# UNITED STATES OF AMERICA BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

Turlock Irrigation District	)	
	)	
and	)	Project No. 2299
	)	
Modesto Irrigation District	)	

#### 2007 LOWER TUOLUMNE RIVER ANNUAL REPORT

#### Report 2007-3

2007 Seine/Snorkel Report and Summary Update

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and

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#### **EXECUTIVE SUMMARY**

The 2007 seining survey was conducted at two-week intervals from 17 January to 23 May for a total of 10 sample periods. This was the 22nd consecutive annual seining study on the Tuolumne River conducted by the Turlock and Modesto Irrigation Districts.

A total of 204 natural Chinook salmon were caught in the Tuolumne River and 0 in the San Joaquin River. This was the 4<sup>th</sup> lowest number of salmon caught during the 1986-2007 period and no salmon were captured downstream of the Charles Rd. location (RM 24.9). Peak density of salmon caught in the Tuolumne was 5.9 salmon per 1,000 square feet on 28 February. Maximum fork length (FL) in the Tuolumne River increased from 48 mm FL to 105 mm FL from 14 February to 23 May and minimum FL was 32 mm.

Flows during the sampling period ranged from about 300 to 900 cubic feet per second (cfs) in the Tuolumne River at La Grange and from about 1,650 to 3,800 cfs in the San Joaquin River at Vernalis. Flows in 2007 were relatively low due to below average precipitation.

Water temperature in the Tuolumne ranged from  $8.0^{\circ}\text{C}$  to  $22.5^{\circ}\text{C}$  and in the San Joaquin from  $7.3^{\circ}\text{C}$  to  $22.8^{\circ}\text{C}$ . Conductivity in the Tuolumne River ranged from 29 to 169  $\mu\text{S}$  and in the San Joaquin from 517 to 1,386  $\mu\text{S}$ .

A comparative review of fork length and salmon density for the 2002-2007 period is included. Increase in average fork length in 2007 was typical in timing and magnitude to the pattern observed in other years through March. After that, average fork length was highly variable due to low catch numbers.

Density of fry ( $\leq$  50 mm) peaked on 28 February, generally later in timing than most years of the 2002-2007 period. The density of juveniles (> 50 mm) also peaked on 28 February, which was much earlier in timing to other years in the period. In 2007, the average density of salmon in the Tuolumne River was 1.5 salmon per 1,000 ft<sup>2</sup>.

An early summer snorkel survey was conducted on 26-27 June and 03 July, within a 20-mile section below La Grange Dam. Preliminary USGS flow at La Grange was about 116 cfs and water temperature ranged from 12.2°C to 26.2°C. Sixty-seven Chinook salmon and 343 rainbow trout were observed. Other species observed were Sacramento sucker, Sacramento pikeminnow, hardhead, riffle sculpin, largemouth bass, smallmouth bass and white catfish. A late-summer survey was conducted on 18-20 September at a flow of about 87 cfs and water temperatures ranged from 12.8°C to 20.8°C. No Chinook salmon and 198 rainbow trout were observed.

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#### 1 INTRODUCTION

Stillwater Sciences with assistance from FISHBIO conducted seine and snorkel fishery monitoring in the Tuolumne and San Joaquin Rivers in 2007 for the Turlock and Modesto Irrigation Districts (TID/MID).

Seine sampling was done in both rivers pursuant to the Don Pedro Project river-wide monitoring program. A primary objective was to document juvenile salmonid size, abundance and distribution, including the relationship of flow and other environmental variables. The salmon in 2007 were the progeny of the 2006 fall spawning run, estimated at about 625 fish. This was the 22nd consecutive annual TID/MID seining study and a summary of salmonid data since 1986 is contained in this report.

Tuolumne River snorkel surveys began in 1982 with the number, location, and area sampled by site having varied over the years. Summer surveys occurring within the June to September period have been conducted in most years since 1988, although very wet years with high summer flows, such as 1995 and 1998, were not sampled. Locations were selected to include a range of habitat types (i.e., riffles, runs, pools) at sites where salmonids may occur and are spaced at intervals down the river in general areas of suitable access. The overall river section examined is limited to the reach with suitable underwater visibility, this generally being in the 20-mile section from La Grange Dam downstream to near Waterford.

A June or July snorkel survey had been done since 1996 to evaluate the abundance, size, and distribution of salmonids and other fish species - 12 sites per survey have been done since 2001. High flow conditions in 2005 and 2006 precluded a comparable early summer snorkel survey, but the June survey was conducted in 2007. The September snorkel survey, done annually since 2001, was conducted on 18-20 September 2007. A comparison of the salmonids observed in the 2001-2007 period is included.

#### 1.1 STUDY SITES

#### 1.1.1 Seine

The area studied was the Tuolumne River from La Grange Dam (river mile [RM] 52.0) to its confluence (RM 0) with the San Joaquin River at RM 83.8, and the San Joaquin River from Laird Park (RM 90.2) to Gardner Cove (RM 79.4) (Fig. 1). A total of ten sites were sampled each survey period, eight on the Tuolumne and two on the San Joaquin. The locations of the sites were as follows:

Site	Location	River Mile
	Tuolumne River	
1	Old La Grange Bridge (OLGB)	50.5 <sup>a</sup>
2	Riffle 5	48.0
3	Tuolumne River Resort (TRR)	42.4
4	Hickman Bridge	31.6

5 6	Charles Road Legion Park	24.9 17.2						
7	Riverdale Park	12.3						
8								
	San Joaquin River							
9	Laird Park	90.2 <sup>b</sup>						
10	Gardner Cove	79.4						

- a. From the confluence with the San Joaquin River.
- b. From the confluence with the Sacramento River.

The Tuolumne River was stratified into three sections. The upper section (RM 52 to 34), sites 1-3, is a higher gradient area that includes most of the primary spawning riffles in the river. The middle section (RM 34 to 17), sites 4-6, is the transitional area from the gravel-bedded to sand-bedded river reaches. This section contains much of the in-channel sand/gravel mined areas. The lower section (RM 17 to 0), sites 7-8, is a lower gradient, mostly sand-bottom reach downstream of the Dry Creek confluence.

#### 1.1.2 Snorkel

The two snorkel surveys were conducted in a 20-mile reach from Riffle A7 (RM 50.7) downstream to Riffle 57 (RM 31.5) below Hickman Bridge near Waterford.

#### 1.2 2007 TUOLUMNE AND SAN JOAQUIN RIVER SAMPLING CONDITIONS

#### 1.2.1 Seine

Flows in the Tuolumne River below La Grange Dam were approximately 350 cfs in January when the surveys began. Flows began increasing on 20 April during the spring pulse flow period (Fig. 2). During the next month there two pulse flow of about 900 and 600 cfs. In late May flows began to decrease to about 125 cfs by early June.

Flows in the San Joaquin River at Vernalis (RM 72.5) ranged from 1,650-3,800 cfs from January through June.

Flows upstream of Vernalis, at Patterson Bridge (RM 98.5) and Maze Road (RM 77.3), represent flow levels at the sampling locations of Laird Park upstream of the Tuolumne and Gardner Cove downstream of the Tuolumne, respectively.

The minimum water temperature recorded in the Tuolumne River during the study period, based on hand-held temperature measurements, was 8.0 °C (46.4 °F) at RDP on 17 January, and the maximum temperature was 22.5 °C (72.5 °F) at Shiloh Road on 09 May (Fig. 3). The lowest San Joaquin River water temperature, 7.3 °C (45.1 °F) was at Gardner Cove on 17 January; the highest was 22.8 °C (73.0°F) at Laird Park on 09 May.

#### 1.2.2 Snorkel

The flow at La Grange during the snorkel survey in June was about 116 cfs. Water temperature ranged from 12.2 °C (54.0 °F) at Riffle A7 on 26 June to 26.2 °C (79.2 °F) at Riffle 57 on 03 July. Flow at La Grange during the September surveys was about 87 cfs and water temperature ranged from 12.8 °C at Riffle A7 to 20.8 °C at Riffle 57.

#### 2 METHODS

#### 2.1 STUDY TIMING

The 2007 seining study began on 17 January and ended on 23 May. Sampling was done at about two-week intervals, with a total of 10 sampling dates. The snorkel survey was conducted 19-21 June.

#### 2.2 SAMPLING METHODS AND DATA RECORDING

#### 2.2.1 Seine

Seining was done using 6-ft high, 1/8-inch mesh nylon seine nets in lengths of 20 or 30 feet. The same general areas were sampled each time, to permit comparisons through the sampling period, but sample areas varied somewhat as a result of changes in flow. Seine hauls were made with the current and parallel to shore. The salmon caught were anesthetized with MS-222, measured (FL in mm) and then revived before being released. Other measurements taken were area sampled, (determined from estimating average length and width of a seine haul) water temperature, visibility, conductivity, and maximum depth of the area sampled. Other observations include time of day, weather conditions, habitat type, and substrate type. Other fish species were recorded separately. Any salmon undergoing outward signs of smoltification, such as losing scales during handling, were also noted.

#### 2.2.2 Snorkel

Underwater observations were conducted using an effort-based method where a snorkeler examined within a specified area for a given period of time and recorded the species, numbers, and size estimates of fish observed. A combination of different habitat types was observed, including riffles, runs, and pools. The overall river section examined is limited to the reach with suitable underwater visibility, this generally being a 20-mile section below La Grange Dam downstream to Waterford. The snorkeling method provided an index of species abundance.

Each habitat type sampled mostly involved one observer snorkeling a specified habitat area for a certain time period. Whenever feasible, the surveys were conducted moving upstream against the current - a side-to-side (zigzag) pattern was used as the width of the survey section required. Occasionally, two snorkelers moved upstream in tandem, with each person counting fish on their side of the center of the survey section. Whenever possible, the entire width of the habitat section selected was carefully surveyed. The only exceptions were the habitat areas that were too wide to effectively cover. If high water velocity precluded upstream movement, snorkelers

would float downstream with the current, remaining as motionless as possible through the study area, although stream margins at those sites would still be viewed in an upstream direction.

Usually the total length of an observed fish was estimated using a ruler outlined on the diving slate to the nearest 10 mm. For some larger fish, the lengths may be estimated by viewing the fish in reference to adjacent objects and then measuring that estimated length. In cases where larger numbers of fish are observed, the observer estimated the length range and number of fish in the group. Care was taken to observe and count each fish just once in the survey area.

Other data recorded for each location included water temperature, electrical conductivity, turbidity, and horizontal visibility. Site-specific data that was recorded included area sampled, average depth, sample time, general habitat type, and substrate type.

#### 2.3 DATA ANALYSIS

Seining catch data was examined by location, river section, and river. Catch densities of salmon were divided into two size groups for analysis. The density index for "fry" (fish ≤50 mm FL) and for "juveniles" (>50 mm), by site and by section, were computed by multiplying the number of salmon caught by 1,000 and dividing it by the area sampled. These indices of population density (relative abundance), were used for comparisons. Densities and sizes of salmon fry and juveniles by upper, middle, and lower river sections were examined.

#### 3 RESULTS AND DISCUSSION

#### 3.1 SEINE CATCH

A total of 204 salmon were caught in the Tuolumne River and 0 in the San Joaquin (Table 1). All salmon were measured and riverwide peak density for the Tuolumne was 5.9 salmon per 1,000 ft<sup>2</sup> on 28 February.

#### 3.1.1 Density of Fry and Juvenile Salmon

Salmon up to 50 mm fork length (FL) were caught in the Tuolumne River on 17 January in the first sampling period. The highest density of salmon fry in the Tuolumne was 3.7 fry/1,000 ft<sup>2</sup> found on 28 February (Table 2). The highest density of juvenile salmon in the Tuolumne was 2.2 juveniles/1,000 ft<sup>2</sup> also found on 28 February.

The density of salmon fry exhibited a peak for most sites from 17 January to 28 February. The density of juveniles generally peaked from 28 February to 11 April for most locations (Fig. 4).

The density of salmon fry in the Tuolumne River peaked in the upper section on 17 January and in the middle section on 28 February (Fig. 5). No salmon were captured in the lower section of the Tuolumne River. The density of juveniles peaked in the upper section on 11 April and in the middle section on 28 February. No salmon were caught in the San Joaquin River.

#### 3.1.2 Size, Growth, and Smoltification

The fork length of salmon caught ranged from 32 mm to 105 mm. The average fork length (FL) of salmon generally increased from 14 February to 28 March (Fig. 6). An indirect method to estimate growth rate was made by dividing the increase in maximum FL, over a period of time. Maximum FL in the Tuolumne River increased from 48 to 105 mm during the 14 February to 23 May period (Fig. 6), indicating a potential FL increase of approximately .58 mm per day (57 mm / 98 days).

Length frequency distributions by survey period are in Fig. 7 & 8. The change in FL by location generally shows an increase from late January to late May at most of the Tuolumne River sampling locations (Fig. 9). Salmon estimated to be large enough to undergo smoltification (usually > 70 mm FL) were present by late March. The first salmon exhibiting smolting characteristics was caught on 09 May. Fry were present through 25 April during the 2007 seine survey period.

#### 3.1.3 Conductivity and Turbidity

Conductivity in the Tuolumne River generally increased with increasing distance below La Grange Dam, from a low of 29  $\mu$ S at Old La Grange Bridge to a high of 169  $\mu$ S at Shiloh Road (Table 3). Conductivity also decreased as flows increased during the spring pulse flows (Fig. 10).

Conductivity in the San Joaquin River was much higher than in the Tuolumne and ranged from a low of 517  $\mu$ S at Gardner Cove to a high of 1386  $\mu$ S at Laird Park.

Turbidity in the Tuolumne River was less than 6.4 Nephelometric Turbidity Units (NTU) except for two readings at Riverdale Park and Shiloh Road on 28 February that were the result of storm runoff from Dry Creek. Turbidity also generally increased with increasing distance below La Grange Dam and generally decreased with higher flows.

Turbidity in the San Joaquin River ranged from 8.0 at Gardner Cove to 47.7 NTU at Laird Park.

#### 3.1.4 Other Fish Species Caught

The numbers of other fish species caught during the seining study by species, location, and date are in Table 4. Eleven species other than Chinook salmon were caught in the Tuolumne River and 5 other species in the San Joaquin River. Two of these species were common to both rivers and 14 species were caught overall. Twenty-two rainbow trout fry (21-50 mm FL) were caught in the Tuolumne River between 28 February to 23 May at R5 and TRR. The San Joaquin River had a much lower number of fish species than in recent years.

#### 3.2 SNORKEL SURVEY

Survey conditions and fish observations from the snorkel survey conducted on 26-27 June and 03 July and 18-20 September are summarized in Table 5. The six native fish species observed were

characteristic of the lower elevation zone adjacent to the Sierra foothills; introduced species were largemouth bass, smallmouth bass, bluegill and white catfish.

During the early summer surveys, Chinook salmon were observed downstream to Riffle 5B (RM 47.9) and rainbow trout to Riffle 41A (RM 35.3). Other species seen were Sacramento sucker, Sacramento pikeminnow, hardhead, riffle sculpin, largemouth bass, smallmouth bass and white catfish. In September, no Chinook salmon were observed and rainbow trout were seen downstream to Riffle 31 (RM 38.1). The same other species observed in the early summer surveys were recorded except for no white catfish and the addition of bluegill.

#### 4 COMPARATIVE REVIEW

#### 4.1 SEINE: 1986-2007

Annual TID/MID Tuolumne River seining surveys began in 1986, with the number, location, and sampling frequency of sites having varied over time (Tables 6 & 7). The number of salmon captured in the Tuolumne has ranged from 120 (1991) to 14,825 (1987) - the total number of salmon captured in 2007 (204) is the fourth lowest for all years. In 2007, the average density of salmon in the river was 1.5 salmon per 1,000 ft<sup>2</sup> and was similar to densities found in 1992.

The San Joaquin River has been sampled upstream and downstream of the Tuolumne River confluence in each of the study years. The total number of salmon caught has ranged from 0 to 854 with average density much lower than the Tuolumne (Table 6). No salmon were captured in the San Joaquin River in five other years.

The comparative review of fork length and density is primarily for the 2002-2007 period in this report.

#### 4.1.1 Size and Growth

Minimum FL found in 2007 remained low through late April (Fig. 11). In 2007, the increase in average FL during the January to March period was similar in timing and magnitude to the pattern observed in the 2002-2007 period (Fig. 12). Beginning in April the average FL was highly variable due to low numbers of salmon caught. Maximum FL in 2007 was on the low end from January to late April (Fig. 13). The estimated 2007 growth rate of .58 mm per day was about average for 1986-2007 (Table 6).

#### 4.1.2 Fry and Juvenile Salmon Density

In 2007, the density of salmon fry ( $\leq$  50 mm) in the Tuolumne River peaked on 28 February at the lowest level for the 2002-2007 period (Fig. 14).

The density of salmon juveniles (>50 mm) in 2007 peaked on 28 February and was also at the lowest level for the same period of years (Fig. 15).

Combined fry and juvenile densities for the Tuolumne River are shown for the years 2002-2007 (Fig. 16). The 2007 densities peaked on 28 February at a very low level.

#### 4.1.2.1 Tuolumne River Section Density

Upper section density of fry generally peaks from early February to early March and steadily declines through March (Fig. 17). For 2007, the density of fry peaked in mid-January and remained low through March. Upper section density of juveniles typically increases beginning in late February and peaks in early April to late May. In 2007, juvenile salmon density was low throughout the entire survey period and peaked on 11 April.

Middle section density of fry generally peaks from early February to mid-March similar timing to the upper section. In 2007, the density of fry peaked in late February. Middle section density of juveniles often peak from late February to late March. In 2007 juvenile density peaked in late February the same as the peak in fry density.

Lower section density of fry and juvenile salmon has been relatively low in most years. This section was often sampled only at the Shiloh Road location in prior years. Since 1999, two sites have been sampled. Peak density of fry ranged from early March (2005) to mid-March (2006) during the 2002-2007 period. In 2007, no salmon fry were caught in the lower section as was the case with most other years. Peak density of juveniles ranged from late March (2003, 2004, 2006) to late April (2002, 2005) with no juveniles captured in 2007.

Section abundance indices of fry and juvenile salmon combined were standardized as a percent of the annual riverwide average abundance index and plotted at section midpoints for recent years (Fig. 18). In general, the abundance indices decline from the upper to lower sections. In 2007 the standardized section abundance indices was highest in the middle section that was due to a relatively large number of salmon caught at Hickman Bridge on 28 February (N=70).

#### 4.1.2.2 San Joaquin River Density

Densities of salmon caught in the San Joaquin River at Laird Park and Gardner Cove or nearby sites were reviewed to compare relative abundance of salmon upstream and downstream of the Tuolumne River confluence. The abundance indices were calculated for fry and juvenile salmon combined due to low numbers caught. The average salmon abundance at Laird Park, downstream of the Merced confluence, was extremely low for all years during the 1986-2007 period (Fig. 19). The total number of wild salmon caught at Laird Park during this period was 148. No salmon were caught at Laird Park in 2007. The average abundance at Gardner Cove, downstream of the Tuolumne River confluence, was much higher in 1986 and 1999 and moderately higher in 1995, 1998, 2001 and 2006. A total of 1082 salmon were caught at this location during the 1986-2007 period, 509 of which were caught in 1999. No salmon were caught at Gardner Cove in 2007.

#### 4.1.3 Tuolumne River Fry Density Versus Number of Female Spawners

A polynomial equation analysis of peak fry density in the Tuolumne River and the estimated total number of female spawners (TID/MID data), from the preceding fall-run, resulted in an R-squared of .70 for the 1986-2007 period (Fig. 20, Table 8). A similar result with R-squared of .75 was found using average fry density from 15JAN-15MAR (Figure 21).

2008

#### 4.1.4 Other Fish Species

The number of fish species, other than Chinook salmon, caught during 1986-2007 has ranged from 10 to 16 on the Tuolumne River. Table 4 has the counts from each site and date for fish species caught in 2007. Eleven other species were caught, including 5 native species, in the Tuolumne; 5 fish species, including 1 native, were caught on the San Joaquin River in 2007 (Table 4). The number of species caught in the San Joaquin River was extremely low.

Of native species, rainbow trout, hardhead, Sacramento pikeminnow, and riffle sculpin were caught only in the Tuolumne River and Sacramento sucker were caught in both rivers. Native species recorded in prior years, but not caught in either river in 2007, were Pacific lamprey, Sacramento blackfish, hitch, Sacramento splittail, prickly sculpin and tule perch.

#### 4.2 SNORKEL: 2001-2007

Annual Tuolumne River snorkel surveys under the 1995 Don Pedro Project FERC monitoring program began in 1996. The precursor to these surveys was the Districts' 1988-1994 summer flow studies. This comparative review of 2001-2007 considers the total number and density of salmonids observed during the September surveys.

The locations sampled during the recent late season observations conducted in September were the same each year (Table 9). The total number of rainbow trout observed in September was 198 in 2007. September observations of rainbow trout were the second highest since the surveys began in 2001, exceeded only in 2006. Density indices of rainbow trout have been significantly higher since 2005 (Figure 22). Rainbow trout were observed downstream to Riffle 31 (RM 38.1) similar to the previous 2 years. Table 10 summarizes the locations and months surveyed for all snorkel surveys conducted during 2001-2007.

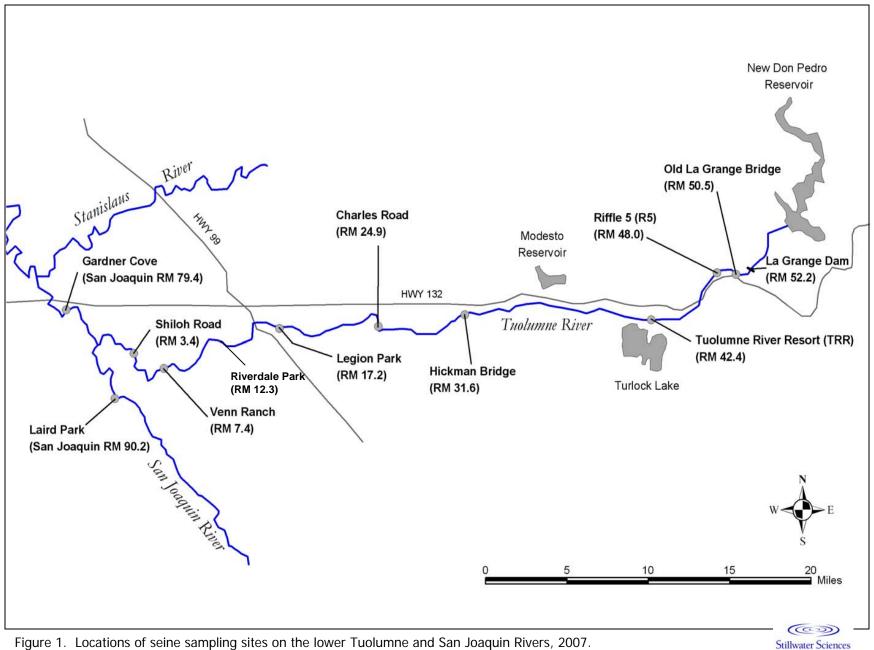


Figure 1. Locations of seine sampling sites on the lower Tuolumne and San Joaquin Rivers, 2007.

#### 2007 Tuolumne and San Joaquin River daily mean flow Provisional USGS data

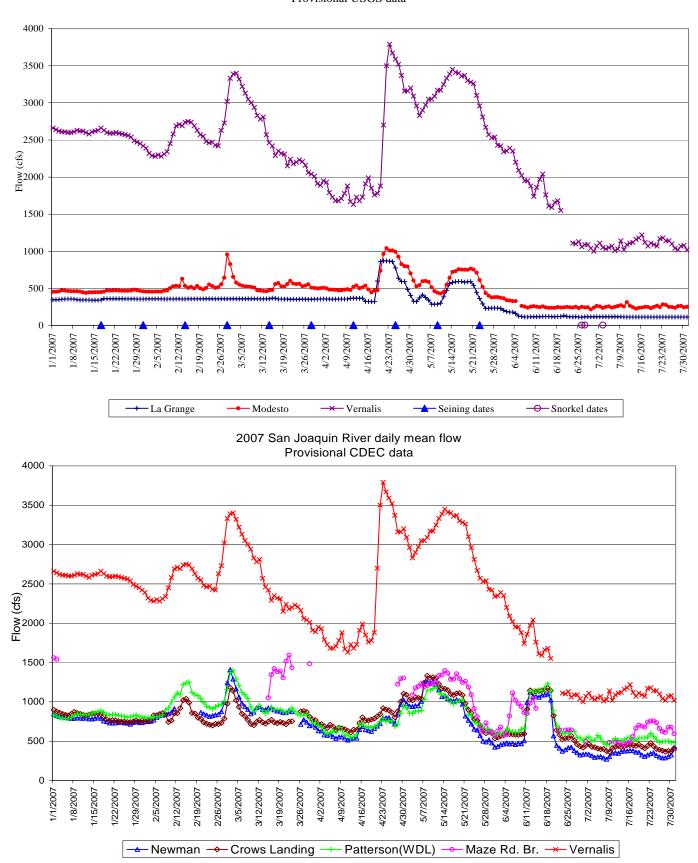


Figure 2. Tuolumne and San Joaquin River daily average flow.

#### 2007 TUOLUMNE AND SAN JOAQUIN RIVER WATER TEMPERATURE

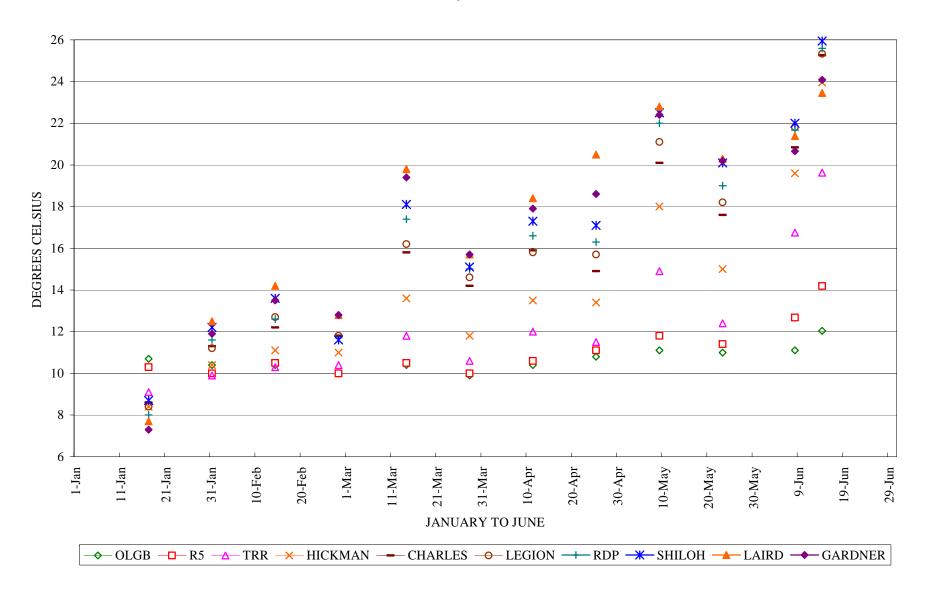
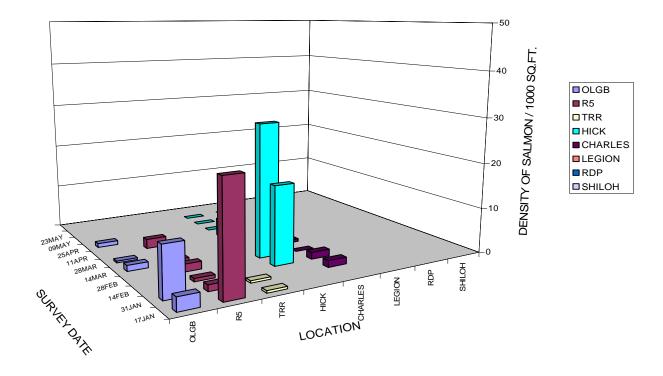


Figure 3. 2007 San Joaquin and Tuolumne River water temperature.

### TUOLUMNE RIVER JUVENILE SALMON STUDY 2007 SEINING - DENSITY OF FRY BY LOCATION



### TUOLUMNE RIVER JUVENILE SALMON STUDY 2007 SEINING - DENSITY OF JUVENILES BY LOCATION

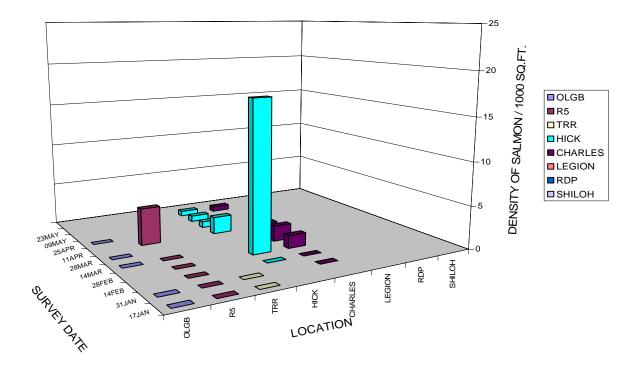


Figure 4. Tuolumne River density of fry and juvenile salmon by location.

#### 2007 Tuolumne River fry and juvenile salmon density by section

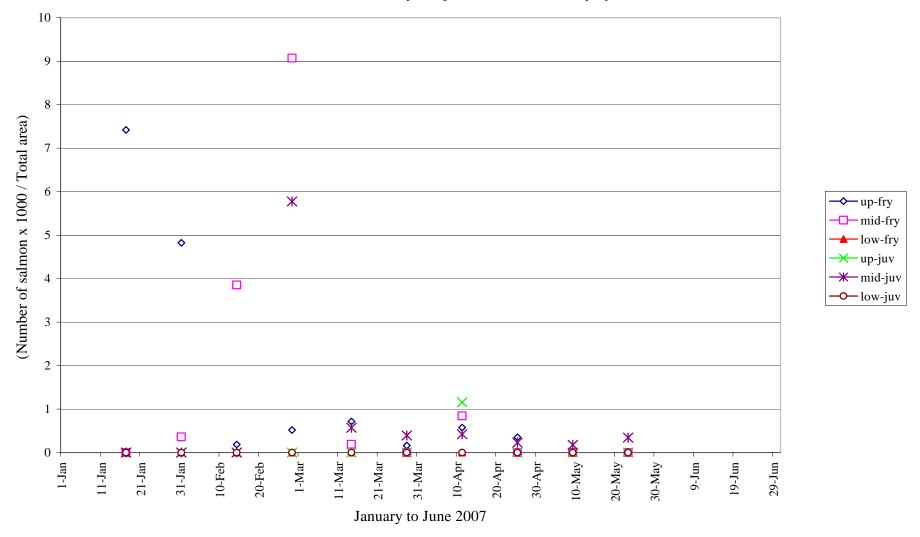


Figure 5. 2007 Tuolumne River fry and juvenile salmon density by section.

#### 2007 TUOLUMNE RIVER JUVENILE SALMON SEINING STUDY

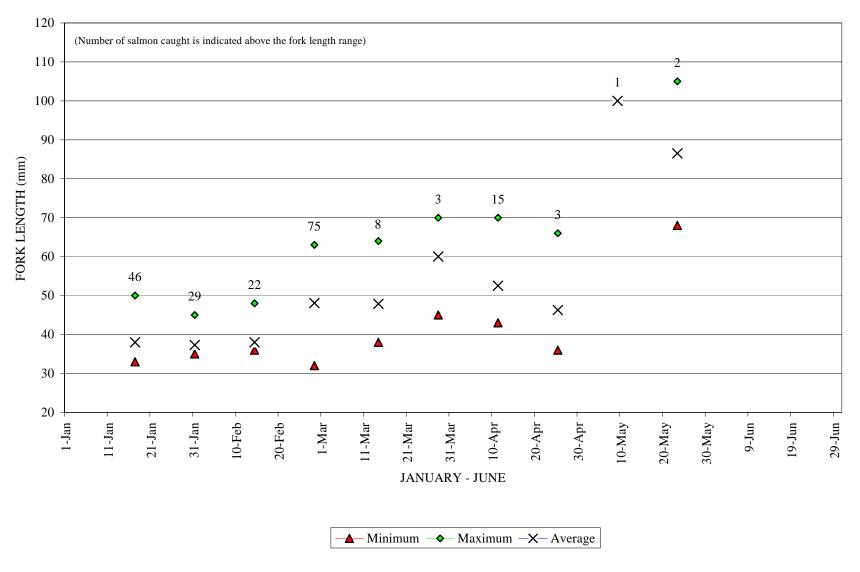


Figure 6. Fork length ranges of wild salmon in the Tuolumne River, 2007.

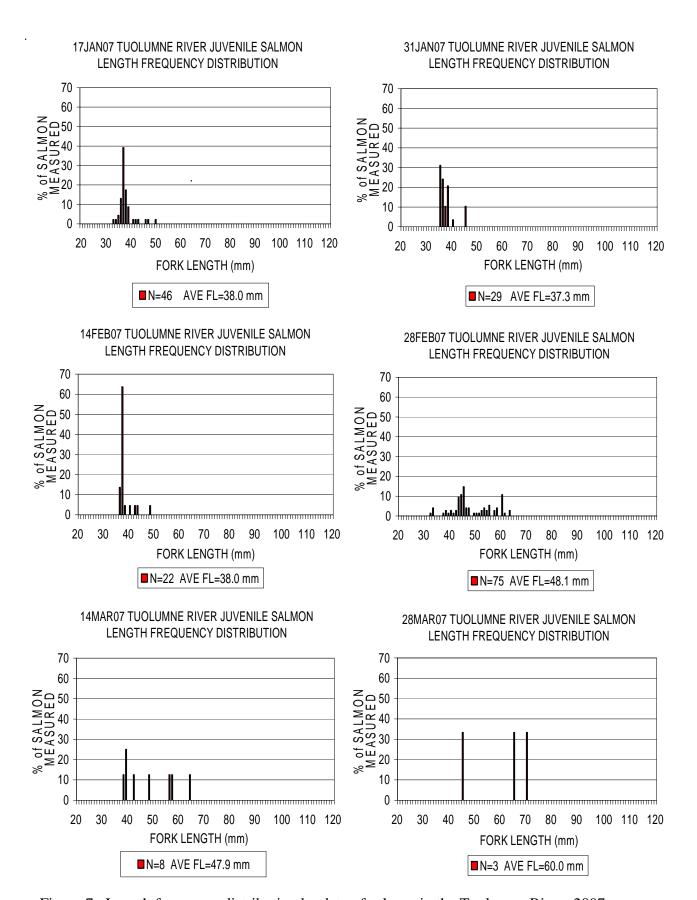


Figure 7. Length frequency distribution by date of salmon in the Tuolumne River, 2007.

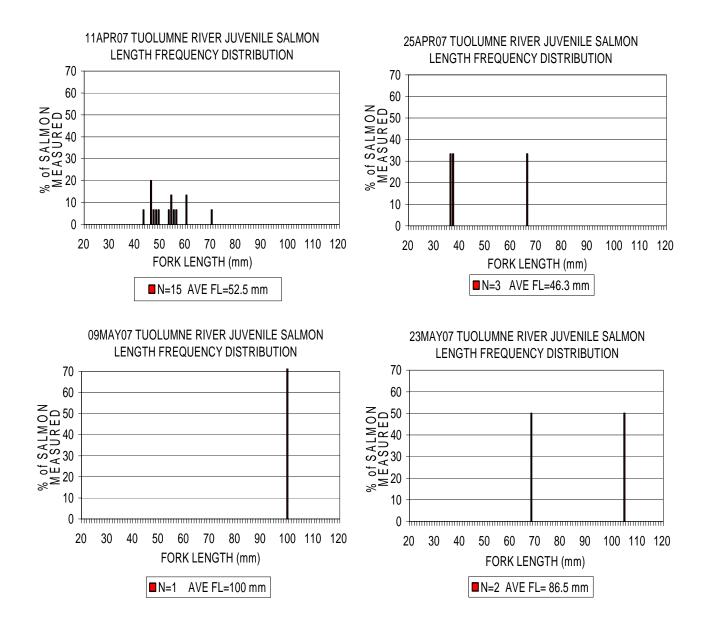


Figure 8. Length frequency distribution by date of salmon in the Tuolumne River, 2007.

#### TUOLUMNE RIVER JUVENILE SALMON STUDY 2007 SEINING - MINIMUM FORK LENGTH

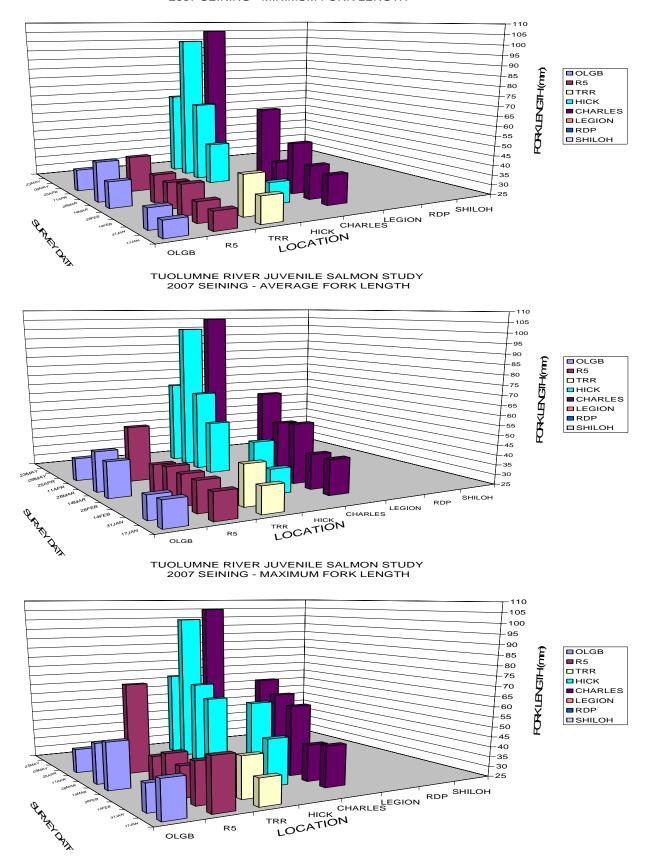
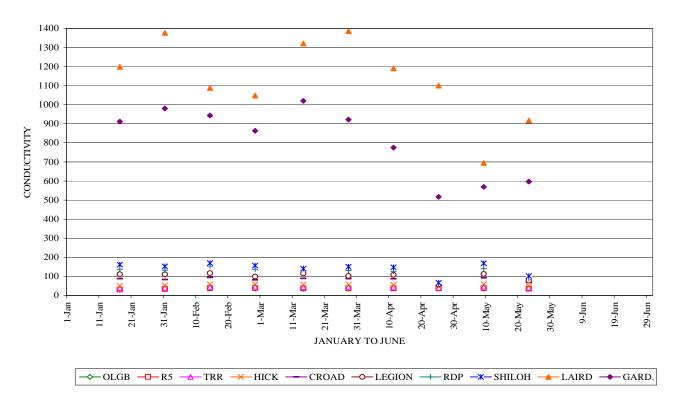


Figure 9. Minimum, average, and maximum fork length by location and survey period, 2007.

### TUOLUMNE AND SAN JOAQUIN RIVERS 2007 CONDUCTIVITY



### TUOLUMNE AND SAN JOAQUIN RIVERS $2007 \ {\rm TURBIDITY}$

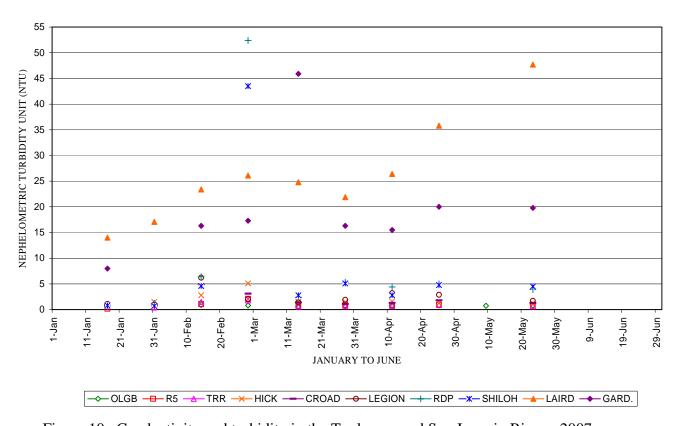
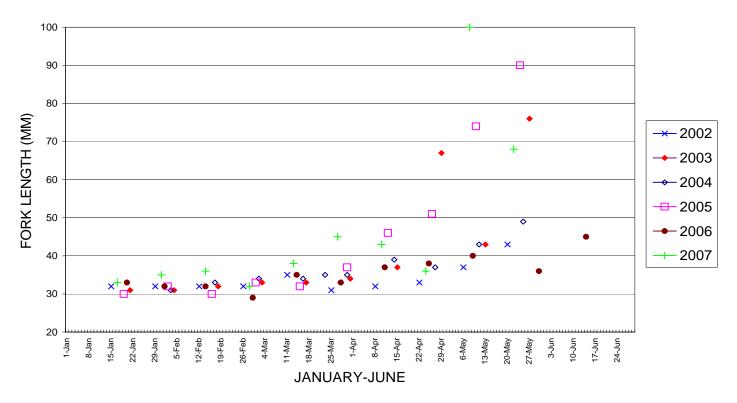
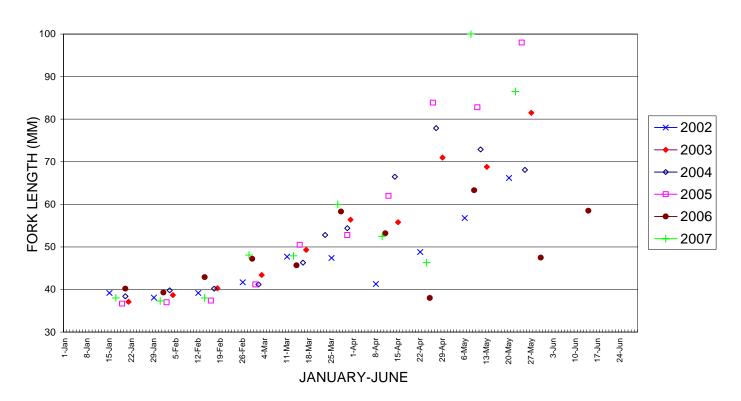


Figure 10. Conductivity and turbidity in the Tuolumne and San Joaquin Rivers, 2007

## 2002-2007 TUOLUMNE RIVER SEINING MINIMUM SALMON FORK LENGTH

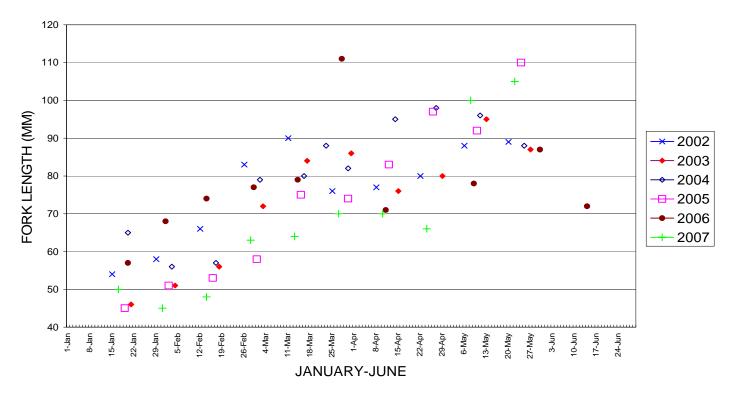


## 2002-2007 TUOLUMNE RIVER SEINING AVERAGE SALMON FORK LENGTH

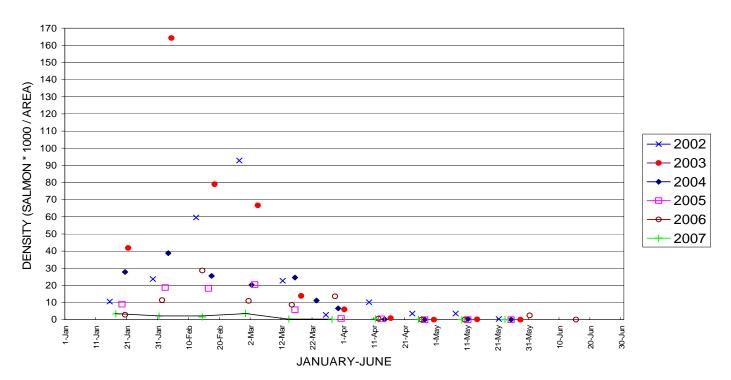


Figures 11 & 12. Minimum and average fork lengths of Tuolumne River salmon, 2002-2007.

## 2002-2007 TUOLUMNE RIVER SEINING MAXIMUM SALMON FORK LENGTH

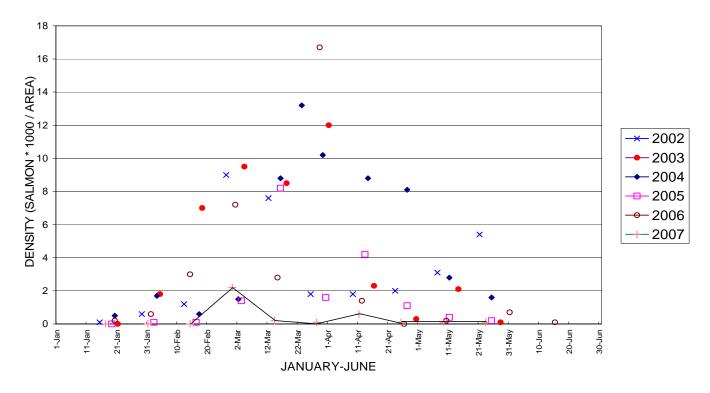


## 2002-2007 TUOLUMNE RIVER SEINING DENSITY OF SALMON FRY (< OR = 50 mm)

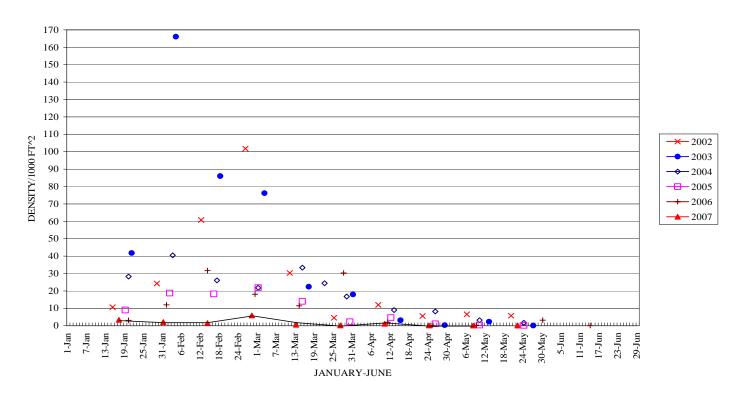


Figures 13 & 14. Maximum fork length and Density index of salmon fry, 2002-2007.

### 2002-2007 TUOLUMNE RIVER SEINING DENSITY OF SALMON JUVENILES (> 50 mm)

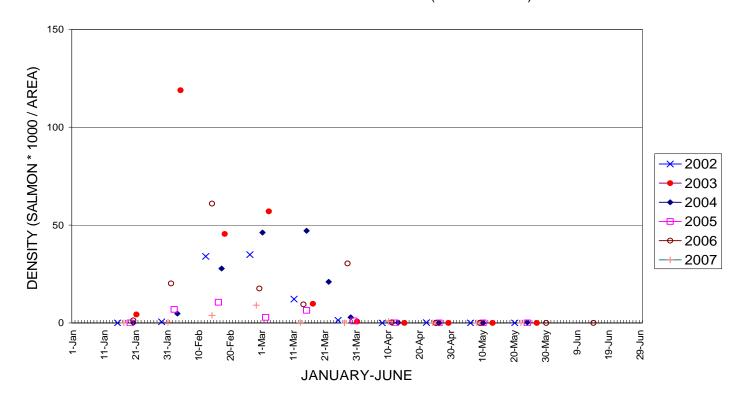


### 2002-2007 TUOLUMNE RIVER SEINING COMBINED FRY AND JUVENILE SALMON DENSITY INDEX



Figures 15 & 16. Density index of salmon juveniles and total river salmon catch, 2002-2007.

### 2002-2007 TUOLUMNE RIVER SEINING MIDDLE SECTION SALMON FRY(< OR = 50MM)





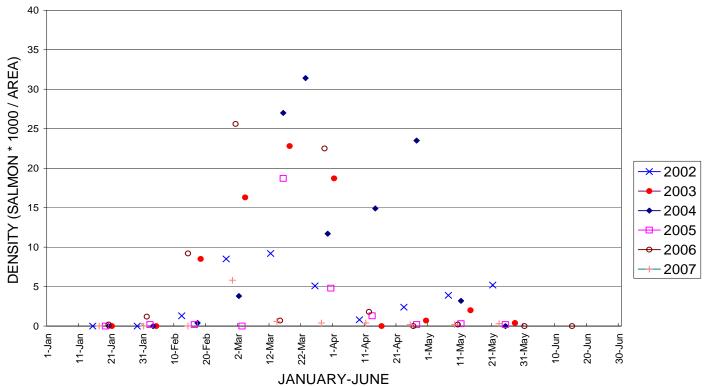
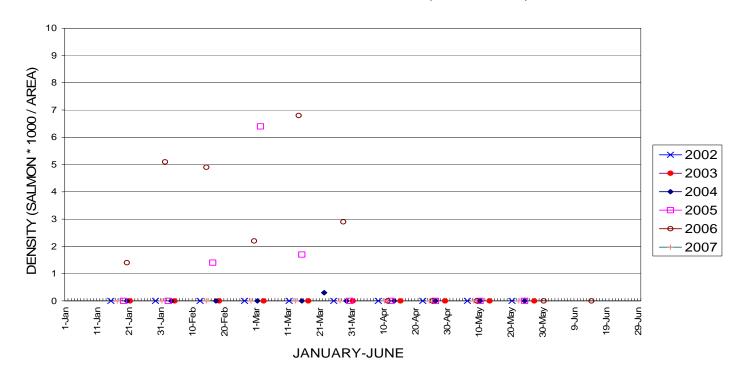


Figure 17. Middle section density indices for salmon fry and juveniles, 2002-2007.

### 2002-2007 TUOLUMNE RIVER SEINING LOWER SECTION SALMON FRY(< OR = 50MM)



## 2002-2007 TUOLUMNE RIVER SEINING LOWER SECTION SALMON JUVENILES (>50MM)

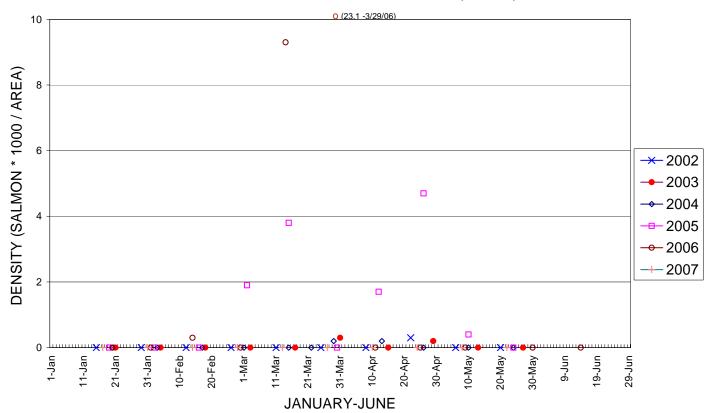
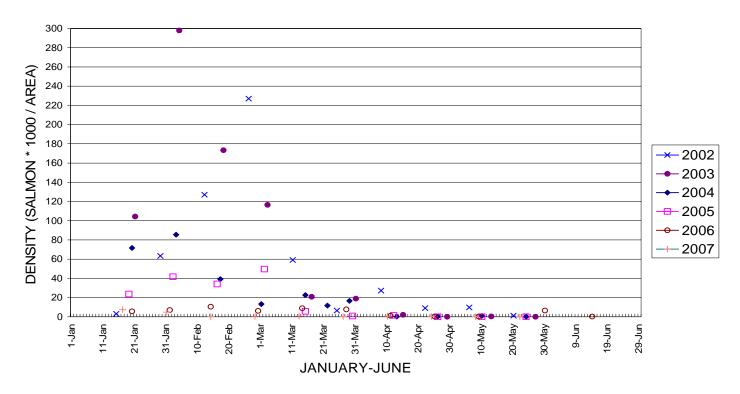


Figure 17. Lower section density indices for salmon fry and juveniles, 2002-2007.

### 2002-2007 TUOLUMNE RIVER SEINING UPPER SECTION SALMON FRY (< OR = 50MM)



## 2002-2007 TUOLUMNE RIVER SEINING UPPER SECTION SALMON JUVENILES (>50MM)

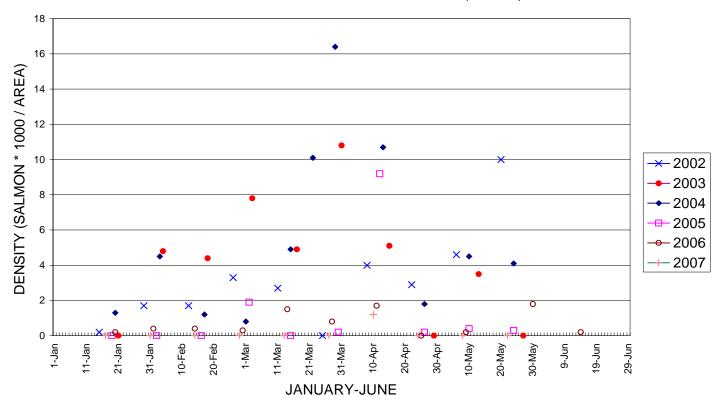


Figure 17. Upper section density indices for salmon fry and juveniles, 2002-2007

.

### TUOLUMNE RIVER ABUNDANCE INDICES STANDARDIZED BY SECTION

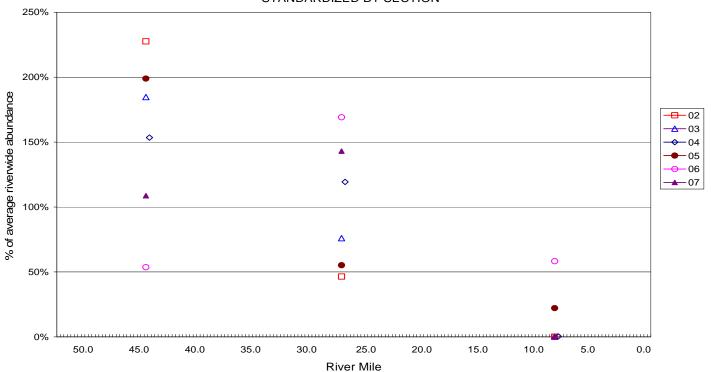


Figure 18. Tuolumne River abundance indices standardized by section, 2002-2007.

#### San Joaquin River Abundance Indices by Location

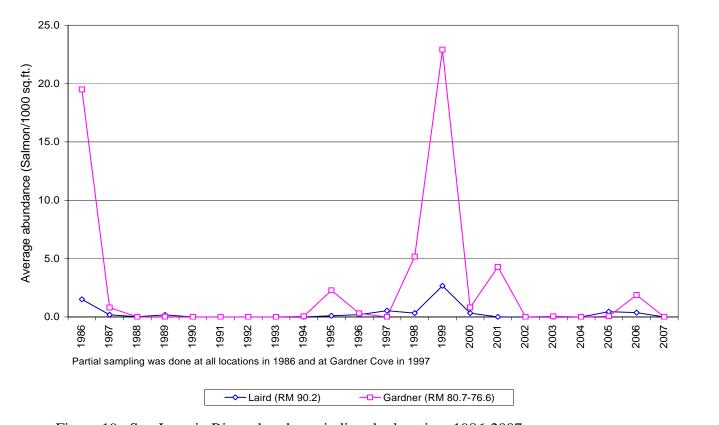


Figure 19. San Joaquin River abundance indices by location, 1986-2007.

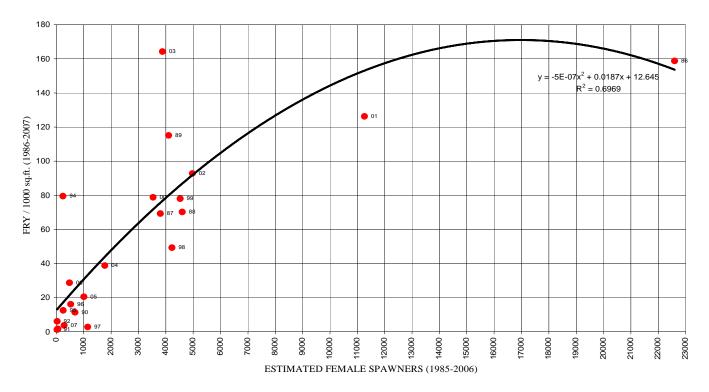
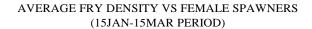


Figure 20. Tuolumne River peak fry density vs female spawners.



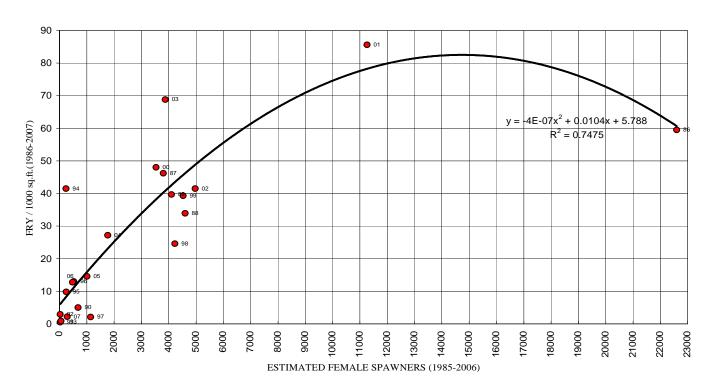


Figure 21. Tuolumne River average fry density vs female spawners.

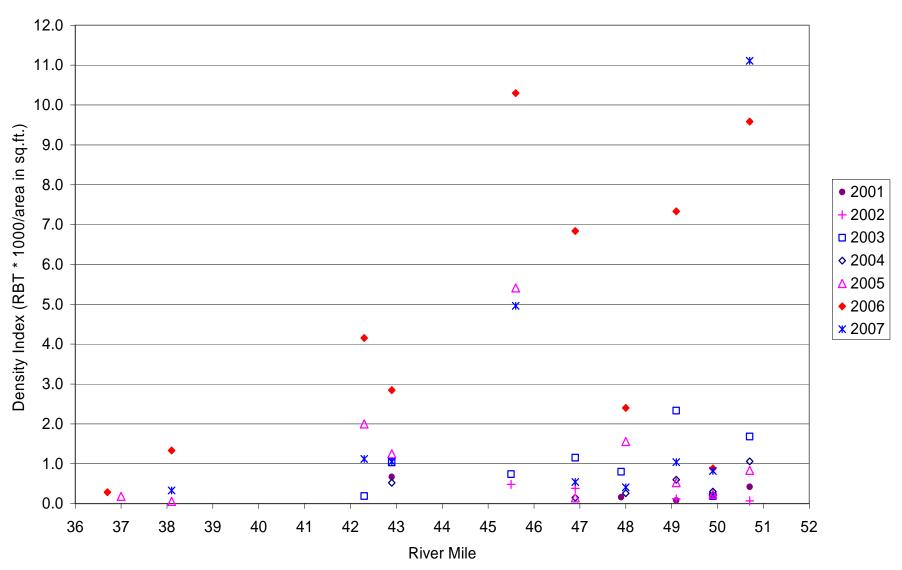


Figure 22. Density indices of O. mykiss observed during the September snorkel surveys

Table 1. Summary table of weekly seine catch for the Tuolumne and San Joaquin rivers, 2007 2007 JUVENILE SALMON SEINING STUDY (TID/MID)

#### TUOLUMNE RIVER

	SALMON	AREA	DENSITY	MINIMUM	MAXIMUM A'	VERAGE	NUMBER	1	NUMBER
DATE	CATCH	(SQ. FT.)	(/1000 ft^2)	FL	FL	FL	MEAS.	SACFRY	KILLED
17JAN	46	13,450	3.4	33	50	38.0	46	0	0
31JAN	29	13,700	2.1	35	45	37.3	29	0	0
14FEB	22	13,850	1.6	36	48	38.0	22	0	0
28FEB	75	12,800	5.9	32	63	48.1	75	0	0
14MAR	8	13,750	0.6	38	64	47.9	8	0	0
28MAR	3	14,150	0.2	45	70	60.0	3	0	0
11APR	15	13,250	1.1	43	70	52.5	15	0	0
25APR	3	12,350	0.2	36	66	46.3	3	0	0
09MAY	1	14,250	0.1	100	100	100.0	1	0	0
23MAY	2	13,950	0.1	68	105	86.5	2	0	0
TOTAL:	204	135,500	1.5				204	0	0

#### SAN JOAQUIN RIVER

	SALMON	AREA	DENSITY MIN	IMUM	MAXIMUM AVER	RAGE	NUMBER	1	NUMBER
DATE	CATCH	(SQ. FT.)	(/1000 ft^2)	FL	FL	FL	MEAS.	SACFRY	KILLED
17JAN	0	2,300	0.0						
31JAN	0	3,100	0.0						
14FEB	0	3,150	0.0						
28FEB	0	3,150	0.0						
14MAR	0	3600	0.0						
28MAR	0	3,400	0.0						
11APR	0	3,600	0.0						
25APR	0	3,000	0.0						
09MAY	0	3,150	0.0						
23MAY	0	3,200	0.0						
TOTAL:	0	31,650	0.0						

Table 2. Summary table of weekly seine catch by location for the Tuolumne and San Joaquin Rivers, 2007

				INIY SCI		,									
2007 Weekly Si	ummary of TID	/MID Seinin	g Study							EXTRAPO	LATED				
Salmon Density	is the Number	r of Salmon	/ 1000 so	q. ft.							MIDDLE			MIDDLE	LOWER
					_	trapolated							SECTION		
Doto	Location	Total Catch	٨٠٥٥	Measured		Density	Density Juvenile		Average	Density	Density	Density	Density	Density Juvenile	Density Juvenile
Date 17JAN	Location OLGB	7	Area 2,400	Fry 7	Juvenile 0	Fry 2.9	0.0	Total 2.9	FL 37.4	Fry 7.4	Fry 0.0	Fry 0.0	Juvenile 0.0	0.0	0.0
17JAN	R5	38	1,600	38	0	23.8	0.0	23.8	38.1	7.4	0.0	0.0	0.0	0.0	0.0
17JAN	TRR	1	2,200	1	0	0.5	0.0	0.5	38.0						
17JAN	HICKMAN	0	1,100					0.0							
17JAN	CHARLES	0	1,200					0.0							
17JAN	LEGION	0	2,400					0.0							
17JAN	RDP	0	1,050					0.0							
17JAN	SHILOH	0	1,500					0.0							
17JAN 17JAN	LAIRD GARDNER	0	900 1,400					0.0							
TUOL.TOT.	GARDNER	46	13450	46	0	3.4	0.0	3.4	38.0						
SJR. TOT.		0	2300	0	0	5.4	0.0	0.0	30.0						
2007 Weekly St	ummary of TID	/MID Seinin	g Study							EXTRAPO	LATED				
Salmon Density	is the Number	r of Salmon	/ 1000 sc	ą. ft.						UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER
						trapolated							SECTION		
		Total		Measured		Density	Density	-	Average	Density	Density	Density	Density	Density	Density
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juvenile
31JAN	OLGB	24 2	2200 1400	24 2	0	10.9	0.0	10.9	36.3	4.8	0.4	0.0	0.0	0.0	0.0
31JAN 31JAN	R5 TRR	1	2000	1	0	1.4 0.5	0.0	1.4 0.5	40.0 45.0						
31JAN	HICKMAN	0	1800	'	U	0.5	0.0	0.0	45.0						
31JAN	CHARLES	2	1350	2	0	1.5	0.0	1.5	42.5						
31JAN	LEGION	0	2400					0.0							
31JAN	RDP	0	900					0.0							
31JAN	SHILOH	0	1650					0.0							
31JAN	LAIRD	0	1500					0.0							
31JAN	GARDNER	0	1600					0.0							
TUOL.TOT.		29	13700	29	0	2.1	0.0	2.1	37.3						
SJR. TOT.		0	3100					0.0							
2007 Weekly Si	ummary of TID	/MID Seinin	a Study							EXTRAPO	LATED				
Salmon Density	•			ı. ft.						UPPER		LOWER	UPPER	MIDDLE	LOWER
,				1	Ex	trapolated						SECTION			
		Total		Measured		Density	Density	Density	Average	Density	Density	Density	Density	Density	Density
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juvenile
14FEB	OLGB	0	2200					0.0		0.2	3.9	0.0	0.0	0.0	0.0
14FEB	R5	1	1400	1	0	0.7	0.0	0.7	40.0						
14FEB	TRR	0	1800		_			0.0							
14FEB	HICKMAN	19	1100	19	0	17.3	0.0	17.3	37.5						
14FEB	CHARLES LEGION	2	1350	2	0	1.5	0.0	1.5	42.5						
14FEB	LEGION	0	3000					0.0							
1/FFR		0	1200												
14FEB 14FEB	RDP	0	1200 1800					0.0							
14FEB 14FEB 14FEB		0 0	1200 1800 1350					0.0							
14FEB	RDP SHILOH	0	1800												
14FEB 14FEB 14FEB TUOL.TOT.	RDP SHILOH LAIRD	0 0 0 22	1800 1350	22	0	1.6	0.0	0.0 0.0 0.0 1.6	38.0						
14FEB 14FEB 14FEB	RDP SHILOH LAIRD	0 0 0	1800 1350 1800	22 0	0	1.6	0.0	0.0 0.0 0.0	38.0						
14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT.	RDP SHILOH LAIRD GARDNER	0 0 0 22 0	1800 1350 1800 13850 3150			1.6	0.0	0.0 0.0 0.0 1.6							
14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT. 2007 Weekly St	RDP SHILOH LAIRD GARDNER	0 0 0 22 0 /MID Seinin	1800 1350 1800 13850 3150 ag Study	0		1.6	0.0	0.0 0.0 0.0 1.6		EXTRAPO					
14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT.	RDP SHILOH LAIRD GARDNER	0 0 0 22 0 /MID Seinin	1800 1350 1800 13850 3150 ag Study	0	0		0.0	0.0 0.0 0.0 1.6		UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER
14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT. 2007 Weekly St	RDP SHILOH LAIRD GARDNER	0 0 0 22 0 /MID Seinir r of Salmon	1800 1350 1800 13850 3150 ag Study	0 q. ft.	0 E <u>x</u>	trapolated		0.0 0.0 0.0 1.6 0.0		UPPER SECTION	MIDDLE SECTION	SECTION	SECTION	SECTION	SECTION
14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT. 2007 Weekly St Salmon Density	RDP SHILOH LAIRD GARDNER ummary of TID. v is the Number	0 0 22 0 /MID Seinir r of Salmon	1800 1350 1800 13850 3150 ag Study / 1000 so	0 q. ft. Measured	0 E <u>x</u> Measured	trapolated Density	Density	0.0 0.0 0.0 1.6 0.0	Average	UPPER SECTION Density	MIDDLE SECTION Density	SECTION Density	SECTION Density	SECTION Density	SECTION Density
14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT. 2007 Weekly St Salmon Density	RDP SHILOH LAIRD GARDNER ummary of TID, y is the Number	0 0 22 0 /MID Seinir r of Salmon Total Catch	1800 1350 1800 13850 3150 ag Study / 1000 so	0 q. ft. Measured	0 E <u>x</u>	trapolated		0.0 0.0 0.0 1.6 0.0		UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Density Juvenile
14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT. 2007 Weekly St Salmon Density	RDP SHILOH LAIRD GARDNER ummary of TID. v is the Number	0 0 22 0 /MID Seinir r of Salmon	1800 1350 1800 13850 3150 ag Study / 1000 so	0 q. ft. Measured	0 E <u>x</u> Measured	trapolated Density	Density	0.0 0.0 0.0 1.6 0.0	Average	UPPER SECTION Density	MIDDLE SECTION Density	SECTION Density	SECTION Density	SECTION Density	SECTION Density
14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT. 2007 Weekly St Salmon Density Date 28FEB	RDP SHILOH LAIRD GARDNER ummary of TID y is the Number Location OLGB	0 0 0 22 0 //MID Seinin r of Salmon Total Catch 0	1800 1350 1800 13850 3150 ag Study / 1000 so Area 2200	0 q. ft. Measured Fry	0 E <u>x</u> Measured Juvenile	trapolated Density Fry	Density Juvenile	0.0 0.0 0.0 1.6 0.0 Density Total 0.0	Average FL	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Density Juvenile
14FEB 14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT. 2007 Weekly St Salmon Density Date 28FEB 28FEB 28FEB 28FEB 28FEB	RDP SHILOH LAIRD GARDNER  ummary of TID. y is the Number  Location OLGB R5 TRR HICKMAN	0 0 22 0 //MID Seinirr r of Salmon Total Catch 0 3 0 70	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1800	0 q. ft. Measured Fry 3	E <u>x</u> Measured Juvenile 0	trapolated  Density Fry  1.7  29.3	Density Juvenile 0.0 17.3	0.0 0.0 0.0 1.6 0.0 Density Total 0.0 1.7 0.0 46.7	Average FL 40.7 48.3	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Density Juvenile
14FEB 14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT. 2007 Weekly St Salmon Density  Date 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB	RDP SHILOH LAIRD GARDNER  ummary of TID y is the Number  Location OLGB R5 TRR HICKMAN CHARLES	0 0 0 22 0 //MID Seinir r of Salmon Total Catch 0 3 0 70 2	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 1350	0 q. ft. Measured Fry 3	0 E <u>x</u> Measured Juvenile 0	trapolated Density Fry 1.7	Density Juvenile 0.0	0.0 0.0 0.0 1.6 0.0 Density Total 0.0 1.7 0.0 46.7	Average FL 40.7	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Density Juvenile
14FEB 14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT. 2007 Weekly St Salmon Density  Date 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB	RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION	0 0 22 0 //MID Seinir r of Salmon Total Catch 0 3 0 70 2	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 1350 2000	0 q. ft. Measured Fry 3	E <u>x</u> Measured Juvenile 0	trapolated  Density Fry  1.7  29.3	Density Juvenile 0.0 17.3	0.0 0.0 0.0 1.6 0.0 Density Total 0.0 1.7 0.0 46.7 1.5	Average FL 40.7 48.3	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Density Juvenile
14FEB 28FEB	RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP	0 0 0 22 0 /MID Seinir r of Salmon Total Catch 0 3 0 70 2 0	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 1350 2000 350	0 q. ft. Measured Fry 3	E <u>x</u> Measured Juvenile 0	trapolated  Density Fry  1.7  29.3	Density Juvenile 0.0 17.3	0.0 0.0 0.0 1.6 0.0 Density Total 0.0 1.7 0.0 46.7 1.5 0.0	Average FL 40.7 48.3	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Density Juvenile
14FEB 14FEB 14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT.  2007 Weekly S Salmon Density  Date 28FEB	RDP SHILOH  GARDNER   Ummary of TID.  I is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION SHILOH	0 0 22 0 /MID Seinir r of Salmon Total Catch 0 3 0 0 70 2 0	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 1350 2000 350 1800	0 q. ft. Measured Fry 3	E <u>x</u> Measured Juvenile 0	trapolated  Density Fry  1.7  29.3	Density Juvenile 0.0 17.3	0.0 0.0 0.0 1.6 0.0 Density Total 0.0 1.7 0.0 46.7 1.5	Average FL 40.7 48.3	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Density Juvenile
14FEB 14FEB 14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT.  2007 Weekly St Salmon Density  Date 28FEB	RDP SHILOH LAIRD GARDNER  ummary of TID y is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD	0 0 0 22 0 //MID Seinir r of Salmon Total Catch 0 3 0 70 70 2 0	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 2000 350 1800 1350	0 q. ft. Measured Fry 3	E <u>x</u> Measured Juvenile 0	trapolated  Density Fry  1.7  29.3	Density Juvenile 0.0 17.3	0.0 0.0 0.0 1.6 0.0 Density Total 0.0 1.7 0.0 46.7 1.5 0.0 0.0	Average FL 40.7 48.3	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Density Juvenile
14FEB 14FEB 14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT.  2007 Weekly St Salmon Density  Date 28FEB	RDP SHILOH  GARDNER   Ummary of TID.  I is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION SHILOH	0 0 22 0 /MID Seinir r of Salmon Total Catch 0 3 0 0 70 2 0	1800 1350 1800 13850 3150 3150 9g Study / 1000 sc 1800 1800 1350 2000 350 1800 1350 1350 1350	0 q. ft. Measured Fry 3	E <u>x</u> Measured Juvenile 0	trapolated  Density Fry  1.7  29.3	Density Juvenile 0.0 17.3	0.0 0.0 0.0 1.6 0.0 Density Total 0.0 1.7 0.0 46.7 1.5 0.0 0.0	Average FL 40.7 48.3	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Density Juvenile
14FEB 14FEB 14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT.  2007 Weekly St Salmon Density  Date 28FEB	RDP SHILOH LAIRD GARDNER  ummary of TID y is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD	0 0 0 22 0 //MID Seinir r of Salmon Total Catch 0 3 0 70 2 0 0	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 2000 350 1800 1350	0 q. ft. Measured Fry 3 44 0	Ex. Measured Juvenile 0 26 2	trapolated Density Fry 1.7 29.3 0.0	Density Juvenile 0.0 17.3 1.5	0.0 0.0 0.0 1.6 0.0 Density Total 0.0 1.7 0.0 46.7 1.5 0.0 0.0	Average FL 40.7 48.3 55.5	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Density Juvenile
14FEB 14FEB 14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT.  2007 Weekly St Salmon Density  Date 28FEB 78FEB 28FEB 78FEB	RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER	0 0 0 22 0 //MID Seinir r of Salmon Total Catch 0 3 0 70 0 0 0 0	1800 1350 1800 13850 3150 3150 9g Study / 1000 sc 1800 1800 1350 2000 350 1800 1350 1800 1350 1800	0 n. ft. Measured Fry 3 44 0	Ex_Measured Juvenile 0 26 2	trapolated Density Fry 1.7 29.3 0.0	Density Juvenile 0.0 17.3 1.5	0.0 0.0 0.0 1.6 0.0 Density Total 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0	Average FL 40.7 48.3 55.5	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Density Juvenile
14FEB	RDP SHILOH LAIRD GARDNER  ummary of TID. y is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER	0 0 0 22 0 //MID Seinir r of Salmon Total Catch 0 3 0 0 0 0 0 0 0	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 1350 2000 350 1800 1350 1800 12800 3150	0 App. ft. Measured Fry 3 44 0	Ex_Measured Juvenile 0 26 2	trapolated Density Fry 1.7 29.3 0.0	Density Juvenile 0.0 17.3 1.5	0.0 0.0 0.0 1.6 0.0 Density Total 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0	Average FL 40.7 48.3 55.5	UPPER SECTION Density Fry 0.5	MIDDLE SECTION Density Fry 9.1	SECTION Density Fry 0.0	SECTION Density Juvenile 0.0	SECTION Density Juvenile 5.8	SECTION Density Juvenile 0.0
14FEB 14FEB 14FEB 14FEB 14FEB TUOL.TOT. SJR. TOT.  2007 Weekly St Salmon Density  Date 28FEB 78FEB 28FEB 78FEB	RDP SHILOH LAIRD GARDNER  ummary of TID. y is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER	0 0 0 22 0 //MID Seinir r of Salmon Total Catch 0 3 0 0 0 0 0 0 0	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 1350 2000 350 1800 1350 1800 12800 3150	0 A. ft. Measured Fry 3 44 0	Ex_Measured_Juvenile 0 26 2	Density Fry 1.7 29.3 0.0	Density Juvenile 0.0 17.3 1.5	0.0 0.0 0.0 1.6 0.0 Density Total 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0	Average FL 40.7 48.3 55.5	UPPER SECTION Density Fity 0.5	MIDDLE SECTION Density Fry 9.1	SECTION Density Fry 0.0	SECTION Density Juvenile 0.0	SECTION Density Juvenile 5.8	SECTION Density Juvenile 0.0
14FEB	RDP SHILOH LAIRD GARDNER  ummary of TID. y is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER	0 0 0 22 0 //MID Seinir r of Salmon Total Catch 0 70 2 0 0 0 0 75 75 0	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 1350 2000 350 1800 1350 1800 12800 3150	0 A, ft.  Measured Fry 3 44 0	0  Ex Measured Juvenile  0  26 2  28 0	trapolated Density Fry 1.7 29.3 0.0	Density Juvenile 0.0 17.3 1.5	0.0 0.0 0.0 1.6 0.0 Total 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0	Average FL 40.7 48.3 55.5	UPPER SECTION Density Fry 0.5	MIDDLE SECTION Density Fity 9.1	SECTION Density Fry 0.0	SECTION Density Juvenile 0.0	SECTION Density Juvenile 5.8  MIDDLE SECTION	SECTION Density Juvenile 0.0
14FEB 2007 Weekly St Salmon Density  Date 28FEB 38FEB 28FEB 28FEB 28FEB 38FEB 28FEB 38FEB 28FEB 38FEB	RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER	/MID Seinir r of Salmon	1800 1350 1800 13850 3150 19 Study / 1000 sc 1800 1500 2000 350 1800 1350 1800 12800 3150 12800 3150 12800 3150 12800 3150	0 Measured Fry 3 44 0	0  Ex Measured Juvenile 0 26 2  28 0  Measured	Density Fry 1.7 29.3 0.0 3.7	Density Juvenile 0.0 17.3 1.5	0.0 0.0 0.0 1.6 0.0 Total 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 0.0	Average FL 40.7 48.3 55.5 48.1	UPPER SECTION Density Fry 0.5	MIDDLE SECTION Density Fry 9.1	SECTION Density Fry 0.0  LOWER SECTION Density	SECTION Density Juvenile 0.0  UPPER SECTION Density	SECTION Density Juvenile 5.8  MIDDLE SECTION Density	SECTION Density Juvenile 0.0  LOWER SECTION Density
14FEB	RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number Location	0 0 0 22 0 //MID Seinir r of Salmon  Total Catch 0 3 0 0 0 0 7 0 0 0 //MID Seinir r of Salmon  Total Catch	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 1350 2000 1350 1800 12800 3150 12800 3150 12800 3150 4700 sc	0 n. ft.  Measured Fry 3 44 0 47 0 4. ft.  Measured Fry	Measured Juvenile  0 26 2  28 0  Measured Juvenile	trapolated Density Fry 1.7 29.3 0.0 3.7 trapolated Density Fry	Density Juvenile 0.0 17.3 1.5	0.0 0.0 0.0 1.6 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 0.0	Average FL 40.7 48.3 55.5 48.1 Average FL	UPPER SECTION Density Fity 0.5	MIDDLE SECTION Density F17 9.1  LATED MIDDLE SECTION Density F17 F17	SECTION Density Fry 0.0  LOWER SECTION Density Fry	SECTION Density Juvenile 0.0  UPPER SECTION Density Juvenile	SECTION Density Juvenile 5.8  MIDDLE SECTION Density Juvenile	SECTION Density Juvenile 0.0  LOWER SECTION Density Juvenile
14FEB 15FEB 16FEB 16FEB 17UOL.TOT. 16JEB 1	RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB	0 0 0 22 0 /MID Seinir r of Salmon Total Catch 0 3 0 0 0 75 0 /MID Seinir r of Salmon Total Catch 3 0 0 0 Total Catch 3 0 0 0 0 Total Catch 3 0 0 0 0 0 0 0 75 0 75 0 /MID Seinir r of Salmon Total Catch 3	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 2000 350 1800 1350 1800 12800 12800 12800 7 1000 sc	0 Measured Fry 3 44 0 47 0 Measured Fry 3	0  Ex_ Measured Juvenile	trapolated Density Fry 1.7 29.3 0.0 3.7 trapolated Density Fry 1.3	Density Juvenile 0.0 17.3 1.5 2.2 Density Juvenile	0.0 0.0 0.0 1.6 0.0 1.6 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 0.0	Average FL 48.1 Average FL 42.7	UPPER SECTION Density Fry 0.5	MIDDLE SECTION Density Fry 9.1	SECTION Density Fry 0.0  LOWER SECTION Density	SECTION Density Juvenile 0.0  UPPER SECTION Density	SECTION Density Juvenile 5.8  MIDDLE SECTION Density	SECTION Density Juvenile 0.0  LOWER SECTION Density
14FEB 26FEB 28FEB 10L.TOT. SJR. TOT.	RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 R5 R8 HICKMAN LAIRD CHARLES LEGION RDP SHILOH LAIRD GARDNER	/MID Seinir r of Salmon  Total Catch 0 0 0 22 0 /MID Seinir r of Salmon 70 2 0 0 0 75 5 0 /MID Seinir r of Salmon Total Catch 3 1	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 1350 2000 350 1800 1350 1800 1350 1800 1400 4 Area 2400 1400	0 n. ft.  Measured Fry 3 44 0 47 0 4. ft.  Measured Fry	Measured Juvenile  0 26 2  28 0  Measured Juvenile	trapolated Density Fry 1.7 29.3 0.0 3.7 trapolated Density Fry	Density Juvenile 0.0 17.3 1.5	0.0 0.0 0.0 1.6 0.0 Total 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 0.0 Density Total 1.3 0.0	Average FL 40.7 48.3 55.5 48.1 Average FL	UPPER SECTION Density Fity 0.5	MIDDLE SECTION Density F17 9.1  LATED MIDDLE SECTION Density F17 F17	SECTION Density Fry 0.0  LOWER SECTION Density Fry	SECTION Density Juvenile 0.0  UPPER SECTION Density Juvenile	SECTION Density Juvenile 5.8  MIDDLE SECTION Density Juvenile	SECTION Density Juvenile 0.0  LOWER SECTION Density Juvenile
14FEB 26FEB 28FEB 100L.TOT. SJR. TOT.  2007 Weekly St Salmon Density Date 14MAR 14MAR 14MAR	RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB RS TRR HICKMAN RDP SHILOH LAIRD GARDNER	0 0 0 22 0 /MID Seinir r of Salmon Total Catch 0 3 0 0 0 75 0 /MID Seinir r of Salmon Total Catch 3 0 0 0 Total Catch 3 0 0 0 0 Total Catch 3 0 0 0 0 0 0 0 75 0 75 0 /MID Seinir r of Salmon Total Catch 3	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 2000 350 1800 1350 1800 12800 12800 12800 7 1000 sc	0 Measured Fry 3 44 0 47 0 Measured Fry 3	0  Ex_ Measured Juvenile	trapolated Density Fry 1.7 29.3 0.0 3.7 trapolated Density Fry 1.3	Density Juvenile 0.0 17.3 1.5 2.2 Density Juvenile	0.0 0.0 0.0 1.6 0.0 1.6 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Average FL 48.1 Average FL 42.7	UPPER SECTION Density Fity 0.5	MIDDLE SECTION Density F17 9.1  LATED MIDDLE SECTION Density F17 F17	SECTION Density Fry 0.0  LOWER SECTION Density Fry	SECTION Density Juvenile 0.0  UPPER SECTION Density Juvenile	SECTION Density Juvenile 5.8  MIDDLE SECTION Density Juvenile	SECTION Density Juvenile 0.0  LOWER SECTION Density Juvenile
14FEB 26FEB 28FEB 10L.TOT. SJR. TOT.	RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 R5 R8 HICKMAN LAIRD CHARLES LEGION RDP SHILOH LAIRD GARDNER	0 0 0 0 22 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1800 1350 1800 13850 3150 19 Study / 1000 sc 1800 1500 1350 2000 0 350 1800 12800 3150 12800 3150 12800 3150 4 Area 2400 1400 sc	0 Measured Fry 3 44 0 47 0 Measured Fry 3	0  Ex_ Measured Juvenile	trapolated Density Fry 1.7 29.3 0.0 3.7 trapolated Density Fry 1.3	Density Juvenile 0.0 17.3 1.5 2.2 Density Juvenile	0.0 0.0 0.0 1.6 0.0 Total 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 0.0 Density Total 1.3 0.0	Average FL 48.1 Average FL 42.7	UPPER SECTION Density Fity 0.5	MIDDLE SECTION Density F17 9.1  LATED MIDDLE SECTION Density F17 F17	SECTION Density Fry 0.0  LOWER SECTION Density Fry	SECTION Density Juvenile 0.0  UPPER SECTION Density Juvenile	SECTION Density Juvenile 5.8  MIDDLE SECTION Density Juvenile	SECTION Density Juvenile 0.0  LOWER SECTION Density Juvenile
14FEB 15FEB 16FEB 16FEB 17FEB 17FEB 18FEB	RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION ADP SHILOH LAIRD GARDNER  Location OLGB R5 TRR HICKMAN CHARLES LEGION CHARLES LEGION LAIRD CHARLES LEGION CHARLES LEGION	0 0 0 0 22 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 1350 2000 1350 1800 12800 3150 12800 3150 12800 4 / 1000 sc Area 2400 1400 1400 1800 1800 1800 1800 1800 1	0 Measured Fry 3 44 0 47 0 4. ft. Measured Fry 3 1	Measured Juvenile  26 2  28 0  Measured Juvenile 0 0 0	Density Fry 1.7 29.3 0.0 3.7  trapolated Density Fry 1.3 0.7	Density Juvenile 0.0 17.3 1.5 2.2 Density Juvenile 0.0 0.0	0.0 0.0 0.0 1.6 0.0 1.6 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Average FL 40.7 48.3 55.5 48.1 Average FL 42.7 39.0	UPPER SECTION Density Fity 0.5	MIDDLE SECTION Density F17 9.1  LATED MIDDLE SECTION Density F17 F17	SECTION Density Fry 0.0  LOWER SECTION Density Fry	SECTION Density Juvenile 0.0  UPPER SECTION Density Juvenile	SECTION Density Juvenile 5.8  MIDDLE SECTION Density Juvenile	SECTION Density Juvenile 0.0  LOWER SECTION Density Juvenile
14FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 10L.TOT. SJR. TOT. 2007 Weekly St Salmon Density Date 14MAR 14MAR 14MAR 14MAR 14MAR 14MAR	RDP SHILOH LAIRD GARDNER  ummary of TID. y is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION GARDNER  ummary of TID. y is the Number  LAIRD GARDNER  LOCATION OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH CHARLES LEGION RDP CHARLES LEGION RDP R5 TRR HICKMAN CHARLES LEGION RDP	0   0   0   0   22   0   0   1   1   1   1   1   1   1   1	1800 1350 1800 13850 3150 19 Study / 1000 sc 2200 1800 1500 1350 2000 1350 1800 12800 3150 12800 3150 12800 3150 12800 3150 12800 3150 12800 128	0 Measured Fry 3 44 0 47 0 4. ft. Measured Fry 3 1	Measured Juvenile  26 2  28 0  Measured Juvenile 0 0 0	Density Fry 1.7 29.3 0.0 3.7  trapolated Density Fry 1.3 0.7	Density Juvenile 0.0 17.3 1.5 2.2 Density Juvenile 0.0 0.0	0.0 0.0 0.0 0.0 1.6 0.0 1.6 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Average FL 40.7 48.3 55.5 48.1 Average FL 42.7 39.0	UPPER SECTION Density Fity 0.5	MIDDLE SECTION Density F17 9.1  LATED MIDDLE SECTION Density F17 F17	SECTION Density Fry 0.0  LOWER SECTION Density Fry	SECTION Density Juvenile 0.0  UPPER SECTION Density Juvenile	SECTION Density Juvenile 5.8  MIDDLE SECTION Density Juvenile	SECTION Density Juvenile 0.0  LOWER SECTION Density Juvenile
14FEB	RDP SHILOH LAIRD GARDNER  Ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER  Ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH CHARLES LEGION RDP SHILOH CHARLES LEGION RDP SHILOH	0 0 0 22 0 /MID Seinir r of Salmon 70 2 0 0 0 0 75 0 0 0 75 0 75 0 75 0 75	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 1350 2000 1350 1800 12800 3150 12800 12800 1400 sc 4400 1400 1650 2400 1200 1650 2400 1100 1200 1650 2400 1100 1800	0 Measured Fry 3 44 0 47 0 4. ft. Measured Fry 3 1	Measured Juvenile  26 2  28 0  Measured Juvenile 0 0 0	Density Fry 1.7 29.3 0.0 3.7  trapolated Density Fry 1.3 0.7	Density Juvenile 0.0 17.3 1.5 2.2 Density Juvenile 0.0 0.0	0.0 0.0 0.0 1.6 0.0 1.6 0.0 1.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Average FL 40.7 48.3 55.5 48.1 Average FL 42.7 39.0	UPPER SECTION Density Fity 0.5	MIDDLE SECTION Density F17 9.1  LATED MIDDLE SECTION Density F17 F17	SECTION Density Fry 0.0  LOWER SECTION Density Fry	SECTION Density Juvenile 0.0  UPPER SECTION Density Juvenile	SECTION Density Juvenile 5.8  MIDDLE SECTION Density Juvenile	SECTION Density Juvenile 0.0  LOWER SECTION Density Juvenile
14FEB 28FEB 10L.TOT. SJR. TOT. 2007 Weekly St Salmon Density  Date 14MAR	RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER  Ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD	0 0 0 0 22 0 /MID Seinirr of Salmon Total Catch 0 3 0 0 0 70 75 0 /MID Seinir of Salmon Total Catch 0 0 0 0 0 0 0 0 4 0 0 0 0 0 0 0 0 0 0	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 3150 3150 1800 1350 12800 3150 12800 1400 1400 1400 1400 1400 1400 1400 1	0 Measured Fry 3 44 0 47 0 4. ft. Measured Fry 3 1	Measured Juvenile  26 2  28 0  Measured Juvenile 0 0 0	Density Fry 1.7 29.3 0.0 3.7  trapolated Density Fry 1.3 0.7	Density Juvenile 0.0 17.3 1.5 2.2 Density Juvenile 0.0 0.0	0.0 0.0 0.0 0.0 1.6 0.0 1.7 0.0 1.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Average FL 48.1 Average FL 42.7 39.0	UPPER SECTION Density Fity 0.5	MIDDLE SECTION Density F17 9.1  LATED MIDDLE SECTION Density F17 F17	SECTION Density Fry 0.0  LOWER SECTION Density Fry	SECTION Density Juvenile 0.0  UPPER SECTION Density Juvenile	SECTION Density Juvenile 5.8  MIDDLE SECTION Density Juvenile	SECTION Density Juvenile 0.0  LOWER SECTION Density Juvenile
14FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 10L.TOT. SJR. TOT. 2007 Weekly St Salmon Density Date 14MAR	RDP SHILOH LAIRD GARDNER  Ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER  Ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH CHARLES LEGION RDP SHILOH CHARLES LEGION RDP SHILOH	0   0   0   0   0   0   0   0   0   0	1800 1350 1350 13800 13850 3150 19 Study / 1000 sc  Area 2200 1800 1500 1350 1800 12800 3150 1800 12800 3150 4 Area 2400 1400 sc  Area 2400 1400 1500 1200 1650 1800 1200 1800 1800 1800 1800 1800	, ft.  Measured Fry  3  44  0  47  0  1, ft.  Measured Fry  3  1	Measured Juvenile  0 26 2  28 0  Measured Juvenile 0 3 3	trapolated Density Fry 1.7 29.3 0.0 3.7 trapolated Density Fry 1.3 0.7 0.6	Density Juvenile  0.0  17.3  1.5  2.2  Density Juvenile  0.0  0.0  1.8	0.0 0.0 0.0 0.0 1.6 0.0 1.6 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Average FL 48.1 Average FL 42.7 39.0 54.0	UPPER SECTION Density Fity 0.5	MIDDLE SECTION Density F17 9.1  LATED MIDDLE SECTION Density F17 F17	SECTION Density Fry 0.0  LOWER SECTION Density Fry	SECTION Density Juvenile 0.0  UPPER SECTION Density Juvenile	SECTION Density Juvenile 5.8  MIDDLE SECTION Density Juvenile	SECTION Density Juvenile 0.0  LOWER SECTION Density Juvenile
14FEB 28FEB 10L.TOT. SJR. TOT. 2007 Weekly St Salmon Density  Date 14MAR	RDP SHILOH LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD GARDNER  Ummary of TID. v is the Number  Location OLGB R5 TRR HICKMAN CHARLES LEGION RDP SHILOH LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD	0 0 0 0 22 0 /MID Seinirr of Salmon Total Catch 0 3 0 0 0 70 75 0 /MID Seinir of Salmon Total Catch 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1800 1350 1800 13850 3150 19 Study / 1000 sc Area 2200 1800 1500 3150 3150 1800 1350 12800 3150 12800 1400 1400 1400 1400 1400 1400 1400 1	0 Measured Fry 3 44 0 47 0 4. ft. Measured Fry 3 1	Measured Juvenile  26 2  28 0  Measured Juvenile 0 0 0	Density Fry 1.7 29.3 0.0 3.7  trapolated Density Fry 1.3 0.7	Density Juvenile 0.0 17.3 1.5 2.2 Density Juvenile 0.0 0.0	0.0 0.0 0.0 0.0 1.6 0.0 1.7 0.0 1.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Average FL 48.1 Average FL 42.7 39.0	UPPER SECTION Density Fity 0.5	MIDDLE SECTION Density F17 9.1  LATED MIDDLE SECTION Density F17 F17	SECTION Density Fry 0.0  LOWER SECTION Density Fry	SECTION Density Juvenile 0.0  UPPER SECTION Density Juvenile	SECTION Density Juvenile 5.8  MIDDLE SECTION Density Juvenile	SECTION Density Juvenile 0.0  LOWER SECTION Density Juvenile

#### Table 2 (Continued)

28MAR

28MAR

TUOL.TOT. SJR. TOT.

2007 Weekly Summary of TID/MID Seining Study
Salmon Density is the Number of Salmon / 1000 sq. ft.

1 4510 2 (	5011ttt11404	'/													
2007 Weekly St	ummary of TID/	MID Seining	Study							<b>EXTRAPO</b>	LATED				
Salmon Density	is the Number	of Salmon /	1000 sq.	ft.						UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER
	Extrapolated									SECTION	SECTION	SECTION	SECTION	SECTION	SECTION
		Total	Measured Measured Density Density					Density	Average	Density	Density	Density	Density	Density	Density
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juvenile
28MAR	OLGB	1	2400	1	0	0.4	0.0	0.4	45.0	0.2	0.0	0.0	0.0	0.4	0.0
28MAR	R5	0	1400					0.0							
28MAR	TRR	0	2400					0.0							
28MAR	HICK	0	1200					0.0							
28MAR	CHARLES	2	1500	0	2	0.0	1.3	1.3	67.5						
28MAR	LEGION	0	2400					0.0							
28MAR	RDP	0	1050					0.0							
28MAR	SHII OH	Λ	1800					0.0							

0.0

0.0

0.0

0.0

<u>EXTRAPOLATE</u>D

EXTRAPOLATED

EXTRAPOLATED

UPPER MIDDLE LOWER UPPER MIDDLE LOWER

LAIRD

GARDNER

1600

1800

3400

0

2007 Weekly S	007 Weekly Summary of TID/MID Seining Study												EXTRAPOLATED					
Salmon Density	is the Number	of Salmon	/ 1000 sq.	ft.					;	UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER			
						rapolated				SECTION	SECTION	SECTION	SECTION	SECTION	SECTION			
		Total	Measured Measured Density Density						Average	Density	Density	Density	Density	Density	Density			
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juvenile			
11APR	OLGB	0	2000					0.0		0.6	0.8	0.0	1.2	0.4	0.0			
11APR	R5	9	1400	3	6	2.1	4.3	6.4	53.0									
11APR	TRR	0	1800					0.0										
11APR	HICK	6	1000	4	2	4.0	2.0	6.0	51.7									
11APR	CHARLES	0	1350					0.0										
11APR	LEGION	0	2400					0.0										
11APR	RDP	0	1500					0.0										
11APR	SHILOH	0	1800					0.0										
11APR	LAIRD	0	1800															
11APR	GARDNER	0	1800					0.0										
TUOL.TOT.		15	13250	7	8	0.5	0.6	1.1	52.5									
SJR. TOT.		0	3600					0.0										

0.0

2007 Weekly Summary of TID/MID Seining Study

Salmon Density	y is the Number	of Salmon	/ 1000 sq	. ft.						UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER
					Ext	trapolated				SECTION	<b>SECTION</b>	SECTION	SECTION	SECTION	SECTION
		Total		Measured	Measured	Density	Density	Density	Average	Density	Density	Density	Density	Density	Density
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juvenile
25APR	OLGB	2	2250	2	0	0.9	0.0	0.9	36.5	0.4	0.0	0.0	0.0	0.2	0.0
25APR	R5	0	1800					0.0							
25APR	TRR	0	1650					0.0							
25APR	HICK	1	1350	0	1	0.0	0.7	0.7	66.0						
25APR	CHARLES	0	1200					0.0							
25APR	LEGION	0	1800					0.0							
25APR	RDP	0	500					0.0							
25APR	SHILOH	0	1800					0.0							
25APR	LAIRD	0	1200					0.0							
25APR	GARDNER	0	1800					0.0							
TUOL.TOT.		3	12350	2	1	0.2	0.1	0.2	46.3						
SJR, TOT.		0	3000					0.0							

2007 Weekly Summary of TID/MID Seining Study

2007 Weeking O	arrinary or rib	WIID COILIII	golday							EXTITUTE O					
Salmon Density	is the Number	of Salmon	/ 1000 sc	ą. ft.						UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER
					Ext	rapolated				SECTION	SECTION	SECTION	SECTION	SECTION	SECTION
		Total		Measured	Measured	Density	Density	Density	Average	Density	Density	Density	Density	Density	Density
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juvenile
09MAY	OLGB	0	2400					0.0		0.0	0.0	0.0	0.0	0.2	0.0
09MAY	R5	0	1500					0.0							
09MAY	TRR	0	1800					0.0							
09MAY	HICK	1	1500	0	1	0.0	0.7	0.7	100.0						
09MAY	CHARLES	0	1800					0.0							
09MAY	LEGION	0	2400					0.0							
09MAY	RDP	0	1050					0.0							
09MAY	SHILOH	0	1800					0.0							
09MAY	LAIRD	0	1350					0.0							
09MAY	GARDNER	0	1800					0.0							
TUOL.TOT.		1	14250	0	1	0.0	0.1	0.1	100.0						
SJR. TOT.		0	3150					0.0							

2007 Weekly Summary of TID/MID Seining Study

Salmon Density is the Number of Salmon / 1000 sq. ft.

	,														
					Ext	rapolated				<b>SECTION</b>	SECTION	SECTION	SECTION	SECTION	SECTION
		Total	N	<b>Neasured</b>	Measured	Density	Density	Density	Average	Density	Density	Density	Density	Density	Density
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juvenile
23MAY	OLGB	0	1800					0.0		0.0	0.0	0.0	0.0	0.3	0.0
23MAY	R5	0	1800					0.0							
23MAY	TRR	0	1800					0.0							
23MAY	HICK	1	1800	0	1	0.0	0.6	0.6	68.0						
23MAY	CHARLES	1	1650	0	1	0.0	0.6	0.6	105.0						
23MAY	LEGION	0	2400					0.0							
23MAY	RDP	0	900					0.0							
23MAY	SHILOH	0	1800					0.0							
23MAY	LAIRD	0	1400					0.0							
23MAY	GARDNER	0	1800					0.0							
TUOL.TOT.		2	13950	0	2	0.0	0.1	0.1	86.5						
SJR. TOT.		0	3200					0.0							

Table 3. Summary table of weekly seine catch by location for the Tuolumne and San Joaquin Rivers, 2007.

2007 TUOLUMNE RIVER SEINING STUDY (TID/MID)

	MINE RIVER SE	INING 510	DY (TID/MIE	0)															
DATE	LOCATION	RIVER MILE	CATCH	AREA	DENSITY (/1000ft^2)	FL MIN.	FL MAX.	FL AVG.	NO. MEAS.	SACFRY	NO. KILLED	WATER TEMP.	ELEC. COND.	SMOLT FL	SECTION D UPPER		LOWER	TURB.	D.O. (ppm)
17JAN 17JAN 17JAN 17JAN 17JAN 17JAN 17JAN	OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH	50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	7 38 1 0 0 0 0	2,400 1,600 2,200 1,100 1,200 2,400 1,050 1,500	2.9 23.8 0.5 0.0 0.0 0.0 0.0	33 34 38	43 50 38	37.4 38.1 38.0	7 38 1	0 0 0	0 0 0	10.7 10.3 9.1 8.4 8.6 8.4 8.0 8.7	29 31 38 50 88 111 137 161		7.4	0.0	0.0	0.8 0.2 0.7 0.9 0.8 1.1 0.6 0.8	10.9 11.8 12.1 12.5 13.1 12.4 12.9 12.3
17JAN 17JAN TR TOT.	LAIRD GARDNER	90.2 79.5	0 0 46	900 1,400 13450	0.0 0.0 3.4	33	50	38.0	46	0	0	7.7 7.3	1199 912					14.0 8.0	12.0 12.3
SJR TOT. 2007 TUOLU	MNE RIVER SE	INING STU	0 DY (TID/MIE	2300	0.0				0										
DATE	LOCATION	RIVER MILE	CATCH	AREA	DENSITY (/1000ft^2)	FL MIN.	FL MAX.	FL AVG.	NO. MEAS.	SACFRY	NO. KILLED	WATER TEMP.	ELEC. COND.	SMOLT FL	SECTION E UPPER		LOWER	TURB.	D.O. (ppm)
31JAN 31JAN 31JAN 31JAN 31JAN 31JAN 31JAN 31JAN 31JAN	OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER	50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5	24 2 1 0 2 0 0 0	2200 1400 2000 1800 1350 2400 900 1650	10.9 1.4 0.5 0.0 1.5 0.0 0.0 0.0	35 35 45 40	38 45 45 45	36.3 40.0 45.0 42.5	24 2 1 2	0 0 0	0 0 0	10.4 10.0 9.9 10.4 11.3 11.2 11.6 12.2 12.5 11.9	33 34 40 52 83 110 132 152 1377 980		4.8	0.4	0.0	0.6 0.5 0.4 1.5 0.9 1.0 1.2 0.7	10.9 10.9 10.8 10.6 11.0 10.4 10.8 10.3
TR TOT. SJR TOT.			29 0	13700 3100	2.1 0.0	35	45	37.3	29 0	0	0								
2007 TUOLU	MNE RIVER SE		DY (TID/MIE	0)	DEMOIT	-	-	-					51.50		05071011				
DATE	LOCATION	RIVER MILE	CATCH	AREA	DENSITY (/1000ft^2)	FL MIN.	FL MAX.	FL AVG.	NO. MEAS.	SACFRY	NO. KILLED	WATER TEMP.	ELEC. COND.	FL		MIDDLE	LOWER	TURB.	D.O. (ppm)
14FEB 14FEB 14FEB	OLGB R5 TRR	50.5 48.0 42.3	0 1 0	2200 1400 1800	0.0 0.7 0.0	40	40	40.0	1	0	0	10.4 10.5 10.3	36 38 44		0.2	3.9	0.0	0.9 1.1 1.5	13.9 13.6 13.4
14FEB 14FEB	HICK CHARLES	31.6 24.9	19	1100 1350	17.3 1.5	36 42	48 43	37.5 42.5	19 2	0	0	11.1 12.2	58 94					2.8 4.9	13.2 12.6
14FEB 14FEB 14FEB	LEGION RDP SHILOH	17.2 12.3 3.4	0 0 0	3000 1200 1800	0.0 0.0 0.0							12.7 12.6 13.6	117 153 169					6.2 6.4 4.6	12.0 12.0 10.6
14FEB 14FEB	LAIRD GARDNER	90.2 79.5	0	1350 1800	0.0 0.0							14.2 13.5	1088 943					23.4 16.3	10.6 10.8
TR TOT. SJR TOT.			22 0	13850 3150	1.6 0.0	36	48	38.0	22	0	0								
2007 TUOLU	MNE RIVER SE	INING STU	DY (TID/MID	0)															
DATE	LOCATION	RIVER MILE	CATCH	AREA	DENSITY (/1000ft^2)	FL MIN.	FL MAX.	FL AVG.	NO. MEAS.	SACFRY	NO. KILLED	WATER TEMP.	ELEC. COND.	SMOLT FL	SECTION E UPPER	MIDDLE	LOWER	TURB.	D.O. (ppm)
DATE 28FEB 28FEB	LOCATION OLGB R5	RIVER MILE 50.5 48.0	CATCH 0 3	AREA 2200 1800	(/1000ft^2) 0.0 1.7					SACFRY 0		TEMP. 10.0 10.0	COND. 36 39				LOWER 0.0	0.8 2.1	(ppm) 11.8 12.0
DATE  28FEB  28FEB  28FEB  28FEB  28FEB	LOCATION  OLGB  R5  TRR  HICK  CHARLES	RIVER MILE 50.5	CATCH 0	AREA 2200	(/1000ft^2) 0.0	MIN.	MAX.	AVG.	MEAS.		KILLED	TEMP. 10.0	COND.		UPPER	MIDDLE		0.8	(ppm) 11.8
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP	RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3	CATCH  0 3 0 70 2 0 0	AREA 2200 1800 1800 1500 1500 2000 350	(/1000ft^2)  0.0 1.7 0.0 46.7 1.5 0.0 0.0	MIN. 38 32	MAX. 43 63	AVG. 40.7 48.3	MEAS. 3 70	0	KILLED 0	TEMP. 10.0 10.0 10.4 11.0 11.8 11.8	36 39 46 58 81 99		UPPER	MIDDLE		0.8 2.1 1.8 5.1 3.1 2.0 52.4	(ppm) 11.8 12.0 12.2 12.0 12.2 11.2 10.0
28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB	LOCATION  OLGB  R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD	RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	CATCH  0 3 0 70 2 0 0 0	AREA  2200 1800 1800 1500 1350 2000 350 1800 1350	(/1000ft^2) 0.0 1.7 0.0 46.7 1.5 0.0 0.0	MIN. 38 32	MAX. 43 63	AVG. 40.7 48.3	MEAS. 3 70	0	KILLED 0	10.0 10.0 10.4 11.0 11.8 11.7 11.6	COND.  36 39 46 58 81 99 137 156		UPPER	MIDDLE		0.8 2.1 1.8 5.1 3.1 2.0 52.4 43.5	(ppm) 11.8 12.0 12.2 12.0 12.2 11.2 10.0 10.3
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH	RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	CATCH  0 3 0 70 2 0 0 0	AREA 2200 1800 1800 1500 1350 2000 350 1800	(/1000ft^2)  0.0 1.7 0.0 46.7 1.5 0.0 0.0	MIN. 38 32	MAX. 43 63	AVG. 40.7 48.3	MEAS. 3 70	0	KILLED 0	10.0 10.0 10.4 11.0 11.8 11.8 11.7	36 39 46 58 81 99 137 156		UPPER	MIDDLE		0.8 2.1 1.8 5.1 3.1 2.0 52.4 43.5	(ppm) 11.8 12.0 12.2 12.0 12.2 11.2 10.0 10.3
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB TR TOT. SJR TOT.	LOCATION  OLGB  R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD	RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5	CATCH  0 3 0 70 2 0 0 0 0 0 75	2200 1800 1800 1500 1350 2000 350 1800 1350 1800 3150	(/1000ft^2)  0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 5.9	MIN. 38 32 51	MAX. 43 63 60	40.7 48.3 55.5	MEAS. 3 70 2	0 0 0	KILLED  0  0  0	10.0 10.0 10.4 11.0 11.8 11.7 11.6	COND.  36 39 46 58 81 99 137 156		UPPER	MIDDLE		0.8 2.1 1.8 5.1 3.1 2.0 52.4 43.5	(ppm) 11.8 12.0 12.2 12.0 12.2 11.2 10.0 10.3
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB TR TOT. SJR TOT.	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER	RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5	CATCH  0 3 0 70 2 0 0 0 0 0 75	2200 1800 1800 1500 1350 2000 350 1800 1350 1800 3150	(/1000ft^2)  0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 5.9	MIN. 38 32 51	MAX. 43 63 60	40.7 48.3 55.5	MEAS. 3 70 2	0 0 0	KILLED  0  0  0	10.0 10.0 10.4 11.0 11.8 11.7 11.6	COND.  36 39 46 58 81 99 137 156	FL	UPPER	MIDDLE 14.8  DENSITY		0.8 2.1 1.8 5.1 3.1 2.0 52.4 43.5	(ppm) 11.8 12.0 12.2 12.0 12.2 11.2 10.0 10.3 9.8 10.0
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 78FEB 78 TOT. 2007 TUOLU  DATE  14MAR 14MAR	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION OLGB R5	RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5 NING STU RIVER MILE 50.5 48.0	CATCH  0 3 0 70 2 0 0 0 0 0 0 T5 0 DY (TID/MIE	AREA  2200 1800 1800 1500 1350 2000 1350 1800 1350 1800 12800 3150 0)  AREA 2400 1400	(/1000ft^2)  0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 0.0  DENSITY (/1000ft^2) 1.3 0.7	MIN.  38  32  51  32	MAX. 43 63 60	AVG. 40.7 48.3 55.5	MEAS.  3 70 2  75	0 0 0	KILLED  0  0  0  NO.	TEMP.  10.0 10.0 10.4 11.0 11.8 11.8 11.7 11.6 12.8  WATER TEMP. 10.4 10.5	COND.  36 39 46 58 81 99 137 156 1048 863	FL	UPPER 0.5	MIDDLE 14.8  DENSITY	0.0	0.8 2.1 1.8 5.1 2.0 52.4 43.5 26.1 17.3	(ppm) 11.8 12.0 12.2 12.2 11.2 10.0 10.3 9.8 10.0
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 78FEB 78 TOT. SJR TOT. 2007 TUOLU  DATE  14MAR 14MAR 14MAR	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION OLGB R5 TRR HICK	RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5 NING STU RIVER MILE 50.5 48.0 42.3 31.6	CATCH  0 3 0 70 2 2 0 0 0 75 0 DY (TID/MIE  CATCH  3 1 0 0	AREA  2200 1800 1800 1500 1550 2000 350 2000 1350 1800 1350 1800 12800 12800  AREA  2400 1400 1800 1200	(/1000fr^2) 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 5.9 0.0  DENSITY (/1000fr^2) 1.3 0.7 0.0 0.0	38 32 51 32 FL MIN. 38 39	63 63 FL MAX.	40.7 48.3 55.5 48.1 FL AVG. 42.7 39.0	75 NO. MEAS.	0 0 0 0 SACFRY 0	O O NO. KILLED	TEMP.  10.0 10.0 10.4 11.8 11.8 11.7 11.6 12.8 12.8  WATER TEMP.  10.4 10.5 11.8 13.6	COND.  36 39 46 58 81 99 137 61 1048 863  ELEC. COND.  34 37 43 57	FL	UPPER 0.5  SECTION E UPPER	MIDDLE  14.8  DENSITY MIDDLE	0.0	0.8 2.1 1.8 5.1 3.1 2.0 52.4 43.5 26.1 17.3	(ppm) 11.8 12.0 12.2 12.0 12.2 11.0 10.0 10.3 9.8 10.0  D.O. (ppm) 11.9 12.1 11.5 10.7
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 7 TOT. 2007 TUOLU  DATE  14MAR 14MAR 14MAR 14MAR 14MAR	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION OLGB R5 TRR HICK CHARLES LEGION RDP	RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 79.5 NING STU RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3	CATCH  0 3 3 0 70 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AREA  2200 1800 1800 1500 1500 1350 1800 12800 3150 12800 3150 12800 3150 0)  AREA	(/1000fr/2) 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 0.0  DENSITY (/1000fr/2) 1.3 0.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	38 32 51 32 FL MIN.	MAX. 43 63 60 63 FL MAX. 48	40.7 48.3 55.5 48.1 FL AVG.	MEAS.  3 70 2  75  NO. MEAS. 3	0 0 0 0 SACFRY 0	NO. KILLED	TEMP.  10.0 10.0 10.4 11.8 11.8 11.7 11.6 12.8 12.8  WATER TEMP. 10.4 10.5 11.8 13.6 15.8 16.2 17.4	COND.  36 39 46 58 81 99 137 156 1048 863  ELEC. COND.  34 37 43 57 89 115 142	FL	UPPER 0.5  SECTION E UPPER	MIDDLE  14.8  DENSITY MIDDLE	0.0	0.8 2.1 1.8 5.1 3.1 2.0 52.4 43.5 26.1 17.3	(ppm) 11.8 12.0 12.2 12.0 12.2 11.0 10.0 10.3 9.8 10.0  D.O. (ppm) 11.9 12.1 11.5 10.7 11.0 9.8 9.9
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 78 TOT. SJR TOT. 2007 TUOLU  DATE  14MAR 14MAR 14MAR 14MAR 14MAR 14MAR 14MAR 14MAR 14MAR	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD	RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 18.0 19.5 19.5 19.5 19.5 19.5 19.5 19.5 19.5	CATCH  0 3 0 70 2 2 0 0 0 75 0  DY (TID/MIE  CATCH  3 1 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AREA  2200 1800 1800 1500 1350 2000 350 1800 1350 12800 3150 0)  AREA  2400 1400 1800 1200 1200 1650 2400 1100 1800	(/1000fr/2) 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 0.0  DENSITY (/1000fr/2) 1.3 0.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	38 32 51 32 FL MIN. 38 39	63 63 FL MAX.	40.7 48.3 55.5 48.1 FL AVG. 42.7 39.0	75 NO. MEAS.	0 0 0 0 SACFRY 0	O O NO. KILLED	TEMP.  10.0 10.0 10.4 11.0 11.8 11.7 11.6 12.8 12.8  WATER TEMP.  10.4 10.5 11.8 13.6 15.8 13.6 15.8 16.2 17.4 18.1	COND.  36 39 46 58 81 99 137 156 1048 863  ELEC. COND. 34 37 43 57 89 115 142 140 1321	FL	UPPER 0.5  SECTION E UPPER	MIDDLE  14.8  DENSITY MIDDLE	0.0	0.8 2.1 1.8 5.1 3.1 2.0 52.4 43.5 26.1 17.3  TURB. 0.6 0.7 0.6 1.5 1.4 1.4 2.4 2.8 24.8	(ppm) 11.8 12.0 12.2 12.0 12.2 11.2 10.0 10.3 9.8 10.0  D.O. (ppm) 11.9 12.1 11.5 10.7 11.0 9.8 9.9
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 7R TOT. SJR TOT. 2007 TUOLU  DATE  14MAR 1	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH	RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 4 90.2 79.5 NING STU RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	CATCH  0 3 3 0 70 2 2 2 0 0 0 0 0 75 0 0 0 0 0 0 0 0 0 0 0 0 0	AREA  2200 1800 1800 1500 1350 1350 1800 1350 1800 12800 3150  AREA 2400 1400 1200 1200 1200 1800 1200 1800 1200 1800 1200 1800 1100 1800 18	(/1000fr^2) 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 5.9 0.0  DENSITY (/1000fr^2) 1.3 0.7 0.0 0.0 2.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	38 32 51 32 FL MIN. 38 39	63 63 FL MAX.	40.7 48.3 55.5 48.1 FL AVG. 42.7 39.0	75 NO. MEAS.	0 0 0 0 SACFRY 0	O O NO. KILLED	TEMP.  10.0 10.0 10.0 11.8 11.8 11.7 11.6 12.8 12.8  WATER TEMP.  10.4 10.5 11.8 13.6 15.8 16.2 17.4	COND.  36 39 46 58 81 1 99 137 156 1048 863  ELEC. COND.  34 37 43 57 89 115 142 140	FL	UPPER 0.5  SECTION E UPPER	MIDDLE  14.8  DENSITY MIDDLE	0.0	0.8 2.1 1.8 5.1 3.1 2.0 52.4 43.5 26.1 17.3  TURB. 0.6 0.7 0.6 1.5 1.4 1.4 2.8	(ppm) 11.8 12.0 12.2 12.0 12.2 11.2 10.0 10.3 9.8 10.0  D.O. (ppm) 11.9 12.1 11.5 10.7 11.0 9.8 9.9 9.6
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 7R TOT. SJR TOT. 2007 TUOLU  DATE  14MAR 15R TOT. SJR TOT. SJR TOT.	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD	RIVER MILE 50.5 48.0 42.3 31.6 24.9 79.5 17.2 12.3 3.4 490.2 79.5 17.2 12.3 31.6 624.9 17.2 12.3 31.6 624.9 17.2 12.3 3.4 90.2 79.5	CATCH  0 3 3 0 70 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AREA  2200 1800 1800 1500 1350 1350 1800 12800 3150  0  AREA  2400 1400 1800 1200 1200 1800 1200 1800 1200 1800 13750 3600	(/1000ft^2) 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 5.9 0.0  DENSITY (/1000ft^2) 1.3 0.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	38 32 51 32 FL MIN. 38 39 39	63 63 FL MAX. 48 39 64	40.7 48.3 55.5 48.1 FL AVG. 42.7 39.0	MEAS.  3 70 2  75  NO. MEAS. 3 1	0 0 0 0 SACFRY 0 0	NO. KILLED	TEMP.  10.0 10.0 10.4 11.0 11.8 11.7 11.6 12.8 12.8  WATER TEMP.  10.4 10.5 11.8 13.6 15.8 13.6 15.8 16.2 17.4 18.1	COND.  36 39 46 58 81 99 137 156 1048 863  ELEC. COND. 34 37 43 57 89 115 142 140 1321	FL	UPPER 0.5  SECTION E UPPER	MIDDLE  14.8  DENSITY MIDDLE	0.0	0.8 2.1 1.8 5.1 3.1 2.0 52.4 43.5 26.1 17.3  TURB. 0.6 0.7 0.6 1.5 1.4 1.4 2.4 2.8 24.8	(ppm) 11.8 12.0 12.2 12.0 12.2 11.2 10.0 10.3 9.8 10.0  D.O. (ppm) 11.9 12.1 11.5 10.7 11.0 9.8 9.9
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 7R TOT. SJR TOT. 2007 TUOLU  DATE  14MAR 15R TOT. SJR TOT. SJR TOT.	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION  OLGB R5 TRR HICK CHARLES LEGION R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER	RIVER MILE 50.5 48.0 42.3 31.6 24.9 79.5 17.2 12.3 3.4 490.2 79.5 17.2 12.3 31.6 624.9 17.2 12.3 31.6 624.9 17.2 12.3 3.4 90.2 79.5	CATCH  0 3 3 0 70 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AREA  2200 1800 1800 1500 1350 1350 1800 12800 3150  0  AREA  2400 1400 1800 1200 1200 1800 1200 1800 1200 1800 13750 3600	(/1000fr^2) 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 5.9 0.0  DENSITY (/1000fr^2) 1.3 0.7 0.0 0.0 2.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	38 32 51 32 FL MIN. 38 39 39	63 63 FL MAX. 48 39 64	40.7 48.3 55.5 48.1 FL AVG. 42.7 39.0	MEAS.  3 70 2  75  NO. MEAS. 3 1 4	0 0 0 0 SACFRY 0 0	NO. KILLED	TEMP.  10.0 10.0 10.4 11.0 11.8 11.7 11.6 12.8 12.8  WATER TEMP.  10.4 10.5 11.8 13.6 15.8 13.6 15.8 16.2 17.4 18.1	COND.  36 39 46 58 81 99 137 156 1048 863  ELEC. COND. 34 37 43 57 89 115 142 140 1321	SMOLT FL	UPPER 0.5  SECTION E UPPER	DENSITY MIDDLE  0.8	0.0	0.8 2.1 1.8 5.1 3.1 2.0 52.4 43.5 26.1 17.3  TURB. 0.6 0.7 0.6 1.5 1.4 1.4 2.4 2.8 24.8	(ppm) 11.8 12.0 12.2 12.0 12.2 11.2 10.0 10.3 9.8 10.0  D.O. (ppm) 11.9 12.1 11.5 10.7 11.07 11.9 9.8 9.6 9.4
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 7R TOT. SJR TOT. 2007 TUOLU  DATE  14MAR 1	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION  OLGB R5 TRR HICK CHARLES LEGION R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION  OLGB R5 TRR TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER	RIVER MILE  50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5  INING STU  RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5	CATCH  0 3 3 0 70 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AREA  2200 1800 1800 1500 1350 1350 1800 1350 1800 12800 3150  AREA  2400 1400 1800 1200 1800 1200 1800 1200 1800 1200 1800 1200 1800 1200 1800 1200 1800 1200 1800 1200 1800 18	(/1000ft^2) 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 5.9 0.0  DENSITY (/1000ft^2) 1.3 0.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	MIN.  38  32  51  32  FL  MIN.  38  39  39	MAX. 43 63 60  63  FL MAX. 48 39 64	AVG. 40.7 48.3 55.5 48.1 FL AVG. 42.7 39.0 54.0	MEAS.  3 70 2  75  NO. MEAS. 3 1 4	0 0 0 0 SACFRY 0 0	NO. NO.	TEMP.  10.0 10.0 10.0 11.8 11.8 11.7 11.6 12.8 12.8  WATER TEMP. 10.4 10.5 11.8 13.6 15.8 16.2 17.4 18.1 19.8 19.4  WATER TEMP. 9.9	COND.  36 39 46 58 81 19 99 137 156 1048 863   ELEC. COND.  34 37 43 57 89 115 142 140 1321 1020  ELEC. COND.	SMOLT FL	SECTION DUPPER 0.7	DENSITY MIDDLE  0.8	LOWER	0.8 2.1 1.8 5.1 3.1 2.0 52.4 43.5 26.1 17.3  TURB. 0.6 0.7 0.6 1.5 1.4 1.4 2.4 2.8 24.8 45.9	(ppm) 11.8 12.0 12.2 12.0 12.2 11.2 10.0 10.3 9.8 10.0  D.O. (ppm) 11.9 11.5 10.7 11.0 9.8 9.6 9.4 9.6
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 7R TOT. SJR TOT. 2007 TUOLU  DATE  14MAR 12MAR 14MAR 1	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION OLGB R7 TRR HICK R8 TRR HICK	RIVER MILE  50.5 48.0 42.3 31.6 24.9 17.2 12.3 90.2 79.5  INING STU  RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 31.6 24.9 17.2 12.3 31.6 24.9 17.2 12.3 31.6 24.9 17.2 12.3 31.6 24.9 17.2 12.3 31.6 24.9 31.6 24.9 31.6 24.9 31.6 24.9 31.6 31.6 31.6 31.6 31.6	CATCH  0 3 3 0 70 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AREA  2200 1800 1800 1500 1350 1350 1800 13550 1800 12800 3150  AREA  2400 1400 1800 1200 13750 3600  AREA  2400 1400 2400 1400 2400 1400 2400 1400 2400 1700 2400 1700 2400 2400 2400 1700 2400 2400 2400 2400 2400 2400 2400 2	(/1000fr^2) 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 5.9 0.0  DENSITY (/1000fr^2) 1.3 0.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	MIN.  38  32  51  32  FL  MIN.  38  39  39  38  FL  MIN.  45	63 63 64 64 FL MAX. 45	AVG. 40.7 48.3 55.5 48.1  FL AVG. 42.7 39.0 54.0  47.9  FL AVG.	75  NO. MEAS.  3 1 4  NO. MEAS. 1	0 0 0 0 SACFRY 0 0 0	NO. KILLED  O  NO. KILLED  O  O  NO. KILLED  O  O	TEMP.  10.0 10.0 10.0 11.8 11.8 11.7 11.6 12.8 12.8  WATER TEMP.  10.4 10.5 11.8 13.6 15.8 13.6 15.8 19.4  WATER TEMP.	COND.  36 39 46 58 81 199 137 156 1048 863   ELEC. COND.  34 37 43 57 89 115 142 140 1321 1020  ELEC. COND.	SMOLT FL	SECTION DUPPER  0.7  SECTION DUPPER	DENSITY MIDDLE  0.8  DENSITY MIDDLE	LOWER	0.8 2.1 1.88 5.1 3.1 2.0 52.4 43.5 26.1 17.3  TURB. 0.6 0.7 0.6 1.5 1.4 2.4 2.8 24.8 45.9  TURB. 0.7 0.9 0.7 1.5	(ppm) 11.8 12.0 12.2 12.0 12.2 11.2 10.0 10.3 9.8 10.0  D.O. (ppm) 11.9 12.1 11.5 10.7 11.0 9.8 9.6 9.4 9.6
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 7R TOT. 2007 TUOLU  DATE  14MAR 14MA	LOCATION  OLGB R5 TRR HICK CHARLES LEGION EGION EGION SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION  OLGB R5 TRR HICK CHARLES LEGION SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION  OLGB R5 TRR HICK CHARLES LEGION OLGB R5 TRR HICK CHARLES LEGION OLGB R5 TRR OP SHILOH LAIRD GARDNER	RIVER MILE  50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5  NING STU  RIVER MILE  50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5	CATCH  0 3 3 0 70 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AREA  2200 1800 1800 1500 2000 350 1800 1350 2000 350 1800 1350 2000 1800 12800 3150 0)  AREA  2400 1400 1800 1200 1800 1800 1900 1800 1900 1800 1900 1800 1900 1800 1900 1800 1900 1800 1900 1800 1900 19	(/1000ft^2) 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 5.9 0.0 0.0  DENSITY (/1000ft^2) 1.3 0.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	MIN.  38 32 51  32  FL MIN.  38 39 39	63 FL MAX. 48 39 64 FL MAX.	AVG. 40.7 48.3 55.5 48.1 FL AVG. 42.7 39.0 54.0 FL AVG.	MEAS.  3 70 2 75 NO. MEAS. 3 1 4	0 0 0 0 SACFRY 0 0	NO. KILLED  O  NO. KILLED  O  KILLED	TEMP.  10.0 10.0 10.0 11.8 11.8 11.7 11.6 12.8 12.8  WATER TEMP.  10.4 10.5 11.8 13.6 15.8 16.2 17.4 18.1 19.8 19.4  WATER TEMP.	COND.  36 39 46 58 81 99 137 156 1048 863  ELEC. COND.  34 37 43 57 89 115 142 140 1321 1020  ELEC. COND.	SMOLT FL	SECTION DUPPER  0.7  SECTION DUPPER	DENSITY MIDDLE  0.8  DENSITY MIDDLE	LOWER	0.8 2.1 1.8 5.1 3.1 2.0 52.4 43.5 26.1 17.3  TURB.  0.6 0.7 0.6 1.5 1.4 1.4 2.8 24.8 45.9  TURB.	(ppm) 11.8 12.0 12.2 12.0 12.2 12.0 12.2 11.0 10.3 9.8 10.0  D.O. (ppm) 11.9 12.1 11.5 10.7 11.0 9.8 9.6 9.4 9.6  D.O. (ppm) 11.8 12.4 12.1
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 7 TOT.  2007 TUOLU  DATE  14MAR 28MAR 28MAR 28MAR 28MAR 28MAR 28MAR 28MAR 28MAR 28MAR	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION OLGB R5 TRR HICK CHARLES LEGION OLGB R6 TRR R1 LAIRD GARDNER	RIVER MILE 50.5 48.0 31.6 24.9 17.2 12.3 31.4 90.2 29.5 WINING STU RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 29.5 WINING STU RIVER MILE 50.5 48.0 31.6 24.9 17.2 12.3 31.4 90.2 20.5 48.0 31.6 24.9 17.2 31.5 48.0 31.6 24.9 31.6 31.6 31.6 31.6 31.6 31.6 31.6 31.6	CATCH  0 3 3 0 70 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AREA  2200 1800 1800 1800 1500 2000 1350 2000 1350 1800 12800 3150 0)  AREA  2400 1400 1800 13750 1800 13750 0)  AREA 2400 1400 1400 1500 2400 1500 2400 1500 2400 1500 2400 1500 2400 1500 2400 1500	(/1000ft^2) 0.0 0.1.7 0.0 46.7 1.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	MIN.  38  32  51  32  FL  MIN.  38  39  39  38  FL  MIN.  45	63 63 64 64 FL MAX. 45	AVG. 40.7 48.3 55.5 48.1  FL AVG. 42.7 39.0 54.0  47.9  FL AVG.	75  NO. MEAS.  3 1 4  NO. MEAS. 1	0 0 0 0 SACFRY 0 0 0	NO. KILLED  O  NO. KILLED  O  O  NO. KILLED  O  O	TEMP.  10.0 10.0 10.4 11.0 11.8 11.7 11.6 12.8 12.8  WATER TEMP. 10.4 10.5 11.8 13.6 15.8 16.2 17.4 18.1 19.8 19.4  WATER TEMP.  9.9 10.0 10.6 11.8 14.2 14.6 15.0 15.1	COND.  36 39 46 58 81 99 137 156 1048 863  ELEC. COND.  34 37 43 57 78 89 115 142 140 1321 1020  ELEC. COND.	SMOLT FL	SECTION DUPPER  0.7  SECTION DUPPER	DENSITY MIDDLE  0.8  DENSITY MIDDLE	LOWER	0.8 2.1 1.8 5.1 3.1 2.0 52.4 43.5 26.1 17.3  TURB. 0.6 0.7 0.6 1.5 1.4 1.4 2.4 2.8 24.8 45.9  TURB. 0.7 0.9 0.7 1.5 1.1 1.9 5.3 5.1 21.9	(ppm) 11.8 12.0 12.2 11.2 11.0 10.3 9.8 10.0  D.O. (ppm) 11.9 12.1 11.5 10.7 11.8 12.1 11.8 12.1 11.8 12.1 11.8 12.1 11.8 12.1 11.8 12.1 11.1 11
DATE  28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 28FEB 7 TOT. 2007 TUOLU  DATE  14MAR	LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER	RIVER MILE  50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5  NING STU  RIVER MILE  50.5 48.0 31.6 24.9 17.2 12.3 3.4 90.2 79.5	CATCH  0 3 3 0 70 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AREA  2200 1800 1800 1500 2000 1350 1800 1350 1800 12800 3150 0)  AREA  2400 1400 1200 1800 13750 3600 0)  AREA  2400 1400 1200 1800 13750 3600 0)  AREA	(/1000ft^2) 0.0 1.7 0.0 46.7 1.5 0.0 0.0 0.0 5.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	MIN.  38  32  51  32  FL  MIN.  38  39  39  38  FL  MIN.  45	63 63 64 64 FL MAX. 45	AVG. 40.7 48.3 55.5 48.1  FL AVG. 42.7 39.0 54.0  47.9  FL AVG.	75  NO. MEAS.  3 1 4  NO. MEAS. 1	0 0 0 0 SACFRY 0 0 0	NO. KILLED  O  NO. KILLED  O  O  NO. KILLED  O  O	TEMP.  10.0 10.0 10.0 11.8 11.8 11.7 11.6 12.8 12.8  WATER TEMP.  10.4 10.5 11.8 13.6 15.8 16.2 17.4 18.1 19.8 19.4  WATER TEMP.  9.9 10.0 10.6 11.8 14.2 14.6 15.0	COND.  36 39 46 58 81 19 99 137 156 1048 863   ELEC. COND.  34 37 43 57 43 115 1420  ELEC. COND.  36 37 45 57 88 102 130 150	SMOLT FL	SECTION DUPPER  0.7  SECTION DUPPER	DENSITY MIDDLE  0.8  DENSITY MIDDLE	LOWER	0.8 2.1 1.8 8.5.1 3.1 2.0 52.4 43.5 26.1 17.3  TURB. 0.6 0.7 0.6 1.5 1.4 2.4 2.4 2.4 2.4 45.9  TURB.	(ppm) 11.8 12.0 12.2 12.0 12.2 11.2 10.0 10.3 9.8 10.0  D.O. (ppm) 11.9 12.1 11.5 10.7 11.0 9.8 9.6 9.4 9.6  D.O. (ppm) 11.8 12.4 12.1 11.3 10.7 10.1 11.8

Table 3 (Continued)
2007 TUOLUMNE RIVER SEINING STUDY (TID/MID)

DATE	LOCATION	RIVER MILE	CATCH	AREA	DENSITY (/1000ft^2)	FL MIN.	FL MAX.	FL AVG.	NO. MEAS.	SACFRY	NO. KILLED	WATER TEMP.	ELEC. COND.	SMOLT FL	SECTION	DENSITY MIDDLE	LOWER	TURB.	D.O.
																			(ppm)
11APR 11APR	OLGB R5	50.5 48.0	0 9	2000 1400	0.0 6.4	43	70	53.0	9	0	0	10.4 10.6	36 37		1.7	1.3	0.0	0.8 0.8	10.9 11.4
11APR 11APR	TRR	48.0 42.3	0	1800	0.0	43	70	53.0	9	U	U	12.0	44					0.8	11.4
11APR	HICK	31.6	6	1000	6.0	46	60	51.7	6	0	0	13.5	56					1.6	10.3
11APR	CHARLES	24.9	0	1350	0.0	40	00	31.7	0	U	U	15.9	87					1.3	10.3
11APR	LEGION	17.2	0	2400	0.0							15.8	108					3.2	9.2
11APR	RDP	12.3	ő	1500	0.0							16.6	126					4.4	9.1
11APR	SHILOH	3.4	0	1800	0.0							17.3	147					2.8	9.1
11APR	LAIRD	90.2	0	1800	0.0							18.4	1191					26.4	10.0
11APR	GARDNER	79.5	0	1800	0.0							17.9	775					15.5	9.9
TR TOT.			15	13250	1.1	43	70	52.5	15	0	0								
SJR TOT.			0	3600	0.0														
2007 TUOLU	IMNE RIVER SE	INING STU	DY (TID/MID	D)															
		RIVER	0.17011		DENSITY	FL	FL	FL	NO.	040551	NO.	WATER	ELEC.		SECTION			TURR	
DATE	LOCATION	MILE	CATCH	AREA	(/1000ft^2)	MIN.	MAX.	AVG.	MEAS.	SACFRY	KILLED	TEMP.	COND.	FL	UPPER	MIDDLE	LOWER	TURB.	D.O.
25APR	OLGB	50.5	2	2250	0.9	36	37	36.5	2	0	0	10.8	36		0.4	0.2	0.0	0.8	(ppm) 11.7
25APR	R5	48.0	0	1800	0.0	30	31	30.3	- 4	U	U	11.1	37		0.4	0.2	0.0	0.8	11.2
25APR	TRR	42.3	0	1650	0.0							11.5	40					1.0	11.1
25APR	HICK	31.6	1	1350	0.7	66	66	66.0	1	0	0	13.4	45					1.3	10.4
25APR	CHARLES	24.9	0	1200	0.0							14.9	53					1.8	9.6
25APR	LEGION	17.2	0	1800	0.0							15.7	57					2.9	9.8
25APR	RDP	12.3	0	500	0.0							16.3	64					5.0	8.2
25APR	SHILOH	3.4	0	1800	0.0							17.1	66					4.8	8.5
25APR	LAIRD	90.2	0	1200	0.0							20.5	1100					35.8	10.5
25APR TR TOT.	GARDNER	79.5	3	1800 12350	0.0	36	66	46.3	3	0	0	18.6	517					20.0	9.5
SJR TOT.			0	3000	0.0	36	66	46.3	3	U	U								
2007 TUOLU	IMNE RIVER SE	INING STU	DY (TID/MID	D)															
		RIVER			DENSITY	FL	FL	FL	NO.		NO.	WATER	ELEC.		SECTION				
DATE	LOCATION	RIVER MILE	CATCH	AREA	DENSITY (/1000ft^2)	FL MIN.	FL MAX.	FL AVG.		SACFRY	NO. KILLED	WATER TEMP.	ELEC. COND.	SMOLT FL		DENSITY MIDDLE	LOWER	TURB.	D.O.
		MILE			(/1000ft^2)					SACFRY		TEMP.	COND.		UPPER	MIDDLE			(ppm)
09MAY	OLGB	MILE 50.5	0	2400	(/1000ft^2) 0.0					SACFRY		TEMP. 11.1	COND.				LOWER 0.0	0.8	(ppm) 10.8
09MAY 09MAY	OLGB R5	50.5 48.0	0	2400 1500	(/1000ft^2) 0.0 0.0					SACFRY		TEMP. 11.1 11.8	COND. 36 38		UPPER	MIDDLE		0.8 N.A.	(ppm) 10.8 11.0
09MAY 09MAY 09MAY	OLGB R5 TRR	50.5 48.0 42.3	0 0 0	2400 1500 1800	(/1000ft^2) 0.0 0.0 0.0	MIN.	MAX.	AVG.	MEAS.	SACFRY		TEMP. 11.1 11.8 14.9	36 38 46	FL	UPPER	MIDDLE		0.8 N.A. N.A.	(ppm) 10.8 11.0 10.3
09MAY 09MAY	OLGB R5 TRR HICK	50.5 48.0	0	2400 1500	(/1000ft^2) 0.0 0.0 0.0 0.0 0.7						KILLED	TEMP. 11.1 11.8	36 38 46 59		UPPER	MIDDLE		0.8 N.A.	(ppm) 10.8 11.0 10.3 9.2
09MAY 09MAY 09MAY 09MAY	OLGB R5 TRR	50.5 48.0 42.3 31.6	0 0 0 1	2400 1500 1800 1500	(/1000ft^2) 0.0 0.0 0.0	MIN.	MAX.	AVG.	MEAS.		KILLED	TEMP. 11.1 11.8 14.9 18.0	36 38 46	FL	UPPER	MIDDLE		0.8 N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3
09MAY 09MAY 09MAY 09MAY 09MAY	OLGB R5 TRR HICK CHARLES	50.5 48.0 42.3 31.6 24.9	0 0 0 1	2400 1500 1800 1500 1800	(/1000ft^2) 0.0 0.0 0.0 0.7 0.0	MIN.	MAX.	AVG.	MEAS.		KILLED	TEMP. 11.1 11.8 14.9 18.0 20.1	36 38 46 59 92	FL	UPPER	MIDDLE		0.8 N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY	OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH	50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	0 0 0 1 0 0	2400 1500 1800 1500 1800 2400 1050 1800	(/1000ft^2)  0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0	MIN.	MAX.	AVG.	MEAS.		KILLED	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5	36 38 46 59 92 112 141 169	FL	UPPER	MIDDLE		0.8 N.A. N.A. N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 8.5 7.8
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY	OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD	50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	0 0 0 1 0 0 0	2400 1500 1800 1500 1800 2400 1050 1800	(/1000ft^2)  0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.	MIN.	MAX.	AVG.	MEAS.		KILLED	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8	36 38 46 59 92 112 141 169	FL	UPPER	MIDDLE		0.8 N.A. N.A. N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 8.5 7.8
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY	OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH	50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	0 0 0 1 1 0 0 0 0	2400 1500 1800 1500 1800 2400 1050 1800 1350	(/1000ft^2)  0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.	MIN. 100	MAX.	AVG.	MEAS.	0	KILLED 0	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5	36 38 46 59 92 112 141 169	FL	UPPER	MIDDLE		0.8 N.A. N.A. N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 8.5 7.8
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY TR TOT.	OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD	50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	0 0 0 1 1 0 0 0 0	2400 1500 1800 1500 1800 2400 1050 1800 1350 1800	(/1000ft^2)  0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.	MIN.	MAX.	AVG.	MEAS.		KILLED	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8	36 38 46 59 92 112 141 169	FL	UPPER	MIDDLE		0.8 N.A. N.A. N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 8.5 7.8
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY	OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD	50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	0 0 0 1 1 0 0 0 0	2400 1500 1800 1500 1800 2400 1050 1800 1350	(/1000ft^2)  0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.	MIN. 100	MAX.	AVG.	MEAS.	0	KILLED 0	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8	36 38 46 59 92 112 141 169	FL	UPPER	MIDDLE		0.8 N.A. N.A. N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 8.5 7.8
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY TR TOT. SJR TOT.	OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5	0 0 0 1 0 0 0 0 0	2400 1500 1800 1500 1800 2400 1050 1800 1350 1800 14250 3150	(/1000ft^2)  0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.	MIN. 100	MAX.	AVG.	MEAS.	0	KILLED 0	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8	36 38 46 59 92 112 141 169	FL	UPPER	MIDDLE		0.8 N.A. N.A. N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 8.5 7.8
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY TR TOT. SJR TOT.	OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5	0 0 0 1 0 0 0 0 0	2400 1500 1800 1500 1800 2400 1050 1800 1350 1800 14250 3150	(/1000ft^2) 0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.0	MIN. 100	MAX.	AVG.	MEAS.	0	O 0	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8 22.4	COND.  36 38 46 59 92 112 141 169 694 569	100	UPPER 0.0	0.2		0.8 N.A. N.A. N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 8.5 7.8
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY TR TOT. SJR TOT.	OLGB R5 TRR HICK CHARLES LEGION EGION SHILOH LAIRD GARDNER	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5	0 0 0 1 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0	2400 1500 1800 1500 1800 2400 1050 1350 1800 14250 3150	(/1000th^2)  0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.	MIN. 100	MAX. 100	100.0 100.0 FL	MEAS.  1  NO.	0	O NO.	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8 22.4	COND.  36 38 46 59 92 112 141 169 694 569	FL 100	UPPER 0.0	0.2  DENSITY	0.0	0.8 N.A. N.A. N.A. N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 7.8 9.0 8.8
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY TR TOT. SJR TOT.	OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5	0 0 0 1 0 0 0 0 0	2400 1500 1800 1500 1800 2400 1050 1800 1350 1800 14250 3150	(/1000ft^2) 0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.0	MIN. 100	MAX.	100.0	MEAS.  1  NO.	0	O 0	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8 22.4	COND.  36 38 46 59 92 112 141 169 694 569	100	UPPER 0.0	0.2  DENSITY		0.8 N.A. N.A. N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 8.5 7.8 9.0 8.8
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 02MAY	OLGB R5 TRR TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5  INING STU  RIVER MILE	0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2400 1500 1800 1800 1800 2400 1050 1800 1350 1800 14250 3150 D)	(/1000fr/2)  0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.	MIN. 100	MAX. 100	100.0 100.0 FL	MEAS.  1  NO.	0	O NO.	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.5 22.8 22.4  WATER TEMP.	COND.  36 38 46 59 92 112 141 169 694 569	FL 100	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.0	0.8 N.A. N.A. N.A. N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 7.8 9.0 8.8
09MAY 09MAY	OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MME RIVER SEI LOCATION OLGB	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5 INING STU RIVER MILE 50.5	0 0 0 1 1 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0	2400 1500 1800 1500 1800 2400 1050 1800 1350 1800 14250 3150	(/1000fr/2)  0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.	MIN. 100	MAX. 100	100.0 100.0 FL	MEAS.  1  NO.	0	O NO.	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8 22.4  WATER TEMP. 11.0	COND.  36 38 46 59 92 112 141 169 694 569  ELEC. COND.	FL 100	UPPER 0.0	0.2  DENSITY	0.0	0.8 N.A. N.A. N.A. N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 8.5 7.8 9.0 8.8
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 02MAY	OLGB R5 TRR TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5  INING STU  RIVER MILE	0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2400 1500 1800 1800 1800 2400 1050 1800 1350 1800 14250 3150 D)	(/1000fr/2)  0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.	MIN. 100	MAX. 100	100.0 100.0 FL	MEAS.  1  NO.	0	O NO.	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.5 22.8 22.4  WATER TEMP.	COND.  36 38 46 59 92 112 141 169 694 569	FL 100	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.0	0.8 N.A. N.A. N.A. N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 7.8 9.0 8.8
09MAY 09MAY	OLGB R5 R5 TRR TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5  INING STU RIVER MILE 50.5 48.0	0 0 0 1 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0	2400 1500 1800 1800 2400 1050 1800 1350 1800 14250 3150 O)	(/1000fr/2)  0.0 0.0 0.0 0.7 0.7 0.0 0.0 0.0 0.0 0.	MIN. 100	MAX. 100	100.0 100.0 FL	MEAS.  1  NO.	0	O NO.	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8 22.4  WATER TEMP. 11.0 11.4	COND.  36 38 46 59 92 112 141 169 694 569  ELEC. COND.	FL 100	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.0	0.8 N.A. N.A. N.A. N.A. N.A. N.A. N.A.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 8.5 7.8 9.0 8.8
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 02MAY	OLGB R5 TRR TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI LOCATION OLGB R5 TRR	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5  INING STU  RIVER MILE 50.5 48.0 42.3	0 0 0 0 1 1 0 0 0 0 0 0 1 1 0 0 0 0 0 0	2400 1500 1800 1500 1800 2400 1050 1380 1380 14250 3150 O)	(/1000fr/2)  0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.	100 100 FL MIN.	100 100 FL MAX.	100.0 100.0 FL AVG.	MEAS.	0 O SACFRY	0 O NO. KILLED	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8 22.4  WATER TEMP. 11.0 11.4 12.4	COND.  36 38 46 59 92 112 141 169 694 569  ELEC. COND.  34 35	100 SMOLT FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.0	0.8 N.A. N.A. N.A. N.A. N.A. N.A. N.A. N.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 8.5 7.8 9.0 8.8
O9MAY O9MAY O9MAY O9MAY O9MAY O9MAY O9MAY O9MAY O9MAY TR TOT. SJR TOT. 2007 TUOLU DATE 23MAY 23MAY 23MAY 23MAY	OLGB R5 R7 R7 R7 R1	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5  INING STU RIVER MILE 50.5 48.0 42.3 31.6	0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2400 1500 1800 1800 2400 1050 1380 1380 14250 3150 D) AREA	(/1000fr/2)  0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.	100 100 FL MIN.	100 100 FL MAX.	100.0 100.0 FL AVG.	MEAS.  1  NO. MEAS.	0 0 SACFRY	0 O NO. KILLED	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8 22.4  WATER TEMP. 11.0 11.4 12.4 15.0	COND.  36 38 46 59 92 112 141 169 694 569  ELEC. COND.  34 35 40	SMOLT FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.0	0.8 N.A. N.A. N.A. N.A. N.A. N.A. N.A. O.6	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 8.5 7.8 9.0 8.8
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 20MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY	OLGB R5 TRR TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MME RIVER SEI  LOCATION OLGB R5 TRR HICK CHARLES LEGION RDP	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5 INING STU RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3	0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2400 1500 1800 1500 1800 2400 1050 1800 1350 14250 3150 0) AREA 1800 1800 1800 1800 1800 1800 1800 1900 19	(/1000fr/2)  0.0 0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.	100 100 FL MIN.	100 100 FL MAX.	100.0 100.0 FL AVG.	MEAS.  1  NO. MEAS.	0 0 SACFRY	0 O NO. KILLED	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8 22.4  WATER TEMP. 11.0 11.4 12.4 15.0 17.6 18.2 19.0	COND.  36 38 46 59 92 21 141 169 694 569  ELEC. COND.  34 49 69 77 88	SMOLT FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.0	0.8 N.A. N.A. N.A. N.A. N.A. N.A. N.A. N.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 7.8 9.0 8.8
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 7 TR TOT. SJR TOT. 2007 TUOLU DATE 23MAY	OLGB RS TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION OLGB RS TRR HICK CHARLES LEGION RDP SHILOH	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5  INING STU RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2400 1500 1800 1500 1800 2400 1050 1350 1800 14250 1350 1800 14250 1800 1800 1800 1800 1800 1800 1800 18	(/1000fr/2)  0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.	100 100 FL MIN.	100 100 FL MAX.	100.0 100.0 FL AVG.	MEAS.  1  NO. MEAS.	0 0 SACFRY	0 O NO. KILLED	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8 22.4  WATER TEMP. 11.0 11.4 15.0 17.6 18.2 19.0 20.1	COND.  36 38 46 59 92 112 1411 169 634 569  ELEC. COND.  34 35 40 49 69 77 88 101	SMOLT FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.0	0.8 N.A. N.A. N.A. N.A. N.A. N.A. N.A. 1.2 0.6 0.7 1.2 1.3 1.7 1.7 3.9	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 7.8 9.0 8.8  D.O. (ppm) 11.6 11.9 10.8 N.A. N.A. N.A.
09MAY 09MAY	OLGB RS TRR TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MME RIVER SEI  LOCATION OLGB RS TRR HICK CHARLES LEGION RDP SHILOH LAIRD	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5 INING STU RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2400 1500 1800 1800 2400 1050 1800 1350 1800 14250 3150 0) AREA 1800 1800 1800 1800 1800 1800 1800 180	(/1000fr/2)  0.0 0.0 0.0 0.7 0.7 0.0 0.0 0.0 0.0 0.	100 100 FL MIN.	100 100 FL MAX.	100.0 100.0 FL AVG.	MEAS.  1  NO. MEAS.	0 0 SACFRY	0 O NO. KILLED	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8 22.4  WATER TEMP. 11.0 11.4 12.4 15.0 17.6 18.2 19.0 20.1	COND.  36 38 46 59 92 2112 141 169 694 569  ELEC. COND. 34 35 40 49 69 77 88 101 917	SMOLT FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.0	0.8 N.A. N.A. N.A. N.A. N.A. N.A. N.A. N.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 7.8 9.0 8.8  D.O. (ppm) 11.6 11.9 10.8 N.A. N.A. N.A.
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 20MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY	OLGB RS TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MNE RIVER SEI  LOCATION OLGB RS TRR HICK CHARLES LEGION RDP SHILOH	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5  INING STU RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2400 1500 1800 1800 2400 1050 1350 1350 14250 14250 00) AREA 1800 1800 1800 1800 1800 1800 1800 180	(/1000fr/2) 0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.0	100 100 FL MIN. 68 105	100 100 FL MAX. 68 105	100.0 100.0 100.0 FL AVG.	MEAS.  1  NO. MEAS.	0 O SACFRY	O O NO. KILLED	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8 22.4  WATER TEMP. 11.0 11.4 15.0 17.6 18.2 19.0 20.1	COND.  36 38 46 59 92 112 1411 169 634 569  ELEC. COND.  34 35 40 49 69 77 88 101	SMOLT FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.0	0.8 N.A. N.A. N.A. N.A. N.A. N.A. N.A. 1.2 0.6 0.7 1.2 1.3 1.7 1.7 3.9	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 7.8 9.0 8.8  D.O. (ppm) 11.6 11.9 10.8 N.A. N.A. N.A.
O9MAY OPMAY O9MAY OPMAY O9MAY OPMAY	OLGB RS TRR TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MME RIVER SEI  LOCATION OLGB RS TRR HICK CHARLES LEGION RDP SHILOH LAIRD	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5 INING STU RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2400 1500 1800 1800 2400 1050 1800 1350 1350 3150 3150 0) AREA 1800 1800 1800 1800 1800 1800 1800 180	(/1000fr/2) 0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.0	100 100 FL MIN.	100 100 FL MAX.	100.0 100.0 FL AVG.	MEAS.  1  NO. MEAS.	0 0 SACFRY	0 O NO. KILLED	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8 22.4  WATER TEMP. 11.0 11.4 12.4 15.0 17.6 18.2 19.0 20.1	COND.  36 38 46 59 92 2112 141 169 694 569  ELEC. COND. 34 35 40 49 69 77 88 101 917	SMOLT FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.0	0.8 N.A. N.A. N.A. N.A. N.A. N.A. N.A. N.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 7.8 9.0 8.8  D.O. (ppm) 11.6 11.9 10.8 N.A. N.A. N.A.
09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 09MAY 20MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY 23MAY	OLGB RS TRR TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  MME RIVER SEI  LOCATION OLGB RS TRR HICK CHARLES LEGION RDP SHILOH LAIRD	MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 79.5 INING STU RIVER MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2400 1500 1800 1800 2400 1050 1350 1350 14250 14250 00) AREA 1800 1800 1800 1800 1800 1800 1800 180	(/1000fr/2) 0.0 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.0	100 100 FL MIN. 68 105	100 100 FL MAX. 68 105	100.0 100.0 100.0 FL AVG.	MEAS.  1  NO. MEAS.	0 O SACFRY	O O NO. KILLED	TEMP.  11.1 11.8 14.9 18.0 20.1 21.1 22.0 22.5 22.8 22.4  WATER TEMP. 11.0 11.4 12.4 15.0 17.6 18.2 19.0 20.1	COND.  36 38 46 59 92 2112 141 169 694 569  ELEC. COND. 34 35 40 49 69 77 88 101 917	SMOLT FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.0	0.8 N.A. N.A. N.A. N.A. N.A. N.A. N.A. N.	(ppm) 10.8 11.0 10.3 9.2 9.1 8.5 7.8 9.0 8.8  D.O. (ppm) 11.6 11.9 10.8 N.A. N.A. N.A.

Table 4. Key to other species caught and their distribution

(List includes all species caught during 1986-2007 seining studies)

FAMILY	COMMON NAME	NATIVE SPECIES	ABBREV.	SAN JOAQUIN	TUOL.
TAMILI	NAME	SEECIES	ADDICE V.	JOAQUIN	TUUL.
Petromyzontidae	Pacific lamprey	N	LP		
Clupeidae	threadfin shad	-,	TFS		
Salmonidae	Chinook salmon	N	CS		Χ
Salmonidae	rainbow trout	N	RT		X
Cyprinidae	carp		CP		
Cyprinidae	goldfish		GF		
Cyprinidae	golden shiner		GSH		
Cyprinidae	Sacramento blackfish	N	SBF		
Cyprinidae	hitch	N	HCH		
Cyprinidae	hardhead	N	HH		Χ
Cyprinidae	Sacramento pikeminnow	N	PM		Χ
Cyprinidae	Sacramento splittail	N	ST		
Cyprinidae	red shiner		PRS	X	X
Cyprinidae	fathead minnow		FHM		
Catostomidae	Sacramento sucker	N	SKR	X	X
Ictaluridae	channel catfish		CCF	Х	
Ictaluridae	white catfish		WCF		
Ictaluridae	brown bullhead		BBH		
Poeciliidae	western mosquitofish		GAM		X
Atherinidae	inland silverside		ISS	Χ	
Percichthyidae	striped bass		SB		
Centrarchidae	white/black crappie		WCR/BCR		
Centrarchidae	warmouth		WM		
Centrarchidae	green sunfish		GSF		
Centrarchidae	bluegill		BG		X
Centrarchidae	redear sunfish		RSF		X
Centrarchidae	largemouth bass		LMB		X
Centrarchidae	smallmouth bass		SMB	X	
Percidae	bigscale logperch		BLP		X
Embiotocidae	tule perch	N	TP		
Cottidae	prickly sculpin	N	PSCP		
Cottidae	riffle sculpin	N	RSCP		Χ
TOTAL:	32			5	12

2007 species presence designated with  $\,'X'$ 

#### Table 4. 2007 OTHER SPECIES SAMPLED DURING SEINING STUDIES ON JUVENILE SALMON

2007 OTHER SPECIES SAMPLED DURING SEINING STUDIES ON JUVENILE SALMON

OTHER SPECIES SAMPLED (ACTUAL COUNTS OR ESTIMATED ABUNDANCE)

DATE SITE	LOCATION	MILE	LP T	FS F	RT CF	GF (	GSH SBF	НН	нсн	PM ST	PRS	FHM	SKR WCF	GAM	ISS	SB	WCR GSF	BG	LMB	SMB BLP	TP	RSCP RSF	CCF	CENT
17JAN 1 17JAN 2	OLGB R5	50.5 48.0											1											
17JAN 2 17JAN 3	TRR												2									1		
17JAN 4	HICK																							
17JAN 5	CHARLES	24.9								15			1											
17JAN 6 17JAN 7	LEGION	17.2 12.3																						
17JAN 8	SHILOH	3.4																						
17JAN 9	LAIRD	90.2									20													
17JAN 10	GARDNER	77.8									4													
DATE SITE	LOCATION	MILE	LP T	FS F	RT CF	GF (	GSH SBF	НН	НСН	PM ST	PRS	FHM	SKR WCF	GAM	ISS	SB	WCR GSF	BG	LMB	SMB BLP	TP	RSCP RSF	CCF	CENT
31JAN 1	OLGB	50.5																						
31JAN 2		48.0																						
31JAN 3 31JAN 4	TRR HICK									1			1									1		
31JAN 5	CHARLES	24.9								4			1											
31JAN 6	LEGION																							
31JAN 7		12.3																						
31JAN 8 31JAN 9	SHILOH LAIRD	3.4 90.2									20				20									
31JAN 10	GARDNER	77.8									1				12									
	LOCATION	MUE	LP T		RT CF	05.	COLL ODE		ПОП	DM OT	DDC	- FLIM	SKR WCF		100	CD	WOD OCE	BG	LMD	CMD DLD	TP	DOOD DOE	005	OENT
14FEB 1	OLGB	50.5	LP I	F5 F	KI CF	GF	GSH SBF	нн	нсн	PIVI 51	PKS	FHIVI	SKR WC	GAIVI	155	SB	WCR GSF	BG	LIVIB	SMB BLP	IP	RSCP RSF	CCF	CENT
14FEB 2	R5	48.0											1											
14FEB 3	TRR	42.3											1											
14FEB 4		31.6						12																
14FEB 5 14FEB 6	CHARLES LEGION	24.9								3														
14FEB 7		12.3																						
14FEB 8	SHILOH	3.4																						
14FEB 9	LAIRD										20				4									
14FEB 10	GARDNER	77.8									6				1									<del></del>
	LOCATION		LP T	FS F	RT CF	GF (	GSH SBF	НН	HCH	PM ST	PRS	FHM	SKR WCF	GAM	ISS	SB	WCR GSF	BG	LMB	SMB BLP	TP	RSCP RSF	CCF	CENT
28FEB 1	OLGB	50.5																						
28FEB 2 28FEB 3	R5 TRR	48.0 42.3			1								2											
28FEB 4	HICK				'			10					2											
28FEB 5	CHARLES	24.9						. •		2			1											
28FEB 6	LEGION												YOY											
28FEB 7		12.3																						
28FEB 8 28FEB 9	SHILOH LAIRD	3.4 90.2									30											1		
28FEB 10	GARDNER										1													
DATE CITE	LOCATION	MILE	ID T	TC -	T 05	. CF	GSH SBF	ши	нсп	DM CT	DDC	ГШ.4	CKB WOL		100	C.D.	WCD CCE	BC.	LMP	CMD DID	TD	DCCD DCC	CCE	CENT
14MAR 1	LOCATION OLGB	50.5	LP T	ro h	(i CF	GF	GON OBF	пп	пСП	rivi 31	PK5	ΓΠΙVI	SKR WCF	GAIVI	100	SB	WCR GSF	BG	LIVIB	SMB BLP	IF	RSCP RSF	UUF	CENT
14MAR 2	R5	48.0																						
14MAR 3	TRR	42.3																						
14MAR 4		31.6						3 2		3														
14MAR 5 14MAR 6	CHARLES LEGION							2		3				1										
14MAR 7		12.3												'										
14MAR 8	SHILOH	3.4									1													
14MAR 9	LAIRD	90.2																						
14MAR 10	GARDNER	77.8																						

<b>T</b>						
Table 4	2007 0	ther:	Species	sampled	1 (CON	tinued)

DATE SITE			07 Other Sp					OF COLL OR		нсн	DM CT	DDC	FUM CV	D WCE	CAM	100	CD	WCD CCE	BC.	LMD	CMD DID	TD	DOOD DOE	CCE	CENT
BIRDAR   2					LP IF5	KI	CP	GF GSH SBF	НН	нсн	PIVI 51	PRS	FHIVI SK	K WCF	GAIVI	155	SB	WCR GSF	BG	LIVIB	SIVIB BLP	TP	RSCP RSF	CCF	CENT
28MAR 4 0   CHICK 316   CHICK																							1		
28MAR 8   HICK 31.6   S   S   S   S   S   S   S   S   S																							4		
EMBANK   S CHARLES   24.5											4												'		
28MAR 6 LEGION 17.2   SHILCH 3.4   SHILCH 3.											1														
BABIAR   7   R.O.P   12.3   28014   8   SHILCH   13.4   28014   9   SHILCH   24.0   25   70   70   70   70   70   70   70   7													VOV												
SHILON   3-4													101												
March   Bank													VOV												
DATE SITE   COATION MILE   LP TFS   RT   CP   GFGSH SBF HH   CR   PM   ST   PRS   PM   SKR   WCF   GAM   ISS   SB   WCR   GSF   BG   LMB   SMB   BLP   TP   RSCPRSF   CCF   CRT												25	101			2									
DATE SITE   COCATION MILE   P TFS   RT   CP   GF GSH SBF   HH   CH   PM   ST   PRS   FHM   SKR   WCF   GAM   ISS   SB   WCR   GSF   BG   LMB   SMB   BLP   TP   RSCP   RSCP   CF   CENT   THAPR   2   RS   46.5   3   3   3   3   3   3   3   3   3												20	VOV			3									
11APR   CAGE   50.5	ZOIVIA	\ 10	OARDINER	11.0									101												
11APR   CAGE   50.5	DAT	SITE	LOCATION	MILE	LP TFS	RT	CP	GF GSH SBF	НН	HCH	PM ST	PRS	FHM SK	R WCF	GAM	ISS	SB	WCR GSF	BG	LMB	SMB BLP	TP	RSCP RSF	CCF	CENT
114PR 3 TR 42.3 7																									
114PR 3 TR 42.3 7	11AP	R 2	R5	48.0		3																			
11APR 6 LEGION 17.2 11APR 7 RDP 12.3 11APR 8 SHILLOH 3.4 11APR 9 LAIRD 90.2 11APR 10 SARNER 77.8 1 COATION MILE LP TFS RT 0 GF GSH SBF HH HCH PM ST PR 9 FM SKR WCF GAM ISS SB WCR GSF BG LMB SMB BLP TP RSCP RSF CCF CENT 25APR 1 COATION MILE LP TS RT 0 GF GSH SBF HH HCH PM ST PR 9 LAIRD 90.2 1 SARNER 7 RDP 12.3 1 FM 42.3	11AP																						3		
114PR   7   7   R.P.   12.3																									
114PR 7 8 SHILLOH 3.4	11AP	₹ 5	CHARLES	24.9							3		3	3											
11APR   8   SAHLOH   3.4   1	11AP	٦ 6	LEGION	17.2									YOY												
11APR   10   0   0   0   0   0   0   0   0	11AP	٦ 7	RDP	12.3								50	YOY												
11APR   10   GARDNER   77.8   1.5	11AP	٦ 8	SHILOH	3.4								100	YOY												
DATE SITE   LOCATION   MILE   LP TFS   RT   CP   GF   SH   SF   HH   HCH   PM   ST   PRS   FHM   SKR   WCF   GAM   ISS   SB   WCR   GSF   BG   LMB   SMB   BLP   TP   RSCP   RSCP   CF   CF   CF   CF   CF   CF   CF	11AP	₹ 9	LAIRD	90.2								150	YOY			1									
25APR 2 R5 48.0 25APR 42 R5 48.0 25APR 42 R5 48.0 25APR 44 HICK 31.6 25APR 5 CHARLES 24.9 25APR 6 LEGION 17.2 25APR 7 R0P 12.3 25APR 7 R0P 12.3 25APR 8 SHILOH 3.4 25APR 9 LAIRD 90.2 25APR 10 GROWNER 77.8 25APR 8 SHILOH 3.4 25APR 9 LAIRD 90.2 25APR 10 GROWNER 77.8 25APR 10 GRO	11AP	R 10	GARDNER	77.8								40	YOY												
25APR 2 R5 48.0 25APR 42 R5 48.0 25APR 42 R5 48.0 25APR 44 HICK 31.6 25APR 5 CHARLES 24.9 25APR 6 LEGION 17.2 25APR 7 R0P 12.3 25APR 7 R0P 12.3 25APR 8 SHILOH 3.4 25APR 9 LAIRD 90.2 25APR 10 GROWNER 77.8 25APR 8 SHILOH 3.4 25APR 9 LAIRD 90.2 25APR 10 GROWNER 77.8 25APR 10 GRO																									
25APR 2 R 8 48.0					LP TFS	RT	CP	GF GSH SBF	HH	HCH	PM ST	PRS	FHM SK	R WCF	GAM	ISS	SB	WCR GSF	BG	LMB	SMB BLP	TP		CCF	CENT
25APR 3 TRR 42.3 5																									
25APR 6 CHARLES 249						_																			
25APR 6 LEGION 17.2 25APR 7 RDP 12.3 25APR 8 SHLOH 3.4 25APR 10 GARDHER 77.8 25APR 10 GA						5																			
25APR 6 LEGION 17.2   2   2   7   7   7   7   7   7   7									_				V/0V/										1		
Section   Sect									5																
September   Sept											2														
25APR   9																									
Part   10   Gardner   77.8																									
DATE SITE   LOCATION   MILE   LP TFS   RT   CP   GF GSH SBF   HH   HCH   PM   ST   PRS   FHM   SKR   WCF   GAM   ISS   SB   WCR   GSF   BG   LMB   SMB   BLP   TP   RSCP			SHILOH	3.4								40									1				
O9MAY   1 OLGB   50.5	25AP	₹ 9	SHILOH LAIRD	3.4 90.2									YOY								1			8	
O9MAY   1 OLGB   50.5	25AP	₹ 9	SHILOH LAIRD	3.4 90.2									YOY								1			8	
OSMAY   2	25AP	R 9 R 10	SHILOH LAIRD GARDNER	3.4 90.2 77.8	IP TES	RT	CP	GE GSH SBE	- HH	нсн	PM ST	20	YOY	R WCF	GAM	2	SB	WCR GSF	BG	LMB		TP	RSCP RSF		
OBMAY   3   TRR   42.3   1   1   10   10   10   10   10   10	25AP 25AP DAT	R 9 R 10 E SITE	SHILOH LAIRD GARDNER LOCATION	3.4 90.2 77.8 MILE	LP TFS	RT	СР	GF GSH SBF	: нн	НСН	PM ST	20	YOY	R WCF	GAM	2	SB	WCR GSF	BG	LMB		TP	RSCP RSF		
OSMAY   4	25AP 25AP DAT 09MA	R 9 R 10 E SITE Y 1	SHILOH LAIRD GARDNER LOCATION OLGB	3.4 90.2 77.8 MILE 50.5	LP TFS		СР	GF GSH SBF	НН	НСН	PM ST	20	YOY	R WCF	GAM	2	SB	WCR GSF	BG	LMB		TP	RSCP RSF		
09MAY 5 CHARLES 24.9 20 4 3 09MAY 6 LEGION 17.2 70Y 09MAY 7 RDP 12.3 3 3 09MAY 8 SHILOH 3.4 6 6 1 1 1 09MAY 9 LAIRD 90.2 20 09MAY 10 GARDNER 77.8 77.8 7 CP GF GSH SBF HH HCH PM ST PRS FHM SKR WCF GAM ISS SB WCR GSF BG LMB SMB BLP TP RSCP RSF CCF CENT 23MAY 1 OLGB 50.5 70A 23MAY 2 R5 48.0 2 23MAY 3 TRR 42.3 23MAY 4 HICK 31.6 75 25 23MAY 4 HICK 31.6 75 25 23MAY 5 CHARLES 24.9 10 5 70A 23MAY 6 LEGION 17.2 70A 23MAY 6 LEGION 17.2 70A 23MAY 7 RDP 12.3	25AP 25AP DAT 09MA 09MA	R 9 R 10 E SITE Y 1 Y 2	SHILOH LAIRD GARDNER LOCATION OLGB R5	3.4 90.2 77.8 MILE 50.5 48.0	LP TFS	3	СР	GF GSH SBF	НН	НСН	PM ST	20	YOY	R WCF	GAM	2	SB	WCR GSF	BG	LMB		TP			
OSMAY   Fig.	25API 25API DAT 09MA 09MA	R 9 R 10 E SITE Y 1 Y 2 Y 3	SHILOH LAIRD GARDNER LOCATION OLGB R5 TRR	3.4 90.2 77.8 MILE 50.5 48.0 42.3	LP TFS	3	CP	GF GSH SBF	: нн	нсн		20	YOY	R WCF	GAM	2	SB	WCR GSF	BG	LMB		TP			
OSMAY   7   RDP   12.3	25API 25API 25API 09MA 09MA 09MA	R 9 R 10 E SITE Y 1 Y 2 Y 3 Y 4	SHILOH LAIRD GARDNER LOCATION OLGB R5 TRR HICK	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6	LP TFS	3	CP	GF GSH SBF		НСН	10	20	YOY YOY FHM SK		GAM	2	SB	WCR GSF	BG	LMB		TP			
09MAY 8 SHILOH 3.4 09.2	25API 25API 09MA 09MA 09MA 09MA 09MA	S 9 S 10 E SITE Y 1 Y 2 Y 3 Y 4 Y 5	SHILOH LAIRD GARDNER LOCATION OLGB R5 TRR HICK CHARLES	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9	LP TFS	3	СР	GF GSH SBF		нсн	10	20	YOY YOY FHM SK		GAM	2	SB	WCR GSF	BG	LMB		TP			
OSMAY   9   LAIRD   90.2   9	25API 25API 09MA 09MA 09MA 09MA 09MA	SITE Y 1 Y 2 Y 3 Y 4 Y 5 Y 6	SHILOH LAIRD GARDNER  LOCATION OLGB R5 TRR HICK CHARLES LEGION	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 17.2	LP TFS	3	СР	GF GSH SBF		НСН	10	20	YOY YOY FHM SK	3	GAM	2	SB	WCR GSF	BG	LMB		TP			
OBMAY   10   GARDNER   77.8	25API 25API 09MA 09MA 09MA 09MA 09MA 09MA 09MA	R 9 R 10 E SITE Y 1 Y 2 Y 3 Y 4 Y 5 Y 6 Y 7	SHILOH LAIRD GARDNER  LOCATION OLGB R5 TRR HICK CHARLES LEGION RDP	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3	LP TFS	3	СР	GF GSH SBF		нсн	10	PRS	YOY YOY FHM SK	3	GAM	2	SB	WCR GSF				TP			
DATE SITE LOCATION MILE LP TFS RT CP GF GSH SBF HH HCH PM ST PRS FHM SKR WCF GAM ISS SB WCR GSF BG LMB SMB BLP TP RSCP RSF CCF CENT 23MAY 1 OLGB 50.5 23MAY 2 R5 48.0 2 YOY 23MAY 3 TRR 42.3 23MAY 4 HICK 31.6 75 25 23MAY 5 CHARLES 24.9 10 5 YOY 23MAY 6 LEGION 17.2 YOY 23MAY 6 LEGION 17.2 YOY 23MAY 7 RDP 12.3 YOY 12.3 YOY 23MAY 8 SHILOH 3.4 YOY 23MAY 8 SHILOH 3.4 YOY 23MAY 9 LAIRD 90.2 1 TO THE PROPRIES AND THE PROPRE AND THE PROPRIES AND THE PROPRIES AND THE PROPRIES AND THE PROP	25API 25API 09MA 09MA 09MA 09MA 09MA 09MA 09MA	R 9 R 10 E SITE Y 1 Y 2 Y 3 Y 4 Y 5 Y 6 Y 7 Y 8	SHILOH LAIRD GARDNER  LOCATION OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4	LP TFS	3	СР	GF GSH SBF		нсн	10	PRS	YOY YOY FHM SK	3	GAM	2	SB	WCR GSF				TP			
23MAY 1 OLGB 50.5 23MAY 2 R5 48.0 2 YOY 23MAY 3 TR 42.3 23MAY 4 HICK 31.6 75 25 23MAY 5 CHARLES 24.9 10 5 YOY 23MAY 6 LEGION 17.2 YOY 23MAY 7 RDP 12.3 YOY 23MAY 8 SHICH 3.4 4 YOY 23MAY 9 LAIRD 90.2 10 5 1	25API 25API 09MA 09MA 09MA 09MA 09MA 09MA 09MA	S 10 S 10 S SITE Y 1 Y 2 Y 3 Y 4 Y 5 Y 6 Y 7 Y 8 Y 9	SHILOH LAIRD GARDNER  LOCATION OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2	LP TFS	3	СР	GF GSH SBF		НСН	10	20 PRS 6 20	YOY  FHM SK  YOY	3	GAM	2 ISS	SB	WCR GSF				TP			
23MAY 2 R5 48.0 2 YOY 23MAY 3 TRR 42.3 23MAY 4 HICK 31.6 75 25 23MAY 5 CHARLES 24.9 10 5 YOY 23MAY 6 LEGION 17.2 YOY 23MAY 7 RDP 12.3 YOY 23MAY 8 SHICH 3.4 YOY 23MAY 9 LAIRD 90.2 10 5 1	25API 25API 09MA 09MA 09MA 09MA 09MA 09MA 09MA	S 10 S 10 S SITE Y 1 Y 2 Y 3 Y 4 Y 5 Y 6 Y 7 Y 8 Y 9	SHILOH LAIRD GARDNER  LOCATION OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2		3 1			20		10 4	20 PRS 6 20 4	YOY  FHM SK  YOY  YOY	3		ISS			1	1	SMB BLP		10	CCF	
23MAY 3 TRR 42.3 23MAY 4 HICK 31.6 75 25 23MAY 5 CHARLES 24.9 10 5 YOY 23MAY 6 LEGION 17.2 YOY 23MAY 7 RDP 12.3 YOY 23MAY 8 SHICH 3.4 4 YOY 23MAY 9 LAIRD 90.2 10 5 1	25API 25API 09MA 09MA 09MA 09MA 09MA 09MA 09MA 09MA	SITE Y 1 Y 2 Y 3 Y 4 Y 5 Y 6 Y 7 Y 8 Y 9 Y 10	SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  LOCATION	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 77.8		3 1			20		10 4	20 PRS 6 20 4	YOY  FHM SK  YOY  YOY	3		ISS			1	1	SMB BLP		10	CCF	CENT
23MAY 4 HICK 31.6 75 25 23MAY 5 CHARLES 24.9 10 5 YOY 23MAY 6 LEGION 17.2 YOY 23MAY 7 RDP 12.3 YOY 23MAY 8 SHILOH 3.4 4 YOY 23MAY 9 LAIRD 90.2 10 5 1	25API 25API DAT 09MA 09MA 09MA 09MA 09MA 09MA 09MA 09MA	R 9 R 10  E SITE Y 1 Y 2 Y 3 Y 4 Y 5 Y 6 Y 7 Y 8 Y 9 Y 10  E SITE Y 1	SHILOH LAIRD GARDNER  LOCATION OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  LOCATION OLGB	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 77.8 MILE 50.5		3 1			20		10 4	20 PRS 6 20 4	YOY YOY FHM SK  YOY  YOY  FHM SK	3		ISS			1	1	SMB BLP		10	CCF	CENT
23MAY     5     CHARLES     24.9     10     5     YOY       23MAY     6     LEGION     17.2     YOY       23MAY     7     RDP     12.3     YOY       23MAY     8     SHILOH     3.4     4     YOY       23MAY     9     LAIRD     90.2     10     5     1	25API 25API DAT 09MA 09MA 09MA 09MA 09MA 09MA 09MA 09MA	S 10 SITE Y 1 Y 2 Y 3 Y 4 Y 5 Y 6 Y 7 Y 8 Y 10  SITE Y 1 Y 2 Y 10	SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR HICK CHARLES LEGION SHILOH LAIRD GARDNER  LOCATION  OLGB R5 R5 R5 R0 R0 R0 R0 R0 R1 R0	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 77.8 MILE 50.5 48.0		3 1			20		10 4	20 PRS 6 20 4	YOY YOY FHM SK  YOY  YOY  FHM SK	3		ISS			1	1	SMB BLP		10	CCF	CENT
23MAY 6 LEGION 17.2 YOY 23MAY 7 RDP 12.3 YOY 23MAY 8 SHILOH 3.4 4 YOY 23MAY 9 LAIRD 90.2 10 5 1	25API 25API 09MA 09MA 09MA 09MA 09MA 09MA 09MA 09MA	R 9 R 10 SITE Y 1 Y 2 Y 3 Y 4 Y 5 Y 6 Y 7 Y 8 Y 9 Y 10 SITE Y 1 Y 2 Y 3	SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 77.8 MILE 50.5 48.0 42.3		3 1			20 : HH		10 4 PM ST	20 PRS 6 20 4	YOY YOY FHM SK  YOY  YOY  FHM SK	3		ISS			1	1	SMB BLP		10	CCF	CENT
23MAY     7     RDP     12.3     YOY       23MAY     8     SHILOH     3.4     4     YOY       23MAY     9     LAIRD     90.2     10     5     1	25AP  25AP  25AP  DAT 09MA 09MA 09MA 09MA 09MA 09MA 23MA 23MA 23MA 23MA	R 9 R 10 E SITE Y 1 Y 2 Y 3 Y 4 Y 5 Y 6 Y 7 Y 8 Y 9 Y 10 E SITE Y 1 Y 2 Y 3 Y 4	SHILOH LAIRD GARDNER  LOCATION OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  LOCATION OLGB R5 TRR TRR TRR TRR TRR TRR TRR TRR HICK	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6		3 1			20 : HH		10 4 PM ST	20 PRS 6 20 4	YOY  FHM SK  ; YOY  FHM SK  YOY	3		ISS			1	1	SMB BLP		10	CCF	CENT
23MAY 8 SHILOH 3.4 4 YOY 23MAY 9 LAIRD 90.2 10 5 1	25AP  25AP  25AP  DAT 09MA 09MA 09MA 09MA 09MA 09MA 29MA 09MA 23MA 23MA 23MA 23MA	R 9 R 10    SITE   Y 1   Y 2   Y 3   Y 4   Y 5   Y 10     SITE   Y 1   Y 10   Y	SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR HICK CHARLES LEGION SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR HICK CHARLES LAIRD GARDNER LOCATION  OLGB R5 TRR HICK CHARLES CHARLES	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9		3 1			20 : HH		10 4 PM ST	20 PRS 6 20 4	YOY  FHM SK  YOY  YOY  FHM SK  YOY  YOY  YOY	3		ISS			1	1	SMB BLP		10	CCF	CENT
23MAY 9 LAIRD 90.2 10 5 1	25AP  25AP  25AP  DAT 09MA 09MA 09MA 09MA 09MA 09MA 09MA 23MA 23MA 23MA 23MA 23MA	R 9 R 10 E SITE F 17 F 2 F 3 F 4 F 7 F 7 F 6 F 7 F 7 F 7 F 8 F 7 F 9 F 9 F 9 F 9 F 9 F 9 F 9 F 9 F 9 F 9	SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR HICK CHARLES LEGION CHARLES LEGION LIGHT	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 17.2 12.3 3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9		3 1			20 : HH		10 4 PM ST	20 PRS 6 20 4	YOY  FHM SK  YOY  YOY  FHM SK  YOY  YOY  YOY	3		ISS			1	1	SMB BLP		10	CCF	CENT
	25AP  25AP  25AP  DAT 09MA 09MA 09MA 09MA 09MA 09MA 23MA 23MA 23MA 23MA 23MA 23MA	R 9 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 42.3 31.6 24.9 42.3 31.6 24.9 42.3 31.6 24.9 12.2 12.3		3 1			20 : HH		10 4 PM ST	20 PRS 6 20 4 PRS	YOY  FHM SK  YOY  FHM SK  YOY  YOY  YOY  YOY  YOY  YOY  YOY  Y	3		ISS			1	1	SMB BLP		10	CCF	CENT
23MAY 10 GARDNER 77.8 6 2 2	25AP  25AP  25AP  DAT 09MA 09MA 09MA 09MA 09MA 09MA 23MA 23MA 23MA 23MA 23MA 23MA 23MA 23	SITE SITE SITE SITE SITE SITE SITE SITE	SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR HICK CHARLES LEGION SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR HICK CHARLES LEGION OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH	3.4 90.2 77.8 MILE 50.5 48.0 31.6 24.9 17.2 12.3 3.4 90.2 77.8 MILE 50.5 48.0 31.6 24.9 17.2 12.3 31.6 31.6 31.6 31.6 31.6 31.6 31.6 31		3 1			20 : HH		10 4 PM ST	20 PRS 6 20 4 PRS	YOY  FHM SK  YOY  YOY  FHM SK  YOY  YOY  YOY  YOY  YOY  YOY  YOY  Y	R WCF		ISS			1	1	SMB BLP		10	CCF	CENT
	25AP  25AP  25AP  DAT 09MA 09MA 09MA 09MA 09MA 09MA 20MA 23MA 23MA 23MA 23MA 23MA 23MA 23MA	R 9 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD GARDNER  LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP LOCATION  OLGB R5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD LOCATION  OLGB A5 TRR HICK CHARLES LEGION RDP SHILOH LAIRD	3.4 90.2 77.8 MILE 50.5 48.0 42.3 31.6 24.9 12.3 3.4 90.2 77.8 MILE 50.5 50.5 42.3 31.6 24.9 17.2 42.3 31.6 90.2 90.2 90.2 90.2 90.2 90.2 90.2 90.2		3 1			20 : HH		10 4 PM ST	20 PRS 6 6 20 4 PRS	YOY  FHM SK  YOY  YOY  FHM SK  YOY  YOY  YOY  YOY  YOY  YOY  YOY  Y	R WCF		2 ISS 3 ISS			1	1	SMB BLP		10	CCF	CENT

Table 5. Tuolumne River snorkel summary, 2007.

2007 TUOLUMNE RIVER SNORKEL SUMMARY (TID/MID)

				•											1	NUMBER COUNTE	D (ESTIMATED TOTAL LENG	OTH OR SIZE RANGE IN MM)	1	T	T	T	
START DATE TIME	LOCATION	RIVER MILE		AREA (Sq. Ft.)	AVG. DEPTH (FEET)	TIME (Min.) HABITAT	SUBSTRATE	WATER TEMP. (C)	DO ( mg/l)	EC TUR	B. VIS		CHINOOK count/est.	CHINOOK size	RAINBOW count/est.	RAINBOW size	SACRAMENTO SUCKER	SACRAMENTO PIKEMINNOW	HARDHEAD	RIFFLE SCULPIN	LARGEMOUTH BASS	SMALLMOUTH BASS	WHITE CATFISH
26JUN 0955 0954	Riffle A7	50.7	1 2	5,000 4,000	1.2 4.0	25.0 Riffle 30.0 Run	cobble,gravel,bedrock cobble,gravel,sand	12.2	10.5	33 0	.7	20.0	3 10	(55,60,600) (70-90)	101 5	(60-110) (240-480)		(520)					
26JUN 1131	Riffle 2	49.9	1	5,000	1.2	20.0 Riffle	cobble,gravel,sand	14.5	10.4	35 0	.7	17.0						(0-0)		4(60-80)			
1147			2	4,500	7.0	20.0 Pool	bedrock,boulder,cobble								26 4	(70-100) (250-360)	13(300-500)	(400)					
1154			3	8,000	4.0	20.0 Run	cobble,sand,boulder						8 10	(75-100) (110-125)	4	(230-420)							
26JUN 1327	Riffle 3B	49.1	1	4,400	1.5	22.0 Riffle	cobble,gravel,sand	17.0	10.3	35 0	1.7	17.0	10	(70-100)	36 4	(60-120) (260-440)							
1333			2	12,000	3.0	25.0 Run-Riff	e cobble,boulder,bedrock						22	(70-120)	5	(275-400)	7(525-625)	5(375-450)					
26JUN 1444	Riffle 5B	47.9	1	2,400	2.0	16.0 Riffle	cobble,gravel,sand	19.2	10.3	37 0	1.8	16.0			13	(70-100)	16(500-650)	(520)		(50,60,80)			+
1516			2	12,000	4.0	24.0 Run	cobble,bedrock,gravel						4	(60-80)	4 9	(320-480) (110), 8(250-380)	8(350-700)						
1446			3	12,250	4.0	25.0 Run-Pool	bedrock,cobble,sand								65	(50-150)							
				69,550		227.0		Subtotal					67		277	(390)	44	8		7			+
27JUN 0954	Riffle 7	46.9	1	4,375	1.3	14.0 Riffle	cobble,gravel,sand	16.0	10.5	36 0	.7	17.0	<u> </u>		16	(80-125)							+
0950			2	8,000	4.0	24.0 Run	bedrock,cobble,sand								1 5	(320) (280-380)	120(400-600)	8(220-480)					
27JUN 1135 1132	Riffle 13B	45.5	1 2	7,500 4,800	1.7 1.5	15.0 Run-Riff 17.0 Riffle	le gravel,cobble,sand gravel,cobble,bedrock	18.7	10.1	38 1	.0	16.0			5 10	(75-125) (70-140)		(220)					
27JUN 1328 1324	Riffle 21	42.9	1 2	4,375 4,500	1.2 3.5	17.0 Riffle 20.0 Run-Pool	cobble,gravel,sand cobble,sand,vegetation	21.2	9.7	43 1	.1	14.0			7 3	(80-160) (90,110,120)		5(160-220)					
27JUN 1444 1439	Riffle 23C	42.3	1 2	12,250 3,750	2.0 1.5	16.0 Run 18.0 Riffle	cobble,sand,gravel cobble,bedrock,gravel	22.9	9.8	45 1	.3	13.0			2 3	(120,125) (120,140,350)	12(40-60) 8(50-60), (500)			(60)			
				49,550		141.0		Subtotal					0		52		141	14		1			†
03JUL 0923 0930	Riffle 31	38.0	1 2	5,400 10,000	1.5 3.0	19.0 Riffle 15.0 Run-Pool	cobble,gravel,algae cobble,sand,algae	21.4	9.1	62 1	.3	12.0			1 11	(90) (105-160)	5(60-90) (45,50), 55(500-700)				(270)		
03JUL 1043 1051	Riffle 35A	37.1	1 2	7,500 10,500	2.0 2.5	24.0 Riffle-Ru 23.0 Run	n cobble,gravel,bedrock cobble,gravel,sand	23.0	9.0	65 1	.0	14.0					45(60-90) (700,800) 400(50-90)	50(90-220) 250(50-90)	20(100-160)	(90)	(120,160)	(110)	
03JUL 1315	Riffle 41A	35.3	1	3,750	1.8	23.0 Run-Riff		23.7	8.8	67 1	.3	12.0			2	(160,180)	40(50-100) 6(600-750)	75(60-140) 20(150-180)	<u> </u>	<u> </u>			_
1304 1310			3	2,000 7,500	4.0 1.5	6.0 Run-Pool 15.0 Riffle	sand,gravel,cobble cobble,gravel,sand										40(40-60) 3(500-700)	(200,260,300) 10(90-140)					
03JUL 1451	Riffle 57	31.5	1	6,750	1.3	17.0 Riffle	cobble,gravel,sand	26.2	8.2	73 1	.2	14.0					100(60-200) 7(600-800)	60(110-200)				(70)	
1447			2	7,500	2.0	16.0 Run-Riff	e cobble,bedrock,sand										16(60-90)	22(70-140)	12(70-90)	(70)	6(50-60)	(300)	(360)
				60,900		158.0		Subtotal					0		14	<u> </u>	721	490	32	2	9	3	1
								TOTAL#					67		343		906	512	32	10	9	3	1

YOY Sacramento sucker were common or abundant at most locations.

#### 2007 TUOLUMNE RIVER SNORKEL SUMMARY (TID/MID)

				(													NUMBER COUNTE	ED (ESTIMATED TOTAL LENGT	H OR SIZE RANGE IN MM)					
STAF		RIVER		AREA	AVG. DEPTH		HABITAT	SUBSTRATE	WATER TEMP.	DO (mg/l)	EC TUR		B. C	HINOOK ount/est.	CHINOOK size	RAINBOW count/est.	RAINBOW size	SACRAMENTO SUCKER	SACRAMENTO PIKEMINNOW	HARDHEAD	RIFFLE SCULPIN	LARGEMOUTH BASS	SMALLMOUTH BASS	BLUEGILL
18SEP 0930		50.7	SILE	3,750	1.3		Riffle	cobble.gravel.bedrock	(C) 12.8	( mg/l) 10.2			6.0	ount/est.	Size	35	(40-80)	SUCKER	PIKEMINNOW	HARDHEAD	SCULPIN	BASS	BASS	BLUEGILL
103LF 0930	Kille A7	30.7	2	3,000	3.0		Run	cobble,gravel,sand	12.0	10.2	32 (	1.9 1	0.0			35	(90-160)							
			-	5,000	5.0	23.0	Kun	cooole,graver,sand								5	(250-380)							
18SEP 1100	Riffle 2	49.9	1	4,000	1.2	20.0	Riffle	cobble,gravel,sand	15.3	10.0	35 (	0.8 1	6.0				(=====)				5(30-60)		+	_
			2	6,000	6.0	21.0	Pool	bedrock.cobble.boulder								7	(100-140)	(800)			,			
																4	(300-480)							
			3	9,600	4.0	17.0	Run	cobble,sand,boulder								5	(220-400)	75(50-80)						
18SEP 1310	Riffle 3B	49.1	1	4,000	1.5	18.0	Riffle	cobble,gravel,sand	16.4	11.0	35 (	0.8 1	5.0			4	(100-130)							+
				# #00			n nice									4	(360-500)							
J			2	7,500	2.8	20.0	Run-Riffle	cobble,boulder,gravel								4	(290-380)							
18SEP 1430	Riffle 5B	47.9	1	3,000	2.0	12.0	Riffle	cobble,gravel,algae	18.4	11.6	48 (	).8 1	7.0			3	(120-160)				1			
					4.0											4	(320-450)	## / # O O O	40(50.00)					
			2	12,000 9,600	4.0 3.0		Run Run-Pool	cobble,bedrock,algae cobble,bedrock,algae								2	(340) (300,440)	52(40-90) 75(40-80)	12(50-80)			(70,80)		
			,	9,000	3.0	14.0	Kun-rooi	coobie,bedrock,argae									(300,440)	73(40-80)						
				62,450		188.0			Subtotal					0		113		203	12		5	2	<u> </u>	
19SEP 0930	Riffle 7	46.9	2	5,000 8,000	1.2 4.0		Riffle Run	cobble,gravel,algae bedrock,cobble,sand	15.0	9.0	36 1	.0 1	7.0			2 5	(400,420) (280-360)	(90) 50(400-800)	5(360-520)	(380)				
19SEP 1100	Riffle 13B	45.5	1	7,500	1.6	17.0	Run-Riffle	sand,cobble,gravel	16.7	9.2	44 (	0.8 2	20.0			45	(110-170)	150(50-90)	70(50-90)				+	
			2	4,000	1.5	15.0	Riffle	gravel,sand,cobble								12	(100-160)	6(40-60)	8(40-70)		(70)			
19SEP 1230	Riffle 21	42.9	1	4,500	1.1	15.0	Riffle	cobble,gravel,sand	17.9	8.6	44 (	).9 1	8.0			9	(110-170)	40(50-90)	110(40-110)		<b>†</b>		+	+
			2	5,000	3.5	19.0	Run-Pool	cobble,sand,vegetation								1	(320)	, ,	23(220-460)	22(220-380)				
19SEP 1410	Riffle 23C	42.3	1	2,250	2.0	15.0	Run	sand,cobble,gravel	19.0	8.6	48 (	).9 1	7.0			2	(140,150)	40(40-80)	50(40-80) (300)			(160,150,150)	+	_
			2	4,000	1.5	15.0	Riffle	cobble,bedrock,gravel								5	(120-150)	20(50-90)	40(60-110)	40(60-110)			(100)	
				40,250		137.0			Subtotal					0		81		307	307	63	1	3	1	+
20SEP 0915	Riffle 31	38.0	1	4,500	1.5	16.0	Riffle	cobble,gravel,algae	17.1	10.0	68 1	.3 1	4.5					22(60-100)	60(80-130)	50(80-110)				T
			2	7,500	2.5	14.0	Run-Pool	cobble,sand,algae								4	(280-360)					(170)		
20SEP 1030	Riffle 35A	37.1	1	5,000	2.0	17.0	Riffle-Run	bedrock,cobble,gravel,	17.7	9.8	70 1	.1 1	7.0					16(80-140)	10(60-80), 25(100-220)	27(100-240)	(70)		+	+
			2	10,000	2.0	22.0	Run	sand,gravel,cobble														(140)		
20SEP 1210	Riffle 41A	35.3	1	2,500	2.0	16.0	Run-Riffle	cobble,gravel,sand	18.7	8.7	71 (	0.8 1	8.0					250(50-150)	230(50-200), 5(220-260)	230(50-200)	<u> </u>	<del>                                     </del>	<del>                                     </del>	+
			2	2,000	4.0		Run-Pool	sand,gravel,cobble										(110)	20(80-110)	20(80-110)		(110)	(90,100,110)	
			3	6,000	1.5	11.0	Riffle	cobble,gravel,sand										60(400-700)	15(110-140)	15(110-140)				
20SEP 1400	Riffle 57	31.5	1	5,250	1.1	17.0	Riffle	cobble,gravel,algae	20.8	9.0	75 (	0.7 2	20.0					225(50-200),50(500-700)	205(100-300)	150(100-300)	1		(120,120)	+
			2	7,500	2.5			cobble,bedrock,sand											20(80-110)	20(80-110)		6(90-110)	15(90-120)	8(60-80)
				50,250		136.0	1		Subtotal					0		4		624	590	512	1	9	20	8
																								8

YOY Sacramento sucker were common or abundant at most locations.

Table 6. Tuolumne River Seining Summary Tuolumne River Seining Study Summary (Tuolumne, San Joaquin and Stanislaus Rivers)

	TUOLUMNE	RIVER				SAN JOAQI	JIN	ĺ	STANISLA	US			
Sampling	Sampling	Salmon	Sites	Average	Growth Rate	Salmon	Sites	Average	Salmon	Sites	Average	Start	End
Year	Periods	Captured	Sampled	Density	Index (mm/day)	Captured	Sampled	Density	Captured	Sampled	Density	Date	Date
1986	18	5514	8	20.7	0.45	854	3	14.2				22JAN	27JUN
1987	21	14825	11	22.4	0.45	734	6	1.9				05JAN	04JUN
1988	14	6134	11	14.3	0.58	295	4	2.1	84	1	2.9	05JAN	17MAY
1989	13	10043	11	27.0	0.64	83	3	0.6	1206	1	45.4	05JAN	12MAY
1990	14	2286	11	6.0	0.57	48	3	0.5				04JAN	11MAY
1991	8	120	11	0.5	No estimate	0	3	0	3	1	0.2	15JAN	24MAY
1992	5	144	7	1.2	No estimate	0	3	0	54	1	3.9	27JAN	13MAY
1993	7	124	8	0.8	0.68	0	3	0	6	1	0.3	26JAN	12MAY
1994	7	2068	5	21.6	0.65	2	2	0				25JAN	20MAY
1995	8	512	5	6.1	0.79	43	2	1.1				09FEB	12JUL
1996	8	785	6	7.6	0.66	7	2*	0.2				17JAN	13JUN
1997	10	379	7	2.7	0.48	11	2*	0.4				14JAN	28MAY
1998	10	1950	7	14.4	0.46	99	2	2.5				14JAN	21MAY
1999	10	3443	8	24.6	0.54	560	2	13.6				14JAN	19MAY
2000	10	3213	8	27.0	0.46	19	2	0.6				11JAN	17MAY
2001	11	5567	8	41.3	0.67	83	2	2.6				09JAN	30MAY
2002	10	3486	8	25.6	0.64	0	2	0				15JAN	21MAY
2003	10	5983	8	39.3	0.68	1	2	0				21JAN	28MAY
2004	11	3280	8	19.3	0.55	0	2	0				20JAN	25MAY
2005	10	1341	8	8.9	0.53	8	2*	0.2				19JAN	25MAY
2006	11	1558	8	10.2	0.79	39	2	1.2				20JAN	15JUN
2007	10	204	8	1.5	0.58	0	2	0				17JAN	23MAY

<sup>---</sup> Not Sampled
\*All San Joaquin River locations were not always sampled

Table 7. Summary table of locations sampled, 1986-2007

1986 TO 2007 SEINING LOCATIONS TUOLUMNE RIVER

TOOLOWINE RIVER		1000	1007	1000	1000	1000	1001	1992	1000	1004	1005	1006	1997	1000	1000	2000	2004	2002	2 2003	2004	2005	2006	2007
Site Location	River Mile	1900	1907	1988	1909	1990	1991	1992	1993	1994	1995	1990	1997	1990	1999	2000	2001	2002	. 2003	2004	2005	2006	2007
1 Old La Grange Bridge	50.5	Х	Х	Х	Х	Х	Х	Х	Х			Х	Х	Х	Х	Х	X	X	( X	Х	. X	Х	Х
2 Riffle 4B	48.4	Х	Х		Х	Х	Х				Χ	Χ	Х	Χ								Х	
3 Riffle 5	47.9		Х		Х	Х	Х	Х	Х	Χ					Х	Х	X	X	( X	Х	. X		Χ
4 Tuolumne River Resort	42.4			Х	Χ	Χ	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х			( X	Х	. X	Х	Χ
5 Turlock Lake State Rec. Area	42.0	Х	Χ																				
6 Reed Gravel	34.0	X	Χ	Х	Χ	Χ	Х																
7 Hickman Bridge	31.6	Χ	Χ	X	Χ	Χ	X	Χ	Χ	X	X	X	X	X	Х	Х	X	X	( X	Χ	X	X	Χ
8 Charles Road	24.9		Χ	Х	Χ	X	Х	Χ	Χ				X	Х	Х	Х	X	X	( X	Х	. X	Х	Х
9 Legion Park	17.2	X	Χ	Х	Χ	Χ	Х	Х	Χ	Х	Х	Х	Х	Х	Х	Х	X	X	( X	Х	. X	Х	Χ
10 Riverdale Park / Venn	12.3 / 7.4		Χ	Х	Χ	Χ	Х								Х	Х	X	X	( X	Х	. X	Х	Χ
11 McCleskey Ranch	6.0	X	Χ	Х	Χ	Χ	Х	Х	Χ	Х													
12 Shiloh Bridge	3.4	Х	Х	Χ	X	Χ	Χ		Χ		Χ	Χ	Χ	Χ	Χ	Х	X	X	( X	Х	X	Х	X
SAN JOAQUIN RIVER																							
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2 2003	2004	2005	2006	2007
Site Location	River Mile																						
13 Laird Park	90.2	X			Χ	Χ	X	X	Χ	X	X	Х	X	X	X							X	
14 Gardner Cove	77.8		Χ		Χ	Χ	Х	Х	Χ	X	X	X	Х	Х	Х	Х	X	X	( X	Х	. X	Х	Χ
15 Maze Road	76.6	X	Χ																				
16 Sturgeon Bend	74.3		Χ	X																			
17 Durham Ferry Park	71.3	X	Χ	X	Χ	Χ	X	X	Χ														
18 Old River	53.7		Х																				
STANISLAUS RIVER																							
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2 2003	2004	2005	2006	2007
Site Location	River Mile																						
19 Caswell State Park	8.5			Х	Х		Х	Х	Χ														
DRY CREEK																							
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Site Location	River Mile																						
20 Beard Brook Park	0.5							Х	Χ														

In 1987 additional sites on the Tuolumne, San Joaquin, Merced and Stanislaus Rivers were sampled occasionally (1987 annual report).

Table 8. Tuolumne River analysis of female spawners to fry density.

		JUVENIL	E SEINING	
TUOL.R.	TOTAL		PEAK	AVERAGE
FALL-	FEMALE		FRY	FRY DENSITY
RUN	SPAWNERS		DENSITY	15JAN-15MAR
1985	22600	86	158.8	59.5
1986	3800	87	69.3	46.2
1987	4600	88	70.2	33.9
1988	4100	89	115.1	39.7
1989	680	90	11.4	5.0
1990	28	91	1.3	0.5
1991	28	92	6.1	2.9
1992	55	93	1.7	0.9
1993	237	94	79.5	41.5
1994	249	95	12.5	9.8
1995	522	96	16.1	13.0
1996	1142	97	2.8	2.1
1997	4224	98	49.3	24.6
1998	4527	99	78.0	39.3
1999	3535	00	78.8	48.0
2000	11260	01	126.3	85.6
2001	4970	02	92.8	41.5
2002	3876	03	164.3	68.8
2003	1768	04	38.8	27.2
2004	1004	05	20.5	14.56
2005	478	06	28.7	12.74
2006	282	07	3.7	2.2

Table 9. Summary table of salmonids observed during the 2001-2007 (September) snorkel surveys.

Late summer snorkel survey comparisor

	TUOLUMNE	RIVER SNORKE	L SUMMARY	YEARLY COM	PARISON OF S	SALMONIDS C	BSERVED	TUOLUMNE RIVER SNORKEL SUMMARY YEARLY COMPARISON OF O. mykiss OBSERVED								
	CHINOOK 2001	CHINOOK 2002	CHINOOK 2003	CHINOOK 2004	CHINOOK 2005	CHINOOK 2006	CHINOOK 2007	RAINBOW 2001	RAINBOW 2002	RAINBOW 2003	RAINBOW 2004	RAINBOW 2005	RAINBOW 2006	RAINBOW 2007		
DATES	Sept. 18-20	Sept. 24-26	Sept. 17-19	Sept. 15-17	Sept. 20-22	Sept. 19-21	Sept. 18-20	Sept. 18-20	Sept. 24-26	Sept. 17-19	Sept. 15-17	Sept. 20-22	Sept. 19-21	Sept. 18-20		
LOCATIONS	1															
Riffle A7	21	2	2	0	1	0	0	3	1	16	11	10	115	75		
(RM 50.7)		_	_		•	-			•							
Riffle 2	0	0	1	0	0	0	0	3	4	2	7	7	15	16		
(RM 49.9)	-													-		
Riffle 3B	0	0	3	0	3	10	0	1	1	21	7	6	66	12		
(RM 49.1)	,							-	-							
Riffle 5B	0	0	4	0	0	0	0	2	0	10	6	36	54	10		
(RM 47.9)	,		•			-		_	_		_					
Sec. Total	21	2	10	0	4	10	0	9	6	49	31	59	250	113		
Riffle 7	0	1	0	0	0	0	0	0	2	9	2	2	106	7		
(RM 46.9)	Ů	· ·				Ü	Ů	· ·	_		_	_	100	,		
Riffle 13B,13A	0	0	0	0	1	8	0	0	4	6	0	46	103	57		
(RM 45.5 / 45.6)	· ·	U		0	'	O	0	U	7	0	U	70	103	37		
Riffle 21	0	0	1	0	0	10	0	3	0	6	7	15	32	10		
(RM 43.1)	Ů	Ů				10	Ů	· ·			,	10	02	10		
Riffle 23B-C	0	0	0	0	0	8	0	0	0	1	0	14	27	7		
(RM 42.3)	U	U	0	0	0	0	0	U	0	'	U	14	21	,		
Sec. Total	0	1	1	0	1	26	0	3	6	22	9	77	268	81		
Riffle 31 / 30B	0	0	0	0	0	0	0	0	0	0	0	1	21	4		
(RM 38.1 / 38.5)	0	U	U	U	U	U	U	U	U	U	U	'	21	4		
Riffle 37 / 35A	0	0	1	0	0	4	0	0	0	0	0	2	4	0		
(RM 36.2 / 37.1)	U	U	'	U	U	4	U	U	0	U	U	2	4	U		
Sec. Total		_	1	_	_	1	0	•	0	•	•	2	25			
	0	0		0	0	4	<u> </u>	0		0	0	3	25	4		
Riffle 41A	0	0	1	0	0	0	0	0	0	0	0	0	0	0		
(RM 35.3)	_		_		_				_					_		
Riffle 57	0	0	0	0	0		0	0	0	0	0	0		0		
(RM 31.5)																
Sec. Total	0	0	1	0	0	0	0	0	0	0	0	0	0	0		
Grand Total	21	3	13	0	5	40	0	12	12	71	40	139	543	198		

	TUOLUMNE R	IVER SNORKE	L SUMMARY (SALMONIDS			ENSITY INDIC	CES	TUOLUMNE RIVER SNORKEL SUMMARY YEARLY COMPARISON OF DENSITY INDICES (O. mykiss OBSERVED / 1000 SQ. FT.)								
	CHINOOK 2001	CHINOOK 2002	CHINOOK 2003	CHINOOK 2004	CHINOOK 2005	CHINOOK 2006	CHINOOK 2007	RAINBOW 2001	RAINBOW 2002	RAINBOW 2003	RAINBOW 2004	RAINBOW 2005	RAINBOW 2006	RAINBOW 2007		
DATES	Sept. 18-20	Sept. 24-26	Sept. 17-19	Sept. 15-17	Sept. 20-22	Sept. 19-21	Sept. 18-20	Sept. 18-20	Sept. 24-26	Sept. 17-19	Sept. 15-17	Sept. 20-22	Sept. 19-21	Sept. 18-20		
LOCATIONS																
Riffle A7	2.97	0.14	0.21	0.00	0.08	0.00	0.00	0.42	0.07	1.68	1.06	0.83	9.58	11.11		
(RM 50.7)																
Riffle 2	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.20	0.21	0.19	0.31	0.23	0.88	0.82		
(RM 49.9)																
Riffle 3B	0.00	0.00	0.33	0.00	0.26	1.11	0.00	0.08	0.12	2.33	0.60	0.53	7.33	1.04		
(RM 49.1)																
Riffle 5B	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.16	0.00	0.80	0.26	1.56	2.40	0.41		
(RM 47.9)																
Sec. Total	0.45	0.03	0.24	0.00	0.05	0.17	0.00	0.19	0.09	1.18	0.46	0.77	4.13	1.81		
Riffle 7	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.38	1.15	0.15	0.14	6.84	0.54		
(RM 46.9)																
Riffle 13B,13A	0.00	0.00	0.00	0.00	0.12	0.80	0.00	0.00	0.48	0.74	0.00	5.41	10.30	4.96		
(RM 45.5 / 45.6)																
Riffle 21	0.00	0.00	0.17	0.00	0.00	0.89	0.00	0.67	0.00	1.03	0.52	1.25	2.84	1.05		
(RM 43.1)																
Riffle 23B-C	0.00	0.00	0.00	0.00	0.00	1.23	0.00	0.00	0.00	0.19	0.00	2.00	4.15	1.12		
(RM 42.3)																
Sec. Total	0.00	0.04	0.04	0.00	0.02	0.60	0.00	0.12	0.22	0.82	0.22	1.86	6.20	2.01		
Riffle 31 / 30B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	1.33	0.33		
(RM 38.1 / 38.5)																
Riffle 37 / 35A	0.00	0.00	0.14	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.18	0.29	0.00		
(RM 36.2 / 37.1)																
Sec. Total	0.00	0.00	0.07	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.11	0.84	0.15		
Riffle 41A	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
(RM 35.3)																
Riffle 57	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00		0.00		
(RM 31.5)	1								1							
Sec. Total	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

Table 10. Tuolumne River snorkel locations and months surveyed, 2001-2007

	20	01	20	02	20	03		2004		2005	2006	20	07
	JUN	SEP	JUN	SEP	JUN	SEP	JUN	AUG	SEP	SEP	SEP	JUN	SEP
LOCATIONS													
Riffle A3/A4 (RM 51.6)								Χ					
Riffle A7 (RM 50.7)	Χ	Χ	Χ	Χ	Х	Χ	Χ	Χ	Χ	X	Х	Х	Χ
Riffle 1A (RM 50.4)								Χ					
Riffle 2 (RM 49.9)	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
Riffle 3B (RM 49.1)	Χ	Χ	Χ	Χ	Х	Χ	Χ	Χ	Χ	X	Х	Х	Χ
Riffle 4B (RM 48.4)								Χ					
Riffle 5B (RM 48.0)	Χ	Χ	Χ	Χ	Х	Χ	Χ	Χ	Χ	X	Х	Х	Χ
Riffle 7 (RM 46.9)	Χ	Χ	Χ	Χ	Х	Χ	Χ	Χ	Χ	X	Х	Х	Χ
Riffle 9 (RM 46.4)								Х					
Riffle 13A-B (RM 45.6)	Х	Χ	Χ	Χ	X	Χ	Χ	Χ	Χ	Х	Х	Х	Χ
Riffle 21 (RM 42.9)	Х	Χ	Χ	Χ	X	Χ	Χ	Χ	Χ	Х	Х	Х	Χ
Riffle 23B-C (RM 42.3)	Х	Χ	Χ	Χ	Х	Х	Χ	Х	Χ	Х	Х	Х	Х
Riffle 30B (RM 38.5)			Χ	Χ									
Riffle 31 (RM 38.1)	Х	Χ			Х	Х	Χ	Х	Χ	Х	Х	Х	Х
Riffle 33 (RM 37.8)													
Riffle 35A (RM 37.0)			Χ	Χ	Х	Х	Χ	Х	Χ	Х		Х	Х
Riffle 36A (RM 36.7)											Х		
Riffle 37 (RM 36.2)	X	Χ											
Riffle 41A (RM 35.3)	X	Χ	Χ	Χ	Χ	Χ	Χ	Х	Χ	Χ	Х	Χ	Χ
Riffle 57-58 (RM 31.5)	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Х	Χ	Χ