-	-	-	F009		1/6/2005	No
12/30/2004	French	Middle	-	M	72	N	N	N	N	NO			No
12/30/2004	French	Middle	-	M	64	N	N	N	N	NO			No
12/30/2004	French	Middle	-	M	72	N	N	N	N	NO			No
1/6/2005	French	Middle	FRE04C	F	54	N	N	N	N	152		1/13/2005	No
1/6/2005	French	Middle	-	F	68	N	N	N	N	160		1/13/2005	No
1/6/2005	French	Middle	-	M	63	N	N	N	N	161			No
1/6/2005	French	Middle	-	M	65	N	N	N	N	165		1/13/2005	No
1/6/2005	French	Middle	-	M	76	N	N	N	N	177		1/13/2005	No
1/6/2005	French	Middle	-	F	67	N	N	N	N	182			No
1/6/2005	French	Middle	-	M	62	N	N	N	N	183		1/13/2005	No
1/6/2005	French	Middle	-	M	71	N	N	N	N	189			yes
1/6/2005	French	Middle	-	F	71	N	N	N	N	190		1/13/2005	No
1/6/2005	French	Middle	-	M	70	N	N	N	N	192		1/13/2005	No
1/6/2005	French	Middle	-	F	68	N	N	N	N	193		1/13/2005	No
1/6/2005	French	Middle	-	F	68	N	N	N	N	194		1/13/2005	No
1/6/2005	French	Middle	-	F	68	N	N	N	N	196		1/13/2005	No
1/6/2005	French	Middle	-	M	68	N	N	N	N	197		1/13/2005	No
1/6/2005	French	Middle	-	M	68	N	N	N	N	1172		1/13/2005	No
1/6/2005	French	Middle	-	F	71	N	N	N	N	1820		1/13/2005	No
1/6/2005	French	Middle	-	M	70	N	N	N	N	1821		1/13/2005	No
1/6/2005	French	Middle	-	F	70	N	N	N	N	1839		1/13/2005	No
1/6/2005	French	Middle	FRE03C	F	55	N	N	N	N	2202		1/13/2005	yes
1/6/2005	French	Middle	-	F	65	N	N	N	N	2206		1/13/2005	No
1/6/2005	French	Middle	-	F	72	N	N	N	N	2210		1/13/2005	No
1/6/2005	French	Middle	-	F	74	N	N	N	N	2211			No
1/6/2005	French	Middle	-	F	64	N	N	N	N	2224		1/13/2005	No
1/6/2005	French	Middle	-	M	64	N	N	N	N	2361		1/13/2005	yes
1/6/2005	French	Middle	-	F	69	N	N	N	N	2362			No
1/6/2005	French	Middle	-	M	72	N	N	N	N	2776		1/13/2005	No

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
1/6/2005	French	Middle	-	M	67	N	N	N	N	2779			No
1/6/2005	French	Middle	-	F	66	N	N	N	N	2785		1/13/2005	No
1/6/2005	French	Middle	-	F	68	N	N	N	N	2795			No
1/6/2005	French	Middle	-	M	70	N	N	N	N	3108		1/13/2005	No
1/6/2005	French	Middle	-	F	70	-	-	-	-	3742			No
1/6/2005	French	Middle	-	M	72	N	N	N	N	3745		1/13/2005	No
1/6/2005	French	Middle	-	F	61	N	N	N	N	3746		1/13/2005	No
1/6/2005	French	Middle	-	M	66	N	N	N	N	3756			No
1/6/2005	French	Middle	-	M	71	N	N	N	N	3758		1/13/2005	No
1/6/2005	French	Middle	-	M	73	N	N	N	N	3759			No
1/6/2005	French	Middle	-	M	68	N	N	N	N	3764		1/13/2005	No
1/6/2005	French	Middle	-	M	66	N	N	N	N	3765		1/13/2005	No
1/6/2005	French	Middle	-	M	67	N	N	N	N	3787		1/13/2005	No
1/6/2005	French	Middle	-	M	72	N	N	N	N	3792			No
1/6/2005	French	Middle	-	M	73	N	N	N	N	3847			No
1/6/2005	French	Middle	-	M	73	N	N	N	N	3858			No
1/6/2005	French	Middle	FRE02C	M	66	N	N	N	N	3860		1/13/2005	yes
1/6/2005	French	Middle	-	M	65	N	N	N	N	3862		1/13/2005	No
1/6/2005	French	Middle	-	F	71	N	N	N	N	3866		1/13/2005	yes
1/6/2005	French	Middle	-	M	64	N	N	N	N	5404			No
1/6/2005	French	Middle	-	F	65	N	N	N	N	5409		1/13/2005	No
1/6/2005	French	Middle	-	F	71	N	N	N	N	5410		1/13/2005	No
1/6/2005	French	Middle	-	M	73	N	N	N	N	5417		1/13/2005	No
1/6/2005	French	Middle	-	M	69	N	N	N	N	5420		1/13/2005	No
1/6/2005	French	Middle	-	F	62	N	N	N	N	NO			No
1/13/2005	French	Middle	-	M	74	-	-	-	-	NO			No
1/13/2005	French	Middle	-	F	69	N	N	N	N	NO			No
1/13/2005	French	Middle	-	F	64	N	N	N	N	NO			No
1/13/2005	French	Middle	-	M	62	N	N	N	N	NO			No
1/13/2005	French	Middle		M	74	N	N	N	N	NO			No
1/13/2005	French	Middle		F	70	N	N	N	N	NO			No
1/13/2005	French	Middle		M	62	N	N	N	N	NO			No
1/13/2005	French	Middle		M	71	N	N	N	N	NO			No

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
82													
12/16/2004	Miners	Lower	Min79C	M	68	N	N	N	N	4099			No
12/16/2004	Miners	Lower	Min57C	M	79	N	N	N	N	4100		12/21/2004	No
12/21/2004	Miners	Lower	Min41C	F	57	N	N	N	N	4187		12/30/2004	No
12/21/2004	Miners	Lower	Min42C	M	70	N	N	N	N	4190		12/30/2004	No
12/21/2004	Miners	Lower	Min45C	M	79	N	N	N	N	4192		12/30/2004	No
12/21/2004	Miners	Lower	Min54C	M	62	N	N	N	N	4194			No
12/21/2004	Miners	Lower	Min48C	M	58	N	N	N	N	4196		12/30/2004	No
12/21/2004	Miners	Lower	Min61C	M	65	N	N	N	N	4197		12/30/2004	No
12/30/2004	Miners	Lower	-	F	69	N	N	N	N	4189		1/6/2005	No
12/30/2004	Miners	Lower	-	M	61					4197			No
12/30/2004	Miners	Lower	-	F	67	N	N	N	N	4199		1/6/2005	No
12/30/2004	Miners	Lower	-	F	55	N	N	N	N	4255		1/6/2005	No
12/30/2004	Miners	Lower	Min03C	F	61	N	N	N	N	4256		1/6/2005	yes
12/30/2004	Miners	Lower	-	M	66	N	N	N	N	4257		1/6/2005	No
12/30/2004	Miners	Lower	Min05C	F	64	N	N	N	N	4258		1/6/2005	yes
12/30/2004	Miners	Lower	-	M	74	N	N	N	N	4259		1/6/2005	No
12/30/2004	Miners	Lower	-	F	64	N	N	N	N	4260		1/6/2005	No
12/30/2004	Miners	Lower	-	F	66	N	N	N	N	4261		1/6/2005	No
12/30/2004	Miners	Lower	-	M	71	N	N	N	N	4262		1/6/2005	No
12/30/2004	Miners	Lower	-	F	70	N	N	N	N	4263		1/6/2005	No
12/30/2004	Miners	Lower	-	M	68	N	N	N	N	4265		1/6/2005	No
12/30/2004	Miners	Lower	-	F	67	N	N	N	N	4266		1/6/2005	No
12/30/2004	Miners	Lower	-	F	70	N	N	N	N	4267		1/6/2005	No
12/30/2004	Miners	Lower	-	F	70	N	N	N	N	4268		1/6/2005	No
12/30/2004	Miners	Lower	-	M	73	N	N	N	N	4301		1/6/2005	No
12/30/2004	Miners	Lower	-	F	66	N	N	N	N	4330		1/6/2005	No
12/30/2004	Miners	Lower	-	F	70	N	N	N	N	4337			No
12/30/2004	Miners	Lower	-	F	69	N	N	N	N	4338		1/6/2005	No
12/30/2004	Miners	Lower	-	F	70	N	N	N	N	4350		1/6/2005	No
12/30/2004	Miners	Lower	-	F	67	N	N	N	N	4351		1/6/2005	No
12/30/2004	Miners	Lower	-	F	64	N	N	N	N	4370			No
12/30/2004	Miners	Lower	-	M	76	N	N	N	N	4371		1/6/2005	No

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
12/30/2004	Miners	Lower	-	F	73	N	N	N	N	4372		1/6/2005	No
12/30/2004	Miners	Lower	-	M	75	N	N	N	N	4441		1/6/2005	No
12/30/2004	Miners	Lower	-	F	66	N	N	N	N	4443		1/6/2005	No
12/30/2004	Miners	Lower	Min06C	F	71	N	N	N	N	4444		1/6/2005	yes
12/30/2004	Miners	Lower	-	M	70	N	N	N	N	4445		1/6/2005	No
12/30/2004	Miners	Lower	-	F	65	N	N	N	N	4446		1/6/2005	No
12/30/2004	Miners	Lower	-	F	67	N	N	N	N	4447		1/6/2005	No
12/30/2004	Miners	Lower	-	F	73	N	N	N	N	4448		1/6/2005	No
12/30/2004	Miners	Lower	-	F	70	N	N	N	N	4449		1/6/2005	No
12/30/2004	Miners	Lower	-	M	73	N	N	N	N	4451			No
12/30/2004	Miners	Lower	-	M	52	N	N	N	N	4452			No
12/30/2004	Miners	Lower	-	F	72	N	N	N	N	4453		1/6/2005	No
12/30/2004	Miners	Lower	-	M	75	N	N	N	N	4455		1/6/2005	No
12/30/2004	Miners	Lower	-	F	55	N	N	N	N	4456			No
12/30/2004	Miners	Lower	Min02C	F	69	N	N	N	N	4457		yes	No
12/30/2004	Miners	Lower	-	M	69	N	N	N	N	No			No
12/30/2004	Miners	Lower	-	M	72	N	N	N	N	No			No
12/30/2004	Miners	Lower	-	F	68	N	N	N	N	No			No
12/30/2004	Miners	Lower	-	F	56	N	N	N	N	No			No
12/30/2004	Miners	Lower	-	F	66	N	N	N	N	No			No
12/30/2004	Miners	Lower	Min04C	F	69	N	N	N	N	No			yes
12/30/2004	Miners	Lower	-	F	70	N	N	N	N	NO			No
12/30/2004	Miners	Lower	-	M	73	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	F	66	N	N	N	N	4009		1/13/2005	No
1/6/2005	Miners	Lower	-	F	65	N	N	N	N	4047			No
1/6/2005	Miners	Lower	-	M	67	N	N	N	N	4049			No
1/6/2005	Miners	Lower	-	F	73	N	N	N	N	4050		1/13/2005	No
1/6/2005	Miners	Lower	-	F	68	N	N	N	N	4051			No
1/6/2005	Miners	Lower	-	F	71	N	N	N	N	4052			No
1/6/2005	Miners	Lower	-	F	66	N	N	N	N	4053			No
1/6/2005	Miners	Lower	-	M	60	N	N	N	N	4058			No
1/6/2005	Miners	Lower	-	M	75	N	N	N	N	4063			No
1/6/2005	Miners	Lower	-	F	75	N	N	N	N	4064			No

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
1/6/2005	Miners	Lower	-	F	67	N	N	N	N	4065			No
1/6/2005	Miners	Lower	-	M	67	N	N	N	N	4067			No
1/6/2005	Miners	Lower	-	F	65					4068			No
1/6/2005	Miners	Lower	-	M	78	N	N	N	N	4070			No
1/6/2005	Miners	Lower	-	M	70	N	N	N	N	4071			No
1/6/2005	Miners	Lower	-	M	72	N	N	N	N	4075		1/13/2005	No
1/6/2005	Miners	Lower	-	F	70	N	N	N	N	4076			No
1/6/2005	Miners	Lower	MIN05C	F	63					4077			Yes
1/6/2005	Miners	Lower	MIN05C	F	73	N	N	N	N	4080		1/13/2005	No
1/6/2005	Miners	Lower	-	F	71					4083			No
1/6/2005	Miners	Lower	Min03C	F	60	N	N	N	N	4084			Yes
1/6/2005	Miners	Lower	-	F	62	N	N	N	N	4270			No
1/6/2005	Miners	Lower	MIN02C	M	69	N	N	N	N	4361			yes
1/6/2005	Miners	Lower	MIN04C	F	64	N	N	N	N	4440		1/13/2005	Yes
1/6/2005	Miners	Lower	-	M	71	N	N	N	N	4450		1/13/2005	No
1/6/2005	Miners	Lower	-	F	66	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	M	55	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	M	70	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	F	59	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	F	60	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	F	68	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	M	64	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	M	67	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	M	73	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	F	64	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	M	69	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	F	67	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	M	69	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	F	67	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	M	70	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	F	72	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	F	68	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	F	65	N	N	N	N	NO			No

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
1/6/2005	Miners	Lower	-	M	77	N	N	N	N	NO			No
1/6/2005	Miners	Lower	-	F	65	N	N	N	N	NO			No
100													
Recaptured Carcasses													
1/13/2005	French	Lower	-	F	61						4392		
1/13/2005	French	Lower	-	M	73						4373		
1/13/2005	French	Lower	-	M	73						4369		
12/30/2004	French	Middle	-	F	N/A	N	N	N	N		4396		
12/30/2004	French	Middle	-	F	77	N	N	N	N		4382		
1/6/2005	French	Middle	-	M	67	-	-	-	-		4397		
1/6/2005	French	Middle	-	F	65	N	N	N	N		4378		
1/6/2005	French	Middle	-	M	57	N	N	N	N		4384		
1/6/2005	French	Middle	-	F	70	N	N	N	N		4398		
1/6/2005	French	Middle	-	M	68	N	N	N	N		4379		
1/6/2005	French	Middle	-	M	72	N	N	N	N		F002		
1/6/2005	French	Middle	-	F	69	N	N	N	N		F004		
1/6/2005	French	Middle	-	M	69	-	-	-	-		F005		
1/6/2005	French	Middle	-	M	73						F007		
1/6/2005	French	Middle	-	M	70						F006		
1/6/2005	French	Middle	-	F	64						F008		
1/6/2005	French	Middle	-	F	68						F009		
1/13/2005	French	Middle	-	F	68	-	-	-	-		1820		
1/13/2005	French	Middle	-	M	67	-	-	-	-		3860		
1/13/2005	French	Middle	-	F	59	-	-	-	-		2202		
1/13/2005	French	Middle	-	M	68	-	-	-	-		2361		
1/13/2005	French	Middle	-	M	68	-	-	-	-		5420		
1/13/2005	French	Middle	-	F	69	-	-	-	-		190		
1/13/2005	French	Middle	-	F	53	-	-	-	-		152		
1/13/2005	French	Middle	-	F	61	-	-	-	-		2206		
1/13/2005	French	Middle	-	M	76	-	-	-	-		1172		
1/13/2005	French	Middle	-	M	77	-	-	-	-		192		
1/13/2005	French	Middle	-	F	67	-	-	-	-		196		
1/13/2005	French	Middle	-	M	73	-	-	-	-		2776		

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
1/13/2005	French	Middle	-	F	N/A	-	-	-	-		3746		
1/13/2005	French	Middle	-	F	65	-	-	-	-		2224		
1/13/2005	French	Middle	-	M	68	-	-	-	-		197		
1/13/2005	French	Middle	-	M	68	-	-	-	-		3765		
1/13/2005	French	Middle	-	F	72	-	-	-	-		2210		
1/13/2005	French	Middle	-	M	76	-	-	-	-		177		
1/13/2005	French	Middle	-	M	71	-	-	-	-		3758		
1/13/2005	French	Middle	-	M	79	-	-	-	-		3108		
1/13/2005	French	Middle	-	M	70	-	-	-	-		3764		
1/13/2005	French	Middle	-	F	68	-	-	-	-		160		
1/13/2005	French	Middle	-	M	69	-	-	-	-		165		
1/13/2005	French	Middle	-	M	78	-	-	-	-		1821		
1/13/2005	French	Middle	-	F	67	-	-	-	-		193		
1/13/2005	French	Middle	-	F	72	-	-	-	-		3866		
1/13/2005	French	Middle	-	F	75	-	-	-	-		3787		
1/13/2005	French	Middle	-	M	77	-	-	-	-		5417		
1/13/2005	French	Middle	-	F	75	-	-	-	-		1839		
1/13/2005	French	Middle		F	67	-	-	-	-		194		
1/13/2005	French	Middle		F	67	-	-	-	-		5409		
1/13/2005	French	Middle		M	75	-	-	-	-		3745		
1/13/2005	French	Middle		F	71	-	-	-	-		5410		
1/13/2005	French	Middle		F	67	-	-	-	-		2785		
1/13/2005	French	Middle		M	65	-	-	-	-		3862		
1/13/2005	French	Middle		M	63	-	-	-	-		183		
12/21/2004	Miners	Lower	-	M	78						4100		
12/30/2004	Miners	Lower	-	F	53						4187		
12/30/2004	Miners	Lower	-	M	67						4190		
12/30/2004	Miners	Lower	-	M	74						4192		
12/30/2004	Miners	Lower	-	F	54						4196		
1/6/2005	Miners	Lower	-	F	64						4256		
1/6/2005	Miners	Lower	-	F	69						4444		
1/6/2005	Miners	Lower	-	F	70						4258		
1/6/2005	Miners	Lower	-	F	69						4350		

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
1/6/2005	Miners	Lower	-	M	71						4259		
1/6/2005	Miners	Lower	-	F	65						4266		
1/6/2005	Miners	Lower	-	F	72						4372		
1/6/2005	Miners	Lower	-	F	68						4199		
1/6/2005	Miners	Lower	-	M	70						4445		
1/6/2005	Miners	Lower	-	M	68						4265		
1/6/2005	Miners	Lower	-	F	66						4446		
1/6/2005	Miners	Lower	-	F	68						4189		
1/6/2005	Miners	Lower	-	F	69	N	N	N	N		4338		
1/6/2005	Miners	Lower	-	F	67	N	N	N	N		4351		
1/6/2005	Miners	Lower	-	F	70	N	N	N	N		4267		
1/6/2005	Miners	Lower	-	M	72						4455		
1/6/2005	Miners	Lower	-	F	72						4449		
1/6/2005	Miners	Lower	-	F	68						4453		
1/6/2005	Miners	Lower	-	F	68						4263		
1/6/2005	Miners	Lower	-	M	71						4301		
1/6/2005	Miners	Lower	-	F	69						4447		
1/6/2005	Miners	Lower	-	F	71						4268		
1/6/2005	Miners	Lower	-	F	57						4456		
1/6/2005	Miners	Lower	-	F	70						4261		
1/6/2005	Miners	Lower	-	F	64						4260		
1/6/2005	Miners	Lower	-	M	72						4451		
1/6/2005	Miners	Lower	-	F	73						4441		
1/6/2005	Miners	Lower	-	M	50						4452		
1/6/2005	Miners	Lower	-	F	64						4443		
1/6/2005	Miners	Lower	-	M	71						4262		
1/6/2005	Miners	Lower	-	F	65						4257		
1/6/2005	Miners	Lower	-	M	76						4371		
1/6/2005	Miners	Lower	-	F	77						4448		
1/6/2005	Miners	Lower	-	F	53						4255		
1/6/2005	Miners	Lower	-	F	68						4330		
1/13/2005	Miners	Lower	-	F	61						4440		
1/13/2005	Miners	Lower	-	M	69						4450		

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
1/13/2005	Miners	Lower	-	F	61						4080		
1/13/2005	Miners	Lower	-	F	66						4075		
1/13/2005	Miners	Lower	-	F	71						4050		
1/13/2005	Miners	Lower	-	F	66						4009		
Shackleford-Mill Creek													
12/20/04	Mill	lower	MIL72C	M	73	N	N	N	N	4001		12/29/04	yes
12/20/04	Mill	lower	MIL80C	M	79	N	N	N	N	4002		12/29/04	yes
12/20/04	Mill	lower	MIL87C	F	67	N	N	N	N	4096			yes
12/20/04	Mill	lower	MIL75C	M	72	N	N	N	N	4097		12/29/04	yes
12/20/04	Mill	lower	MIL65C	M	68	N	N	N	N	4098		12/29/04	yes
12/20/04	Mill	lower	MIL53C	M	?	N	N	?	N	N			NO HEAD
12/20/04	Mill	lower	MIL68C	M	?	?	N	N	?	N			PARTIAL F
12/20/04	Mill	lower	-	F	67	N	N	N	N	N			NO HEAD
12/29/04	Mill	lower	MIL97C	F	65	N	N	N	N	4003		1/5/05	
12/29/04	Mill	lower	Mil97C	F	65	N	N	N	N	4004		1/5/05	yes
12/29/04	Mill	lower	-	M	64	N	N	N	N	4005		1/5/05	
12/29/04	Mill	lower	-	F	68	N	N	N	N	4006		1/5/05	
12/29/04	Mill	lower	-	F	74	N	N	N	N	4007		1/5/05	
12/29/04	Mill	lower	-	F	61	N	N	N	N	4008		1/5/05	
12/29/04	Mill	lower	-	M	74	N	N	N	N	4010		1/5/05	
12/29/04	Mill	lower	-	M	75	N	N	N	N	4011		1/5/05	
12/29/04	Mill	lower	-	F	63	N	N	N	N	4012		1/5/05	
12/29/04	Mill	lower	-	M	63	N	N	N	N	4013		1/5/05	
12/29/04	Mill	lower	-	M	72	N	N	N	N	4014		1/5/05	
12/29/04	Mill	lower	-	M	67	N	N	N	N	4015		1/5/05	
12/29/04	Mill	lower	-	F	70	N	N	N	N	4016		1/5/05	
12/29/04	Mill	lower	-	F	71	N	N	N	N	4017			
12/29/04	Mill	lower	-	F	70	N	N	N	N	4018			
12/29/04	Mill	lower	-	F	67	N	N	N	N	4019		1/5/05	
12/29/04	Mill	lower	-	M	71	N	N	N	N	4020		1/5/05	
12/29/04	Mill	lower	-	F	68	N	N	N	N	4021			
12/29/04	Mill	lower	-	F	65	N	N	N	N	4022		1/5/05	
12/29/04	Mill	lower	-	F	66	N	N	N	N	4023		1/5/05	

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
12/29/04	Mill	lower	-	F	68	N	N	N	N	4024		1/5/05	
12/29/04	Mill	lower	-	F	72	N	N	N	N	4025		1/5/05	
12/29/04	Mill	lower	-	M	73	N	N	N	N	4026		1/5/05	
12/29/04	Mill	lower	-	M	73	N	N	N	N	4027		1/5/05	
12/29/04	Mill	lower	-	M	72	N	N	N	N	4028		1/5/05	
12/29/04	Mill	lower	-	F	61	N	N	N	N	4029			
12/29/04	Mill	lower	-	F	62	N	N	N	N	4030			
12/29/04	Mill	lower	-	F	66	N	N	N	N	4031		1/5/05	
12/29/04	Mill	lower	-	M	66	N	N	N	N	4032		1/5/05	
12/29/04	Mill	lower	-	M	73	N	N	N	N	4033		1/5/05	
12/29/04	Mill	lower	-	M	69	N	N	N	LC	4034		1/5/05	
12/29/04	Mill	lower	-	M	71	N	N	N	N	4035		1/5/05	
12/29/04	Mill	lower	-	M	61	N	N	N	N	4036		1/5/05	
12/29/04	Mill	lower	-	M	66	N	N	N	N	4037		1/5/05	
12/29/04	Mill	lower	-	M	71	N	N	N	N	4038		1/5/05	
12/29/04	Mill	lower	-	M	74	N	N	N	N	4039		1/5/05	
12/29/04	Mill	lower	-	M	68	N	N	N	N	4040		1/5/05	
12/29/04	Mill	lower	-	M	70	N	N	N	N	4041		1/5/05	
12/29/04	Mill	lower	-	M	72	N	N	N	N	4042		1/5/05	
12/29/04	Mill	lower	-	M	71	N	N	N	N	4043			
12/29/04	Mill	lower	-	M	67	N	N	N	N	4044		1/5/05	
12/29/04	Mill	lower	-	F	67	N	N	N	N	4045		1/5/05	
12/29/04	Mill	lower	-	F	73	N	N	N	N	4046		1/5/05	
12/29/04	Mill	lower	-	M	64	N	N	N	N	4085		1/5/05	
12/29/04	Mill	lower	-	F	60	N	N	N	N	4086		1/5/05	
12/29/04	Mill	lower	-	F	69	N	N	N	N	4087		1/5/05	
12/29/04	Mill	lower	-	F	60	N	N	N	N	4088		1/5/05	
12/29/04	Mill	lower	-	F	69	N	N	N	N	4089		1/5/05	
12/29/04	Mill	lower	-	M	73	N	N	N	N	4090		1/5/05	
12/29/04	Mill	lower	-	M	71	N	N	N	N	4091			
12/29/04	Mill	lower	-	F	64	N	N	N	N	4092		1/5/05	
12/29/04	Mill	lower	-	F	68	N	N	N	N	4093		1/5/05	
12/29/04	Mill	lower	-	F	60	N	N	N	N	4094		1/5/05	

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
12/29/04	Mill	lower	-	F	64	N	N	N	N	4095		1/5/05	
12/29/04	Mill	lower	-	F	70	N	N	N	N	4188		1/5/05	
12/29/04	Mill	lower	-	F	67	N	N	N	N	4302		1/5/05	
12/29/04	Mill	lower	-	M	67	N	N	N	N	4303		1/5/05	
12/29/04	Mill	lower	-	F	66	N	N	N	N	4304		1/5/05	
12/29/04	Mill	lower	-	M	68	N	N	N	N	4305		1/5/05	
12/29/04	Mill	lower	-	F	62	N	N	N	N	4306		1/5/05	
12/29/04	Mill	lower	-	M	75	N	N	N	N	4307			
12/29/04	Mill	lower	-	F	66	N	N	N	N	4308		1/5/05	
12/29/04	Mill	lower	-	F	70	N	N	N	N	4309		1/5/05	
12/29/04	Mill	lower	-	F	66	N	N	N	N	4310			
12/29/04	Mill	lower	-	F	62	N	N	N	N	4311		1/5/05	
12/29/04	Mill	lower	-	F	66	N	N	N	N	4312		1/5/05	
12/29/04	Mill	lower	-	F	62	N	N	N	N	4313		1/5/05	
12/29/04	Mill	lower	-	F	64	N	N	N	N	4314		1/5/05	
12/29/04	Mill	lower	-	F	70	N	N	N	N	4315		1/5/05	
12/29/04	Mill	lower	-	M	76	N	N	N	N	4316		1/5/05	
12/29/04	Mill	lower	-	F	69	N	N	N	N	4317		1/5/05	
12/29/04	Mill	lower	-	M	69	N	N	N	N	4318		1/5/05	
12/29/04	Mill	lower	-	F	62	N	N	N	N	4319		1/5/05	
12/29/04	Mill	lower	-	F	64	N	N	N	N	4320		1/5/05	
12/29/04	Mill	lower	-	M	74	N	N	N	N	4321			
12/29/04	Mill	lower	-	F	60	N	N	N	N	4322		1/5/05	
12/29/04	Mill	lower	-	M	66	N	N	N	N	4323		1/5/05	
12/29/04	Mill	lower	-	F	67	N	N	N	N	4324			
12/29/04	Mill	lower	-	F	66	N	N	N	N	4326			
12/29/04	Mill	lower	-	F	63	N	N	N	N	4327		1/12/05	
12/29/04	Mill	lower	-	F	70	N	N	N	N	4328		1/5/05	
12/29/04	Mill	lower	-	F	69	N	N	N	N	4329		1/5/05	
12/29/04	Mill	lower	-	F	64	N	N	N	N	4331			
12/29/04	Mill	lower	-	F	62	N	N	N	N	4332		1/12/05	
12/29/04	Mill	lower	-	M	74	N	N	N	N	4333			
12/29/04	Mill	lower	-	F	66	N	N	N	N	4334		1/5/05	

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
12/29/04	Mill	lower	-	M	74	N	N	N	N	4335		1/5/05	
12/29/04	Mill	lower	-	F	61	N	N	N	N	4336		1/5/05	
12/29/04	Mill	lower	-	F	67	N	N	N	N	4339		1/5/05	
12/29/04	Mill	lower	-	F	62	N	N	N	N	4341		1/12/05	
12/29/04	Mill	lower	-	M	67	N	N	N	N	4342		1/5/05	
12/29/04	Mill	lower	-	F	64	N	N	N	N	4343		1/5/05	
12/29/04	Mill	lower	-	F	64	N	N	N	N	4344			
12/29/04	Mill	lower	-	M	75	N	N	N	N	4345		1/5/05	
12/29/04	Mill	lower	-	F	67	N	N	N	N	4346		1/5/05	
12/29/04	Mill	lower	-	F	61	N	N	N	N	4347		1/5/05	
12/29/04	Mill	lower	-	F	63	N	N	N	N	4348		1/5/05	
12/29/04	Mill	lower	-	F	67	N	N	N	N	4349		1/5/05	
12/29/04	Mill	lower	-	M	77	N	N	N	N	4352		1/5/05	
12/29/04	Mill	lower	-	M	64	N	N	N	N	4353		1/5/05	
12/29/04	Mill	lower	-	M	73	N	N	N	N	4354		1/5/05	
12/29/04	Mill	lower	-	F	66	N	N	N	N	4355			
12/29/04	Mill	lower	-	F	62	N	N	N	N	4356		1/5/05	
12/29/04	Mill	lower	-	F	64	N	N	N	N	4357		1/5/05	
12/29/04	Mill	lower	-	F	61	N	N	N	N	4358		1/5/05	
12/29/04	Mill	lower	-	F	63	N	N	N	N	4359			
12/29/04	Mill	lower	-	F	67	N	N	N	N	4360		1/5/05	
12/29/04	Mill	lower	MIL97C	F	62	N	N	N	N	4362		1/5/05	yes
12/29/04	Mill	lower	MIL98C	F	62	N	N	N	N	4363		1/5/05	yes
12/29/04	Mill	lower	MIL99R	F	70	N	N	N	N	4364		1/5/05	yes
12/29/04	Mill	lower	MIL99R	F	54	N	N	N	N	4365		1/5/05	yes
12/29/04	Mill	lower	-	M	74	N	N	N	N	4366		1/5/05	
12/29/04	Mill	lower	-	M	66	N	N	N	N	4367		1/5/05	
12/29/04	Mill	lower	-	F	68	N	N	N	N	4368		1/5/05	
12/29/04	Mill	lower	MIL99R	M	65	N	N	N	N	N			PREDATIO
12/29/04	Mill	lower	-	F	66	N	N	N	N	N			PREDATIO
12/29/04	Mill	lower	-	F	66	N	N	N	N	N			NO HEAD
01/05/05	Mill	lower	-	F	70	N	N	N	N	150			yes
01/05/05	Mill	lower	SML03C	M	70	N	N	N	N	151		1/12/05	yes

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
01/05/05	Mill	lower	-	M	62	N	N	N	N	154		1/12/05	
01/05/05	Mill	lower	SML05C	M	52	N	N	N	N	159			yes
01/05/05	Mill	lower	-	F	68	N	N	N	N	173			
01/05/05	Mill	lower	-	M	62	N	N	N	N	178			
01/05/05	Mill	lower	-	F	73	N	N	N	N	181			
01/05/05	Mill	lower	-	M	79	N	N	N	N	194			
01/05/05	Mill	lower	-	F	70	N	N	N	N	195			
01/05/05	Mill	lower	SML04C	M	65	N	N	Y	N	198		1/12/05	yes
01/05/05	Mill	lower	-	M	68	N	N	N	N	199		1/12/05	
01/05/05	Mill	lower	-	F	66	N	N	N	N	200		1/12/05	
01/05/05	Mill	lower	-	M	76	N	N	N	N	1196			
01/05/05	Mill	lower	-	M	70	N	N	N	N	2209			
01/05/05	Mill	lower	-	M	73	N	N	N	N	2220		1/12/05	
01/05/05	Mill	lower	SML03C	M	72	N	N	N	N	2363		1/12/05	
01/05/05	Mill	lower	-	M	71	N	N	N	N	3786		1/12/05	
01/05/05	Mill	lower	-	M	71	N	N	N	N	3788			
01/05/05	Mill	lower	-	M	72	-	-	-	-	3832		1/12/05	
01/05/05	Mill	lower	-	F	66	N	N	N	N	3850			
01/05/05	Mill	lower	-	M	59	-	-	-	-	3856		1/12/05	
01/05/05	Mill	lower	SML02C	M	61	N	N	N	N	3864			yes
01/05/05	Mill	lower	-	M	67	N	N	N	N	5405		1/12/05	
01/05/05	Mill	lower	-	F	70	N	N	N	N	N			
01/05/05	Mill	lower	-	F	61	-	-	-	-	N			
01/05/05	Mill	lower	-	M	56	N	N	N	N	N			
01/05/05	Mill	lower	-	M	76	N	N	N	N	N			
01/12/05	Mill	lower	-	F	54	N	N	N	N	N			
01/12/05	Mill	lower	-	F	63	N	N	N	N	N			
154													
12/20/04	Shackleford	Lower	SHM80C	M	75	N	N	N	N	4376			yes
12/28/04	Shackleford	Lower	SHK90C	F	72	N	N	N	N	4101		1/4/05	
12/28/04	Shackleford	Lower	-	M	82	N	N	N	N	4102		1/4/05	
12/28/04	Shackleford	Lower	SHK90C	F	76	N	N	N	N	4103		1/4/05	yes
12/28/04	Shackleford	Lower	SHK90C	F	75	N	N	N	N	4104		1/4/05	

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
12/28/04	Shackleford	Lower	-	M	65	N	N	N	N	4105		1/4/05	
12/28/04	Shackleford	Lower	-	F	74	N	N	N	N	4106		1/4/05	
12/28/04	Shackleford	Lower	-	M	71	N	N	N	N	4107			
12/28/04	Shackleford	Lower	-	F	76	N	N	N	N	4108		1/4/05	
12/28/04	Shackleford	Lower	SHK90C	F	72	N	N	N	N	4109		1/4/05	yes
12/28/04	Shackleford	Lower	-	F	68	N	N	N	N	4110			
12/28/04	Shackleford	Lower	-	M	72	N	N	N	N	4111		1/4/05	
12/28/04	Shackleford	Lower	-	F	72	N	N	N	N	4112		1/4/05	
12/28/04	Shackleford	Lower	SHK90C	F	77	N	N	N	N	4113		1/4/05	yes
12/28/04	Shackleford	Lower	-	M	72	N	N	N	N	4114			
12/28/04	Shackleford	Lower	-	F	71	N	N	N	N	4116		1/4/05	
12/28/04	Shackleford	Lower	-	M	77	N	N	N	N	4117			
12/28/04	Shackleford	Lower	-	F	75	N	N	N	N	4118		1/4/05	
12/28/04	Shackleford	Lower	-	F	67	N	N	N	N	4119			
12/28/04	Shackleford	Lower	-	F	72	N	N	N	N	4120			
12/28/04	Shackleford	Lower	-	F	67	N	N	N	N	4121		1/4/05	
12/28/04	Shackleford	Lower	-	F	78	N	N	N	N	4122		1/4/05	
12/28/04	Shackleford	Lower	-	F	68	N	N	N	N	4123			
12/28/04	Shackleford	Lower	-	F	72	N	N	N	N	4124		1/4/05	
12/28/04	Shackleford	Lower	-	F	74	N	N	N	N	4125			
12/28/04	Shackleford	Lower	-	F	75	N	N	N	N	4125		1/11/05	
12/28/04	Shackleford	Lower	-	F	63	N	N	N	N	4126			
12/28/04	Shackleford	Lower	-	F	78	N	N	N	N	4127			
12/28/04	Shackleford	Lower	-	F	73	N	N	N	N	4173			
12/28/04	Shackleford	Lower	-	F	68	N	N	N	N	4174		1/4/05	
12/28/04	Shackleford	Lower	-	M	76	N	N	N	N	4175		1/4/05	
12/28/04	Shackleford	Lower	-	F	70	N	N	N	N	4176		1/4/05	
12/28/04	Shackleford	Lower	-	F	72	N	N	N	N	4177		1/4/05	
12/28/04	Shackleford	Lower	-	M	76	N	N	N	N	4178		1/4/05	
12/28/04	Shackleford	Lower	-	M	65	N	N	N	N	4179		1/4/05	
12/28/04	Shackleford	Lower	-	F	68	N	N	N	N	4180		1/4/05	
12/28/04	Shackleford	Lower	-	F	76	N	N	N	N	4181		1/4/05	
12/28/04	Shackleford	Lower	-	F	70					4182		1/4/05	

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
12/28/04	Shackleford	Lower	-	F	75					4183			
12/28/04	Shackleford	Lower	-	F	72	N	N	N	N	4184		1/4/05	
12/28/04	Shackleford	Lower	SHK89C	M	78	N	N	N	N	4185		1/4/05	yes
12/28/04	Shackleford	Lower	SHK90C	M	73	N	N	N	N	4191		1/4/05	yes
12/28/04	Shackleford	Lower	SHK90C	F	77	N	N	N	N	4198		1/4/05	
12/28/04	Shackleford	Lower	SHK90C	M	80	N	N	N	N	N			PREDATED
12/28/04	Shackleford	Lower	SHK90C	F	70	N	N	N	N	N			PREDATED
12/28/04	Shackleford	Lower	-	M	75	N	N	N	N	N			PREDATED
12/28/04	Shackleford	Lower	-	F	71	N	N	N	N	N			PREDATED
12/28/04	Shackleford	Lower	-	F	69	N	N	N	N	N			PREDATED
12/28/04	Shackleford	Lower	-	M	84	N	N	N	N	N			DECOMPC
12/28/04	Shackleford	Lower	-	F	67	N	N	N	N	N			PREDATED
01/04/05	Shackleford	Lower	-	F	67	N	N	N	N	153		1/11/05	
01/04/05	Shackleford	Lower	SHM07C	M	73	N	N	N	N	156		1/11/04	yes
01/04/05	Shackleford	Lower	-	F	76	N	N	N	N	157			
01/04/05	Shackleford	Lower	-	M	80	-	-	-	-	171			
01/04/05	Shackleford	Lower	SHM05C	M	79	N	N	N	N	172			yes
01/04/05	Shackleford	Lower	SHM02C	F	66	N	N	N	N	174		1/11/05	yes
01/04/05	Shackleford	Lower	-	m	80	n	n	n	N	176			
01/04/05	Shackleford	Lower	-	M	73	N	N	N	N	180		1/11/05	
01/04/05	Shackleford	Lower	-	F	64	N	N	N	N	1184			
01/04/05	Shackleford	Lower	-	M	79	N	N	N	N	2212			
01/04/05	Shackleford	Lower	SHM06C	F	71	N	N	N	N	2214		1/11/04	yes
01/04/05	Shackleford	Lower	-	F	65	N	N	N	N	2223		1/11/05	
01/04/05	Shackleford	Lower	-	M	70	N	N	N	N	2228		1/11/05	
01/04/05	Shackleford	Lower	-	M	72	N	N	N	N	2782		1/11/05	
01/04/05	Shackleford	Lower	-	M	71	N	N	N	N	3751			
01/04/05	Shackleford	Lower	-	M	75	N	N	N	N	3785		1/11/05	
01/04/05	Shackleford	Lower	-	F	70	N	N	N	N	3791		1/11/05	
01/04/05	Shackleford	Lower	SHM09C	F	69	N	N	N	N	3867			
01/04/05	Shackleford	Lower	SHM08C	F	79	N	N	N	N	5407			yes
01/04/05	Shackleford	Lower	-	F	72	N	N	N	N	5415			
01/04/05	Shackleford	Lower	-	F	68	-	-	-	-	-			

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
01/04/05	Shackleford	Lower	-	?	61	-	-	-	-	-			
01/04/05	Shackleford	Lower	-	M	71	-	-	-	-	-			
01/04/05	Shackleford	Lower	-	M	84	N	N	N	N	N			PREDATIO
01/04/05	Shackleford	Lower	-	F	65	N	N	N	N	N			
01/04/05	Shackleford	Lower	-	M	73	N	N	N	N	N			
01/04/05	Shackleford	Lower	-	M	42	N	N	N	N	N			
01/11/05	Shackleford	Lower	-	F	70	N	N	N	N	N			
01/11/05	Shackleford	Lower	-	F	67	N	N	N	N	N			
01/11/05	Shackleford	Lower	-	M	77	N	N	N	N	N			
01/11/05	Shackleford	Lower	SHM02C	F	59	N	N	N	N	N			YES
01/11/05	Shackleford	Lower	-	F	65	N	N	N	N	N			
01/11/05	Shackleford	Lower	-	F	71	N	N	N	N	N			
01/11/05	Shackleford	Lower	SHM03C	M	66	N	N	N	N	N			YES
01/11/05	Shackleford	Lower	-	F	71	-	-	-	-	N			
01/11/05	Shackleford	Lower	-	F	66	-	-	-	-	N			MUTILATEI
86													
Recaptured Carcasses													
01/04/05	Shackleford	Lower	RECAP	F	73	N	N	N	N		4101		
01/04/05	Shackleford	Lower	RECAP	M	73	N	N	N	N		4191		
01/04/05	Shackleford	Lower	RECAP	M	80	N	N	N	N		4185		
01/04/05	Shackleford	Lower	RECAP	M	85	N	N	N	N		4102		
01/04/05	Shackleford	Lower	RECAP	F	75	N	N	N	N		4104		
01/04/05	Shackleford	Lower	RECAP	F	79	N	N	N	N		4103		
01/04/05	Shackleford	Lower	RECAP	F	70	N	N	N	N		4106		
01/04/05	Shackleford	Lower	RECAP	F	69	N	N	N	N		4181		
01/04/05	Shackleford	Lower	RECAP	F	72	N	N	N	N		4113		
01/04/05	Shackleford	Lower	RECAP	F	70	N	N	N	N		4111		
01/04/05	Shackleford	Lower	RECAP	F	?	N	N	N	N		4179		
01/04/05	Shackleford	Lower	RECAP	F	67	N	N	N	N		4116		
01/04/05	Shackleford	Lower	RECAP	F	71	N	N	N	N		4180		
01/04/05	Shackleford	Lower	RECAP	F	71	N	N	N	N		4118		
01/04/05	Shackleford	Lower	RECAP	F	70	N	N	N	N		4121		
01/04/05	Shackleford	Lower	RECAP	F	73	N	N	N	N		4124		

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
01/05/05	Mill	lower	RECAP	F	70	-	-	-	-		4003		
01/05/05	Mill	lower	RECAP	F	66	-	-	-	-		4362		
01/05/05	Mill	lower	RECAP	F	64	-	-	-	-		4363		
01/05/05	Mill	lower	RECAP	F	68	-	-	-	-		4364		
01/05/05	Mill	lower	RECAP	F	56	-	-	-	-		4365		
01/05/05	Mill	lower	RECAP	F	70	-	-	-	-		4360		
01/05/05	Mill	lower	RECAP	M	66	-	-	-	-		4356		
01/05/05	Mill	lower	RECAP	F	65	-	-	-	-		4358		
01/05/05	Mill	lower	RECAP	F	67	-	-	-	-		4357		
01/05/05	Mill	lower	RECAP	M	75	-	-	-	-		4354		
01/05/05	Mill	lower	RECAP	M	79	-	-	-	-		4352		
01/05/05	Mill	lower	RECAP	M	68	-	-	-	-		4353		
01/05/05	Mill	lower	RECAP	F	68	-	-	-	-		4302		
01/05/05	Mill	lower	RECAP	F	-	-	-	-	-		4304		
01/05/05	Mill	lower	RECAP	M	68	-	-	-	-		4303		
01/05/05	Mill	lower	RECAP	F	66	-	-	-	-		4094		
01/05/05	Mill	lower	RECAP	F	-	-	-	-	-		4093		
01/05/05	Mill	lower	RECAP	M	79	-	-	-	-		4307		
01/05/05	Mill	lower	RECAP	M	72	-	-	-	-		4305		
01/05/05	Mill	lower	RECAP	-	68	-	-	-	-		4004		
01/05/05	Mill	lower	RECAP	F	65	-	-	-	-		4095		
01/05/05	Mill	lower	RECAP	F	66	-	-	-	-		4006		
01/05/05	Mill	lower	RECAP	-	73	-	-	-	-		4007		
01/05/05	Mill	lower	RECAP	M	68	-	-	-	-		4005		
01/05/05	Mill	lower	RECAP	M	67	-	-	-	-		4015		
01/05/05	Mill	lower	RECAP	M	70	-	-	-	-		4010		
01/05/05	Mill	lower	RECAP	F	68	-	-	-	-		4016		
01/05/05	Mill	lower	RECAP	M	73	-	-	-	-		4011		
01/05/05	Mill	lower	RECAP	M	71	-	-	-	-		4014		
01/05/05	Mill	lower	RECAP	F	62	-	-	-	-		4008		
01/05/05	Mill	lower	RECAP	M	70	-	-	-	-		4013		
01/05/05	Mill	lower	RECAP	-	68	-	-	-	-		4012		
01/05/05	Mill	lower	RECAP	M	76	-	-	-	-		4020		

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
01/05/05	Mill	lower	RECAP	F	73	-	-	-	-		4019		
01/05/05	Mill	lower	RECAP	F	71	-	-	-	-		4022		
01/05/05	Mill	lower	RECAP	F	79	-	-	-	-		4021		
01/05/05	Mill	lower	RECAP	F	66	-	-	-	-		4023		
01/05/05	Mill	lower	RECAP	F	67	-	-	-	-		4311		
01/05/05	Mill	lower	RECAP	M	68	-	-	-	-		4306		
01/05/05	Mill	lower	RECAP	M	74	-	-	-	-		4309		
01/05/05	Mill	lower	RECAP	F	67	-	-	-	-		4308		
01/05/05	Mill	lower	RECAP	F	75	-	-	-	-		4315		
01/05/05	Mill	lower	RECAP	M	84	-	-	-	-		4316		
01/05/05	Mill	lower	RECAP	F	63	-	-	-	-		4313		
01/05/05	Mill	lower	RECAP	F	63	-	-	-	-		4314		
01/05/05	Mill	lower	RECAP	F	69	-	-	-	-		4312		
01/05/05	Mill	lower	RECAP	M	70	-	-	-	-		4028		
01/05/05	Mill	lower	RECAP	M	70	-	-	-	-		4025		
01/05/05	Mill	lower	RECAP	M	72	-	-	-	-		4027		
01/05/05	Mill	lower	RECAP	M	68	-	-	-	-		4024		
01/05/05	Mill	lower	RECAP	M	73	-	-	-	-		4026		
01/05/05	Mill	lower	RECAP	F	76	-	-	-	-		4317		
01/05/05	Mill	lower	RECAP	M	69	-	-	-	-		4034		
01/05/05	Mill	lower	RECAP	F	68	-	-	-	-		4031		
01/05/05	Mill	lower	RECAP	M	72	-	-	-	-		4033		
01/05/05	Mill	lower	RECAP	M	70	-	-	-	-		4032		
01/05/05	Mill	lower	RECAP	F	67	-	-	-	-		4092		
01/05/05	Mill	lower	RECAP	M	70	-	-	-	-		4041		
01/05/05	Mill	lower	RECAP	M	75	-	-	-	-		4038		
01/05/05	Mill	lower	RECAP	M	71	-	-	-	-		4037		
01/05/05	Mill	lower	RECAP	M	64	-	-	-	-		4036		
01/05/05	Mill	lower	RECAP	M	70	-	-	-	-		4040		
01/05/05	Mill	lower	RECAP	M	79	-	-	-	-		4039		
01/05/05	Mill	lower	RECAP	M	73	-	-	-	-		4035		
01/05/05	Mill	lower	RECAP	F	72	-	-	-	-		4319		
01/05/05	Mill	lower	RECAP	M	73	-	-	-	-		4091		

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
01/05/05	Mill	lower	RECAP	M	75	-	-	-	-		4321		
01/05/05	Mill	lower	RECAP	M	70	-	-	-	-		4042		
01/05/05	Mill	lower	RECAP	M	68	-	-	-	-		4323		
01/05/05	Mill	lower	RECAP	F	69	-	-	-	-		4320		
01/05/05	Mill	lower	RECAP	M	63	-	-	-	-		4318		
01/05/05	Mill	lower	RECAP	M	72	-	-	-	-		4322		
01/05/05	Mill	lower	RECAP	M	77	-	-	-	-		4044		
01/05/05	Mill	lower	RECAP	F	65	-	-	-	-		4089		
01/05/05	Mill	lower	RECAP	M	75	-	-	-	-		4088		
01/05/05	Mill	lower	RECAP	M	72	-	-	-	-		4090		
01/05/05	Mill	lower	RECAP	F	67	-	-	-	-		4046		
01/05/05	Mill	lower	RECAP	-	-	-	-	-	-		4045		
01/05/05	Mill	lower	RECAP	M	75	-	-	-	-		4345		
01/05/05	Mill	lower	RECAP	F	68	-	-	-	-		4347		
01/05/05	Mill	lower	RECAP	F	71	-	-	-	-		4346		
01/05/05	Mill	lower	RECAP	F	72	-	-	-	-		4343		
01/05/05	Mill	lower	RECAP	F	69	-	-	-	-		4087		
01/05/05	Mill	lower	RECAP	M	70	-	-	-	-		4085		
01/05/05	Mill	lower	RECAP	F	68	-	-	-	-		4086		
01/05/05	Mill	lower	RECAP	F	72	-	-	-	-		4368		
01/05/05	Mill	lower	RECAP	F	72	-	-	-	-		4349		
01/05/05	Mill	lower	RECAP	F	68	-	-	-	-		4348		
01/05/05	Mill	lower	RECAP	F	73	-	-	-	-		4188		
01/05/05	Mill	lower	RECAP	M	70	-	-	-	-		4366		
01/05/05	Mill	lower	RECAP	M	62	-	-	-	-		4367		
01/05/05	Mill	lower	RECAP	F	65	-	-	-	-		4342		
01/05/05	Mill	lower	RECAP	F	73	-	-	-	-		4339		
01/05/05	Mill	lower	RECAP	M	75	-	-	-	-		4335		
01/05/05	Mill	lower	RECAP	F	66	-	-	-	-		4336		
01/05/05	Mill	lower	RECAP	F	71	-	-	-	-		4334		
01/05/05	Mill	lower	RECAP	F	68	-	-	-	-		4329		
01/05/05	Mill	lower	RECAP	F	71	-	-	-	-		4328		
01/12/05	Mill	lower	RECAP	M	76	N	N	N	N		2363		

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
01/12/05	Mill	lower	RECAP	M	71	N	N	N	N		151		
01/12/05	Mill	lower	RECAP	F	67	N	N	N	N		5405		
01/12/05	Mill	lower	RECAP	F	65	N	N	N	N		198		
01/12/05	Mill	lower	RECAP	F	63	N	N	N	N		3856		
01/12/05	Mill	lower	-	M	73	N	N	N	N				
01/12/05	Mill	lower	RECAP	M	70	N	N	N	N		2220		
01/12/05	Mill	lower	RECAP	M	68	N	N	N	N		199		
01/12/05	Mill	lower	RECAP	M	71	N	N	N	N		3786		
01/12/05	Mill	lower	RECAP	F	60	N	N	N	N		154		
01/12/05	Mill	lower	RECAP	F	67	N	N	N	N		200		
01/12/05	Mill	lower	RECAP	F	60	N	N	N	N		4327		
01/12/05	Mill	lower	RECAP	F	67	N	N	N	N		4341		
01/12/05	Mill	lower	RECAP	F	66	N	N	N	N		4332		
01/11/05	Shackleford	Lower	RECAP	F	66	-	-	-	-		174		
01/04/05	Shackleford	Lower	RECAP	F	75	N	N	N	N		4198		
01/04/05	Shackleford	Lower	RECAP	F	75	N	N	N	N		4184		
01/04/05	Shackleford	Lower	RECAP	F	67	N	N	N	N		4182		
01/04/05	Shackleford	Lower	RECAP	F	64	N	N	N	N		4105		
01/04/05	Shackleford	Lower	RECAP	F	73	N	N	N	N		4108		
01/04/05	Shackleford	Lower	RECAP	M	75	N	N	N	N		4109		
01/04/05	Shackleford	Lower	RECAP	F	65	N	N	N	N		4112		
01/04/05	Shackleford	Lower	RECAP	F	72	N	N	N	N		4178		
01/04/05	Shackleford	Lower	RECAP	M	72	N	N	N	N		4177		
01/04/05	Shackleford	Lower	RECAP	F	67	N	N	N	N		4115		No record c
01/04/05	Shackleford	Lower	RECAP	F	73	N	N	N	N		4176		
01/04/05	Shackleford	Lower	RECAP	F	77	N	N	N	N		4122		
01/04/05	Shackleford	Lower	RECAP	F	72	N	N	N	N		4174		
01/04/05	Shackleford	Lower	RECAP	F	77	-	-	-	-		4175		
01/11/05	Shackleford	Lower	RECAP	F	72	N	N	N	N		2214		
01/11/05	Shackleford	Lower	RECAP	M	71	-	-	-	-		156		
01/11/05	Shackleford	Lower	RECAP	M	80	-	-	-	-		3785		
01/11/05	Shackleford	Lower	RECAP	M	68	-	-	-	-		2228		
01/11/05	Shackleford	Lower	RECAP	F	65	-	-	-	-		153		

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
01/11/05	Shackleford	Lower	RECAP	M	74	-	-	-	-		2782		
01/11/05	Shackleford	Lower	RECAP	F	66	-	-	-	-		3791		
01/11/05	Shackleford	Lower	RECAP	M	66	-	-	-	-		180		
01/11/05	Shackleford	Lower	RECAP	F	71	-	-	-	-		2223		
01/11/05	Shackleford	Lower	RECAP	F	68	-	-	-	-		4125		
12/29/04	Mill	lower	RECAP	M	61	N	N	N	N		4098		
12/29/04	Mill	lower	RECAP	M	68	N	N	N	N		4001		
12/29/04	Mill	lower	RECAP	M	66	N	N	N	N		4097		
12/29/04	Mill	lower	RECAP	M	UNK	N	N	N	N		4002		
01/12/05	Mill	lower	RECAP	M	69	N	N	N	N		3832		
Non-Mark and Recapture Reaches													
12/29/2004	Canyon Creek	Lower		F	71					N/A	N/A	N/A	Y
12/29/2004	Canyon Creek	Lower		F	77					N/A	N/A	N/A	Y
12/3/2004	E. Fork	Low Masterson		F	66	N				N/A	N/A	N/A	Y
12/20/2004	E. Fork	Low Maste	-	M	61	N	N	N	N	N/A	N/A	N/A	Y
12/20/2004	E. Fork	Low Maste	-	F	62	N	N	N	N	N/A	N/A	N/A	Y
12/28/2004	Etna	Lower	ETN82C	F	61	N	N	N	N	N/A	N/A	N/A	Y
12/28/2004	Etna	Lower	ETN83C	F	69	N	N	N	N	N/A	N/A	N/A	Y
12/28/2004	Etna	Lower	ETN84C	F	69	N	N	N	N	N/A	N/A	N/A	Y
1/5/2005	Etna	Lower	MET01C	F	67	N	N	N	N	N/A	N/A	N/A	Y
1/5/2005	Etna	Lower	MET02C	M	73	N	N	N	N	N/A	N/A	N/A	Y
1/5/2005	Etna	Lower	MET04C	F	71	N	N	N	N	N/A	N/A	N/A	Y
1/5/2005	Etna	Lower	MET05C	M	76	N	N	N	N	N/A	N/A	N/A	Y
1/5/2005	Etna	Lower	MET06C	F	68	N	N	N	N	N/A	N/A	N/A	Y
1/5/2005	Etna	Lower	MET10R	M	74	N	N	N	N	N/A	N/A	N/A	N
1/5/2005	Etna	Lower	MET12R	M	71	N	N	N	N	N/A	N/A	N/A	N
1/5/2005	Etna	Lower	MET12R	F	74	N	N	N	N	N/A	N/A	N/A	N
1/5/2005	Etna	Lower	MET14R	F	68	N	N	N	N	N/A	N/A	N/A	N
1/5/2005	Etna	Lower	MET16R	M	74	N	N	N	N	N/A	N/A	N/A	N
1/5/2005	Etna	Lower	MET16R	F	68	N	N	N	N	N/A	N/A	N/A	N
1/5/2005	Etna	Lower	MET19R	M	70	N	N	N	N	N/A	N/A	N/A	N
1/5/2005	Etna	Lower	MET20R	M	72	N	N	N	N	N/A	N/A	N/A	N
1/5/2005	Etna	Lower	MET22R	M	72	N	N	N	N	N/A	N/A	N/A	N

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
1/5/2005	Etna	Lower	MET25R	M	72	N	N	N	N	N/A	N/A	N/A	N
1/5/2005	Etna	Lower	MET25R	F	70	N	N	N	N	N/A	N/A	N/A	N
12/31/2004	Etna	Middle	ETNA22C	F	83	N	N	N	N	N/A	N/A	N/A	Y
12/31/2004	Etna	Middle	ETN18C	F	69	N	N	N	N	N/A	N/A	N/A	N
1/7/2005	Kangaroo	Lower	KAN17C	F	74	N	N	N	N	N/A	N/A	N/A	Y
1/7/2005	Kangaroo	Lower	KAN18C	F	66	N	N	N	N	N/A	N/A	N/A	N
1/7/2005	Kangaroo	Lower	-	UNK	UNK	UNK	UNK	UNK	UNK	N/A	N/A	N/A	N
12/29/2004	Kidder	Lower	LKC01C	F	83	N	N	N	N	N/A	N/A	N/A	Y
12/29/2004	Kidder	Lower	LKC04C	F	65	N	N	N	N	N/A	N/A	N/A	Y
12/29/2004	Kidder	Lower	LKC08C	F	74	N	N	N	N	N/A	N/A	N/A	Y
12/29/2004	Kidder	Lower	LKC09C	F	71	N	N	N	N	N/A	N/A	N/A	Y
12/29/2004	Kidder	Lower	LKC10C	F	67	N	N	N	N	N/A	N/A	N/A	Y
12/28/2004	Kidder	Middle	KID74C	M	69	N	N	N	N	N/A	N/A	N/A	Y
12/24/2004	Patterson	Lower	PAT09C	M	72	N	N	N	N	N/A	N/A	N/A	
12/24/2004	Patterson	Lower	PAT14C	F	72	N	N	N	N	N/A	N/A	N/A	Y
12/24/2004	Patterson	Lower	PAT17C	M	72	N	N	N	N	N/A	N/A	N/A	Y
12/24/2004	Patterson	Lower	PAT18C	M	74	N	N	N	N	N/A	N/A	N/A	Y
12/24/2004	Patterson	Lower	PAT19C	F	76	N	N	N	N	N/A	N/A	N/A	Y
1/4/2005	Patterson	Lower	PAT45C	F	63	N	N	N	N	N/A	N/A	N/A	Y
1/4/2005	Patterson	Lower	PAT50C	M	71	N	N	N	N	N/A	N/A	N/A	Y
1/4/2005	Patterson	Lower	PAT51C	F	71	N	N	N	N	N/A	N/A	N/A	Y
1/4/2005	Patterson	Lower	PAT54C	M	74	N	N	N	N	N/A	N/A	N/A	
12/15/2004	Patterson	Middle	PAT52C	M	72	N	N	N	N	N/A	N/A	N/A	Y
12/22/2004	Patterson	Middle	-	M	79	N	N	N	N	N/A	N/A	N/A	Y
1/4/2005	Patterson	Middle	PAT71C	M	73	N	N	N	N	N/A	N/A	N/A	Y
1/4/2005	Patterson	Middle	PAT71C	M	72	N	N	N	N	N/A	N/A	N/A	Y
1/4/2005	Patterson	Middle	PAT72C	F	66	N	N	N	N	N/A	N/A	N/A	Y
1/4/2005	Patterson	Middle	PAT72C	F	77	N	N	N	N	N/A	N/A	N/A	Y
1/4/2005	Patterson	Middle	PAT73R	F	67	N	N	N	N	N/A	N/A	N/A	Y
1/4/2005	Patterson	Middle	PAT73R	F	67	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	PAT73R	M	56	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	PAT74R	M	71	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	PAT74R	F	74	N	N	N	N	N/A	N/A	N/A	N

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
1/4/2005	Patterson	Middle	PAT74R	F	63	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	-	F	68	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	-	F	67	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	-	F	70	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	-	F	71	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	-	F	67	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	-	F	71	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	-	M	73	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	-	M	73	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	-	F	71	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	-	F	66	N	N	N	N	N/A	N/A	N/A	N
1/4/2005	Patterson	Middle	-	M	72	N	N	N	N	N/A	N/A	N/A	N
1/10/2005	Patterson	Middle	PAT21C	M	72	N	N	N	N	N/A	N/A	N/A	Y
1/10/2005	Patterson	Middle	PAT22C	F	63	N	N	N	N	N/A	N/A	N/A	Y
1/10/2005	Patterson	Middle	PAT23C	F	61	N	N	N	N	N/A	N/A	N/A	Y
1/10/2005	Patterson	Middle	PAT23C	M	73	N	N	N	N	N/A	N/A	N/A	Y
1/10/2005	Patterson	Middle	-	M	67	N	N	N	N	N/A	N/A	N/A	N
1/10/2005	Patterson	Middle	-	M	66	N	N	N	N	N/A	N/A	N/A	N
1/10/2005	Patterson	Middle	-	F	63	N	N	N	N	N/A	N/A	N/A	N
1/10/2005	Patterson	Middle	-	M	69	N	N	N	N	N/A	N/A	N/A	N
1/10/2005	Patterson	Middle	-	M	68	N	N	N	N	N/A	N/A	N/A	N
1/10/2005	Patterson	Middle	PAT24C	F	64	N	N	N	N	N/A	N/A	N/A	Y
1/10/2005	Patterson	Middle	-	UNK	UNK	UNK	UNK	UNK	UNK	N/A	N/A	N/A	N
12/27/2004	Patterson	Upper	UPC24C		76	N	N	N	N	N/A	N/A	N/A	Y
12/29/2004	Patterson	Upper	-	F	65	N	N	N	N	N/A	N/A	N/A	Y
12/29/2004	Patterson	Upper	-	M	73	N	N	N	N	N/A	N/A	N/A	Y
1/4/2005	Scott @ Shackleford		SCO01C	M	72	N	N	N	N	N/A	N/A	N/A	Y
1/4/2005	Scott @ Shackleford		SCO01C	M	73	N	N	N	N	N/A	N/A	N/A	Y
12/28/2004	Scott Bar Mill	Lower		F	71	N	N	N	N	N/A	N/A	N/A	SCALE ON
11/19/2004	Scott River	Reach 5	-	F	72	N				N/A	N/A	N/A	y
11/19/2004	Scott River	Reach 8	-	M	none	N				N/A	N/A	N/A	Y
11/22/2004	Scott River	Reach 9	-	F	71	N				N/A	N/A	N/A	Y
11/29/2004	Scott River	Tailings	TAI01C	M	61	N	N	N	N	N/A	N/A	N/A	Y

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
11/29/2004	Scott River	Tailings	TAI02C	M	66	N	N	N	N	N/A	N/A	N/A	Y
11/29/2004	Scott River	Tailings	TAI03C	F	68	N	N	N	N	N/A	N/A	N/A	Y
12/6/2004	Scott River	Tailings	TAI33C	M	75	N	Y	N	N	N/A	N/A	N/A	Y
12/6/2004	Scott River	Tailings	TAI38C	F	74	N	N	N	N	N/A	N/A	N/A	Y
12/6/2004	Scott River	Tailings	TAI39C	F	61	N	N	N	N	N/A	N/A	N/A	Y
12/6/2004	Scott River	Tailings	TAI41C	M	71	N	N	N	N	N/A	N/A	N/A	Y
12/6/2004	Scott River	Tailings	TAI42C	M	76	N	N	N	N	N/A	N/A	N/A	Y
12/6/2004	South Fork	Upper	SFK04C	M	68	N	N	N	N	N/A	N/A	N/A	Y
1/3/2005	South Fork	Upper	SFK38C	F	66	N	N	N	N	N/A	N/A	N/A	Y
1/3/2005	South Fork	Upper	SFK39C	F	72	N	N	N	N	N/A	N/A	N/A	Y
1/3/2005	South Fork	Upper	SFK40C	F	69	N	N	N	N	N/A	N/A	N/A	Y
1/3/2005	South Fork	Upper	SFK41C	M	73	N	N	N	N	N/A	N/A	N/A	Y
1/3/2005	South Fork	Upper	SFK42C	M	72	N	N	N	N	N/A	N/A	N/A	Y
1/3/2005	South Fork	Upper	SFK44C	F	66	N	N	N	N	N/A	N/A	N/A	N
1/3/2005	South Fork	Upper	-	F	73	N	N	N	N	N/A	N/A	N/A	N
1/3/2005	South Fork	Upper	-	F	71	N	N	N	N	N/A	N/A	N/A	N
1/3/2005	South Fork	Upper	-	F	66	N	N	N	N	N/A	N/A	N/A	N
11/24/2004	Sugar	Lower	Sug02C	M	79	N	N	N	N	N/A	N/A	N/A	Y
11/24/2004	Sugar	Lower	Sug02C	UNK	UNK	UNK	N	N	UNK	N/A	N/A	N/A	TISSUE ON
12/22/2004	Sugar	Lower	SUG09C	M	80	N	N	N	N	N/A	N/A	N/A	Y
12/22/2004	Sugar	Lower	SUG12C	M	78	N	N	N	N	N/A	N/A	N/A	Y
12/22/2004	Sugar	Lower	SUG12C	F	62	N	N	N	N	N/A	N/A	N/A	N
12/22/2004	Sugar	Lower	SUG12C	M	78	N	N	N	N	N/A	N/A	N/A	N
12/22/2004	Sugar	Lower	SUG12C	M	68	N	N	N	N	N/A	N/A	N/A	N
12/31/2004	Sugar	Lower	SUG51C	F	68	N	N	N	N	N/A	N/A	N/A	Y
12/31/2004	Sugar	Lower	SUG52C	F	71	N	N	N	N	N/A	N/A	N/A	Y
1/10/2005	Sugar	Lower	SUG02C	M	78	N	N	N	N	N/A	N/A	N/A	Y
1/10/2005	Sugar	Lower	Sug02C	M	71	N	N	N	N	N/A	N/A	N/A	Y
1/10/2005	Sugar	Lower	Sug02C	M	72	N	N	N	N	N/A	N/A	N/A	Y
1/10/2005	Sugar	Lower	-	M	72	N	N	N	N	N/A	N/A	N/A	N
1/10/2005	Sugar	Lower	-	M	71	N	N	N	N	N/A	N/A	N/A	N
1/10/2005	Sugar	Lower	SUG03C	F	65	N	N	N	N	N/A	N/A	N/A	Y
1/10/2005	Sugar	Lower	SUG03C	F	71	N	N	N	N	N/A	N/A	N/A	Y

Date	Stream	Reach	GPS Code	Sex	Forklength (cm)	Ad clip	Right Max Clip	Left Max Clip	other clip	Applied Tag	Recap tag	Date of Recap	TISSUE/SCALE
1/3/2005	Sugar	Upper	SUG39C	F	77	N	N	N	N	N/A	N/A	N/A	N
1/3/2005	Sugar	Upper	SUG41C	M	73	N	N	N	N	N/A	N/A	N/A	N
1/3/2005	Sugar	Upper	SUG42R	M	76	N	N	N	N	N/A	N/A	N/A	N
1/3/2005	Sugar	Upper	SUG44C	F	66	N	N	N	N	N/A	N/A	N/A	N
1/3/2005	Sugar	Upper	SUG45R	F	64	N	N	N	N	N/A	N/A	N/A	N
1/3/2005	Sugar	Upper	SUG46R	UNK	65	N	N	N	N	N/A	N/A	N/A	N
1/3/2005	Sugar	Upper	SUG48C	UNK	69	N	N	N	N	N/A	N/A	N/A	N
1/17/2005	Sugar		-	F	71	N	N	N	N	N/A	N/A	N/A	N
11/16/2004	Tompkins	Lower	TOM01C	F	72	N	N	?	N	N/A	N/A	N/A	Y?
12/29/2004	Tompkins	Lower	TOM01C	M	68	N	N	N	N	N/A	N/A	N/A	Y?

Table of Redd Data

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
Redd Observations												
12/16/2004	French	J&H	FRE48R	DITCH	1	2	1	0.2	1/2	41 21.875	122 54.038	
12/16/2004	French	J&H	FRE47R	R	1	2.75	1.25	0.08	1/3	41 21.669	122 54.084	
2												
11/29/2004	French	Lower	FCK05R	R	0	2.4	0.9	0.45	2/3	NONE	NONE	NO GPS UNIT
12/14/2004	French	Lower	FRE43R	R	2	1	0.75	0.06	1/2	41 24.733	122 51.430	
12/21/2004	French	Lower	FRE36R	R	1	3	1	0.1	2/1	41 24.732	122 51.447	
12/21/2004	French	Lower	FRE37R	R	0	3	1	0.12	2/1			
12/21/2004	French	Lower	FRE39R	S/R	2	4	1.5	0.19	2/1	41 24.828	122 51.286	
12/21/2004	French	Lower	FRE40R	S/R	2	3	1	0.17	2/1	41 24.829	122 51.279	
12/21/2004	French	Lower	FRE41R	S/R	1	2.5	1.5	0.11	2/1	41 24.830		
12/21/2004	French	Lower	FRE42R	R	1	3.5	1.25	0.19	2/1	41 24.871	122 51.148	
12/21/2004	French	Lower	FRE35R	R	1	3	1.25	0.16	2/3	41 24.729	122 51.469	
12/21/2004	French	Lower	FRE38R	S/R	0	2	1	0.15	2/3	41 24.819	122 51.285	
12/22/2004	French	Lower	FRE57R	R	0	2.25	1	0.21	2/3	41 24.965	122 50.878	
12/22/2004	French	Lower	FRE58R	F/S	1	2.25	0.75	0.21	2/3	41 25.016	122 50.894	
12/22/2004	French	Lower	FRE58R	R/S	0	2	0.75	0.2	2/3	41 25.016	122 50.894	
12/22/2004	French	Lower	FRE56R	R/S	1	2.25	1	0.14	3/2	41 24.811	122 51.289	
12/22/2004	French	Lower	FRE57R	R	0	2.5	1.5	0.29	3/2	41 24.965	122 50.878	
12/30/2004	French	Lower	FRE04R	R	1	2	0.75	0.15	2/3	41 24.843	122 51.256	
12/30/2004	French	Lower	FRE07R	F	1	2.25	0.5	0.26	2/3	41 24.949	122 51.000	
12/30/2004	French	Lower	FRE07R	F	2	3	1	0.16	2/3	41 24.949	122 51.000	
12/30/2004	French	Lower	FRE07R	F	2	4	2	0.3	2/3	41 24.949	122 51.000	
12/30/2004	French	Lower	FRE09R	F	0	2	0.75	0.27	2/3	41 24.950	122 50.891	
20					18							
11/30/2004	French	MID	FRE14R	F	1	4.5	2.5	0.14	1/2	41 24.192	122 52.034	
11/30/2004	French	MID	FRE15R	F	1	5	1.5	0.12	2/1	41 24.207	122 52.031	
11/30/2004	French	MID	FRE16R	R	0	3	1.5	0.15	2/1	41 24.327	122 51.999	large pool just upstream, live may
11/30/2004	French	MID	FRE11R	F	2	2	3	0.2	2/3	41 23.759	122 52.266	
11/30/2004	French	MID	FRE17R	R	0	5	1.5	0.12	2/3	41 24.458	122 51.908	large pool just upstream, live may
12/14/2004	French	MID	FRE26R	R	0	3	1	0.12	1/2	41 23.516	122 52.289	
12/14/2004	French	MID	FRE28R	R	2	4	1	0.15	2/1	41 23.473	122 52.313	
12/14/2004	French	MID	FRE32R	R	1	3.5	1.25	0.05	2/1	41 23.682	122 52.276	
12/14/2004	French	MID	FRE37R	R	2	3	1	0.14	2/1	41 24.230	122 52.005	POSSIBLY MORE THAN ONE
12/14/2004	French	MID	FRE40R	R	1	1.2	1.5	0.08	2/1	41 24.585	122 51.723	
12/14/2004	French	MID	FRE23R	R	2	2	1	0.2	2/3	41 23.429	122 52.295	
12/14/2004	French	MID	FRE38R	S/F	0	1	1.5	0.16	2/3	41 24.360	122 51.989	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/14/2004	French	MID	FRE31R	R	1	3.5	1.5	0.17	3/2	41 23.658	122 52.281	
12/14/2004	French	MID	FRE33R	R	2	3	1	0.17	3/2	41 23.895	122 52.164	
12/14/2004	French	MID	FRE34R	R	2	3	1	0.22	3/2	41 24.074	122 52.047	
12/14/2004	French	MID	FRE39R	F	0	1.5	1	0.12	3/2	41 24.463	122 51.940	NEXT TO PASTURE, NO RIPAR
12/21/2004	French	MID	FRE10R	F	0	2	1	0.15	1/2	41 23.661	122 52.331	
12/21/2004	French	MID	FRE11R	F	1	3	1.75	0.15	1/2	41 23.763	122 52.262	
12/21/2004	French	MID	FRE02R	F	1	2.25	1	0.1	2/1	41 23.406	122 52.315	
12/21/2004	French	MID	FRE03R	S/F	0	2	2	0.2	2/1	41 23.480	122 52.321	
12/21/2004	French	MID	FRE04R	S/F	0	3	1	0.15	2/1	41 23.516	122 52.303	
12/21/2004	French	MID	FRE08R	R	0	2	0.75	0.1	2/1	41 23.598	122 52.318	
12/21/2004	French	MID	FRE12R	PT	0	2.5	1	0.2	2/1	41 23.804	122 52.209	
12/21/2004	French	MID	FRE13R	R	1	3	1	0.1	2/1	41 23.817	122 52.195	
12/21/2004	French	MID	FRE14R	R	1	3	1	0.12	2/1	41 23.898	122 52.149	
12/21/2004	French	MID	FRE17R	R	1	3	1.75	0.12	2/1	41 24.079	122 52.046	
12/21/2004	French	MID	FRE19R	R	0	3	1	0.12	2/1	41 24.109	122 52.057	
12/21/2004	French	MID	FRE22R	R	0	3.5	1	0.13	2/1	41 24.296	122 51.963	
12/21/2004	French	MID	FRE23R	R	0	3	1.25	0.15	2/1	41 24.311	122 51.978	
12/21/2004	French	MID	FRE24R	R	0	3	1.25	0.1	2/1	No signal	No signal	
12/21/2004	French	MID	FRE28R	F	0	2	2	0.17	2/1	41 24.392	122 51.964	
12/21/2004	French	MID	FRE32R	R	2	3	1.25	0.1	2/1	41 24.594	122 51.681	
12/21/2004	French	MID	FRE05R	F	2	2	2	0.15	2/3	41 23.428	122 52.290	
12/21/2004	French	MID	FRE07R	R	1	3	1	0.12	2/3	41 23.551	122 52.303	
12/21/2004	French	MID	FRE09R	R	1	3.5	1.5	0.15	2/3	41 23.638	122 52.337	POSSIBLY MORE THAN ONE
12/21/2004	French	MID	FRE18R	R	1	2.5	1	0.18	2/3	41 24.088	122 52.055	
12/21/2004	French	MID	FRE21R	R	0	3	1	0.25	2/3	41 24.204	122 52.020	
12/21/2004	French	MID	FRE25R	r	0	3.5	1	0.25	2/3	41 24.364	122 51.995	
12/21/2004	French	MID	FRE26R	R	1	2.5	1.25	0.13	2/3	41 24.368	122 51.974	
12/21/2004	French	MID	FRE27R	F	0	2.5	1.25	0.15	2/3	41 24.387	122 51.965	
12/21/2004	French	MID	FRE29R	R	0	2.5	1	0.14	2/3	41 24.590	122 51.712	
12/21/2004	French	MID	FRE31R	R	2	2.5	1	0.11	2/3	41 24.591	122 51.682	
12/21/2004	French	MID	FRE06R	R	2	1.75	2	0.15	3/2	41 23.438	122 52.296	
12/21/2004	French	MID	FRE20R	R	0	3	1.25	0.1	3/2	41 24.195	122 52.034	
12/21/2004	French	MID	FRE30R	R	0	2.5	1	0.27	3/2	41 24.592	122 51.700	
12/30/2004	French	MID	FRE58R	F	3	2.5	1	-	1/2	41 23.513	122 52.287	
12/30/2004	French	MID	FRE59R	R	2	2.5	1.25	0.1	2/1	41 23.660	122 52.311	
12/30/2004	French	MID	FRE57R	R	2	2.5	1.25	0.1	2/3	41 23.421	122 52.294	
1/6/2005	French	MID	FRE05R	-	3	2.5	1	0.1	2/3	41 23.585	122 52.320	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
49					44							
12/17/2004	French	N.Fork a	FRE53R	F	0	1	1	0.1	2/1	41 23.301	122 52.364	
12/10/2004	Miners	Lower	MIN14R	R	3	2	0.5	0.1	1/2	41 23.276	122 52.282	
12/10/2004	Miners	Lower	MIN13R	R	3	2.5	1	0.2	3/2	41 23.275	122 52.285	
12/16/2004	Miners	Lower	MIN54R	F	0	3	1.75	0.11	1/2	41 22.794	122 52.128	
12/16/2004	Miners	Lower	MIN60R	F	1	2.75	1.75	0.26	1/2	41 22.920	122 52.175	
12/16/2004	Miners	Lower	MIN61R	R	2				1/2	41 23.011	122 52.241	FISH ON REDD
12/16/2004	Miners	Lower	MIN68R	F	1	2.25	0.75	0.16	1/2	41 23.113	122 52.244	
12/16/2004	Miners	Lower	MIN72R	F	1	1.5	0.5	0.09	1/2	41 23.166	122 52.246	
12/16/2004	Miners	Lower	MIN58R	F	2	2.5	1.5	0.14	2/1	41 22.916	122 52.182	
12/16/2004	Miners	Lower	MIN59R	F	1	3	1.5	0.12	2/1	41 22.921	122 52.184	
12/16/2004	Miners	Lower	MIN62R	F	2				2/1	41 23.046	122 52.239	FISH ON REDD
12/16/2004	Miners	Lower	MIN63R	F	2	2.25	1	0.17	2/1	41 23.075	122 52.249	
12/16/2004	Miners	Lower	MIN64R	F	5				2/1	41 23.069	122 52.251	
12/16/2004	Miners	Lower	MIN69R	R	1	4	1.25	0.15	2/1	41 23.115	122 52.261	
12/16/2004	Miners	Lower	MIN71R	F	1	3	1.5	0.07	2/1	41 23.138	122 52.267	
12/16/2004	Miners	Lower	MIN73R	R	2	1.5	0.75	0.1	2/1	41 23.169	122 52.243	
12/16/2004	Miners	Lower	MIN74R	F	4	3	1.25	0.2	2/1	41 23.196	122 52.258	
12/16/2004	Miners	Lower	MIN78R	F	1	4	1.75	0.16	2/1	41 23.291	122 52.302	
12/16/2004	Miners	Lower	MIN53R	F	0	2.25	1.5	0.12	2/3	41 22.773	122 52.138	
12/16/2004	Miners	Lower	MIN55R	F	1	3.25	2	0.14	2/3	41 22.884	122 52.173	
12/16/2004	Miners	Lower	MIN56R	R	0	3.25	1.25	0.23	2/3	41 22.889	122 52.172	
12/16/2004	Miners	Lower	MIN65R	F	3	4	1.5	0.12	2/3	41 23.067	122 52.267	
12/16/2004	Miners	Lower	MIN67R	R	4	1.5	0.75	0.08	2/3	41 23.084	122 52.267	
12/16/2004	Miners	Lower	MIN70R	F	2	2.5	1.25	0.17	2/3	41 23.122	122 52.262	
12/16/2004	Miners	Lower	MIN75R	F	1	2	1	0.13	2/3	41 23.247	122 52.265	
12/16/2004	Miners	Lower	MIN76R	F	2	2	2	0.08	2/3	41 23.273	122 52.276	
12/16/2004	Miners	Lower	MIN77R	R	2	2.5	1.5	0.16	2/3	41 23.280	122 52.296	
12/16/2004	Miners	Lower	MIN80R	F	3				2/3	41 23.325	122 52.282	2 REDDS
12/16/2004	Miners	Lower	MIN51R	F	2	2.25	1.5	0.18	3/2	41 22.631	122 52.170	
12/16/2004	Miners	Lower	MIN52R	F	0	2	1	0.12	3/2	41 22.752	122 52.131	
12/16/2004	Miners	Lower	MIN66R	R	3	2.5	1	0.16	3/2	41 23.053	122 52.269	
12/21/2004	Miners	Lower	MIN49R	F	1	2	1	0.16	1/2	41 23.044	122 52.246	
12/21/2004	Miners	Lower	MIN53R	F	16	2.5	1.25	0.18	1/2	41 23.141	122 52.259	
12/21/2004	Miners	Lower	MIN43R	P	0	2	1	0.22	2/1	41 22.876	122 52.173	
12/21/2004	Miners	Lower	MIN47R	R	1	1	0.5	0.18	2/1	41 22.991	122 52.231	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/21/2004	Miners	Lower	MIN51R	R	2	2	1	0.19	2/1	41 23.084	122 52.269	
12/21/2004	Miners	Lower	MIN56R	F	2	1.5	0.34	0.11	2/1	41 23.191	122 52.244	
12/21/2004	Miners	Lower	MIN58R	F	0	2.5	1.5	0.14	2/1	41 23.241	122 52.266	
12/21/2004	Miners	Lower	MIN52R	F	2	2	1	0.18	3/2	41 23.122	122 52.262	
12/21/2004	Miners	Lower	MIN52R	F	2	3	1.5	0.28	3/2	41 23.122	122 52.262	
12/21/2004	Miners	Lower	MIN55R	R	1	2	1	0.17	3/2	41 23.182	122 52.254	
12/21/2004	Miners	Lower	MIN59R	R	4	2.5	1	0.15	3/2	41 23.249	122 52.261	
12/21/2004	Miners	Lower	MIN60R	P	0	2.25	1.25	0.22	3/2	41 23.260	122 52.259	
1/6/2005	Miners	Lower	MIN06R	F	1	2.25	1	0.21	2/3	41 23.180	122 52.240	
43					87							
Fish Observations - not associated with Redd												
12/16/2004	French	J&H	FISH	-	4	N/A	N/A	N/A	N/A	-	-	
12/16/2004	French	J&H	FISH	DITCH	1	N/A	N/A	N/A	N/A	-	-	
12/14/2004	French	Lower	FISH	-	15	N/A	N/A	N/A	N/A	-	-	
12/21/2004	French	Lower	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
12/21/2004	French	Lower	FISH	-	2	N/A	N/A	N/A	N/A	-	-	
12/22/2004	French	Lower	FISH		4	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	Lower	FISH	-	6	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	Lower	FISH	F	5	N/A	N/A	N/A	N/A	-	-	1 FISH W/ SPAGHETTI TAG
12/30/2004	French	Lower	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	Lower	FISH	-	2	N/A	N/A	N/A	N/A	-	-	
					40							
11/30/2004	French	MID	FRE12F	F	1	N/A	N/A	N/A	N/A	41 24.002	122 52.034	
11/30/2004	French	MID	FRE13F	F	1	N/A	N/A	N/A	N/A	41 24.178	122 52.044	
12/14/2004	French	MID	FRE22F	R	4	N/A	N/A	N/A	N/A	41 23.392	122 52.309	
12/14/2004	French	MID	FRE24F	P	1	N/A	N/A	N/A	N/A	41 23.428	122 52.296	
12/14/2004	French	MID	FRE25F	R	1	N/A	N/A	N/A	N/A	41 23.510	122 52.291	
12/14/2004	French	MID	FRE27F	R	2	N/A	N/A	N/A	N/A	41 23.525	122 52.288	
12/14/2004	French	MID	FRE29F	-	3	N/A	N/A	N/A	N/A	41 23.583	122 52.312	
12/14/2004	French	MID	FRE30F	P	4	N/A	N/A	N/A	N/A	41 23.654	122 52.328	MOVING UP
12/14/2004	French	MID	FISH	-	5	N/A	N/A	N/A	N/A	-	-	
12/14/2004	French	MID	FISH	-	2	N/A	N/A	N/A	N/A	-	-	
12/14/2004	French	MID	FISH	-	1	N/A	N/A	N/A	N/A	-	-	
12/14/2004	French	MID	FISH	-	8	N/A	N/A	N/A	N/A	-	-	
12/14/2004	French	MID	FISH	-	5	N/A	N/A	N/A	N/A	-	-	
12/14/2004	French	MID	FISH	-	2	N/A	N/A	N/A	N/A	-	-	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/14/2004	French	MID	FISH	-	1	N/A	N/A	N/A	N/A	-	-	
12/21/2004	French	MID	FISH	-	7	N/A	N/A	N/A	N/A	-	-	
12/21/2004	French	MID	FISH	-	3	N/A	N/A	N/A	N/A	41 24.195	122 52.034	
12/30/2004	French	MID	FISH	P	2	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	R	1	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	F	3	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	F	1	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	F	3	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	R	2	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	P	4	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	R	4	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	P	5	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	R	2	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	R	1	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	R	4	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	P	2	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	R	1	N/A	N/A	N/A	N/A	-	-	
12/30/2004	French	MID	FISH	F	3	N/A	N/A	N/A	N/A	-	-	
1/6/2005	French	MID	FISH	-	1	N/A	N/A	N/A	N/A	-	-	
1/6/2005	French	MID	FISH	-	2	N/A	N/A	N/A	N/A	-	-	
1/6/2005	French	MID	FISH	-	2	N/A	N/A	N/A	N/A	-	-	
1/6/2005	French	MID	FISH	-	2	N/A	N/A	N/A	N/A	-	-	
1/13/2005	French	MID	FISH	-	2	N/A	N/A	N/A	N/A	-	-	
					98							
12/17/2004	French	N.Fork a	FISH	F/R	3	N/A	N/A	N/A	N/A	41 22.820	122 53.114	
12/17/2004	French	N.Fork a	FISH	F/R	1	N/A	N/A	N/A	N/A	41 22.801	122 52.979	
12/17/2004	French	N.Fork a	FISH	F/R	2	N/A	N/A	N/A	N/A	-	-	
12/17/2004	French	N.Fork a	FISH	P	24	N/A	N/A	N/A	N/A	41 23.053	122 52.638	
12/17/2004	French	N.Fork a	FISH	P/R	3	N/A	N/A	N/A	N/A	-	-	
					33							
12/10/2004	Miners	Lower	MINO2F		2	N/A	N/A	N/A	N/A	41 22.634	122 52.168	
12/10/2004	Miners	Lower	MIN03F	R	1	N/A	N/A	N/A	N/A	41 22.635	122 52.172	
12/10/2004	Miners	Lower	MIN04F	R	1	N/A	N/A	N/A	N/A	41 22.859	122 52.159	
12/10/2004	Miners	Lower	MIN05F	F	7	N/A	N/A	N/A	N/A	41 22.888	122 52.172	
12/10/2004	Miners	Lower	MIN06F	F	3	N/A	N/A	N/A	N/A	41 22.906	122 52.174	
12/10/2004	Miners	Lower	MIN07F	F	2	N/A	N/A	N/A	N/A	41 22.941	122 52.188	
12/10/2004	Miners	Lower	MINO8F	F	6	N/A	N/A	N/A	N/A	41 23.072	122 52.247	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/10/2004	Miners	Lower	MIN09F	F	5	N/A	N/A	N/A	N/A	41 23.088	122 52.271	
12/10/2004	Miners	Lower	MIN10F	R	2	N/A	N/A	N/A	N/A	41 23.095	122 52.276	
12/10/2004	Miners	Lower	MIN11F	F	3	N/A	N/A	N/A	N/A	41 23.208	122 52.256	
12/10/2004	Miners	Lower	MIN12F	R	2	N/A	N/A	N/A	N/A	41 23.275	122 52.275	
12/10/2004	Miners	Lower	MIN15F	F	3	N/A	N/A	N/A	N/A	41 23.328	122 52.297	
12/16/2004	Miners	Lower	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
12/16/2004	Miners	Lower	FISH	-	11	N/A	N/A	N/A	N/A	-	-	
12/16/2004	Miners	Lower	FISH	-	5	N/A	N/A	N/A	N/A	-	-	
12/16/2004	Miners	Lower	FISH	-	2	N/A	N/A	N/A	N/A	-	-	
12/16/2004	Miners	Lower	FISH	-	12	N/A	N/A	N/A	N/A	-	-	
12/16/2004	Miners	Lower	FISH	-	7	N/A	N/A	N/A	N/A	-	-	
12/16/2004	Miners	Lower	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
12/16/2004	Miners	Lower	FISH	-	15	N/A	N/A	N/A	N/A	-	-	
12/16/2004	Miners	Lower	FISH	-	2	N/A	N/A	N/A	N/A	-	-	
12/21/2004	Miners	Lower	MIN44L	-	5	N/A	N/A	N/A	N/A	41 22.898	122 52.171	
12/21/2004	Miners	Lower	MIN46L	-	5	N/A	N/A	N/A	N/A	41 22.968	122 52.210	
12/21/2004	Miners	Lower	FISH	P	10	N/A	N/A	N/A	N/A	-	-	
12/21/2004	Miners	Lower	MIN50L	-	11	N/A	N/A	N/A	N/A	41 23.075	122 52.261	
12/21/2004	Miners	Lower	FISH	10		N/A	N/A	N/A	N/A	41 23.178	122 52.247	
12/21/2004	Miners	Lower	MIN57L	-	16	N/A	N/A	N/A	N/A	41 23.218	122 52.269	
12/21/2004	Miners	Lower	FISH	-	4	N/A	N/A	N/A	N/A	-	-	
12/30/2004	Miners	Lower	FISH	-	4	N/A	N/A	N/A	N/A	-	-	
12/30/2004	Miners	Lower	FISH	-	6	N/A	N/A	N/A	N/A	-	-	
12/30/2004	Miners	Lower	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
12/30/2004	Miners	Lower	FISH	-	7	N/A	N/A	N/A	N/A	-	-	
12/30/2004	Miners	Lower	FISH	-	7	N/A	N/A	N/A	N/A	-	-	
12/30/2004	Miners	Lower	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
12/30/2004	Miners	Lower	FISH	-	2	N/A	N/A	N/A	N/A	-	-	
12/30/2004	Miners	Lower	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
1/6/2005	Miners	Lower	FISH	-	2	N/A	N/A	N/A	N/A	-	-	
1/6/2005	Miners	Lower	FISH	-	6	N/A	N/A	N/A	N/A	-	-	
1/6/2005	Miners	Lower	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
12/20/2004	N. FORK	LOWER	FISH	-	8	N/A	N/A	N/A	N/A	-	-	
					194							
Redd Observations												
12/13/04	Mill	Lower	SML20R	R	2	3	1	13	1/2	41 35.457	122 57.691	
12/13/04	Mill	Lower	SML03R	R	1	3.5	1.2	12	1/3	41 34.912	122 57.649	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/13/04	Mill	Lower	SML19R	R	2	4	1.5	10	2/1	41 35.454	122 57.690	
12/13/04	Mill	Lower	SML26R	R	2	1	0.5	7	2/1	41 35.592	122 57.844	
12/13/04	Mill	Lower	SML02R	R	2	-	-	-	2/3	41 34.889	122 57.638	FISH ACTIVE
12/13/04	Mill	Lower	SML05R	R	1	4.5	1.25	26	2/3	41 34.960	122 57.660	
12/13/04	Mill	Lower	SML06R	R	1	4	1.25	28	2/3	41 34.984	122 57.674	
12/13/04	Mill	Lower	SML16R	R	0	2.5	1	35	2/3	41 35.344	122 57.645	
12/13/04	Mill	Lower	SML30R	R	2	1.5	1	10	2/3	41 35.705	122 57.788	
12/13/04	Mill	Lower	SML04R	R	1	4	1.3	10	3/2	41 34.917	122 57.640	
12/13/04	Mill	Lower	SML17R	R	2	0.75	0.75	-	3/2	41 35.377	122 57.676	
12/13/04	Mill	Lower	SML24R	R	2	3.5	1	39	3/2	41 35.528	122 57.761	
12/13/04	Mill	Lower	SML25R	R	2	5.5	1.25	41	3/2	41 35.531	122 57.777	
12/13/04	Mill	Lower	SML28R	R	2	1.5	1	14	3/2	41 35.621	122 57.839	
12/13/04	Mill	Lower	SML31R	R	0	2.25	1	12	3/2	41 35.709	122 57.789	
12/13/04	Mill	Lower	SML33R	R	4	3.5	1	16	3/2	41 35.766	122 57.786	
12/13/04	Mill	Lower	SML11R	R	6	1.5	0.75	-	3/4	41 35.228	122 57.643	
12/13/04	Mill	Lower	SML22R	R	1	4	1	42	3/4	41 35.488	122 57.722	
12/13/04	Mill	Lower	SML13R	R	4	1.5	0.5	-	4/3	41 35.269	122 57.627	
12/20/04	Mill	Lower	MIL73R	F	0	2.75	1	0.23	2/1	41 35.321	122 57.632	
12/20/04	Mill	Lower	MIL78R	R	2	2.5	1	?	2/1	41 35.395	122 57.685	
12/20/04	Mill	Lower	MIL83R	F	1	2	0.5	0.21	2/1	41 35.480	122 57.717	
12/20/04	Mill	Lower	MIL94R	R	2	-	-	-	2/1	41 35.788	122 57.762	FISH ACTIVE
12/20/04	Mill	Lower	MIL58R		1	3	1	0.18	2/2	41 35.012	122 57.666	
12/20/04	Mill	Lower	MIL83R	F	2	3.5	2	0.15	2/2	41 35.480	122 57.717	
12/20/04	Mill	Lower	MIL51R	R	2	5	2	0.14	2/3	41 34.901	122 57.641	
12/20/04	Mill	Lower	MIL51R	R	2	2	1	?	2/3	41 34.901	122 57.641	
12/20/04	Mill	Lower	MIL52R	R	1	2.25	1	0.09	2/3	41 34.907	122 57.641	
12/20/04	Mill	Lower	MIL52R	R	0	2.25	0.75	0.1	2/3	41 34.907	122 57.641	
12/20/04	Mill	Lower	MIL54R	F	0	4	2	0.2	2/3	41 34.914	122 57.642	
12/20/04	Mill	Lower	MIL55R	R	1	3.5	1.5	0.18	2/3	41 34.923	122 57.642	
12/20/04	Mill	Lower	MIL55R	F	0	2.5	1.5	0.1	2/3	41 34.923	122 57.642	
12/20/04	Mill	Lower	MIL56R	F	0	3.5	1	0.2	2/3	41 34.942	122 57.64	
12/20/04	Mill	Lower	MIL56R	R	0	2	0.75	0.15	2/3	41 34.942	122 57.64	
12/20/04	Mill	Lower	MIL57R	R	1	4	2.5	0.26	2/3	41 34.988	122 57.669	
12/20/04	Mill	Lower	MIL57R	R	0	2.5	1	0.15	2/3	41 34.988	122 57.669	
12/20/04	Mill	Lower	MIL58R	R	1	4	1	0.15	2/3	41 35.012	122 57.666	
12/20/04	Mill	Lower	MIL58R	R	2	2.75	1	0.2	2/3	41 35.012	122 57.666	
12/20/04	Mill	Lower	MIL59R	R	1	2	0.5	0.08	2/3	41 35.029	122 57.668	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/20/04	Mill	Lower	MIL59R	R	0	2	0.75	0.09	2/3	41 35.029	122 57.668	
12/20/04	Mill	Lower	MIL59R	R	1	3.5	1.5	0.18	2/3	41 35.029	122 57.668	
12/20/04	Mill	Lower	MIL60R	R	0	2	2	0.23	2/3	41 35.056	122 57.667	
12/20/04	Mill	Lower	MIL61R	R	1	2.75	1.25	0.2	2/3	41 35.093	122 57.678	
12/20/04	Mill	Lower	MIL61R	F	2	4.5	1.5	0.14	2/3	41 35.093	122 57.678	
12/20/04	Mill	Lower	MIL62R	R	2	4	1.75	0.1	2/3	41 35.110	122 57.677	
12/20/04	Mill	Lower	MIL63R	F	0	3	1.5	0.08	2/3	41 35.144	122 57.665	
12/20/04	Mill	Lower	MIL64R	R	0	2.25	2	0.13	2/3	41 35.169	122 57.660	
12/20/04	Mill	Lower	MIL64R	R	0	2	1	0.09	2/3	41 35.169	122 57.660	
12/20/04	Mill	Lower	MIL64R	R	2	2.5	1.5	0.06	2/3	41 35.169	122 57.660	
12/20/04	Mill	Lower	MIL64R	R	1	2	1	0.15	2/3	41 35.169	122 57.660	
12/20/04	Mill	Lower	MIL64R	R	3	2.5	1.25	0.19	2/3	41 35.169	122 57.660	
12/20/04	Mill	Lower	MIL66R	R	0	3	2	0.11	2/3	41 35.217	122 57.640	
12/20/04	Mill	Lower	MIL66R	F	0	3.25	1.5	0.18	2/3	41 35.217	122 57.640	
12/20/04	Mill	Lower	MIL67R	R	0	2.5	1.25	0.2	2/3	41 35.252	122 57.642	
12/20/04	Mill	Lower	MIL69R	R	1	2.5	1	0.09	2/3	41 35.260	122 57.633	
12/20/04	Mill	Lower	MIL69R	R	2	3	2	0.21	2/3	41 35.260	122 57.633	
12/20/04	Mill	Lower	MIL69R	R	2	4	2	0.2	2/3	41 35.260	122 57.633	
12/20/04	Mill	Lower	MIL69R	R	3	2.75	0.75	0.11	2/3	41 35.260	122 57.633	
12/20/04	Mill	Lower	MIL70R	R	2	-	-	-	2/3	41 35.285	122 57.622	FISH ACTIVE
12/20/04	Mill	Lower	MIL70R	R	2	-	-	-	2/3	41 35.285	122 57.622	FISH ACTIVE
12/20/04	Mill	Lower	MIL70R	R	2	-	-	-	2/3	41 35.285	122 57.622	FISH ACTIVE
12/20/04	Mill	Lower	MIL70R	R	2	-	-	-	2/3	41 35.285	122 57.622	FISH ACTIVE
12/20/04	Mill	Lower	MIL71R	R	2	1.5	0.75	0.15	2/3	41 35.297	122 57.618	
12/20/04	Mill	Lower	MIL71R	R	1	3	1.5	0.1	2/3	41 35.297	122 57.618	
12/20/04	Mill	Lower	MIL71R	R	3	3	2.25	0.18	2/3	41 35.297	122 57.618	
12/20/04	Mill	Lower	MIL73R	R	0	3.25	1.5	0.11	2/3	41 35.321	122 57.632	
12/20/04	Mill	Lower	MIL73R	R	0	2.5	0.75	0.2	2/3	41 35.321	122 57.632	
12/20/04	Mill	Lower	MIL74R	R	1	4	1	0.1	2/3	41 35.327	122 57.643	
12/20/04	Mill	Lower	MIL76R	F	1	3.5	1	0.1	2/3	41 35.338	122 57.642	
12/20/04	Mill	Lower	MIL77R	F	2	3	1.5	0.08	2/3	41 35.365	122 57.659	
12/20/04	Mill	Lower	MIL77R	R	2	2.5	0.75	0.12	2/3	41 35.365	122 57.659	
12/20/04	Mill	Lower	MIL77R	F	2	3.25	2	0.18	2/3	41 35.365	122 57.659	
12/20/04	Mill	Lower	MIL77R	R	0	2.5	1.5	0.09	2/3	41 35.365	122 57.659	
12/20/04	Mill	Lower	MIL77R	F	1	2.5	0.5	0.2	2/3	41 35.365	122 57.659	
12/20/04	Mill	Lower	MIL77R	F	1	1.5	0.5	0.18	2/3	41 35.365	122 57.659	
12/20/04	Mill	Lower	MIL77R	F	1	2.5	0.5	0.15	2/3	41 35.365	122 57.659	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/20/04	Mill	Lower	MIL77R	R	1	3	1.5	0.15	2/3	41 35.365	122 57.659	
12/20/04	Mill	Lower	MIL77R	R	1	3.5	1.5	0.12	2/3	41 35.365	122 57.659	
12/20/04	Mill	Lower	MIL77R	R	0	2.75	0.5	0.19	2/3	41 35.365	122 57.659	
12/20/04	Mill	Lower	MIL77R	R	3	3	2	0.2	2/3	41 35.365	122 57.659	
12/20/04	Mill	Lower	MIL78R	F	1	3	1	0.12	2/3	41 35.395	122 57.685	
12/20/04	Mill	Lower	MIL78R	R	2	2.75	1	0.15	2/3	41 35.395	122 57.685	
12/20/04	Mill	Lower	MIL81R	R	1	2.5	0.75	0.17	2/3	41 35.431	122 57.693	
12/20/04	Mill	Lower	MIL81R	R	0	2.5	1	0.18	2/3	41 35.431	122 57.693	
12/20/04	Mill	Lower	MIL81R	R	0	1.5	0.75	0.11	2/3	41 35.431	122 57.693	
12/20/04	Mill	Lower	MIL81R	R	0	3	1	?	2/3	41 35.431	122 57.693	
12/20/04	Mill	Lower	MIL82R	F	3	3	2	0.17	2/3	41 35.454	122 57.690	
12/20/04	Mill	Lower	MIL82R	F	0	2	0.5	0.21	2/3	41 35.454	122 57.690	
12/20/04	Mill	Lower	MIL82R	R	2	3.5	1	0.19	2/3	41 35.454	122 57.690	
12/20/04	Mill	Lower	MIL83R	F	1	3.5	1	0.18	2/3	41 35.480	122 57.717	
12/20/04	Mill	Lower	MIL83R	R	1	3	1	0.14	2/3	41 35.480	122 57.717	
12/20/04	Mill	Lower	MIL83R	R	2	2	0.5	0.18	2/3	41 35.480	122 57.717	
12/20/04	Mill	Lower	MIL84R	F	3	3.5	2.5	?	2/3	41 35.525	122 57.759	
12/20/04	Mill	Lower	MIL84R	F	3	2.5	1	0.14	2/3	41 35.525	122 57.759	
12/20/04	Mill	Lower	MIL85R	R	2	2.5	1	0.2	2/3	41 35 553	122 57.793	
12/20/04	Mill	Lower	MIL85R	F	2	4	1.25	0.18	2/3	41 35 553	122 57.793	
12/20/04	Mill	Lower	MIL85R	R	2	2.75	1	0.10	2/3	41 35 553	122 57.793	
12/20/04	Mill	Lower	MIL86R	R	2	3.25	1	?	2/3	41 35.586	122 57.835	
12/20/04	Mill	Lower	MIL86R	R	2	3	1.25	0.08	2/3	41 35.586	122 57.835	
12/20/04	Mill	Lower	MIL88R	F	1	3.25	1.5	0.21	2/3	41 35.604	122 57.842	
12/20/04	Mill	Lower	MIL89R	R	2	2.5	1.5	0.22	2/3	41 35.643	122 57.833	
12/20/04	Mill	Lower	MIL89R	R	1	3.25	1.5	0.17	2/3	41 35.643	122 57.833	
12/20/04	Mill	Lower	MIL90R	R	2	3	1.25	0.2	2/3	41 35.673	122 57.821	
12/20/04	Mill	Lower	MIL90R	R	2	2.75	1.5	0.22	2/3	41 35.673	122 57.821	
12/20/04	Mill	Lower	MIL90R	R	0	2.5	1	0.16	2/3	41 35.673	122 57.821	
12/20/04	Mill	Lower	MIL91R	F	2	3.25	2	0.19	2/3	41 35.700	122 57.793	
12/20/04	Mill	Lower	MIL92R	R	2	2.5	1.5	?	2/3	41 35.720	122 57.768	
12/20/04	Mill	Lower	MIL92R	F	0	3	2	?	2/3	41 35.720	122 57.768	
12/20/04	Mill	Lower	MIL92R	F	1	2.5	2.5	0.23	2/3	41 35.720	122 57.768	
12/20/04	Mill	Lower	MIL93R	F	2	2.75	1.5	0.12	2/3	41 35.767	122 57.785	
12/20/04	Mill	Lower	MIL93R	F	2	3	1.5	0.25	2/3	41 35.767	122 57.785	
12/20/04	Mill	Lower	MIL94R	R	2	2.5	0.5	0.26	2/3	41 35.788	122 57.762	
12/20/04	Mill	Lower	MIL95R	R	1	2.5	1.75	0.2	2/3	41 35.837	122 57.711	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/20/04	Mill	Lower	MIL77R	R	2	3	2	0.08	3/2	41 35.365	122 57.659	
12/29/04	Mill	Lower	MIL04R	S/R	1	2.5	1	0.08	2/1	41 35.476	122 57.690	
12/29/04	Mill	Lower	MIL95R	R	3	3.5	1.5	0.14	2/3	41 35.837	122 57.711	
12/29/04	Mill	Lower	MIL99R	R	0	3	1	0.18	2/3	41 34.980	122 57.667	
12/29/04	Mill	Lower	MIL00R	R	0	2.5	1	0.15	2/3	41 34.998	122 57.667	
12/29/04	Mill	Lower	MIL03R	S/R	0	2.5	0.75	0.12	2/3	41 35.356	122 52.673	
12/29/04	Mill	Lower	MIL04R	S/F	0	2	1	0.09	2/3	41 35.476	122 57.690	
12/29/04	Mill	Lower	MIL04R	S/F	0	2	0.5	0.17	2/3	41 35.476	122 57.690	
12/29/04	Mill	Lower	MIL04R	S/R	0	2	0.75	0.12	2/3	41 35.476	122 57.690	
12/29/04	Mill	Lower	MIL01R	F	0	3	1.5	0.05	3/2	41 35.076	122 57.680	
12/29/04	Mill	Lower	MIL02R	R	0	3.5	1.25	0.12	3/2	41 35.140	122 57.664	
12/29/04	Mill	Lower	MIL04R	S/F	2	2	1	0.1	3/2	41 35.476	122 57.690	
12/29/04	Mill	Lower	MIL04R	R	0	3.5	1.25	0.22	3/2	41 35.476	122 57.690	
12/29/04	Mill	Lower	MIL04R	S/R	2	3	1	0.09	3/2	41 35.476	122 57.690	
127					165							
12/21/04	Mill	upper	MIL02R	R	1	3	1	0.23	2/3	41 33.586	122 59.262	
12/21/04	Mill	upper	MIL03R	P	1	2	1.25	0.16	3/2	41 33.542	122 59.412	
12/21/04	Mill	upper	MIL03R	P	2	2.25	1	0.16	3/2	41 33.542	122 59.412	
12/23/04	Mill	upper	MIL71R	P	1	1.5	1.5	0.26	3/2	41 33.487	122 59.595	
12/23/04	Mill	upper	MIL71R	P	0	2.75	1	0.16	3/2	41 33.487	122 59.595	
5					5							
12/15/04	Shacklefo	Lower	SHK02R	R	2	1.5	0.5	32	2/1	41 36.358	122 57.708	
12/15/04	Shacklefo	Lower	SHK04R	R	3	3.5	1.25	49	2/1	41 36.380	122 57.767	
12/15/04	Shacklefo	Lower	SHK13R	S/F	1	3	0.5	51	2/1	41 36.888	122 57.950	
12/15/04	Shacklefo	Lower	SHK14R	S/F	2	2	0.5	43	2/1	41 36.924	122 57.939	
12/15/04	Shacklefo	Lower	SHK15R	R	6	3	1.25	43	2/1	41 37.149	122 57.968	
12/15/04	Shacklefo	Lower	SHK21R	S/F	1	3.5	1	38	2/1	41 37.367	122 57.933	
12/15/04	Shacklefo	Lower	SHK19R	R	4	1.5	0.5	45	2/3	41 37.347	122 57.939	
12/15/04	Shacklefo	Lower	SHK24R	S/F	2	2	0.5	37	2/3	41 37.408	122 57.938	
12/15/04	Shacklefo	Lower	SHK25R	S/F	1	4	1	35	2/3	41 37.417	122 57.939	
12/15/04	Shacklefo	Lower	SHK27R	S/F	2	2.5	0.75	29	2/3	41 37.425	122 57.934	
12/15/04	Shacklefo	Lower	SHK30R	R	1	3.5	1	41	2/3	41 37.433	122 57.931	
12/15/04	Shacklefo	Lower	SHK12R	S/F	2	1.5	0.5	51	3/1	41 36.888	122 57.943	
12/15/04	Shacklefo	Lower	SHK03R	R	2	3	1	43	3/2	41 36.377	122 57.761	
12/15/04	Shacklefo	Lower	SHK05R	R	1	2	1	31	3/2	41 36.393	122 57.878	
12/15/04	Shacklefo	Lower	SHK06R	R	2	2.5	1	36	3/2	41 36.465	122 57.822	
12/15/04	Shacklefo	Lower	SHK07R	R	2	3.25	1.25	34	3/2	41 36.486	122 57.802	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/15/04	Shacklefo	Lower	SHK08R	R	2	4	1.5	42	3/2	41 36.615	122 57.811	
12/15/04	Shacklefo	Lower	SHK09R	R	4	3	1.5	37	3/2	41 36.625	122 57.807	
12/15/04	Shacklefo	Lower	SHK10R	R	2	4.5	1.5	45	3/2	41 36.762	122 57.722	
12/15/04	Shacklefo	Lower	SHK11R	R	2	2	0.75	N/A	3/2	41 36.850	122 57.871	
12/15/04	Shacklefo	Lower	SHK16R	R	2	2	0.5	28	3/2	41 37.201	122 57.972	
12/15/04	Shacklefo	Lower	SHK17R	R	2	1.5	0.75	34	3/2	41 37.302	122 57.940	
12/15/04	Shacklefo	Lower	SHK18R	R	2	3	1.5	35	3/2	41 37.295	122 57.933	
12/15/04	Shacklefo	Lower	SHK20R	R	3	1.5	1	36	3/2	41 37.354	122 57.939	
12/15/04	Shacklefo	Lower	SHK22R	S/F	1	3	0.75	43	3/2	41 37.368	122 57.937	
12/15/04	Shacklefo	Lower	SHK23R	S/F	0	3.5	0.75	35	3/2	41 37.370	122 57.936	
12/15/04	Shacklefo	Lower	SHK26R	S/F	1	2.25	1	28	3/2	41 37.419	122 57.938	
12/15/04	Shacklefo	Lower	SHK28R	S/F	2	4.5	1.5	44	3/2	41 37.428	122 57.931	
12/15/04	Shacklefo	Lower	SHK29R	S/F	1	2.5	0.5	25	3/2	41 37.429	122 57.931	
12/15/04	Shacklefo	Lower	SHK31R	R	2	3.25	1	34	3/2	41 37.632	122 57.875	
12/15/04	Shacklefo	Lower	SHK32R	R	2	2.5	1.5	34	3/2	41 37.646	122 57.869	
12/20/04	Shacklefo	Lower	SHM61R	PT	0	3.5	1.25	0.28	2/1	41 36.544	122 57.796	
12/20/04	Shacklefo	Lower	SHM75R	F	1	2.5	1.25	0.2	2/1	41 37.294	122 57.939	
12/20/04	Shacklefo	Lower	SHM78R	F	0	3	1	0.19	2/1	41 37.343	122 57.910	
12/20/04	Shacklefo	Lower	SHM86R	F	1	2	1	0.1	2/1	41 37.682	122 57.842	
12/20/04	Shacklefo	Lower	SHM51R	R	3	3	1.5	0.2	2/3	41 36.362	122 57.719	
12/20/04	Shacklefo	Lower	SHM54R	S/F	1	3.5	1.25	0.15	2/3	41 36.387	122 57.786	
12/20/04	Shacklefo	Lower	SHM56R	S/R	2	3.75	1.2	0.18	2/3	41 36.386	122 57.801	
12/20/04	Shacklefo	Lower	SHM57R	S/R	1	4	1	0.15	2/3	41 36.388	122 57.807	
12/20/04	Shacklefo	Lower	SHM58R	R	0	2.5	0.75	0.1	2/3	41 36.471	122 57.811	
12/20/04	Shacklefo	Lower	SHM60R	R	0	3	1	0.08	2/3	41 36.492	122 57.806	
12/20/04	Shacklefo	Lower	SHM62R	R	2	3	1.5	0.14	2/3	41 36.590	122 57.802	
12/20/04	Shacklefo	Lower	SHM63R	R	0	3	1	0.15	2/3	41 36.592	122 57.812	
12/20/04	Shacklefo	Lower	SHM65R	R	0	3.5	1.5	0.1	2/3	41 36.613	122 57.806	
12/20/04	Shacklefo	Lower	SHM66R	F	1	3	1	0.21	2/3	41 36.843	122 57.825	
12/20/04	Shacklefo	Lower	SHM67R	R	0	2.5	1	0.15	2/3	41 36.852	122 57.853	
12/20/04	Shacklefo	Lower	SHM68R	F	1	3	1	0.12	2/3	41 36.881	122 57.936	
12/20/04	Shacklefo	Lower	SHM69R	F	1	3.5	1.5	0.17	2/3	41 36.922	122 57.938	
12/20/04	Shacklefo	Lower	SHM70R	F	2	3.5	1.5	0.17	2/3	41 36.924	122 57.947	
12/20/04	Shacklefo	Lower	SHM71R	S/F	0	2.75	1.5	0.09	2/3	41 37.148	122 57.967	
12/20/04	Shacklefo	Lower	SHM72R	S/F	2	2	1.5	0.1	2/3	41 37.212	122 57.986	
12/20/04	Shacklefo	Lower	SHM73R	R	2	3	1.5	0.13	2/3	41 37.230	122 57.975	
12/20/04	Shacklefo	Lower	SHM74R	R	1	3	1.5	0.18	2/3	41 37.264	122 57.965	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/20/04	Shacklefo	Lower	SHM76R	F	1	3	1.75	0.11	2/3	41 37.301	122 57.942	
12/20/04	Shacklefo	Lower	SHM77R	F	1	3.5	1	0.11	2/3	41 37.300	122 57.943	
12/20/04	Shacklefo	Lower	SHM82R	S/F	2	2.5	1.75	0.15	2/3	41 37.416	122 57.935	
12/20/04	Shacklefo	Lower	SHM83R	S/R	1	3	1.25	0.1	2/3	41 37.608	122 57.893	
12/20/04	Shacklefo	Lower	SHM84R	S/R	1	2.5	1.25	0.17	2/3	41 37.648	122 57.862	
12/20/04	Shacklefo	Lower	SHM52R	S/R	0	3	1.25	0.19	3/2	41 36.387	122 57.767	
12/20/04	Shacklefo	Lower	SHM53R	F	1	3.5	1	0.1	3/2	41 36.391	122 57.771	
12/20/04	Shacklefo	Lower	SHM55R	S/F	0	3	1	-	3/2	41 36.387	122 57.790	
12/20/04	Shacklefo	Lower	SHM59R	R	2	3.5	1.75	0.22	3/2	41 36.491	122 57.800	
12/20/04	Shacklefo	Lower	SHM64R	R	1	3	1.25	0.15	3/2	41 36.618	122 57.813	
12/20/04	Shacklefo	Lower	SHM79R	S/R	0	3	1.25	0.18	3/2	41 37.337	122 57.927	
12/20/04	Shacklefo	Lower	SHM81R	S/R	1	2	1.25	0.18	3/2	41 37.405	122 57.939	
12/20/04	Shacklefo	Lower	SHM85R	S/R	1	3	1.25	0.12	3/2	41 37.663	122 57.861	
12/28/04	Shacklefo	Lower	SHK91R	F	0	2.5	1	0.15	2/3	41 36.517	122 57.796	
12/28/04	Shacklefo	Lower	SHK92R	F	0	4	1.25	0.1	2/3	41 36.731	122 57.721	
12/28/04	Shacklefo	Lower	SHK93R	P	1	4.5	2	0.3	2/3	41 36.852	122 57.812	
12/28/04	Shacklefo	Lower	SHK97R	F	0	2.5	1.5	0.22	2/3	41 36.607	122 57.894	
12/28/04	Shacklefo	Lower	SHK94R	F	0	5	1.5	0.15	3/2	41 36.113	122 57.984	
12/28/04	Shacklefo	Lower	SHK95R	F	3	3.5	1	0.15	3/2	41 36.244	122 57.979	
12/28/04	Shacklefo	Lower	SHK95R	F	1	2	1	0.08	3/2	41 36.244	122 57.979	
12/28/04	Shacklefo	Lower	SHK96R	F	0	3	1.5	0.33	3/2	41 36.467	122 57.935	
01/04/05	Shacklefo	Lower	SHM03R	PT	0	3	1.25	0.25	-	41 36.380	122 57.747	
01/04/05	Shacklefo	Lower	SHM04R	S/R	0	2.5	1	0.15	-	41 36.373	122 52.759	
76					100							
12/29/04	Shacklefo	upper	USK01R		0	1.5	0.8	0.2	3	41 35.526	122 59.625	
12/23/04	Mill	MID			72 total Redds							
12/23/04	Mill	Emmigrant			10 total Redds							
Fish Observations - Not associated with Redd												
12/15/04	Shacklefo	Lower	FISH	-	5	N/A	N/A	N/A	N/A	-	-	
12/15/04	Shacklefo	Lower	FISH	-	1	N/A	N/A	N/A	N/A			
12/15/04	Shacklefo	Lower	FISH		1	N/A	N/A	N/A	N/A	-	-	
12/15/04	Shacklefo	Lower	FISH	-	4	N/A	N/A	N/A	N/A	-	-	
12/15/04	Shacklefo	Lower	FISH	-	1	N/A	N/A	N/A	N/A	-	-	
12/15/04	Shacklefo	Lower	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
12/15/04	Shacklefo	Lower	FISH	-	1	N/A	N/A	N/A	N/A	-	-	
12/15/04	Shacklefo	Lower	FISH	-	1	N/A	N/A	N/A	N/A	-	-	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/20/04	Shacklefo	Lower	FISH	-	1	N/A	N/A	N/A	N/A			
12/20/04	Shacklefo	Lower	FISH	-	4	N/A	N/A	N/A	N/A	-	-	
12/20/04	Shacklefo	Lower	FISH	-	4	N/A	N/A	N/A	N/A	-	-	
12/20/04	Shacklefo	Lower	FISH	-	4	N/A	N/A	N/A	N/A	-	-	
12/20/04	Shacklefo	Lower	FISH	-	5	N/A	N/A	N/A	N/A	-	-	
12/20/04	Shacklefo	Lower	FISH	-	6	N/A	N/A	N/A	N/A	-	-	
12/28/04	Shacklefo	Lower	FISH	-	4	N/A	N/A	N/A	N/A	-	-	
12/28/04	Shacklefo	Lower	FISH	-	7	N/A	N/A	N/A	N/A	-	-	
12/28/04	Shacklefo	Lower	FISH	-	2	N/A	N/A	N/A	N/A	-	-	
12/28/04	Shacklefo	Lower	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
12/28/04	Shacklefo	Lower	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
12/28/04	Shacklefo	Lower	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
01/04/05	Shacklefo	Lower	FISH	-	6	N/A	N/A	N/A	N/A	-	-	
01/11/05	Shacklefo	Lower	FISH	-	1	N/A	N/A	N/A	N/A	-	-	
					70							
12/13/04	Mill	Lower	SML07F	R	2	N/A	N/A	N/A	N/A	41 35.004	122 57.666	
12/13/04	Mill	Lower	SMLO8F	R	6	N/A	N/A	N/A	N/A	41 35.085	122 57.677	
12/13/04	Mill	Lower	SML09F	P	3	N/A	N/A	N/A	N/A	41 35.115	122 57.679	
12/13/04	Mill	Lower	SML10F	R	3	N/A	N/A	N/A	N/A	41 35.154	122 57.665	
12/13/04	Mill	Lower	SML12F	R	8	N/A	N/A	N/A	N/A	41 35.246	122 57.649	
12/13/04	Mill	Lower	SML14F	R	5	N/A	N/A	N/A	N/A	41 35.285	122 57.622	
12/13/04	Mill	Lower	SML15F	R	5	N/A	N/A	N/A	N/A	41 35.338	122 57.644	
12/13/04	Mill	Lower	SML18F	P	2	N/A	N/A	N/A	N/A	41 35.432	122 57.683	
12/13/04	Mill	Lower	SML21F	R	3	N/A	N/A	N/A	N/A	41 35.467	122 57.702	
12/13/04	Mill	Lower	SML23F	R	7	N/A	N/A	N/A	N/A	41 35.517	122 57.744	
12/13/04	Mill	Lower	SML27F	P	5	N/A	N/A	N/A	N/A	41 35.683	122 57.848	
12/13/04	Mill	Lower	SML29F	R	5	N/A	N/A	N/A	N/A	41 35.642	122 57.835	
12/13/04	Mill	Lower	SML32F	R	3	N/A	N/A	N/A	N/A	41 35.753	122 57.783	
12/13/04	Mill	Lower	SML34F	P	1	N/A	N/A	N/A	N/A	41 35.855	122 57.706	
12/13/04	Mill	Lower	SML35F	R	1	N/A	N/A	N/A	N/A	41 35.883	122 57.691	
12/13/04	Mill	Lower	SML36F	R	6	N/A	N/A	N/A	N/A	41 35.914	122 57.664	
12/20/04	Mill	Lower	MIL79L	P	25	N/A	N/A	N/A	N/A			
12/29/04	Mill	Lower	fish		2	N/A	N/A	N/A	N/A			
12/29/04	Mill	Lower	fish		6	N/A	N/A	N/A	N/A			
12/29/04	Mill	Lower	fish		6	N/A	N/A	N/A	N/A			
01/12/05	Mill	Lower	-	-	4	N/A	N/A	N/A	N/A	-	-	
					108							

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
Non Mark and Recapture Reaches												
12/13/04	Canyon		CAN03F	P	4	N/A	N/A	N/A	N/A	-	-	
12/13/04	Canyon		CAN04F	R	3	N/A	N/A	N/A	N/A	-	-	
2												
01/06/05	Canyon		CAN09R	R	0	1.8	0.8	0.2	3/2	41.62	123.11	
01/06/05	Canyon		CAN10R	P/R	0	2.4	1.8	0.25	2	41.62	123.11	
12/16/04	E. Fork	Newton	-	-	1	-	-	-	-	-	-	
12/16/04	E. Fork	Newton	-	-	3	-	-	-	-	-	-	
12/19/04	E. Fork	Newton	EFK07F	P	1	N/A	N/A	N/A	N/A	41 22.850	122 40.876	
12/19/04	E. Fork	Newton	EFK08R	R	0	2	1.2	0.2	2	41 21.825	122 42.927	
					5							
12/14/04	East Fork	Lower	EFK002R	R	0	2.3	1.15	0.3	4	41.33017	122.72036	
12/14/04	East Fork	Lower	EFK03R	R	0	1.2	1.1	0.1	4	41.33028	122.72044	
12/14/04	East Fork	Lower	EFK04R	R	2	1.25	1.2	0.3	4	41.33056	122.72041	
12/14/04	East Fork	Lower	EFK05R	R	1	1.2	1.2	0.25	4	41.33067	122.72029	
12/14/04	East Fork	Lower	EFK07R	R	0	2	0.75	0.1	4/5	41.33135	122.72092	
12/14/04	East Fork	Lower	EFK08R	R	0	1.8	1	0.15	4	41.33004	122.72083	
12/14/04	East Fork	Lower	EFK09R	R	0	2.5	1.5	0.15	2/3	41.32932	122.72095	
12/14/04	East Fork	Lower	EFK10F	R	2	-	-	-	-	41.32533	122.72227	
12/14/04	East Fork	Lower	EFK11R	R	0	3	1	0.15	4/5	41.3202	122.72332	
12/20/04	East Fork	Lower	REDD	R	2	-	-	-	-	NO GPS	NO GPS	FISH ON REDD
12/20/04	East Fork	Lower	REDD	R	2	-	-	-	-	NO GPS	NO GPS	FISH ON REDD
12/20/04	East Fork	Lower	REDD	R	2	-	-	-	-	NO GPS	NO GPS	FISH ON REDD
12/20/04	East Fork	Lower	REDD	R	2	-	-	-	-	NO GPS	NO GPS	FISH ON REDD
12/20/04	East Fork	Lower	REDD	R	2	-	-	-	-	NO GPS	NO GPS	FISH ON REDD
12/20/04	East Fork	Lower	FISH	P	2	-	-	-	-	NO GPS	NO GPS	
12/20/04	East Fork	Lower	FISH		2	-	-	-	-	NO GPS	NO GPS	FISH ON PREVIOUSLY FLAGGED REDD
12/20/04	East Fork	Lower	REDD	S/R	2	-	-	-	-	NO GPS	NO GPS	
12/20/04	East Fork	Lower	FISH		1	-	-	-	-	NO GPS	NO GPS	
12/20/04	East Fork	Lower	REDD		1	-	-	-	-	NO GPS	NO GPS	
12/20/04	East Fork	Lower	REDD		2	-	-	-	-	NO GPS	NO GPS	
12/20/04	East Fork	Lower	REDD	S/R	2	-	-	-	-	NO GPS	NO GPS	
12/20/04	East Fork	Lower	REDD	S/R	0	-	-	-	-	NO GPS	NO GPS	CONTINUOUS WITH ABOVE REDD
12/20/04	East Fork	Lower	REDD	S/R	8	-	-	-	-	NO GPS	NO GPS	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/20/04	East Fork	Lower	FISH	P	4	-	-	-	-	NO GPS	NO GPS	
12/20/04	East Fork	Lower	FISH	P	1	-	-	-	-	NO GPS	NO GPS	
12/20/04	East Fork	Lower	REDD	R	0	3	1.3	0.2	3	NO GPS	NO GPS	
12/20/04	East Fork	Lower	FISH	R	1	-	-	-	-	NO GPS	NO GPS	
12/20/04	East Fork	Lower	FISH	P	1	-	-	-	-	NO GPS	NO GPS	
12/20/04	East Fork	Lower	REDD	R	1	6	1.5	0.18	3/4	NO GPS	NO GPS	
12/20/04	East Fork	Lower	REDD	-	0	-	-	-	-	NO GPS	NO GPS	
12/20/04	East Fork	Lower	REDD	-	2	-	-	-	-	NO GPS	NO GPS	
10					45							
01/07/05	Kangaroo	Lower	KAN02R	F	0	1.75	1	0.23	2/3	41 20.403	122 42.166	
01/07/05	Kangaroo	Lower	KAN02R	F	0	1.25	0.5	0.1	2/3	41 20.403	122 42.166	
01/07/05	Kangaroo	Lower	KAN03R	F	0	1.75	0.75	0.09	2/3	41 20.381	122 42.245	
01/07/05	Kangaroo	Lower	KAN04R	P	0	3	2	0.3	2/3	41 20.366	122 42.269	LARGE REDD, POSSIBLE MORE THAN ONE
01/07/05	Kangaroo	Lower	KAN05R	P	0	2.75	2	0.18	2/3	41 20.366	122042.29	LARGE REDD, POSSIBLE MORE THAN ONE
01/07/05	Kangaroo	Lower	KAN06R	R	0	2.25	2	0.1	2/3	41 20.372	122 42.307	
01/07/05	Kangaroo	Lower	KAN06R	F	0	2.75	1.75	0.11	2/3	41 20.372	122 42.307	
01/07/05	Kangaroo	Lower	KAN06R	R	0	3.5	1.5	0.1	2/3	41 20.372	122 42.307	
01/07/05	Kangaroo	Lower	KAN07R	P	0	2	1.25	0.17	2/3	41 20.360	122 42.337	
01/07/05	Kangaroo	Lower	KAN08R	F	0	2.5	1.25	0.16	2/3	41 20.328	122 42.414	
01/07/05	Kangaroo	Lower	KAN09R	R	0	3.25	1.25	0.09	2/3	41 20.310	122 42.450	POSSIBLEY 1+
01/07/05	Kangaroo	Lower	KAN10R	P	0	1.25	1	0.13	2/3	41 20.282	122 42.598	
01/07/05	Kangaroo	Lower	KAN11R	R	0	2	1	0.12	2/1	41 20.260	122 42.635	
01/07/05	Kangaroo	Lower	KAN12R	P	0	2.75	2		2/3	41 20.260	122 42.635	POSSIBLEY 1+
01/07/05	Kangaroo	Lower	KAN13R	R	0	3.25	1.25	0.13	2/3	41 20.248	122 42.760	1+ REDD
01/07/05	Kangaroo	Lower	KAN14R	F	0	2.25	1	0.09	2/3	41 20.235	122 42.764	
01/07/05	Kangaroo	Lower	KAN14R	F	0	3.5	1.25	0.12	2/3	41 20.235	122 42.764	
01/07/05	Kangaroo	Lower	KAN15R	F	0	1.75	1	0.17	2/3	41 20.201	122 42.844	
01/07/05	Kangaroo	Lower	KAN16R	F	0	3.25	2	0.19	2/3	41 20.181	122 42.931	POSSIBLEY 1+
01/07/05	Kangaroo	Lower	KAN17R	R	0	2.25	1	?	2/3	41 20.175	122 42.936	
01/07/05	Kangaroo	Lower	KAN18C	P	0	2	1.25	?	2/3	41 20.167	122 42.956	
01/07/05	Kangaroo	Lower	KAN19R	F	0	4	2.25	0.16	2/3	41 20.137	122 43.055	
22												

12/15/04	Patterson	Lower	PAT05R		23				1/2	41 31.053	122 51.797	
12/15/04	Patterson	Lower	PAT05R						1/2	41 31.053	122 51.797	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/15/04	Patterson	Lower	PAT05R						1/2	41 31.053	122 51.797	
12/15/04	Patterson	Lower	PAT05R						1/2	41 31.053	122 51.797	
12/15/04	Patterson	Lower	PAT05R						1/2	41 31.053	122 51.797	
12/15/04	Patterson	Lower	PAT05R						1/2	41 31.053	122 51.797	
12/15/04	Patterson	Lower	PAT05R						1/2	41 31.053	122 51.797	
12/15/04	Patterson	Lower	PAT05R						1/2	41 31.053	122 51.797	
12/15/04	Patterson	Lower	PAT05R						1/2	41 31.053	122 51.797	
12/15/04	Patterson	Lower	PAT05R						1/2	41 31.053	122 51.797	
12/15/04	Patterson	Lower	PAT05R						1/2	41 31.053	122 51.797	
12/15/04	Patterson	Lower	PAT05R						1/2	41 31.053	122 51.797	
12/15/04	Patterson	Lower	PAT05R						1/2	41 31.053	122 51.797	
12/15/04	Patterson	Lower	PATFNC		31				2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATFNC						2	41 30.718	122 51.559	
12/15/04	Patterson	Lower	PATML2		73				2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	2 jacks
12/15/04	Patterson	Lower	PATML2						2/3	41 30.897	122 52.251	
12/15/04	Patterson	Lower	PAT05R	R	2	2.2	1.4	0.2	1/2			Lowest Redd on Survey
12/24/04	Patterson	Lower	PAT10R	R	1				1/2	41 31.051	122 51.799	3 REDDS
12/24/04	Patterson	Lower	PAT10R	R					1/2	41 31.051	122 51.799	
12/24/04	Patterson	Lower	PAT10R	R					1/2	41 31.051	122 51.799	
12/24/04	Patterson	Lower	PAT11R	R	2				1/2	41 31.018	122 51.807	
12/24/04	Patterson	Lower	PAT11R	R					1/2	41 31.018	122 51.807	
12/24/04	Patterson	Lower	PAT11R	R					1/2	41 31.018	122 51.807	
12/24/04	Patterson	Lower	PAT11R	R					1/2	41 31.018	122 51.807	
12/24/04	Patterson	Lower	PAT11R	R					1/2	41 31.018	122 51.807	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/24/04	Patterson	Lower	PAT12R	F	1				2	41 30.989	122 51.826	
12/24/04	Patterson	Lower	PAT12R	F					2	41 30.989	122 51.826	
12/24/04	Patterson	Lower	PAT12R	F					2	41 30.989	122 51.826	
12/24/04	Patterson	Lower	PAT13R	F	2				2	41 30.975	122 51.871	
12/24/04	Patterson	Lower	PAT13R	F					2	41 30.975	122 51.871	
12/24/04	Patterson	Lower	PAT13R	F					2	41 30.975	122 51.871	
12/24/04	Patterson	Lower	PAT14C	R	2					41 30.968	122 51.894	
12/24/04	Patterson	Lower	PAT14C	R						41 30.968	122 51.894	
12/24/04	Patterson	Lower	PAT14C	R						41 30.968	122 51.894	
12/24/04	Patterson	Lower	PAT15R	R	1				1/2	41 30.969	122 51.893	
12/24/04	Patterson	Lower	PAT15R	R					1/2	41 30.969	122 51.893	
12/24/04	Patterson	Lower	PAT15R	R					1/2	41 30.969	122 51.893	
12/24/04	Patterson	Lower	PAT15R	R					1/2	41 30.969	122 51.893	
12/24/04	Patterson	Lower	PAT15R	R					1/2	41 30.969	122 51.893	
12/24/04	Patterson	Lower	PAT15R	R					1/2	41 30.969	122 51.893	
12/24/04	Patterson	Lower	PAT15R	R					1/2	41 30.969	122 51.893	
12/24/04	Patterson	Lower	PAT15R	R					1/2	41 30.969	122 51.893	
12/24/04	Patterson	Lower	PAT16R	R					2	41 30.962	122 51.822	
12/24/04	Patterson	Lower	PAT16R	R					2	41 30.962	122 51.822	
12/24/04	Patterson	Lower	PAT16R	R					2	41 30.962	122 51.822	
12/24/04	Patterson	Lower	PAT20R	F	3				2	41 30.961	122 51.933	
12/24/04	Patterson	Lower	PAT20R	F					2	41 30.961	122 51.933	
12/24/04	Patterson	Lower	PAT20R	F					2	41 30.961	122 51.933	
12/24/04	Patterson	Lower	PAT20R	F					2	41 30.961	122 51.933	
12/24/04	Patterson	Lower	PAT20R	F					2	41 30.961	122 51.933	
12/24/04	Patterson	Lower	PAT20R	F					2	41 30.961	122 51.933	
12/24/04	Patterson	Lower	PAT21R	R	2				2	41 30.951	122 51.999	
12/24/04	Patterson	Lower	PAT21R	R					2	41 30.951	122 51.999	
12/24/04	Patterson	Lower	PAT21R	R					2	41 30.951	122 51.999	
12/24/04	Patterson	Lower	PAT21R	R					2	41 30.951	122 51.999	
12/24/04	Patterson	Lower	PAT21R	R					2	41 30.951	122 51.999	
12/24/04	Patterson	Lower	PAT21R	R					2	41 30.951	122 51.999	
12/24/04	Patterson	Lower	PAT22R	R	3				2	41 30.946	122 52.037	
12/24/04	Patterson	Lower	PAT22R	R					2	41 30.946	122 52.037	
12/24/04	Patterson	Lower	PAT22R	R					2	41 30.946	122 52.037	
12/24/04	Patterson	Lower	PAT22R	R					2	41 30.946	122 52.037	
12/24/04	Patterson	Lower	PAT22R	R					2	41 30.946	122 52.037	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/24/04	Patterson	Lower	PAT22R	R					2	41 30.946	122 52.037	
12/24/04	Patterson	Lower	PAT22R	R					2	41 30.946	122 52.037	
12/24/04	Patterson	Lower	PAT22R	R					2	41 30.946	122 52.037	
12/24/04	Patterson	Lower	PAT23R	R					2	41 30.933	122 52.095	
12/24/04	Patterson	Lower	PAT23R	R					2	41 30.933	122 52.095	
12/24/04	Patterson	Lower	PAT23R	R					2	41 30.933	122 52.095	
12/24/04	Patterson	Lower	PAT23R	R					2	41 30.933	122 52.095	
12/24/04	Patterson	Lower	PAT24R	R	1				2	41 30.914	122 52.172	
12/24/04	Patterson	Lower	PAT24R	R					2	41 30.914	122 52.172	
12/24/04	Patterson	Lower	PAT24R	R					2	41 30.914	122 52.172	
12/24/04	Patterson	Lower	PAT34R	R					2	41 30.914	122 52.172	
12/24/04	Patterson	Lower	PAT25R	R	1				2	41 30.903	122 52.230	
12/24/04	Patterson	Lower	PAT25R	R					2	41 30.903	122 52.230	
12/24/04	Patterson	Lower	PAT25R	R					2	41 30.903	122 52.230	
12/24/04	Patterson	Lower	PAT26R	F	6				2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT26R	F					2	41 30.879	122 52.340	
12/24/04	Patterson	Lower	PAT27R	R	2				2/3	41 30.877	122 52.353	
12/24/04	Patterson	Lower	PAT27R	R					2/3	41 30.877	122 52.353	
12/24/04	Patterson	Lower	PAT27R	R					2/3	41 30.877	122 52.353	
12/24/04	Patterson	Lower	PAT27R	R					2/3	41 30.877	122 52.353	
12/24/04	Patterson	Lower	PAT28R	R	4				2/3	41 30.868	122 52.410	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/24/04	Patterson	Lower	PAT28R	R					2/3	41 30.868	122 52.410	
12/24/04	Patterson	Lower	PAT28R	R					2/3	41 30.868	122 52.410	
12/24/04	Patterson	Lower	PAT28R	R					2/3	41 30.868	122 52.410	
12/24/04	Patterson	Lower	PAT28R	R					2/3	41 30.868	122 52.410	
12/24/04	Patterson	Lower	PAT28R	R					2/3	41 30.868	122 52.410	
12/24/04	Patterson	Lower	PAT29R	R	6				2/3	41 30.853	122 52.505	
12/24/04	Patterson	Lower	PAT29R	R					2/3	41 30.853	122 52.505	
12/24/04	Patterson	Lower	PAT29R	R					2/3	41 30.853	122 52.505	
12/24/04	Patterson	Lower	PAT29R	R					2/3	41 30.853	122 52.505	
12/24/04	Patterson	Lower	PAT29R	R					2/3	41 30.853	122 52.505	
12/24/04	Patterson	Lower	PAT29R	R					2/3	41 30.853	122 52.505	
12/24/04	Patterson	Lower	PAT29R	R					2/3	41 30.853	122 52.505	
12/24/04	Patterson	Lower	PAT29R	R					2/3	41 30.853	122 52.505	
12/24/04	Patterson	Lower	PAT29R	R					2/3	41 30.853	122 52.505	
12/24/04	Patterson	Lower	PAT29R	R					2/3	41 30.853	122 52.505	
12/24/04	Patterson	Lower	PAT30R	R	4				2/3	41 30.835	122 52.640	
12/24/04	Patterson	Lower	PAT30R	R					2/3	41 30.835	122 52.640	
12/24/04	Patterson	Lower	PAT30R	R					2/3	41 30.835	122 52.640	
12/24/04	Patterson	Lower	PAT30R	R					2/3	41 30.835	122 52.640	
12/24/04	Patterson	Lower	PAT30R	R					2/3	41 30.835	122 52.640	
12/24/04	Patterson	Lower	PAT30R	R					2/3	41 30.835	122 52.640	
12/24/04	Patterson	Lower	PAT30R	R					2/3	41 30.835	122 52.640	
12/24/04	Patterson	Lower	PAT30R	R					2/3	41 30.835	122 52.640	
12/24/04	Patterson	Lower	PAT30R	R					2/3	41 30.835	122 52.640	
12/24/04	Patterson	Lower	PAT30R	R					2/3	41 30.835	122 52.640	
12/24/04	Patterson	Lower	PAT30R	R					2/3	41 30.835	122 52.640	
12/24/04	Patterson	Lower	PAT31R	R	4				3	41 30.800	122 52.770	
12/24/04	Patterson	Lower	PAT31R	R					3	41 30.800	122 52.770	
12/24/04	Patterson	Lower	PAT31R	R					3	41 30.800	122 52.770	
12/24/04	Patterson	Lower	PAT31R	R					3	41 30.800	122 52.770	
12/24/04	Patterson	Lower	PAT31R	R					3	41 30.800	122 52.770	
12/24/04	Patterson	Lower	PAT32F	P	23					41 30.785	122 52.803	
01/04/05	Patterson	Lower	PAT40R	R		1.75	1	0.2	3	41 30.467	122 53.537	
01/04/05	Patterson	Lower	PAT40R	R		-	-	-	-	41 30.467	122 53.537	
01/04/05	Patterson	Lower	PAT40R	R		-	-	-	-	41 30.467	122 53.537	
01/04/05	Patterson	Lower	PAT40R	R		-	-	-	-	41 30.467	122 53.537	
01/04/05	Patterson	Lower	PAT41R	R	2	1.5	1	0.2	3	41 30.469	122 53.509	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
01/04/05	Patterson	Lower	PAT41R	R		-	-	-	-	41 30.469	122 53.509	
01/04/05	Patterson	Lower	PAT42R	F		1.5	1	0.2	3	41 30.461	122 53.486	
01/04/05	Patterson	Lower	PAT42R	F		-	-	-	-	41 30.461	122 53.486	
01/04/05	Patterson	Lower	PAT43R	F		1.5	1	0.2	2/3	41 30.472	122 53.448	
01/04/05	Patterson	Lower	PAT43R	F		-	-	-	-	41 30.472	122 53.448	
01/04/05	Patterson	Lower	PAT43R	F		-	-	-	-	41 30.472	122 53.448	
01/04/05	Patterson	Lower	PAT43R	F		-	-	-	-	41 30.472	122 53.448	
01/04/05	Patterson	Lower	PAT44R	R		1.5	0.75	0.2	3	41 30.485	122 53.406	SPLIT CHANNEL
01/04/05	Patterson	Lower	PAT44R	R		-	-	-	-	41 30.485	122 53.406	SPLIT CHANNEL
01/04/05	Patterson	Lower	PAT44R	R		-	-	-	-	41 30.485	122 53.406	SPLIT CHANNEL
01/04/05	Patterson	Lower	PAT44R	R		-	-	-	-	41 30.485	122 53.406	SPLIT CHANNEL
01/04/05	Patterson	Lower	PAT44R	R		-	-	-	-	41 30.485	122 53.406	SPLIT CHANNEL
01/04/05	Patterson	Lower	PAT44R	R		-	-	-	-	41 30.485	122 53.406	SPLIT CHANNEL
01/04/05	Patterson	Lower	PAT44R	R		-	-	-	-	41 30.485	122 53.406	SPLIT CHANNEL
01/04/05	Patterson	Lower	PAT44R	R		-	-	-	-	41 30.485	122 53.406	SPLIT CHANNEL
01/04/05	Patterson	Lower	PAT44R	R		-	-	-	-	41 30.485	122 53.406	SPLIT CHANNEL
01/04/05	Patterson	Lower	PAT46R	R		2	1	0.25	2/3	41 30.472	122 53.359	
01/04/05	Patterson	Lower	PAT46R	R		-	-	-	-	41 30.472	122 53.359	
01/04/05	Patterson	Lower	PAT46R	R		-	-	-	-	41 30.472	122 53.359	
01/04/05	Patterson	Lower	PAT46R	R		-	-	-	-	41 30.472	122 53.359	
01/04/05	Patterson	Lower	PAT47R	R		2	1	0.2	3	41 30.468	122 53.347	
01/04/05	Patterson	Lower	PAT47R	R		-	-	-	-	41 30.468	122 53.347	
01/04/05	Patterson	Lower	PAT47R	R		-	-	-	-	41 30.468	122 53.347	
01/04/05	Patterson	Lower	PAT47R	R		-	-	-	-	41 30.468	122 53.347	
01/04/05	Patterson	Lower	PAT47R	R		-	-	-	-	41 30.468	122 53.347	
01/04/05	Patterson	Lower	PAT48R	R		2	1	0.2	3	41 30.467	122 53.326	
01/04/05	Patterson	Lower	PAT48R	R		-	-	-	-	41 30.467	122 53.326	
01/04/05	Patterson	Lower	PAT48R	R		-	-	-	-	41 30.467	122 53.326	
01/04/05	Patterson	Lower	PAT48R	R		-	-	-	-	41 30.467	122 53.326	
01/04/05	Patterson	Lower	PAT48R	R		-	-	-	-	41 30.467	122 53.326	
01/04/05	Patterson	Lower	PAT48R	R		-	-	-	-	41 30.467	122 53.326	
01/04/05	Patterson	Lower	PAT48R	R		-	-	-	-	41 30.467	122 53.326	
01/04/05	Patterson	Lower	PAT48R	R		-	-	-	-	41 30.467	122 53.326	
01/04/05	Patterson	Lower	PAT49R	R		2	1	0.2	3	41 30.477	122 53.305	
01/04/05	Patterson	Lower	PAT49R	R		-	-	-	-	41 30.477	122 53.305	
01/04/05	Patterson	Lower	PAT49R	R		-	-	-	-	41 30.477	122 53.305	
01/04/05	Patterson	Lower	PAT49R	R		-	-	-	-	41 30.477	122 53.305	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
01/04/05	Patterson	Lower	PAT49R	R		-	-	-	-	41 30.477	122 53.305	
01/04/05	Patterson	Lower	PAT49R	R		-	-	-	-	41 30.477	122 53.305	
01/04/05	Patterson	Lower	PAT52R	R		1.75	1	0.2		41 30.479	122 53.288	
01/04/05	Patterson	Lower	PAT52R	R		-	-	-	-	41 30.479	122 53.288	
01/04/05	Patterson	Lower	PAT52R	R		-	-	-	-	41 30.479	122 53.288	
01/04/05	Patterson	Lower	PAT52R	R		-	-	-	-	41 30.479	122 53.288	
01/04/05	Patterson	Lower	PAT53R	R		1.5	1	0.2	3	41 30.494	122 53.267	
01/04/05	Patterson	Lower	PAT53R	R		-	-	-	-	41 30.494	122 53.267	
01/04/05	Patterson	Lower	PAT53R	R		-	-	-	-	41 30.494	122 53.267	SOME LARGE REDDS APPEARI
233					199							
12/15/04	Patterson	Middle	PAT50F	R	3	N/A	N/A	N/A	N/A	41.50931	122.93318	
12/15/04	Patterson	Middle	PAT51F	R	2	N/A	N/A	N/A	N/A	41.50748	122.93002	
12/15/04	Patterson	Middle	PAT53F	R	1	N/A	N/A	N/A	N/A	41.50234	122.91903	
12/15/04	Patterson	Middle	PAT54R	R	0	3	1.2	0.25	3	41.50218	122.9183	
12/15/04	Patterson	Middle	PAT55F	P	4	N/A	N/A	N/A	N/A	41.50224	122.91766	
12/15/04	Patterson	Middle	PAT56R	R	1	2	1.2	0.15	3	41.5025	122.91229	
12/22/04	Patterson	Middle	FISH		1	N/A	N/A	N/A	N/A	-	-	
12/22/04	Patterson	Middle	PAT61R	R	1	1.5	0.75	0.14	3/2	41 30.531	122 55.899	
12/22/04	Patterson	Middle	PAT61R	R	1	3	1	0.21	3/2	41 30.531	122 55.899	
12/22/04	Patterson	Middle	PAT62R	R	0	2.25	0.75	0.13	3/2	41 30.391	122 55.772	
12/22/04	Patterson	Middle	PAT63R	R	1	2.75	1	0.26	3/2	41 30.175	122 55.248	
12/22/04	Patterson	Middle	PAT63R	R	0	1.25	0.75	0.06	3/2	41 30.175	122 55.248	
12/22/04	Patterson	Middle	PAT64R	R	1	3	1	0.09	3/2	41 30.144	122 55.208	
12/22/04	Patterson	Middle	PAT65R	R	2	2	1	0.03	3/2	41 30.135	122 55.136	
12/22/04	Patterson	Middle	PAT65R	R	1	2	1.25	0.17	3/2	41 30.135	122 55.136	
12/22/04	Patterson	Middle	FISH	P	1	N/A	N/A	N/A	N/A	-	-	
12/22/04	Patterson	Middle	PAT66R	R	1	2	0.75	0.13	2/3	41 30.138	122 55.065	
12/22/04	Patterson	Middle	PAT67R	R	0	2	1	0.1	3/2	41 30.166	122 55.019	
12/22/04	Patterson	Middle	FISH	F	1	N/A	N/A	N/A	N/A	-	-	
12/22/04	Patterson	Middle	PAT68R	F	1	3	0.75	0.15	3/2	41 30.157	122 54.882	
12/22/04	Patterson	Middle	FISH	R	3	N/A	N/A	N/A	N/A	-	-	
12/22/04	Patterson	Middle	PAT69R	R	1	1.75	0.75	0.16	2/3	41 30.151	122 54.733	
12/10/04	Patterson	Middle	PAT02F	S/R	1	N/A	N/A	N/A	N/A	41 30.286	122 55.546	
01/04/05	Patterson	Middle	PAT73R	R	0	3	1	0.09	2/3	41 30.384	122 55.721	
01/04/05	Patterson	Middle	PAT74R	F	1	2	0.5	0.12	2/3	41 30.322	122 55.692	
01/04/05	Patterson	Middle	PAT75R	R	0	2.5	0.5	0.14	2/3	41 30.135	122 55.197	
01/04/05	Patterson	Middle	PAT76R	F	1	5	0.75	0.15	2/3	41 30.137	122 55.141	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
01/04/05	Patterson	Middle	PAT77R	F	0	2.5	0.5	0.25	2/3	41 30.156	122 55.049	
01/04/05	Patterson	Middle	FISH	R	1	N/A	N/A	N/A	N/A	-	-	
01/04/05	Patterson	Middle	FISH	R	1	N/A	N/A	N/A	N/A	-	-	
19					29							
12/27/04	Patterson	Upper	UPC20R	R	0	2	1	0.2	2/3	41 30.693	122 56.592	
12/27/04	Patterson	Upper	UPC21F	P	1					41 30.684	122 56.592	
12/27/04	Patterson	Upper	UPC23R	F	1	1.5	0.8	0.25	2/3	41 30.703	122 56.573	Female on redd
12/27/04	Patterson	Upper	UPC26R	R	0	1.5	1	0.2	2/3	41 30.672	122 56.469	
12/27/04	Patterson	Upper	UPC27F	P	2					41 30.677	122 56.435	
12/27/04	Patterson	Upper	UPC28R	F	0	1.5	0.8	0.25	2/3	41 30.699	122 56.448	
12/27/04	Patterson	Upper	UPC29R	F	0	1.75	1	0.25	2/3	41 30.615	122 56.381	
12/27/04	Patterson	Upper	UPC30R	R	0	1.75	1	0.2	2/3	41 30.632	122 56.270	
6					4							
12/17/04	S. Fork	Upper	SFK10F	P	1	N/A	N/A	N/A	N/A	-	-	
12/17/04	S. Fork	Upper	SFK11F	P	1	0.9	0.45		4	41.28	122.85	
12/17/04	S. Fork	Upper	SFK12F	P	2	N/A	N/A	N/A	N/A	-	-	
12/17/04	S. Fork	Upper	SFK13F	P	2	N/A	N/A	N/A	N/A	-	-	
12/17/04	S. Fork	Upper	SFK14F	P	1	.8	0.24		5	41.28	122.85	
12/17/04	S. Fork	Upper	SFK15F	R	1	N/A	N/A	N/A	N/A	-	-	
12/17/04	S. Fork	Upper	SFK16F	P	3	N/A	N/A	N/A	N/A	-	-	
12/17/04	S. Fork	Upper	SFK17F	P	6	N/A	N/A	N/A	N/A	-	-	
12/17/04	S. Fork	Upper	SFK18F	P	1	N/A	N/A	N/A	N/A	-	-	
12/23/04	S. Fork	Upper	SFK23R	R	1	N/A	N/A	N/A	N/A	41.279	122.854	
12/23/04	S. Fork	Upper	SFK24R	S/R	1	2.5	1.5	0.25	2	41.28	122.854	
12/23/04	S. Fork	Upper	SFK25R	S/R	1	2.5	1.5	0.2	3	41.28	122.853	
12/23/04	S. Fork	Upper	SFK26R	R	1	2	1	0.2	2	41.28	122.853	
12/23/04	S. Fork	Upper	SFK26R	R	0	1.5	1	0.2	2	41.28	122.853	
12/23/04	S. Fork	Upper	SFK27L	R	1	N/A	N/A	N/A	N/A	41.278	122.853	
12/23/04	S. Fork	Upper	SFK28R	PT	3	1	1	0.3	2	41.281	122.852	
12/23/04	S. Fork	Upper	SFK29R	R	2	12	1.5	0.2	3	41.284	122.848	
12/23/04	S. Fork	Upper	SFK30L	P	3	N/A	N/A	N/A	N/A	41.284	122.848	
12/23/04	S. Fork	Upper	SFK31R	R	1	1.5	0.75	0.3	2	41.285	122.847	
12/23/04	S. Fork	Upper	SFK32R	F	1	1.5	1.5	0.5	2	41.287	122.844	IN DITCH INLET
12/23/04	S. Fork	Upper	SFK33R	S/R	1	2	0.75	0.15	2	41.288	122.844	
12/23/04	S. Fork	Upper	SFK34R	R	0	2	1.1	0.4	4/5	41.29	122.834	
01/03/05	S. Fork	Upper	FISH	P	5	N/A	N/A	N/A	N/A	-	-	
01/03/05	S. Fork	Upper	SFK37R	S/R	0	2	1		2/3	41 16.888	122 51.084	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
01/03/05	S. Fork	Upper	SFK37R	S/R	0	1.75	1		2/3	41 16.888	122 51.084	
01/03/05	S. Fork	Upper	FISH	R	3	N/A	N/A	N/A	N/A	-	-	
01/03/05	S. Fork	Upper	FISH	R	2	N/A	N/A	N/A	N/A	-	-	
01/03/05	S. Fork	Upper	SFK43R	S/R	4	N/A	N/A	N/A	N/A	-	-	2 UNFLAGGED REDDS
01/03/05	S. Fork	Upper	SFK45R	F	0	2	1	0.1	2/3	41 17.591	122 49.726	
14					48							
11/29/04	Scott	Tailings	TAI01R	S/PT	1	4.2	2.8	0.14	2/3	41 19.741	122 48.759	
11/29/04	Scott	Tailings	TAI02R	S/F	2	5.5	2	0.21	2/3	41 19.752	122 48.755	
11/29/04	Scott	Tailings	TAI03R	S/R	2	3	1.5	0.2	2/3	41 19.769	122 48.740	
11/29/04	Scott	Tailings	TAI04R	F/TAIL	1	3	1.5	0.17	2/3	41 19.828	122 48.765	
11/29/04	Scott	Tailings	TAI05R	F/TAIL	1	4	1.5	0.13	2/1	41 19.847	122 48.70	
11/29/04	Scott	Tailings	TAI06R	F	0	2.5	1.5	0.16	2/3	41 19.862	122 48.792	
11/29/04	Scott	Tailings	TAI07R	F/TAIL	0	4	2	0.12	2/3	41 19.874	122 48.799	
11/29/04	Scott	Tailings	TAI08R	R	1	4.75	1.5	0.08	2/3	41 19.886	122 48.801	
11/29/04	Scott	Tailings	TAI01F	P	1	N/A	N/A	N/A	N/A	41 20.228	122 49.092	
11/29/04	Scott	Tailings	TAI02F	S/R	1	N/A	N/A	N/A	N/A	41 20.637	122 49.493	Ditch Inlet
11/29/04	Scott	Tailings	TAI09R	S/R	1	6.5	2	0.15	2/3	41 20.673	122 49.490	Ditch Inlet
11/29/04	Scott	Tailings	TAI10R	S/R	1	5	1.5	0.2	2/3	41 20.681	122 49.482	Ditch Inlet
11/29/04	Scott	Tailings	TAI11R	R	0	2.5	1.25	0.18	2/3	41 21.663	122 49.351	
11/29/04	Scott	Tailings	TAI03F	F	1	N/A	N/A	N/A	N/A	41 21.693	122 49.362	
11/29/04	Scott	Tailings	TAI12R	F/TAIL	0	3.5	2	0.16	26	41 21.739	122 49.421	
12/06/04	Scott	Tailings	TAI31F	P	1	N/A	N/A	N/A	N/A	41 19.740	122 48.768	
12/06/04	Scott	Tailings	TAI32R	F	0	N/A	N/A	N/A	N/A	41 19.751	122 48.754	superimposed(TAI02R?)
12/06/04	Scott	Tailings	TAI35R	F	0	3.5	1.5	0.11	1/2	41 19.790	122 48.754	
12/06/04	Scott	Tailings	TAI36F	F	1	N/A	N/A	N/A	N/A	41 19.868	122 48.793	Live on previously marked Redd (
12/06/04	Scott	Tailings	TAI37F	P	2	N/A	N/A	N/A	N/A	41 20.076	122 48.972	Moving upstream
12/06/04	Scott	Tailings	TAI40R	F	2	2	1	0.2	2/3	41 20.466	122 49.268	
12/06/04	Scott	Tailings	TAI43R	F	1	2.5	1	0.06	2/3	41 21.698	122 49.361	
12/06/04	Scott	Tailings	TAI44F	F	3	N/A	N/A	N/A	N/A	41 21.706	122 49.380	
12/06/04	Scott	Tailings	TAI45R	R	2	3	2	0.3	2/1	41 21.731	122 49.400	
12/15/04	Scott	Tailings	FISH	-	14	N/A	N/A	N/A	N/A	-	-	
12/15/04	Scott	Tailings	TAI48R	F	2	2.5	1.5	0.05	2/3	41 19.863	122 48.798	
12/15/04	Scott	Tailings	TAI49R	R	0	2.5	1.25	0.13	2/3	41 19.886	122 48.797	
12/15/04	Scott	Tailings	TAI50R	R	0	2.5	1.5	0.06	2/3	41 19.889	122 48.801	
12/15/04	Scott	Tailings	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
12/15/04	Scott	Tailings	TAI51R	F	1	3.5	2	0.14	2/3	41 20.191	122 49.002	
12/15/04	Scott	Tailings	FISH	-	3	N/A	N/A	N/A	N/A	-	-	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/15/04	Scott	Tailings	TAI52R	F	0	4	1.5	0.2	2/3	41 20.209	122 49.008	
12/15/04	Scott	Tailings	FISH	-	6	N/A	N/A	N/A	N/A	-	-	
21					54							
12/16/04	Scott Bar	Lower	SBML001	R	2	10	6	1	4	41.74181	122.99658	
12/16/04	Scott Bar	Lower	SBML002	R	2	10	5	0.9	4	41.74162	122.99628	
12/16/04	Scott Bar	Lower	SBML003	R	1	9	4	1	4	41.74211	122.99722	
12/16/04	Scott Bar	Lower	SBML004	R	2	10	4	1	4	41.74203	122.99769	
12/16/04	Scott Bar	Lower	SBML005	R	2	8	4	1.2	4	41.74245	122.99905	
12/16/04	Scott Bar	Lower	SBML006	R	0	8	4	0.8	4	41.74255	122.99942	
12/16/04	Scott Bar	Lower	SBM007R	R	4	14	4	1.4	4	41.74263	122.99961	
12/28/04	Scott Bar	Lower	SBML008	R	0	9	5	1.3	4	41.74207	122.99522	
12/28/04	Scott Bar	Lower	SBML009	R	1	14	7	1.9	4	41.74183	122.99641	
12/28/04	Scott Bar	Lower	SBML010	R	0	10	5	1.9	4	41.742	122.99734	
12/28/04	Scott Bar	Lower	SBML011	R	0	8	5	1	4	41.74222	122.99757	
12/28/04	Scott Bar	Lower	SBML012	R	0	10	4	0.8	4	41.74244	122.99924	
12/28/04	Scott Bar	Lower	SBML012	R	0	8	6	0.7	4	41.74244	122.99924	
12/28/04	Scott Bar	Lower	SBML013	R	0	8	5	1.2	4	41.74262	122.99982	
12/28/04	Scott Bar	Lower	SBML014	R	0	9	4	0.9	4	41.74287	122.00016	
15					14							
12/02/04	Sugar	Lower	SUG01F	-	11	N/A	N/A	N/A	N/A	41 20.486	122 49.467	
12/02/04	Sugar	Lower	SUG02F		1	N/A	N/A	N/A	N/A	41 20.486	122 49.387	
12/15/04	Sugar	Lower	SUG30R	R	0	2.5	1	0.12	2/3	41 20.530	122 49.435	
12/15/04	Sugar	Lower	FISH	-	4	N/A	N/A	N/A	N/A	-	-	
12/15/04	Sugar	Lower	SUG31R	F	1	2.5	2	0.18	1/2	41 20.439	122 49.501	
12/15/04	Sugar	Lower	SUG32R	F	4	2.5	1.5	0.16	1/2	41 20.427	122 49.509	
12/15/04	Sugar	Lower	SUG33R	F	3	2	1.5	0.19	2/1	41 20.409	122 49.525	
12/15/04	Sugar	Lower	SUG34R	F	2	-	-	-	2/3	41 20.376	122 49.554	possible superimposition
12/15/04	Sugar	Lower	FISH	-	19	N/A	N/A	N/A	N/A	-	-	
12/15/04	Sugar	Lower	SUG35R	F	1	-	-	-	2/1	41 20.371	122 49.557	
12/15/04	Sugar	Lower	SUG37R	F	0	-	-	-	2/3	41 20.374	122 49.556	superimpositions
12/22/04	Sugar	Lower	SUGO2R	F	1	2.5	0.75	0.17	2/1	41 20.363	122 49.562	2 redds
12/22/04	Sugar	Lower	SUGO2R	F	2	2.5	1	0.1	2/1	41 20.363	122 49.562	
12/22/04	Sugar	Lower	SUG03R	R	2	-	-	-	2/3	41 20.376	122 49.554	5 redds superimposed,
12/22/04	Sugar	Lower	SUG03R	R	0	-	-	-	2/3	41 20.376	122 49.554	unable to measure
12/22/04	Sugar	Lower	SUG03R	R	2	-	-	-	2/3	41 20.376	122 49.554	
12/22/04	Sugar	Lower	SUG03R	R	1	-	-	-	2/3	41 20.376	122 49.554	
12/22/04	Sugar	Lower	SUG03R	R	0	-	-	-	2/1	41 20.376	122 49.554	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/22/04	Sugar	Lower	SUG04R	F	4	3	1	0.18	2/1	41 20.391	122 49.543	
12/22/04	Sugar	Lower	SUG05R	F	3	2.25	1.25	0.2	2/3	41 20.400	122 49.537	
12/22/04	Sugar	Lower	SUG06R	R	1	2.75	1	0.11	2/3	41 20.401	122 49.533	
12/22/04	Sugar	Lower	SUG07R	R	0	3.5	1.25	0.42	2/1	41 20.408	122 49.527	
12/22/04	Sugar	Lower	SUG07R	R	2	3	1.75	0.18	2/3	41 20.408	122 49.527	
12/22/04	Sugar	Lower	SUG08R	F	1	2.5	1.75	0.12	1/2	41 20.428	122 49.513	
12/22/04	Sugar	Lower	SUG08R	F	2	2.75	1	0.19	1/2	41 20.428	122 49.513	
12/22/04	Sugar	Lower	SUG10R	F	1	2.75	1.25	0.15	1/2	41 20.433	122 49.498	
12/22/04	Sugar	Lower	SUG10R	F	0	2	2	0.16	2/1	41 20.433	122 49.498	
12/22/04	Sugar	Lower	SUG11R	F	2	3	2	0.21	2/1	41 20.446	122 49.497	
12/22/04	Sugar	Lower	SUG11R	F	1	2.75	1.5	0.19	2/1	41 20.446	122 49.497	
12/22/04	Sugar	Lower	SUG11R	F	1	1	0.5	0.08	2/1	41 20.446	122 49.497	
12/22/04	Sugar	Lower	FISH	-	10	N/A	N/A	N/A	N/A	-	-	
12/22/04	Sugar	Lower	FISH	-	3	N/A	N/A	N/A	N/A	-	-	
12/31/04	Sugar	Lower	FISH	-	17	N/A	N/A	N/A	N/A	-	-	
12/31/04	Sugar	Lower	FISH	-	4	N/A	N/A	N/A	N/A	-	-	
01/10/05	Sugar	Lower	FISH	-	4	N/A	N/A	N/A	N/A	-	-	
01/10/05	Sugar	Lower	FISH	-	1	N/A	N/A	N/A	N/A	-	-	
18					111							
12/12/04	Sugar	Upper	SUG21F	R	1	N/A	N/A	N/A	N/A	41 19.189	122 51.774	
12/12/04	Sugar	Upper	SUG22R	R	1	2	1	0.2	2/3	41 19.191	122 51.470	
12/12/04	Sugar	Upper	SUG23R	F	2	1.5	1	0.08	2/2	41 19.228	122 51.449	
12/12/04	Sugar	Upper	SUG24R	R	2	1.5	1	0.15	2/2	41 19.233	122 51.488	
12/12/04	Sugar	Upper	SUG25R	R	2	1.5	0.5	0.25	2/2	41 19.225	122 51.447	
12/12/04	Sugar	Upper	SUG26R	R	2	2	1.5	0.2	2/3	41 19.238	122 51.449	
12/12/04	Sugar	Upper	SUG27R	F	1	1.5	1	0.06	2/1	-	-	
12/12/04	Sugar	Upper	SUG28R	F	3	1.5	0.5	0.15	1/2	-	-	
12/16/04	Sugar	Upper	SUG27R	R	1	2.25	1.5	0.12	2/3	41 19.635	122 51.011	
12/16/04	Sugar	Upper	SUG28R	R	1	2	1.25	0.18	1/2	41 19.661	122 20.990	
12/16/04	Sugar	Upper	SUG29R	R	0	1.75	0.5	0.1	1/2	41 19.687	122 50.812	
12/16/04	Sugar	Upper	FISH		1	N/A	N/A	N/A	N/A	-	-	
12/16/04	Sugar	Upper	SUG30R	R	1	3	0.75	0.18	2/3	41 19.696	122 50.801	
12/16/04	Sugar	Upper	FISH	-	4	N/A	N/A	N/A	N/A	-	-	
01/03/05	Sugar	Upper	SUG36R	F	0	2.25	1	0.1	2/3	41 19.116	122 51.809	
01/03/05	Sugar	Upper	SUG37R	R	0	2	0.5	0.19	2/3	41 19.238	122 51.445	
01/03/05	Sugar	Upper	SUG38R	R	0	2	0.5	0.17	2/1	41 19.276	122 51.404	
01/03/05	Sugar	Upper	SUG40R	R	0	2.5	0.5	0.12	2/1	41 19.349	122 51.325	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
01/03/05	Sugar	Upper	SUG42R	F	0	2.75	0.5	0.2	2/1	41 19.532	122 51.229	
01/03/05	Sugar	Upper	SUG43R	F	0	2.25	0.75	0.22	2/1	41 19.562	122 51.218	
01/03/05	Sugar	Upper	SUG44C	P	0	3	0.75	-	2/3	41 19.583	122 51.178	
01/03/05	Sugar	Upper	SUG45R	R	0	3.5	1	0.21	2/3	41 19.592	122 51.170	
01/03/05	Sugar	Upper	SUG46R	F	0	4	2	0.19	2/3	41 19.596	122 51.142	
01/03/05	Sugar	Upper	SUG46R	R	0	1.75	0.5	0.13	2/1	41 19.596	122 51.142	
01/03/05	Sugar	Upper	SUG46R	R	0	2	1	0.15	2/3	41 19.596	122 51.142	
01/03/05	Sugar	Upper	SUG47R	F	1	3	1.75	0.22	2/1	41 19.603	122 51.113	
01/03/05	Sugar	Upper	SUG49R	F	0	2	2.75	0.19	2/1	41 19.671	122 50.871	
01/03/05	Sugar	Upper	SUG50R	F	0	2	0.5	0.1	2/1	41 19.719	122 50.735	
12/22/07	Sugar	Upper	SUG29R	P	6	4	4	0.5	4/5	41.32	122.585	Redds in gravel at low water cross
12/22/07	Sugar	Upper	SUG30R	F	2	1.5	1	0.25	4	41.326	122.854	marginal gravel
12/22/07	Sugar	Upper	SUG32R	P	1	1.5	1	0.3	2	41.327	122.852	10m from diversion
28					32							
11/16/04	Tompkins	Lower	TOM01F	P	1	N/A	N/A	N/A	N/A	41.6899	123.10466	
11/16/04	Tompkins	Lower	TOM01R	R	2	1.73	0.92	0.21	3/4	41.68941	123.10446	
11/16/04	Tompkins	Lower	TOM02F	P	1	N/A	N/A	N/A	N/A	41.68527	123.10385	
11/16/04	Tompkins	Lower	TOM03F	P	1	N/A	N/A	N/A	N/A	41.688	123.10318	
11/16/04	Tompkins	Lower	TOM04F	P	1	N/A	N/A	N/A	N/A	41.68711	123.10154	
11/16/04	Tompkins	Lower	TOM05F	P	1	N/A	N/A	N/A	N/A	41.65812	123.10042	
11/16/04	Tompkins	Lower	TOM06F	P	1	N/A	N/A	N/A	N/A	41.68365	123.10035	
11/16/04	Tompkins	Lower	TOM07F	P	1	N/A	N/A	N/A	N/A	41.68292	123.09918	
11/16/04	Tompkins	Lower	TOM08F	R	1	N/A	N/A	N/A	N/A	41.68176	123.09891	
11/16/04	Tompkins	Lower	TOM09F	R	1	N/A	N/A	N/A	N/A	41.68167	123.09859	
11/16/04	Tompkins	Lower	TOM10F	P	1	N/A	N/A	N/A	N/A	41.68104	123.09748	
12/29/04	Tompkins	Lower	TOM01R	-	0	1.48	0.62	0.26	3/4			
12/29/04	Tompkins	Lower	TOM02R	-	0	1.07	2.2	0.31	3/4	41.68849	123.10278	
12/29/04	Tompkins	Lower	TOM03R	-	0	2.1	0.52	0.21	3/4	41.6888	123.0364	
12/29/04	Tompkins	Lower	TOM04R	-	0	0.75	0.33	0.22	3/4	41.68601	123.10062	
12/29/04	Tompkins	Lower	TOM05R	-	0			0.2	3/4	41.68502	123.10052	16M2 WORKED
12/29/04	Tompkins	Lower	TOM06R	-		1.5	0.66	0.25	3/4	41.68439	123.10031	MULTIPLE REDDS
12/29/04	Tompkins	Lower	TOM07R	-		1	0.66	0.22	3/4	41.6834	123.09959	
					12							
01/05/05	Etna	Lower	MET03R	R	0	2	1.5	0.25	2/3	41 28.583	122 51.191	RECENT CHANNEL WORK
01/05/05	Etna	Lower	MET03R	R						41 28.583	122 51.191	
01/05/05	Etna	Lower	MET03R	R						41 28.583	122 51.191	
01/05/05	Etna	Lower	MET03R	R						41 28.583	122 51.191	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
01/05/05	Etna	Lower	MET03R	R						41 28.583	122 51.191	
01/05/05	Etna	Lower	MET03R	R						41 28.583	122 51.191	
01/05/05	Etna	Lower	MET07R	R	0	2.5	1	0.25	2/3	41 28.521	122 51.246	
01/05/05	Etna	Lower	MET07R	R						41 28.521	122 51.246	
01/05/05	Etna	Lower	MET07R	R						41 28.521	122 51.246	
01/05/05	Etna	Lower	MET08R	R	0	2.5	1.3	0.25	2/3	41 28.464	122 51.235	
01/05/05	Etna	Lower	MET08R	R						41 28.464	122 51.235	
01/05/05	Etna	Lower	MET09R	F	2	2.5	1.3	0.25	3	41 28.430	122 51.216	End recent channel work
01/05/05	Etna	Lower	MET09R	F						41 28.430	122 51.216	
01/05/05	Etna	Lower	MET09R	F						41 28.430	122 51.216	
01/05/05	Etna	Lower	MET10R	R		2	1	0.2	3	41 28.416	122 51.218	1 CARCASS
01/05/05	Etna	Lower	MET10R	R						41 28.416	122 51.218	
01/05/05	Etna	Lower	MET11R	R		3	1.3	0.2	3	41 28.345	122 51.266	
01/05/05	Etna	Lower	MET11R	R						41 28.345	122 51.266	
01/05/05	Etna	Lower	MET11R	R						41 28.345	122 51.266	
01/05/05	Etna	Lower	MET12R	S/R		2	1.3	0.2	3	41 28.280	122 51.327	2 CARCASS
01/05/05	Etna	Lower	MET12R	S/R						41 28.280	122 51.327	
01/05/05	Etna	Lower	MET14R	F	1	3	2	0.2	3	41 28.266	122 51.374	1 CARCASS
01/05/05	Etna	Lower	MET15R	R		2.5	1	0.2	3	41 28.220	122 51.461	
01/05/05	Etna	Lower	MET15R	R						41 28.220	122 51.461	
01/05/05	Etna	Lower	MET16R	F		2	1.5	0.2	3	41 28.200	122 51.494	2 CARCASS
01/05/05	Etna	Lower	MET17R	F		2.5	2	0.2	2/3	41 28.183	122 51.517	RECENT CHANNEL WORK
01/05/05	Etna	Lower	MET17R	F						41 28.183	122 51.517	
01/05/05	Etna	Lower	MET17R	F						41 28.183	122 51.517	
01/05/05	Etna	Lower	MET17R	F						41 28.183	122 51.517	
01/05/05	Etna	Lower	MET17R	F						41 28.183	122 51.517	
01/05/05	Etna	Lower	MET18R	F		2.5	1.5	0.2	3	41 28.145	122 51.626	
01/05/05	Etna	Lower	MET19R	S/R		2	1.5	0.2	3	41 28.002	122 51.837	1 CARCASS
01/05/05	Etna	Lower	MET19R	S/R						41 28.002	122 51.837	
01/05/05	Etna	Lower	MET20R	R		2	1.5	0.2	3	41 27.907	122 51.957	1 CARCASS
01/05/05	Etna	Lower	MET20R	R						41 27.907	122 51.957	
01/05/05	Etna	Lower	MET21R	F		2.5	1	0.2	3	41 27.897	122 51.969	
01/05/05	Etna	Lower	MET22R	F		2.5	1	0.2	3	41 27.841	122 52.058	1 CARCASS
01/05/05	Etna	Lower	MET22R	F						41 27.841	122 52.058	
01/05/05	Etna	Lower	MET22R	F						41 27.841	122 52.058	
01/05/05	Etna	Lower	MET22R	F						41 27.841	122 52.058	
01/05/05	Etna	Lower	MET22R	F						41 27.841	122 52.058	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
01/05/05	Etna	Lower	MET23R	R		2	1	0.2	3/4	41 27.799	122 52.121	
01/05/05	Etna	Lower	MET23R	R						41 27.799	122 52.121	
01/05/05	Etna	Lower	MET24F	P	1					41 27.586	122 52.461	
01/05/05	Etna	Lower	MET25R	R		1.75	1.3	0.2	3	41 27.521	122 52.491	2 CARCASS
01/05/05	Etna	Lower	MET26R	F		2	1.3	0.2	3	41 27.486	122 52.524	
01/05/05	Etna	Lower	MET26R	F						41 27.486	122 52.524	
12/28/04	Etna	Lower	ETN80R	R		1.5	1	0.2	2	41 28.581	122 51.053	
12/28/04	Etna	Lower	ETN81R	R		2	1	0.2	2/3	41 28.582	122 51.095	
12/28/04	Etna	Lower	ETN85R			1.5	1	0.2	3	41 28.597	122 51.171	
12/28/04	Etna	Lower	ETN86R			1.5	1	0.2	2/3	41 28.594	122 51.177	
51					4							
12/29/04	Kidder	Lower	LKC02R	R		2	1	0.3	2/3	41 33.037	122 52.915	
12/29/04	Kidder	Lower	LKC02R	R						41 33.037	122 52.915	
12/29/04	Kidder	Lower	LKC02R	R						41 33.037	122 52.915	
12/29/04	Kidder	Lower	LKC02R	R						41 33.037	122 52.915	
12/29/04	Kidder	Lower	LKC02R	R						41 33.037	122 52.915	
12/29/04	Kidder	Lower	LKC03R	F		2.5	1	0.3	2/3	41 33.033	122 52.959	
12/29/04	Kidder	Lower	LKC03R	F						41 33.033	122 52.959	
12/29/04	Kidder	Lower	LKC03R	F						41 33.033	122 52.959	
12/29/04	Kidder	Lower	LKC05R	R		2.25	1	0.3	2/3	41 33.021	122 53.019	
12/29/04	Kidder	Lower	LKC05R	R						41 33.021	122 53.019	
12/29/04	Kidder	Lower	LKC05R	R						41 33.021	122 53.019	
12/29/04	Kidder	Lower	LKC05R	R						41 33.021	122 53.019	
12/29/04	Kidder	Lower	LKC06R	R		2	1	0.3	2/3	41 33.010	122 53.046	
12/29/04	Kidder	Lower	LKC06R	R						41 33.010	122 53.046	
12/29/04	Kidder	Lower	LKC06R	R						41 33.010	122 53.046	
12/29/04	Kidder	Lower	LKC06R	R						41 33.010	122 53.046	
12/29/04	Kidder	Lower	LKC06R	R						41 33.010	122 53.046	
12/29/04	Kidder	Lower	LKC07R	R		2	1	0.3	2/3	41 32.992	122 53.199	
12/29/04	Kidder	Lower	LKC07R	R						41 32.992	122 53.199	
12/29/04	Kidder	Lower	LKC07R	R						41 32.992	122 53.199	
12/29/04	Kidder	Lower	LKC07R	R						41 32.992	122 53.199	
12/29/04	Kidder	Lower	LKC07R	R						41 32.992	122 53.199	
12/29/04	Kidder	Lower	LKC08C	R		2	1	0.3	3	41 32.991	122 53.126	
12/29/04	Kidder	Lower	LKC09C	R		2	1	0.3	3	41 32.992	122 53.126	
12/29/04	Kidder	Lower	LKC10C	R		2	1	0.3	3	41 32.979	122 53.166	
12/29/04	Kidder	Lower	LKC11R	F		2	1	0.25	2/3	41 32.956	122 53.168	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/29/04	Kidder	Lower	LKC11R	F						41 32.956	122 53.168	
12/29/04	Kidder	Lower	LKC11R	F						41 32.956	122 53.168	
12/29/04	Kidder	Lower	LKC12R	R		2	1	0.25	3	41 32.971	122 53.214	
12/29/04	Kidder	Lower	LKC12R	R						41 32.971	122 53.214	
12/29/04	Kidder	Lower	LKC12R	R						41 32.971	122 53.214	
12/29/04	Kidder	Lower	LKC13R	R		1.75	1	0.25	3	41 32.956	122 53.243	
12/29/04	Kidder	Lower	LKC13R	R						41 32.956	122 53.243	
12/29/04	Kidder	Lower	LKC13R	R						41 32.956	122 53.243	
12/29/04	Kidder	Lower	LKC14R	F		1.5	1	0.25	2/3	41 32.949	122 53.283	
12/29/04	Kidder	Lower	LKC14R	F						41 32.949	122 53.283	
12/29/04	Kidder	Lower	LKC14R	F						41 32.949	122 53.283	
12/29/04	Kidder	Lower	LKC15R	R		1.5	1	0.25	3	41 32.936	122 53.322	
12/29/04	Kidder	Lower	LKC15R	R						41 32.936	122 53.322	
12/29/04	Kidder	Lower	LKC15R	R						41 32.936	122 53.322	
12/29/04	Kidder	Lower	LKC15R	R						41 32.936	122 53.322	
12/29/04	Kidder	Lower	LKC15R	R						41 32.936	122 53.322	
12/29/04	Kidder	Lower	LKC16F	P	11					41 32.937	122 53.345	1 JACK
12/29/04	Kidder	Lower	LKC17R	R		1.5	1	0.2	3	41 32.884	122 53.476	
12/29/04	Kidder	Lower	LKC18R			1.5	1	0.25	3	41 32.884	122 53.544	
12/29/04	Kidder	Lower	LKC18R							41 32.884	122 53.544	
12/29/04	Kidder	Lower	LKC19R			1.5	1	0.2	3/4	41 32.811	122 53.661	
12/29/04	Kidder	Lower	LKC19R							41 32.811	122 53.661	
12/29/04	Kidder	Lower	LKC19R							41 32.811	122 53.661	
12/29/04	Kidder	Lower	LKC19R							41 32.811	122 53.661	
12/29/04	Kidder	Lower	LKC19R							41 32.811	122 53.661	
12/29/04	Kidder	Lower	LKC19R							41 32.811	122 53.661	
12/29/04	Kidder	Lower	LKC19R							41 32.811	122 53.661	
12/29/04	Kidder	Lower	LKC20R			1.5	1	0.2	3/4	41 32.807	122 53.690	
12/29/04	Kidder	Lower	LKC20R							41 32.807	122 53.690	
12/29/04	Kidder	Lower	LKC21R			1.5	1	0.2	3/4	41 32.762	122 53.762	
12/29/04	Kidder	Lower	LKC22R		2	1.5	1	ACTIVE	3/4	41 32.655	122 54.173	
57					13							
12/28/04	Kidder	Middle	KDR70R	R		1.5	0.75	0.1	3/4	41 32.448	122 55.027	
12/28/04	Kidder	Middle	KDR71F	R	2					41 32.455	122 55.096	
12/28/04	Kidder	Middle	KDR72R	R		1.2	0.75	0.15	3/4	41 32.396	122 55.319	
12/28/04	Kidder	Middle	KDR73R	R		1	0.75	0.15	3/4	41 32.415	122 55.563	
12/28/04	Kidder	Middle	KDR74R	F		1.5	1	0.2	2/3	41 32.350	122 53.716	

Date	Stream	Reach	GPS Code	Habitat	# Fish	Redd Length (M)	Redd Width (M)	Pott Depth (cm)	SUB D/S	Lat	Long	Notes
12/28/04	Kidder	Middle	KDR74R	F						41 32.350	122 53.716	
12/28/04	Kidder	Middle	KDR74R	F						41 32.350	122 53.716	
12/28/04	Kidder	Middle	KDR74R	F						41 32.350	122 53.716	
12/17/04	Etna	Middle	ETN02R	F	1	2.25	2	0.2	2/3	41 25.699	122 55.214	
12/17/04	Etna	Middle	FISH	R	3							
12/17/04	Etna	Middle	ETN03R	F	0	2.5	1.25	0.15	2/3	41 25.876	122 55.016	
12/17/04	Etna	Middle	ETN06F	F	1					41 26.288	122 54.070	
12/17/04	Etna	Middle	ETN07R	S/P	2	2.5	1.5	0.2	3/2	41 26.242	122 54.100	
12/31/04	Etna	Middle	ETN21R	S/R	0	2.5	1	0.2	2/1	41 26.396	122 53.933	
12/31/04	Etna	Middle	ETN23R	PT	1	3	1		2/3	41 26.404	122 53.908	ACTIVE, AT DITCH INLET
12/31/04	Etna	Middle	ETN16R	F	1	3	1	0.16	2/1	41 25.747	122 55.182	MARGIN
12/31/04	Etna	Middle	ETN17R	F	0	2.25	1	0.18	2/1	41 25.769	122 55.181	
					9							
12/29/04	Kidder	Upper	Kid02F	P	2					41 31.230	122 58.718	2 fish in large pool

Appendix C – Population Estimates

French Creek - Middle
Miners Creek
Lower Shackleford Creek
Lower Mill Creek

DATE: 1/17/2005 French Creek (Middle French)

PETERSEN METHOD (SINGLE CENSUS)

ENTER THE FOLLOWING DATA:

		ENTER DATA HERE:	
NUMBER OF FISH MARKED (M):	70	PATH 1 =	70
CATCH OR SAMPLE TAKEN (C):	129	PATH 2 =	9
NUMBER OF RECAPTURES (R):	50	**PATH 3 =**	**50**
NUMBER OF LIVE FISH:	0	PATH 4 =	0
		NUMBER OF LIVES:	0

PATH 1'S THE NUMBER OF ADULTS OBSERVED: **79**

THE NUMBER OF GRILSE OBSERVED: **0**

THE SIZE OF THE POPULATION (N) IS : 181

THE SIZE THE POPULATION INCLUDING LIVE FISH IS : *** **181** ***

THE NUMBER OF ADULTS IS: 181

THE NUMBER OF GRILSE IS: 0

95% CONFIDENCE LIMITS

THE NUMBER OF RECAPTURES MUST BE >25

		LIVE FISH
THE UPPER CONFIDENCE LIMIT FOR RECAPTURES IS:	66	
THE LOWER CONFIDENCE LIMIT FOR RECAPTURES IS:	38	
THE UPPER LIMIT OF THE POPULATION ESTIMATE IS:	209	209
THE LOWER LIMIT OF THE POPULATION ESTIMATE IS:	156	156

REDD EST			119	
redds	49		80	
x2	98			
+ LDL's	98	pop est based on redds	aduls	98
			grilse	0

DATE: 1/17/2005 Miners Cr.

PETERSEN METHOD (SINGLE CENSUS)

		ENTER THE FOLLOWING DATA:	
		ENTER DATA HERE:	

NUMBER OF FISH MARKED (M):	71	PATH 1 =	71
CATCH OR SAMPLE TAKEN (C):	146	PATH 2 =	28
NUMBER OF RECAPTURES (R):	47	**PATH 3 =**	**47**
NUMBER OF LIVE FISH:	0	PATH 4 =	0
		NUMBER OF LIVES:	0

PATH 1'S	THE NUMBER OF ADULTS OBSERVED:	**99**	
	THE NUMBER OF GRILSE OBSERVED:	**0**	
	THE SIZE OF THE POPULATION (N) IS :	221	
	THE SIZE THE POPULATION INCLUDING LIVE FISH IS : ***		**221** ***

THE NUMBER OF ADULTS IS:	221
THE NUMBER OF GRILSE IS:	0

95% CONFIDENCE LIMITS

THE NUMBER OF RECAPTURES MUST BE >25

THE UPPER CONFIDENCE LIMIT FOR RECAPTURES IS:	62	
THE LOWER CONFIDENCE LIMIT FOR RECAPTURES IS:	35	
		LIVE FISH
THE UPPER LIMIT OF THE POPULATION ESTIMATE IS:	252	252
THE LOWER LIMIT OF THE POPULATION ESTIMATE IS:	193	193

REDD EST			106		
redds	43		70		
x2	86				
+ LDL's	86	pop est based on redds		aduls	86
				grilse	0

DATE: Lower Shackleford

PETERSEN METHOD (SINGLE CENSUS)

ENTER THE FOLLOWING DATA:

		ENTER DATA HERE:	
NUMBER OF FISH MARKED (M):	63	PATH 1 =	63
CATCH OR SAMPLE TAKEN (C):	127	PATH 2 =	24
NUMBER OF RECAPTURES (R):	40	**PATH 3 =**	**40**
NUMBER OF LIVE FISH:	1	PATH 4 =	0
		NUMBER OF LIVES:	1

PATH 1'S THE NUMBER OF ADULTS OBSERVED: **86**

THE NUMBER OF GRILSE OBSERVED: **1**

THE SIZE OF THE POPULATION (N) IS : 200

THE SIZE THE POPULATION INCLUDING LIVE FISH IS : *** **201** ***

THE NUMBER OF ADULTS IS:	198
THE NUMBER OF GRILSE IS:	2

95% CONFIDENCE LIMITS

THE NUMBER OF RECAPTURES MUST BE >25

THE UPPER CONFIDENCE LIMIT FOR RECAPTURES IS:	54	
THE LOWER CONFIDENCE LIMIT FOR RECAPTURES IS:	29	
		LIVE FISH
THE UPPER LIMIT OF THE POPULATION ESTIMATE IS:	229	231
THE LOWER LIMIT OF THE POPULATION ESTIMATE IS:	174	175

REDD EST				179	
redds	76			131	
x2	152				
+ LDL's	153	pop est based on redds	aduls	151	
			grilse	2	

DATE: Lower Mill

PETERSEN METHOD (SINGLE CENSUS)

ENTER THE FOLLOWING DATA:

		ENTER DATA HERE:	
NUMBER OF FISH MARKED (M):	142	PATH 1 =	142
CATCH OR SAMPLE TAKEN (C):	269	PATH 2 =	12
NUMBER OF RECAPTURES (R):	115	**PATH 3 =**	**115**
NUMBER OF LIVE FISH:	4	PATH 4 =	0
		NUMBER OF LIVES:	4

PATH 1'S THE NUMBER OF ADULTS OBSERVED: **142**

THE NUMBER OF GRILSE OBSERVED: **0**

THE SIZE OF THE POPULATION (N) IS : 333

THE SIZE THE POPULATION INCLUDING LIVE FISH IS : *** **337** ***

THE NUMBER OF ADULTS IS: 337

THE NUMBER OF GRILSE IS: 0

95% CONFIDENCE LIMITS

THE NUMBER OF RECAPTURES MUST BE >25

THE UPPER CONFIDENCE LIMIT FOR RECAPTURES IS:	138	
THE LOWER CONFIDENCE LIMIT FOR RECAPTURES IS:	96	
		LIVE FISH
THE UPPER LIMIT OF THE POPULATION ESTIMATE IS:	371	375
THE LOWER LIMIT OF THE POPULATION ESTIMATE IS:	299	303

REDD EST			291	
redds	127		228	
x2	254			
+ LDL's	258	pop est based on redds	aduls	258
			grilse	0

Schafer Method For Stratified Populations
E. Yokel - template from S. Borok - CDFG
1/17/2005
French Cr 2004-2005

			Week of Tagging (i)					Rj	Cj	
		Week of (j)	14-Dec	21-Dec	30-Dec	6-Jan		Total tagged fish	Total fish	Cj/Rj
		Recovery	1	2	3	4		recovered	recovered	
	14-Dec	1						0	1	
	21-Dec	2	1					1	2	2.00
	30-Dec	3		2				2	19	9.50
	6-Jan	4			12			12	63	5.25
	13-Jan	5				36		36	44	1.22
							total	51	129	17.97
Path 3's	Recovered Ri		1	2	12	36				
Path 1's	Total fish tagged Mi		1	2	17	50				70
	Mi / Ri		1.00	1.00	1.42	1.39				

Definitions:

Mi - The number of fish marked in the i-th period of marking.
Obtained #'s from data base

M - The total number of fish marked.

Ri - The total recaptures of fish tagged in the i-th period.

Rj - The total recaptures during the j-th period.

Cj - The number of fish caught and examined in the j-th period of recovery.

C - The total number of fish examined.

formula Sum=(Rij X Mi/Ri X Cj/Rj)

Computed estimate table

French Cr. 2004-2005

	Week of (j)		Week of Tagging (i)					
	Recovery		16-Dec	21-Dec	30-Dec	6-Jan		
			1	2	3	4	Total	
16-Dec		1	**0.00**	**0.00**	**0.00**	0.00	0.00	
21-Dec		2	**2.00**	**0.00**	**0.00**	0.00	2.00	
30-Dec		3	**0.00**	**10.50**	**0.00**	0.00	10.50	
6-Jan		4	**0.00**	**0.00**	**89.25**	0.00	89.25	
13-Jan		5	**0.00**	**0.00**	**0.00**	61.11	61.11	
	sub total		2.00	10.50	89.25	61.11	**162.86**	163
PATH 1'S	**Tagged**		2	6	38	25	**71.00**	163 +0 last day live'

95% CONFIDENCE LIMITS

updated 01/17/2005

		with last day lives
The lower limit of the population estimate is:	**140**	**140**
The upper limit of the population estimate is:	**190**	**190**

THE NUMBER OF ADULTS OBSERVED: 79

THE NUMBER OF GRILSE OBSERVED: 0

Schafer Method For Stratified Populations
E. Yokel - template from S. Borok - CDFG
1/17/2005

Miners Cr 2004-2005

			Week of Tagging (i)					Rj Total tagged fish recovered	Cj Total fish recovered	Cj/Rj
	Week of (j)	16-Dec	21-Dec	30-Dec	6-Jan					
	Recovery	1	2	3	4					
	16-Dec	1						0	2	
	21-Dec	2	2					2	7	3.50
	30-Dec	3		5				5	51	10.20
	6-Jan	4			35			35	80	2.29
	13-Jan	5				6		6	6	1.00
							total	48	146	16.99
Path 3's	Recovered Ri		2	5	35	6				
Path 1's	Total fish tagged Mi		2	6	38	25				
	Mi / Ri		1.00	1.20	1.09	4.17				

Definitions:

Mi - The number of fish marked in the i-th period of marking. formula Sum=(Rij X Mi/Ri X Cj/Rj)
Obtained #'s from data base

M - The total number of fish marked.

Ri - The total recaptures of fish tagged in the i-th period.

Rj - The total recaptures during the j-th period.

Cj - The number of fish caught and examined in the j-th period of recovery.

C - The total number of fish examined.

Computed estimate table
Miners Cr.

	Week of (j) Recovery		Week of Tagging (i) 16-Dec 1	21-Dec 2	30-Dec 3	6-Jan 4	Total	
16-Dec		1	**0.00**	**0.00**	**0.00**	0.00	0.00	
21-Dec		2	**7.00**	**0.00**	**0.00**	0.00	7.00	
30-Dec		3	**0.00**	**13.71**	**0.00**	0.00	13.71	
6-Jan		4	**0.00**	**0.00**	**86.86**	0.00	86.86	
13-Jan		5	**0.00**	**0.00**	**0.00**	25.00	25.00	
							0.00	
	sub total		7.00	13.71	86.86	25.00	**####**	133
PATH 1'S	**Tagged**		2	6	38	25	**71.00**	133

95% CONFIDENCE LIMITS

updated 1/17/05

		w/last day lives
The lower limit of the population estimate is:	**112**	**112**
The upper limit of the population estimate is:	**157**	**157**
THE NUMBER OF ADULTS OBSERVE	99	
THE NUMBER OF GRILSE OBSERVE	0	

Schafer Method For Stratified Populations
E. Yokel - template from S. Borok - CDFG
1/17/2005

Shackleford-Mill Cr 2004-2005

			Week of Tagging (i)				Rj Total tagged fish recovered	Cj Total fish recovered	Cj/Rj
	Week of (j)		20-Dec	28-Dec	4-Jan	11-Jan			
	Recovery		1	2	3	4			
	20-Dec	1					0	1	0.00
	28-Dec	2					0	49	0.00
	4-Jan	3		29			29	57	1.97
	11-Jan	4		1	10		11	20	1.82
						total	40	127	3.78
Path 3's	Recovered Ri		0	30	10	0			
Path 1's	Total fish tagged Mi		1	42	20	0			
	Mi / Ri		0.00	1.40	2.00	0.00			

Definitions:

Mi - The number of fish marked in the i-th period of marking. formula Sum=(Rij X Mi/Ri X Cj/Rj)
Obtained #'s from data base

M - The total number of fish marked.

Ri - The total recaptures of fish tagged in the i-th period.

Rj - The total recaptures during the j-th period.

Cj - The number of fish caught and examined in the j-th period of recovery.

C - The total number of fish examined.

Computed estimate table
Lower
Shackleford

	Week of (j)	Week of Tagging (i)					
	Recovery	13-Oct	16-Oct	20-Oct	23-Oct		
		1	2	3	4	Total	
20-Dec	1	**0.00**	**0.00**	**0.00**	0.00	0.00	
28-Dec	2	**0.00**	**0.00**	**0.00**	0.00	0.00	
4-Jan	3	**0.00**	**73.82**	**0.00**	0.00	73.82	
11-Jan	4	**0.00**	**0.00**	**36.36**	0.00	36.36	
						0.00	
	sub total	0.00	73.82	36.36	0.00	**110.18**	111 +1 last day live'
PATH 1'S	**Tagged**	1	42	20	0	**63.00**	

95% CONFIDENCE LIMITS

updated 1/17/05

		with last day lives
The lower limit of the population estimate is:	**91**	**92**
THE upper limit of the population estimate is:	**133**	**134**
THE NUMBER OF ADULTS OBSERVED:	198	

THE NUMBER OF GRILSE OBSERVED: 1

Schafer Method For Stratified Populations
E. Yokel - template from S. Borok - CDFG
1/17/2005

Lower Mill Cr 2004-2005

			Week of Tagging (i)				Rj	Cj	
		Week of (j)	20-Dec	29-Dec	5-Jan	12-Jan	Total tagged fish recovered	Total fish recovered	Cj/Rj
		Recovery	1	2	3	4			
	20-Dec	1					0	7	
	29-Dec	2	4				4	122	30.50
	5-Jan	3		98			98	125	1.28
	12-Jan	4		3	10		13	15	1.15
						total	115	269	32.93
Path 3's	Recovered Ri		4	101	10	0			
Path 1's	Total fish tagged Mi		5	114	23	0			
	Mi / Ri		1.25	1.13	2.30	0.00			

Definitions:

Mi - The number of fish marked in the i-th period of marking. formula Sum=(Rij X Mi/Ri X Cj/Rj)

Obtained #'s from data base

M - The total number of fish marked.

Ri - The total recaptures of fish tagged in the i-th period.

Rj - The total recaptures during the j-th period.

Cj - The number of fish caught and examined in the j-th period of recovery.
C - The total number of fish examined.

Computed estimate table
Lower Mill Cr.

	Week of (j) Recovery	Week of Tagging (i)					
		1	2	3	4	Total	
	1	**0.00**	**0.00**	**0.00**	0.00	0.00	
	2	**152.50**	**0.00**	**0.00**	0.00	152.50	
	3	**0.00**	**127.63**	**0.00**	0.00	127.63	
	4	**0.00**	**0.00**	**26.54**	0.00	26.54	
						0.00	
	sub total	152.50	127.63	26.54	0.00	**306.67**	311 +4 last day live'
PATH 1'S	**Tagged**	5	114	23	0	**142.00**	

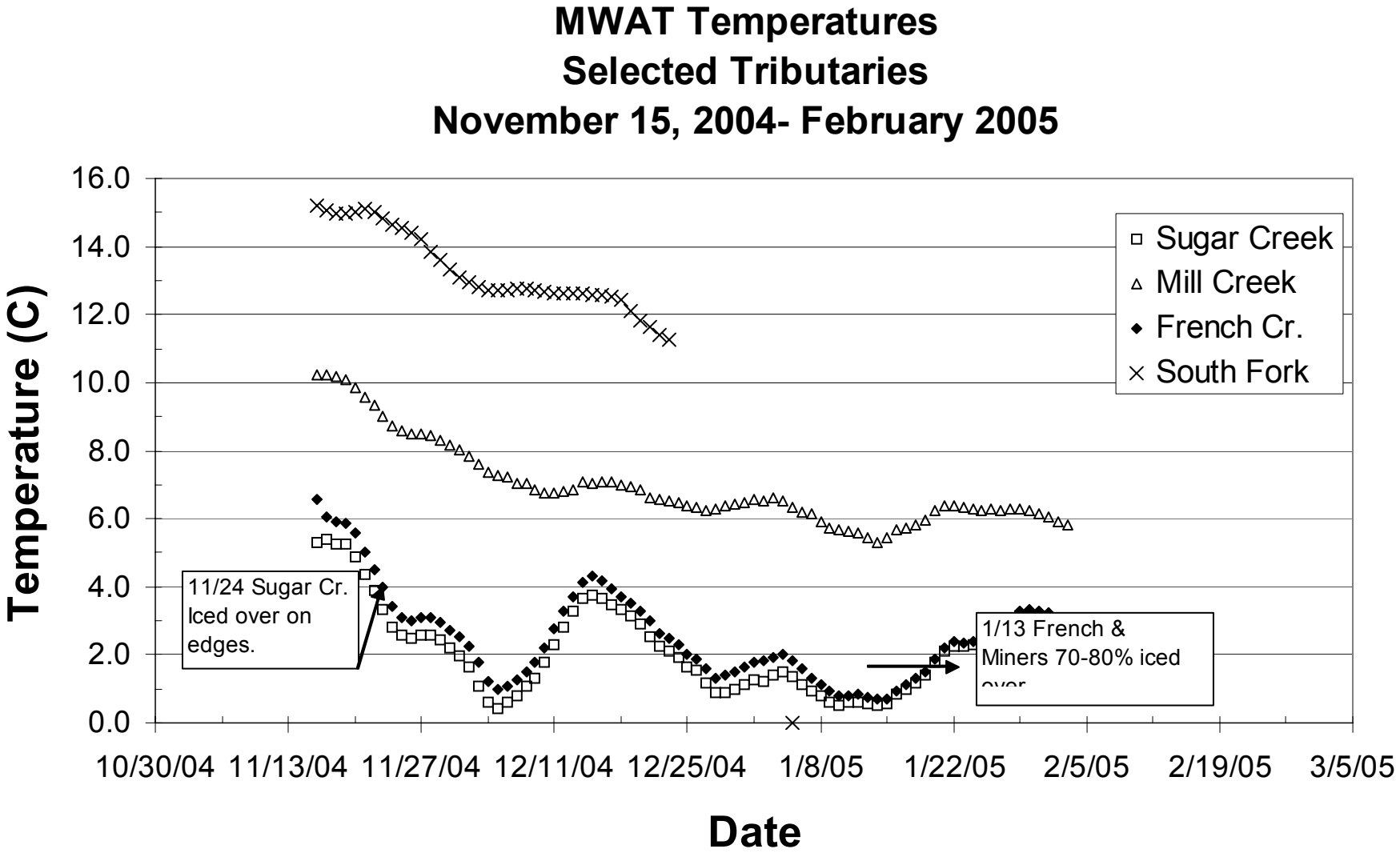
95% CONFIDENCE LIMITS

		with last day lives
The lower limit of the population estimate is:	**274**	**278**
The upper limit of the population estimate is:	**343**	**348**

THE NUMBER OF ADULTS OBSERVED: 154
THE NUMBER OF GRILSE OBSERVED: 0

Appendix D – Stream Temperature Data

Temperature Graph
Temperature Data – Spreadsheet
Ice Bath Calibration


MWAT Temperatures
Selected Tributaries
November 15, 2004- February 2005
Temperature (C)
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
10/30/04
11/13/04
11/27/04
12/11/04
12/25/04
1/8/05
1/22/05
2/5/05
2/19/05
3/5/05
Date
Sugar Creek
Mill Creek
French Cr.
South Fork
11/24 Sugar Cr. Iced over on edges.
1/13 French & Miners 70-80% iced

Temperature Data - Spreadsheets

Week End	Sugar Creek	Mill Creek	Mill Adjusted (See file calib050225.xls	French Cr	South Fork
10/22/2004	7.9	14.5	11.9		14.3
10/23/2004	7.5	14.4	11.8		15.2
10/24/2004	7.0	14.2	11.6		16.0
10/25/2004	6.6	14.1	11.5		17.0
10/26/2004	6.2	13.9	11.3		17.0
10/27/2004	5.8	13.8	11.2		17.0
10/28/2004	5.7	13.7	11.1		16.9
10/29/2004	5.7	13.8	11.2		16.9
10/30/2004	5.6	13.7	11.1		16.9
10/31/2004	5.6	13.5	10.9		16.9
11/1/2004	5.4	13.4	10.8		16.8
11/2/2004	5.2	13.3	10.7		16.6
11/3/2004	5.4	13.3	10.7		16.5
11/4/2004	5.2	13.1	10.5		16.3
11/5/2004	4.8	12.8	10.2		16.0
11/6/2004	4.4	12.5	9.9		15.7
11/7/2004	4.1	12.4	9.8		15.6
11/8/2004	4.0	12.3	9.7		15.6
11/9/2004	4.1	12.3	9.7		15.7
11/10/2004	4.0	12.2	9.6		15.8
11/11/2004	4.2	12.3	9.7		15.8
11/12/2004	4.4	12.4	9.8		15.8
11/13/2004	4.7	12.6	10.0		15.6
11/14/2004	5.0	12.7	10.1		15.5
11/15/2004	5.1	12.7	10.1		15.3
11/16/2004	5.3	12.8	10.2	6.6	15.2
11/17/2004	5.4	12.8	10.2	6.0	15.1
11/18/2004	5.3	12.8	10.2	5.9	15.0
11/19/2004	5.2	12.7	10.1	5.9	15.0
11/20/2004	4.9	12.5	9.9	5.6	15.0
11/21/2004	4.4	12.2	9.6	5.0	15.1
11/22/2004	3.9	11.9	9.3	4.5	15.0
11/23/2004	3.3	11.6	9.0	4.0	14.8
11/24/2004	2.8	11.3	8.7	3.4	14.7
11/25/2004	2.6	11.2	8.6	3.1	14.5
11/26/2004	2.5	11.1	8.5	3.0	14.4
11/27/2004	2.6	11.1	8.5	3.1	14.2
11/28/2004	2.6	11.0	8.4	3.1	13.8
11/29/2004	2.4	10.9	8.3	3.0	13.6
11/30/2004	2.2	10.8	8.2	2.7	13.3
12/1/2004	2.0	10.6	8.0	2.5	13.1
12/2/2004	1.7	10.5	7.9	2.3	13.0
12/3/2004	1.1	10.2	7.6	1.8	12.8
12/4/2004	0.6	10.0	7.4	1.2	12.7
12/5/2004	0.4	9.9	7.3	1.0	12.7
12/6/2004	0.6	9.8	7.2	1.1	12.7

Week End	Sugar Creek	Mill Creek	Mill Adjusted (See file calib050225.xls	French Cr	South Fork
12/7/2004	0.8	9.6	7.0	1.3	12.7
12/8/2004	1.1	9.6	7.0	1.5	12.8
12/9/2004	1.3	9.4	6.8	1.8	12.7
12/10/2004	1.8	9.3	6.7	2.2	12.7
12/11/2004	2.3	9.4	6.8	2.8	12.6
12/12/2004	2.8	9.4	6.8	3.3	12.6
12/13/2004	3.3	9.4	6.8	3.7	12.6
12/14/2004	3.7	9.7	7.1	4.1	12.6
12/15/2004	3.7	9.6	7.0	4.3	12.6
12/16/2004	3.7	9.7	7.1	4.2	12.6
12/17/2004	3.5	9.7	7.1	3.9	12.5
12/18/2004	3.3	9.6	7.0	3.7	12.4
12/19/2004	3.1	9.5	6.9	3.5	12.1
12/20/2004	2.9	9.5	6.9	3.3	11.8
12/21/2004	2.5	9.2	6.6	3.0	11.6
12/22/2004	2.3	9.2	6.6	2.6	11.4
12/23/2004	2.1	9.1	6.5	2.5	11.2
12/24/2004	1.9	9.1	6.5	2.3	
12/25/2004	1.6	9.0	6.4	2.0	
12/26/2004	1.5	8.9	6.3	1.9	
12/27/2004	1.2	8.8	6.2	1.6	
12/28/2004	0.9	8.9	6.3	1.3	
12/29/2004	0.9	9.0	6.4	1.4	
12/30/2004	1.0	9.0	6.4	1.5	
12/31/2004	1.1	9.1	6.5	1.6	
1/1/2005	1.3	9.1	6.5	1.8	
1/2/2005	1.2	9.1	6.5	1.8	
1/3/2005	1.4	9.2	6.6	1.9	
1/4/2005	1.5	9.1	6.5	2.0	
1/5/2005	1.3	8.9	6.3	1.8	
1/6/2005	1.1	8.8	6.2	1.6	
1/7/2005	0.9	8.7	6.1	1.3	
1/8/2005	0.8	8.5	5.9	1.1	
1/9/2005	0.6	8.3	5.7	0.9	
1/10/2005	0.5	8.3	5.7	0.8	
1/11/2005	0.6	8.2	5.6	0.8	
1/12/2005	0.6	8.2	5.6	0.9	
1/13/2005	0.6	8.0	5.4	0.8	
1/14/2005	0.5	7.9	5.3	0.7	
1/15/2005	0.6	8.1	5.5	0.7	
1/16/2005	0.8	8.3	5.7	0.9	
1/17/2005	1.0	8.3	5.7	1.1	
1/18/2005	1.2	8.4	5.8	1.3	

Week End	Sugar Creek	Mill Creek	Mill Adjusted (See file calib050225.xls	French Cr	South Fork
1/19/2005	1.4	8.6	6.0	1.5	
1/20/2005	1.8	8.9	6.3	1.9	
1/21/2005	2.1	9.0	6.4	2.2	
1/22/2005	2.2	9.0	6.4	2.4	
1/23/2005	2.3	8.9	6.3	2.4	
1/24/2005	2.3	8.9	6.3	2.4	
1/25/2005	2.4	8.9	6.3	2.4	
1/26/2005	2.6	8.9	6.3	2.7	
1/27/2005	2.7	8.8	6.2	2.8	
1/28/2005	2.9	8.9	6.3	3.0	
1/29/2005	3.1	8.9	6.3	3.3	
1/30/2005	3.1	8.8	6.2	3.3	
1/31/2005	3.1	8.8	6.2	3.3	
2/1/2005	3.0	8.6	6.0	3.2	
2/2/2005	2.8	8.5	5.9	3.0	
2/3/2005	2.7	8.4	5.8	2.8	
2/4/2005	2.5			2.6	
2/5/2005	2.5			2.6	
2/6/2005	2.6			2.6	3.0
2/7/2005	2.6			2.6	2.7
2/8/2005	2.6			2.6	2.6
2/9/2005	2.5			2.6	2.5
2/10/2005	2.4			2.5	2.4
2/11/2005	2.3			2.4	2.3
2/12/2005	2.1			2.2	2.4
2/13/2005	2.2			2.3	2.4
2/14/2005	2.3			2.4	2.6
2/15/2005	2.5			2.6	2.8

Ice Bath Calibration of hobos from South Fork and Mill Cr.

Date	Time	South Fork Hobo	Mill Cr. Hobo	ASTM Thermometer	Difference in Mill Cr Hobo
2/25/2005	9:12 AM	21.06			
2/25/2005	9:17 AM	15.27			
2/25/2005	9:22 AM	9.06	22.49		
2/25/2005	9:27 AM	5.18	4.28	0.5	
2/25/2005	9:32 AM	3.14	3.52		
2/25/2005	9:37 AM	2.04	3.13	0.5	2.63
2/25/2005	9:42 AM	1.24	3.13	0.5	2.63
2/25/2005	9:47 AM	0.76	3.13	0.5	2.63
2/25/2005	9:52 AM	0.6	3.13	0.5	2.63
2/25/2005	9:57 AM	0.44	3.13	0.5	2.63
2/25/2005	10:02 AM	0.28	3.13	0.5	2.63
2/25/2005	10:07 AM	0.28	3.13	0.5	2.63
2/25/2005	10:12 AM	0.28	3.13	0.5	2.63
2/25/2005	10:17 AM	0.12	3.13	0.5	2.63
2/25/2005	10:22 AM	0.12	3.13	0.5	2.63
2/25/2005	10:27 AM	0.12	3.13		3.13
2/25/2005	10:32 AM	0.12	3.13	0.5	2.63
2/25/2005	10:37 AM	0.12	3.13	0.5	2.63
2/25/2005	10:42 AM	0.12	3.13	0.5	2.63
2/25/2005	10:47 AM	0.12	3.13	0.5	2.63
2/25/2005	10:52 AM	0.12	3.13	0.5	2.63
2/25/2005	10:57 AM	0.12	3.13		3.13
2/25/2005	11:02 AM	0.12	3.13	0.75	2.38
2/25/2005	11:07 AM	0.12	3.13	0.75	2.38
2/25/2005	11:12 AM	0.12	3.13	0.75	2.38
2/25/2005	11:17 AM	0.12	3.13	0.75	2.38
2/25/2005	11:22 AM	0.12	3.13	0.75	2.38
2/25/2005	11:27 AM	1.24	12.34		
2/25/2005	11:32 AM	4.72	15.16		
2/25/2005	11:37 AM	8.13	17.26		
2/25/2005	11:42 AM	10.92	18.66	18.5	
2/25/2005	11:47 AM	13.09	19.71	19.5	
2/25/2005	11:52 AM	14.79	20.41	21	
2/25/2005	11:57 AM	16.06	21.11		
			21.8		