# UNITED STATES OF AMERICA BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

Turlock Irrigation District	)	
and	) Project No. 229	<b>)</b> 9
Modesto Irrigation District	)	

### 2010 LOWER TUOLUMNE RIVER ANNUAL REPORT

Report 2010-3

2010 Seine Report and Summary Update

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#### **EXECUTIVE SUMMARY**

The 2010 seining survey was conducted at two-week intervals from 26 January to 08 June for a total of 10 sample periods. This was the 25th consecutive annual seining study on the Tuolumne River conducted by the Turlock and Modesto Irrigation Districts.

A total of 386 natural Chinook salmon were caught in the Tuolumne River and none in the San Joaquin River. This was the 7<sup>th</sup> lowest number of salmon caught during the 1986-2010 period and salmon were captured downstream to the Charles Rd. location (RM 24.9). Peak density of salmon caught in the Tuolumne was 7.8 salmon per 1,000 square feet on 02 March. Maximum fork length (FL) in the Tuolumne River increased from 47 mm FL to 88 mm FL from 26 January to 30 March and minimum FL was 29 mm.

Flows during the sampling period ranged from about 220 to 3,300 cubic feet per second (cfs) in the Tuolumne River at La Grange and from about 1,200 to 6,000 cfs in the San Joaquin River at Vernalis. Flows in 2010 increased significantly beginning in early April due to above average precipitation.

Water temperature in the Tuolumne ranged from  $10.1^{\circ}\text{C}$  to  $18.4^{\circ}\text{C}$  and in the San Joaquin from  $9.4^{\circ}\text{C}$  to  $25.8^{\circ}\text{C}$ . Conductivity in the Tuolumne River ranged from 27 to 205  $\mu\text{S}$  and in the San Joaquin from 211 to  $1,406~\mu\text{S}$ .

A comparative review of fork length and salmon density for the 2005-2010 period is included. Increase in average fork length in 2010 was typical in timing and magnitude to the pattern observed in other years through early April. After that, average fork length remained fairly stable due to low eatch numbers and the outmigration of smolts.

Density of fry ( $\leq$  50 mm) peaked on 17 February, similar in timing to other years of the 2005-2010 period. The density of juveniles (> 50 mm) peaked on 30 March, which was also similar to other years in the period. In 2010, the average density of salmon in the Tuolumne River was 2.9 salmon per 1,000 ft<sup>2</sup>, most similar to 1997.

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#### 1 INTRODUCTION

Stillwater Sciences with assistance from FISHBIO conducted seine studies in the Tuolumne and San Joaquin Rivers in 2010 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 2010 were the progeny of the 2009 fall spawning run, estimated at about 300 fish counted at the Tuolumne River weir. This was the 25th consecutive annual TID/MID seining study and a summary of salmonid data since 1986 is contained in this report.

#### 1.1 STUDY SITES

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
	<u>Tuolumne River</u>	
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	Charles Road	24.9
6	Legion Park	17.2
7	Service Rd.,(Big Bend)	8.7,(6.4)
8	Shiloh Road	3.4
	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.

### 1.2 2010 TUOLUMNE AND SAN JOAQUIN RIVER SAMPLING CONDITIONS

Flows released in the Tuolumne River below La Grange Dam were approximately 220 cfs in January when the surveys began. Several winter rain runoff events occurred from late January to early March as was evident in flows at Modesto. Releases began increasing in early April due to above average precipitation in the watershed (Fig. 2). During April and May, there were several pulse flows of about 3,300 cfs. In mid-June flows increased to a high of 5,520 cfs.

Flows in the San Joaquin River at Vernalis (RM 72.5) ranged from 1,200-6,000 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 10.1 °C (50.2 °F) at Shiloh Rd on 26 January and at OLGB on 16 March, and the maximum temperature was 18.4 °C (65.1 °F) at Shiloh Road on 30 March (Fig. 3). The lowest San Joaquin River water temperature, 9.4 °C (48.9 °F) was at Laird Park on 26 January; the highest was 25.8 °C (78.4°F) at Laird Park on 08 June.

Dissolved oxygen concentration in the Tuolumne River ranged from 8.6 to 15.2 mg/L (ppm) and from 8.3 to 14.3 mg/L in the San Joaquin River (Fig. 3).

#### 2 METHODS

#### 2.1 STUDY TIMING

The 2010 seining study began on 26 January and ended on 08 June. Sampling was done at two-week intervals, with a total of 10 sampling dates.

#### 2.2 SAMPLING METHODS AND DATA RECORDING

Seining was done using a 4-ft high, 1/8-inch mesh nylon seine net 20 feet in length. 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, especially after early April. 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, turbidity, dissolved oxygen, 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.

#### 2.3 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 386 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 7.8 salmon per 1,000 ft<sup>2</sup> on 02 March. Peak density is normally observed in mid to late February.

### 3.1.1 Density of Fry and Juvenile Salmon

Salmon up to 47 mm fork length (FL) were caught in the Tuolumne River on 26 January. The highest density of salmon fry in the Tuolumne was 6.1 fry/1,000 ft<sup>2</sup> found on 17 February (Table 2). The highest density of juvenile salmon in the Tuolumne was 3.6 juveniles/1,000 ft<sup>2</sup> found on 30 March.

The density of salmon fry exhibited a peak at all sites from 17 February to 02 March. The density of juveniles generally peaked from 02 March to 13 April for all locations (Fig. 4).

The density of salmon fry in the Tuolumne River peaked in the upper section on 17 February, in the middle section on 02 March and none were caught in the lower section (Fig. 5).

The density of juveniles peaked in the upper section on 13 April, the middle section on 30 March and again, none were caught in the lower section. No salmon were caught in the San Joaquin River.

#### 3.1.2 Size, Growth, and Smoltification

The fork length of salmon caught ranged from 29 mm to 101 mm. The average fork length (FL) of salmon generally increased from 26 January to 13 April (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 47 to 88 mm during the 26 January to 30 March period (Fig. 6), indicating a potential FL increase of approximately .65 mm per day (41 mm / 63 days).

Length frequency distributions by survey period are in Figs. 7 & 8. The change in FL by location generally shows an increase from late January to late April at most of the Tuolumne River sampling locations (Fig. 9). The first salmon exhibiting smolting characteristics were

caught on 16 March with the exception of a 101 mm FL salmon caught on 17 February. For the year, smolting salmon ranged from 55-101 mm FL. Fry were present through 08 June during the 2010 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 27  $\mu$ S at OLGB to a high of 205  $\mu$ S at Shiloh Road (Table 3). Conductivity also decreased as flows increased beginning in April (Fig. 10).

Conductivity in the San Joaquin River was much higher than in the Tuolumne and ranged from a low of 211 µS at Gardner Cove to a high of 1406 µS at Laird Park.

Turbidity in the Tuolumne River was less than 10.2 Nephelometric Turbidity Units (NTU) except for readings downstream of Fox Grove on 26 January and 02 March that were likely the result of storm runoff. 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 14.5 at Gardner Cove to 81.4 NTU measured 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. Fifteen species other than Chinook salmon were caught in the Tuolumne River and 10 other species in the San Joaquin River. Nine of these species were common to both rivers and 15 species were caught overall. Twenty-nine rainbow trout fry (21-51 mm FL) were caught in the Tuolumne River between 17 February to 11 May at OLGB, R5, and TRR.

2010 Summary of Rainbow Trout caught during the Seining Study

				Minimum	Maximum	Average
				Fork	Fork	Fork
		River	Rainbow	Length	Length	Length
Date	Location	Mile	Catch	(mm)	(mm)	(mm)
2/17/10	OLGB	50.5	10	24	36	27.9
3/2/10	OLGB	50.5	2	29	30	29.5
3/2/10	TRR	42.3	1	22	22	22.0
3/16/10	OLGB	50.5	5	21	33	29.6
3/16/10	R5	48.0	1	41	41	41.0
3/30/10	OLGB	50.5	1	25	25	25.0
3/30/10	R5	48.0	2	34	35	34.5
4/13/10	R5	48.0	5	29	51	39.8
5/11/10	OLGB	50.5	1	37	37	37.0
5/11/10	R5	48.0	1	37	37	37.0

#### 4 COMPARATIVE REVIEW

#### 4.1 SEINE: 1986-2010

Annual TID/MID Tuolumne River seining surveys began in 1986, with the number, location, and sampling frequency of sites having varied over time (Tables 5 & 6). The number of salmon captured in the Tuolumne has ranged from 120 (1991) to 14,825 (1987) - the total number of salmon captured was 386 in 2010 which is the seventh lowest for all years. In 2010, the average density of salmon in the river was 2.9 salmon per 1,000 ft<sup>2</sup> and was most similar to densities found in 1997.

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 5). No salmon were captured in the San Joaquin River this year and in eight other years.

#### 4.1.1 Size and Growth

The comparative review of fork length and density is primarily for the 2005-2010 period in this report. Minimum FL found in 2010 remained low, less than 40 mm FL, through April (Fig. 11). In 2010, the increase in average FL during the January to March period was similar in timing and magnitude to the pattern observed in the 2005-2010 period (Fig. 12). After mid-April the average FL declined and then remained somewhat constant due to low numbers of salmon caught and the outmigration of smolts. Maximum FL in 2010 was about average from January through April (Fig. 13). The estimated 2010 growth rate of .65 mm per day was slightly above average for 1986-2010 (Table 5).

#### 4.1.2 Fry and Juvenile Salmon Density

In 2010, the density of salmon fry ( $\leq$  50 mm) in the Tuolumne River peaked on 17 February at a lower level than 2009 (Fig. 14).

The density of salmon juveniles (>50 mm) in 2010 peaked on 30 March most similar in timing to 2006 (Fig. 15).

Combined fry and juvenile densities for the Tuolumne River are shown for the years 2005-2010 (Fig. 16). The 2010 densities peaked on 02 March at 7.8 salmon per 1,000 ft<sup>2</sup>.

#### 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 2010, the density of fry peaked on 17 February and declined to low levels by mid-March. Upper section density of juveniles typically increases beginning in late February and peaks in early April to late May. In 2010, juvenile salmon density peaked on 13 April.

Middle section density of fry generally peaks from early February to mid-March similar timing to the upper section. In 2010, the density of fry peaked on 02 March. Middle section density of

juveniles often peak from late February to late March. In 2010 juvenile density peaked on 30 March.

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 2005-2010 period. In 2010, no salmon fry were caught in the lower section. Peak density of juveniles ranged from late March (2006) to late April (2005) with no juvenile captured in 2010.

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 2010 the standardized section abundance indices were in the middle range for the upper and middle sections.

### 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 1986-2010 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 2010. 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 1986-2010 period, 509 of which were caught in 1999. No salmon were caught at Gardner Cove in 2010.

### 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 .725 for the 1986-2010 period (Fig. 20, Table 7). A similar result with R-squared of .774 was found using average fry density from 15 January -15 March (Figure 21).

#### 4.1.4 Other Fish Species

The number of fish species, other than Chinook salmon, caught during 1992-2010 has ranged from 10 to 16 in the Tuolumne River (Table 8). The counts from each site, by date, for fish species caught in 2010 are in Table 4. Fifteen other species were caught, including 5 native species, in the Tuolumne; 10 fish species, including 2 native, were caught in the San Joaquin River in 2010. The number of species caught in the San Joaquin River was low, similar to the three previous years.

Of native species, rainbow trout, hardhead, and riffle sculpin were caught only in the Tuolumne

River and Sacramento pikeminnow and Sacramento sucker were caught in both rivers. Native species recorded in prior years, but not caught in either river in 2010, were Pacific lamprey, Sacramento blackfish, hitch, Sacramento splittail, tule perch, and prickly sculpin. The number of species observed in the Tuolumne River during the 1992-2010 period of years has remained fairly constant (Table 8). The number of species observed in the San Joaquin River since 2007 has decreased significantly from earlier years.

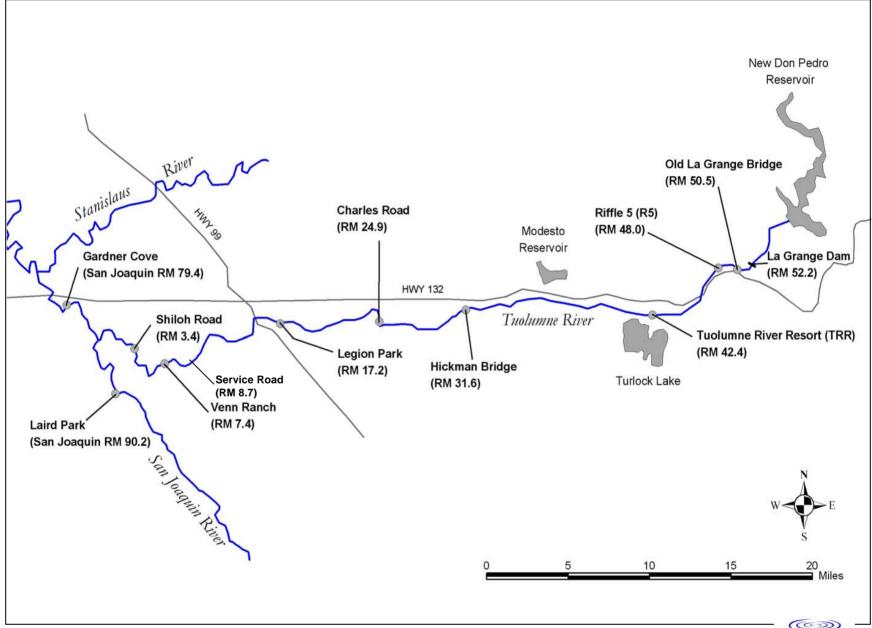
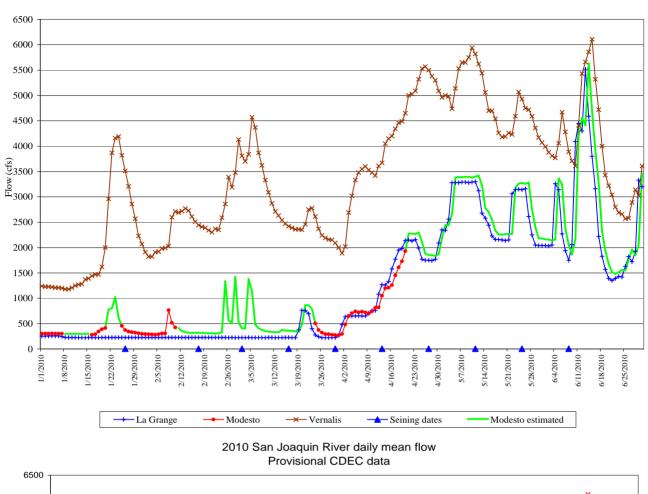


Figure 1. Locations of seine sampling sites on the lower Tuolumne and San Joaquin Rivers, 2010.





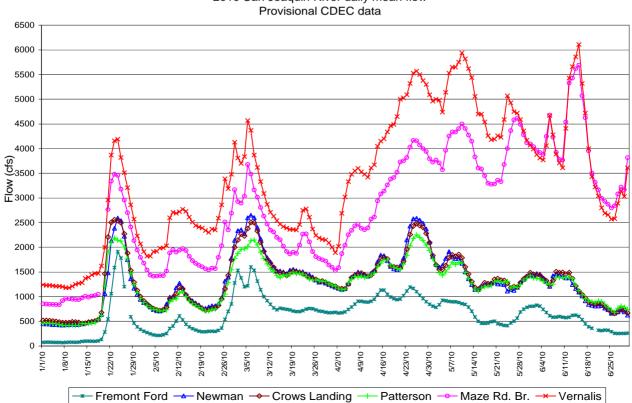
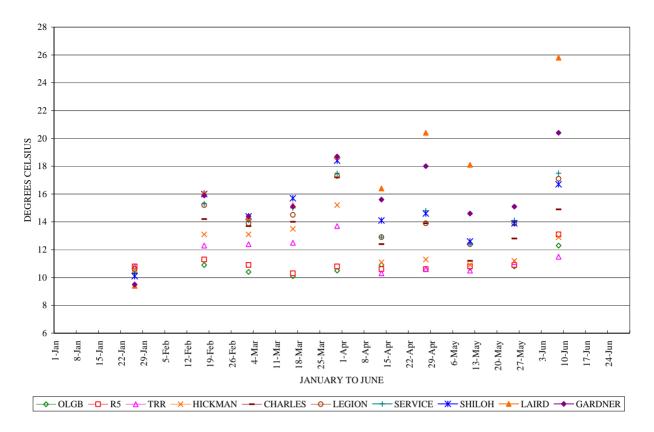


Figure 2. Tuolumne and San Joaquin River daily average flow.



#### 2010 TUOLUMNE AND SAN JOAQUIN RIVER DISSOLVED OXYGEN

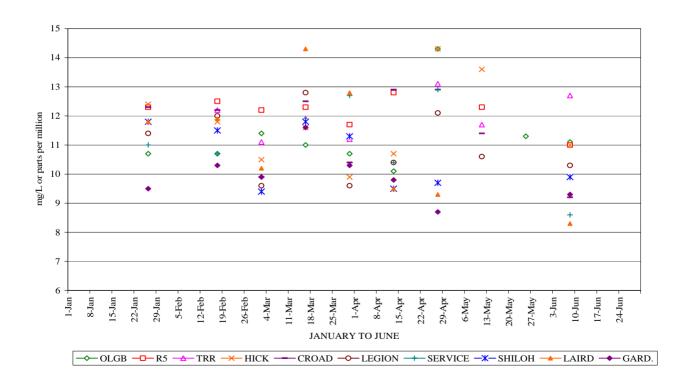
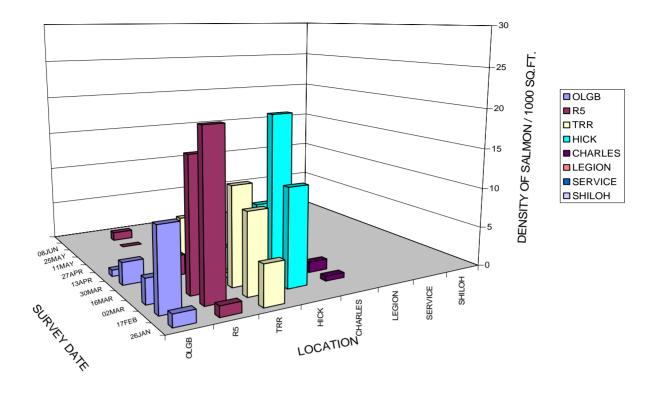


Figure 3. 2010 Tuolumne and San Joaquin River water temperature and dissolved oxygen.



## TUOLUMNE RIVER JUVENILE SALMON STUDY 2010 SEINING - DENSITY OF JUVENILES BY LOCATION

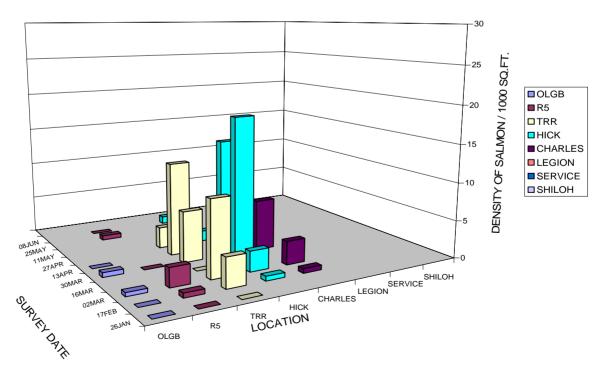


Figure 4. Tuolumne River density of fry and juvenile salmon by location.

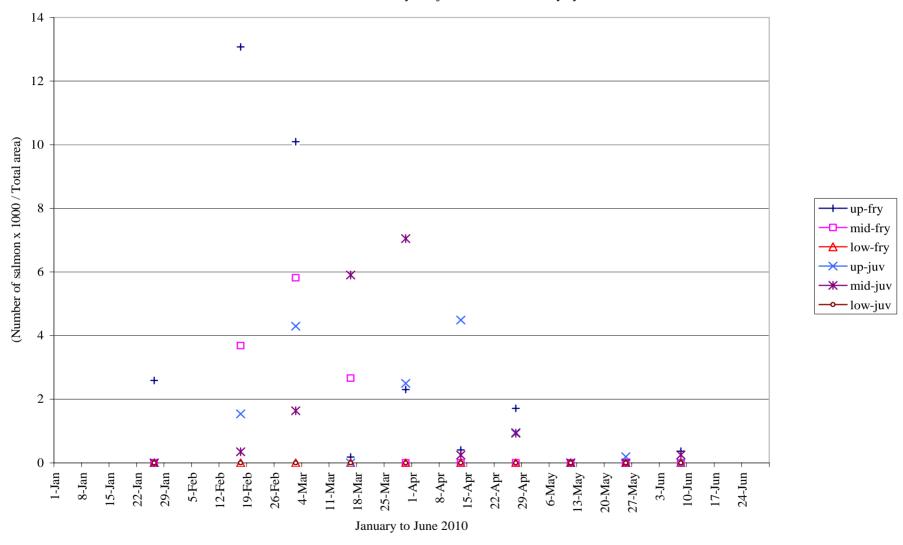


Figure 5. 2010 Tuolumne River fry and juvenile salmon density by section.

#### 2010 TUOLUMNE RIVER JUVENILE SALMON SEINING STUDY

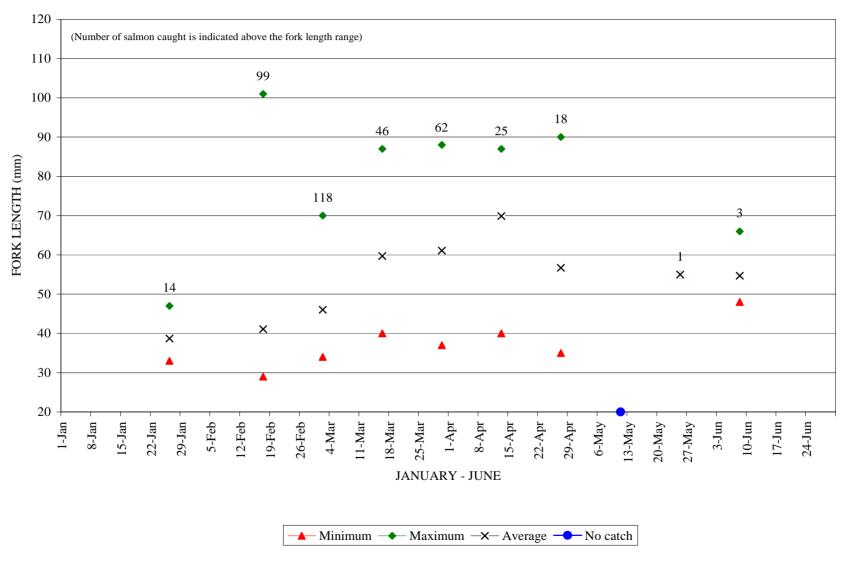


Figure 6. Fork length ranges of wild salmon in the Tuolumne River, 2010.

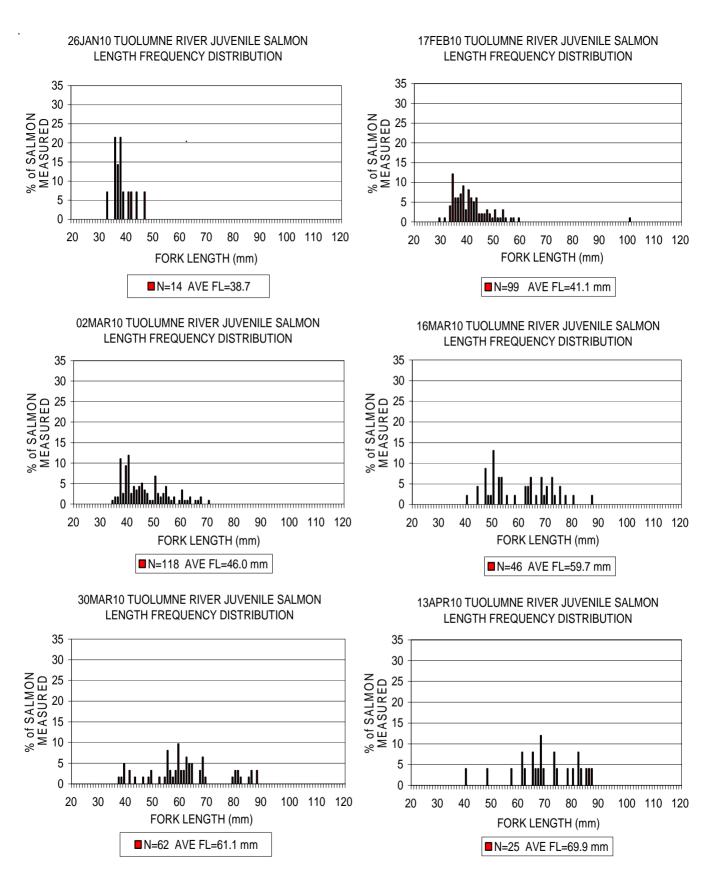


Figure 7. Length frequency distribution by date of salmon in the Tuolumne River, 2010.

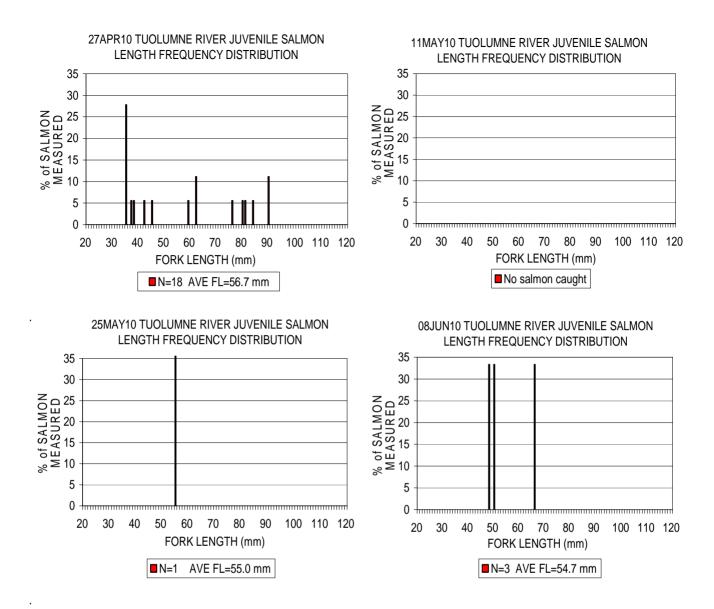
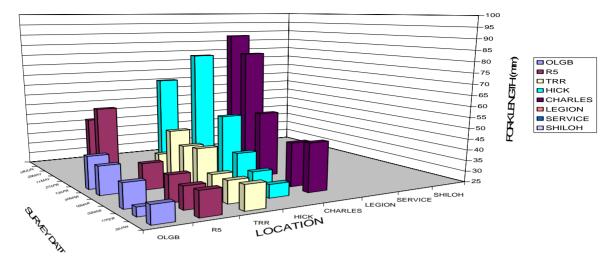
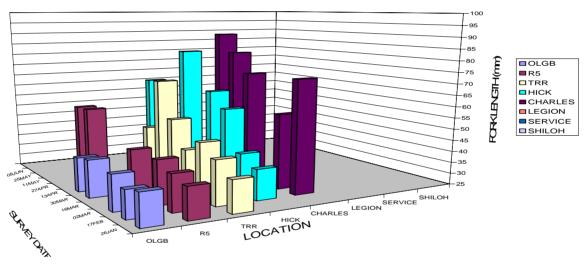


Figure 8. Length frequency distribution by date of salmon in the Tuolumne River, 2010.

### TUOLUMNE RIVER JUVENILE SALMON STUDY 2010 SEINING - MINIMUM FORK LENGTH



### TUOLUMNE RIVER JUVENILE SALMON STUDY 2010 SEINING - AVERAGE FORK LENGTH



### TUOLUMNE RIVER JUVENILE SALMON STUDY 2010 SEINING - MAXIMUM FORK LENGTH

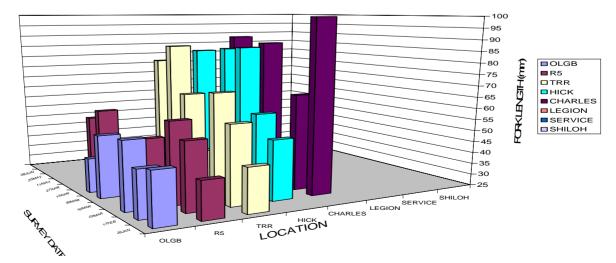
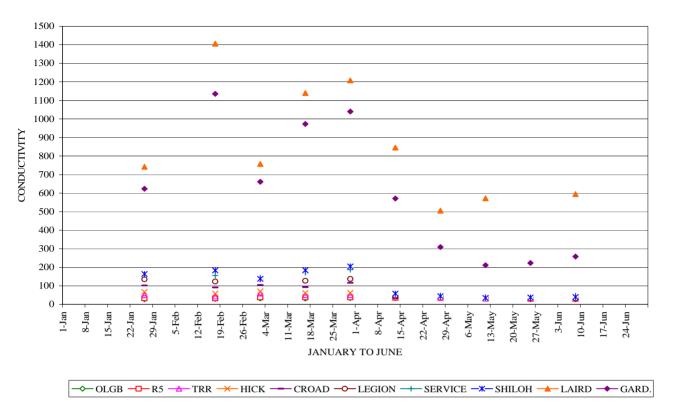


Figure 9. Minimum, average, and maximum fork length by location and survey period, 2010.

#### TUOLUMNE AND SAN JOAQUIN RIVERS 2010 CONDUCTIVITY



# TUOLUMNE AND SAN JOAQUIN RIVERS 2010 TURBIDITY

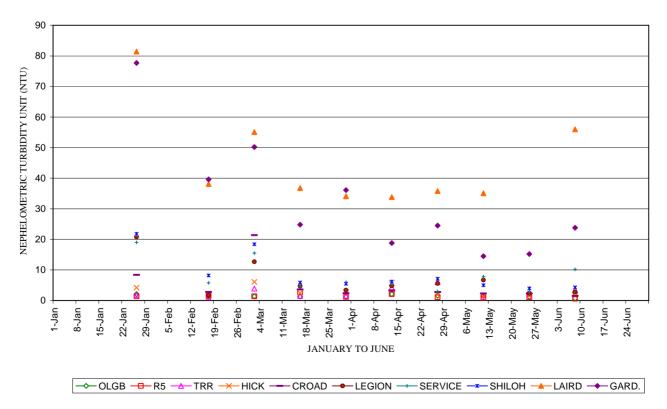
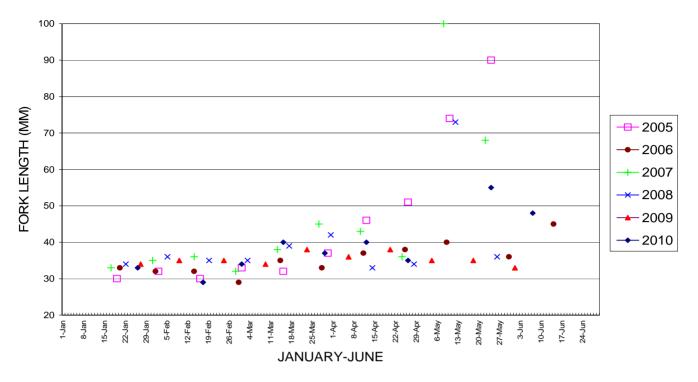
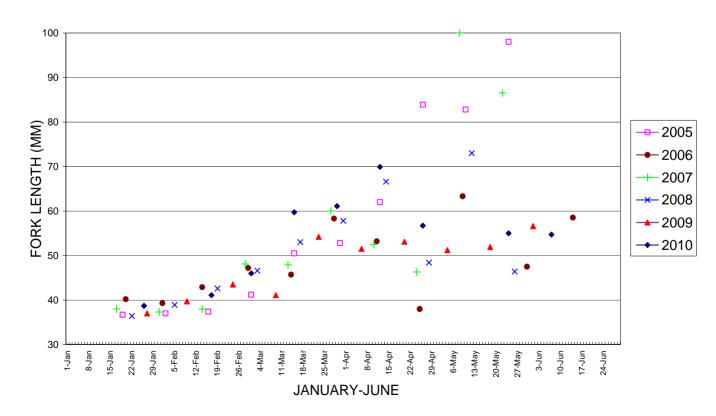


Figure 10. Conductivity and turbidity in the Tuolumne and San Joaquin Rivers, 2010

# 2005-2010 TUOLUMNE RIVER SEINING MINIMUM SALMON FORK LENGTH

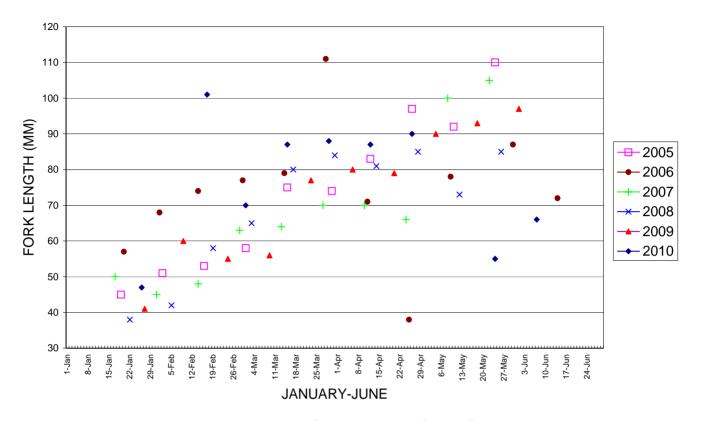


# 2005-2010 TUOLUMNE RIVER SEINING AVERAGE SALMON FORK LENGTH

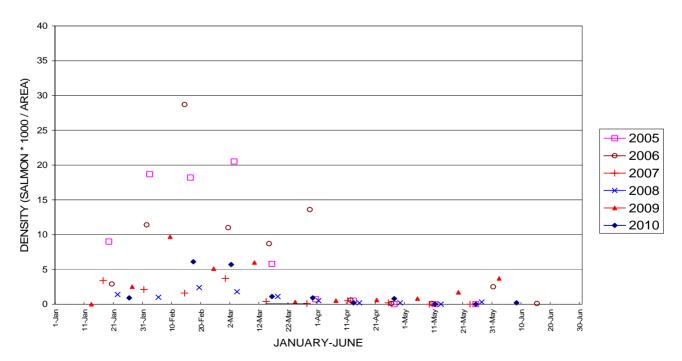


Figures 11 & 12. Minimum and average fork lengths of Tuolumne River salmon, 2005-2010.

# 2005-2010 TUOLUMNE RIVER SEINING MAXIMUM SALMON FORK LENGTH

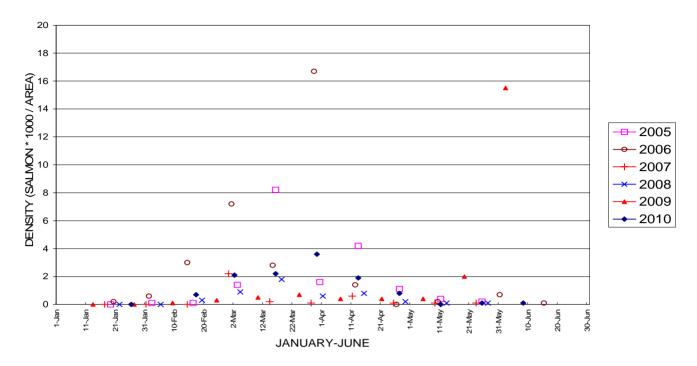


# 2005-2010 TUOLUMNE RIVER SEINING DENSITY OF SALMON FRY (< OR = 50 mm)

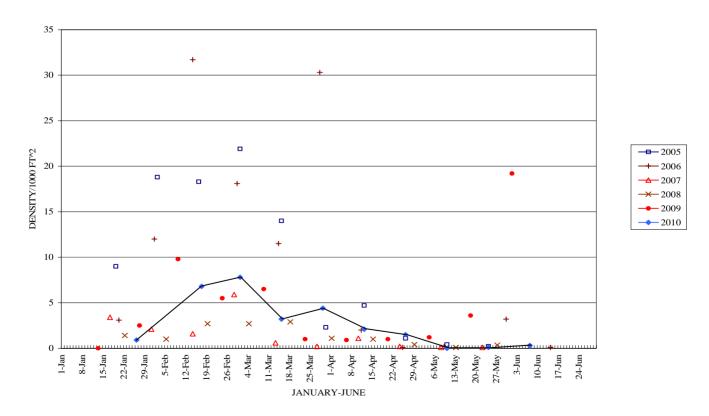


Figures 13 & 14. Maximum fork length and Density index of salmon fry, 2005-2010.

# 2005-2010 TUOLUMNE RIVER SEINING DENSITY OF SALMON JUVENILES (> 50 mm)

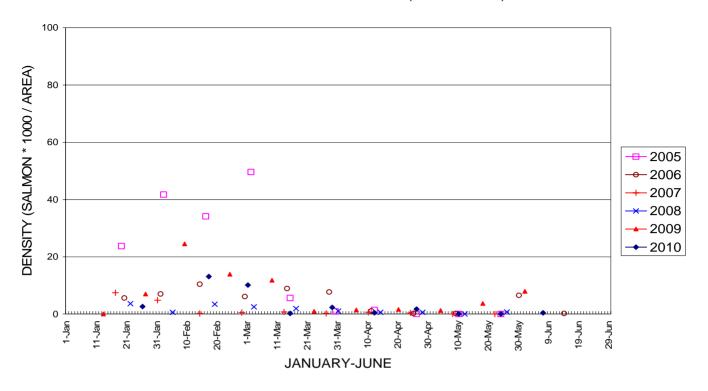


2005-2010 TUOLUMNE RIVER SEINING COMBINED FRY AND JUVENILE SALMON DENSITY INDEX



Figures 15 & 16. Density index of salmon juveniles and total river salmon catch, 2005-2010.

# 2005-2010 TUOLUMNE RIVER SEINING UPPER SECTION SALMON FRY (< OR = 50MM)



# 2005-2010 TUOLUMNE RIVER SEINING UPPER SECTION SALMON JUVENILES (>50MM)

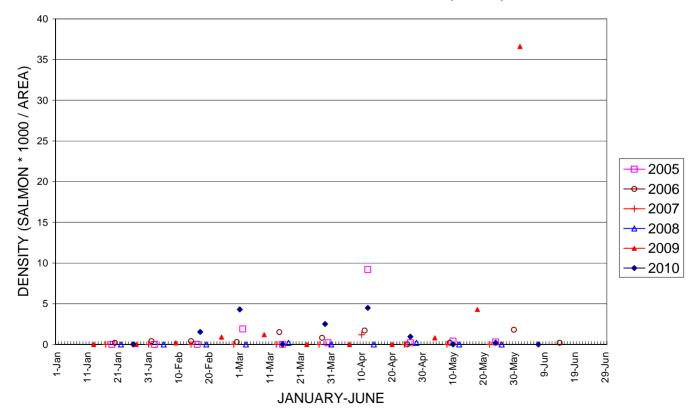


Figure 17. Upper section density indices for salmon fry and juveniles, 2005-2010

# 2005-2010 TUOLUMNE RIVER SEINING MIDDLE SECTION SALMON FRY(< OR = 50MM)

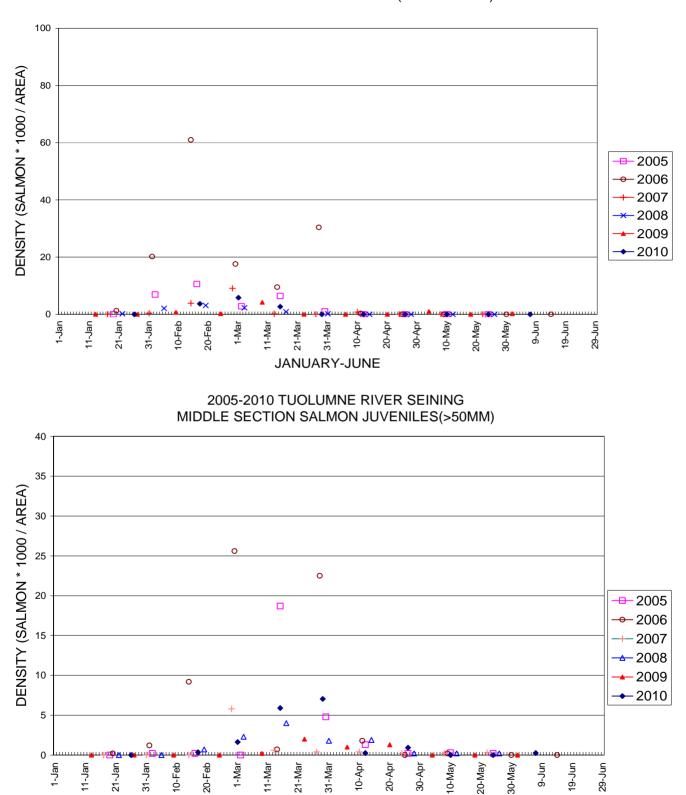


Figure 17. Middle section density indices for salmon fry and juveniles, 2005-2010.

JANUARY-JUNE

# 2005-2010 TUOLUMNE RIVER SEINING LOWER SECTION SALMON FRY(< OR = 50MM)

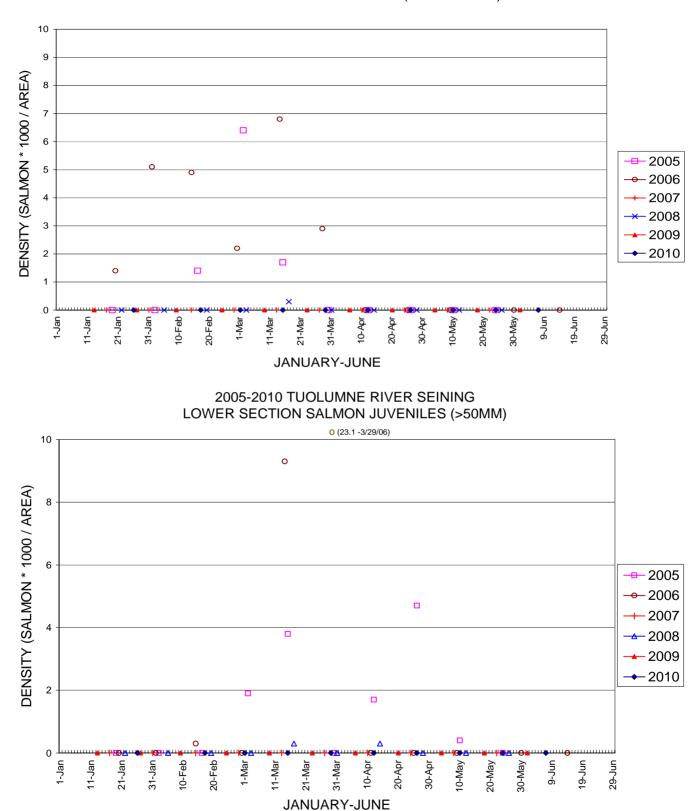


Figure 17. Lower section density indices for salmon fry and juveniles, 2005-2010.

# TUOLUMNE RIVER ABUNDANCE INDICES STANDARDIZED BY SECTION

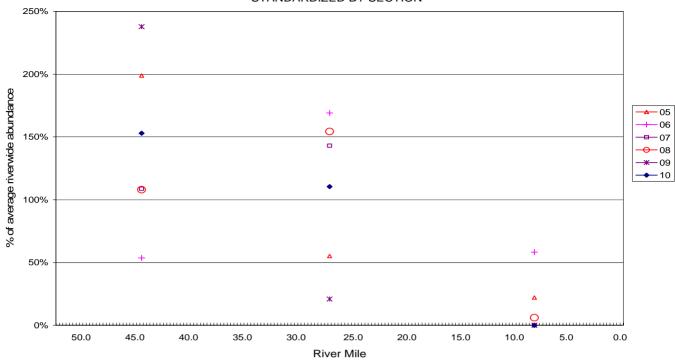


Figure 18. Tuolumne River abundance indices standardized by section, 2005-2010.

### San Joaquin River Abundance Indices by Location

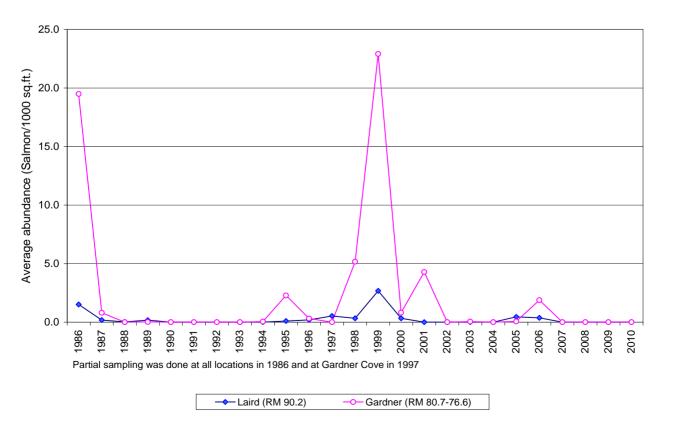


Figure 19. San Joaquin River abundance indices by location, 1986-2010.

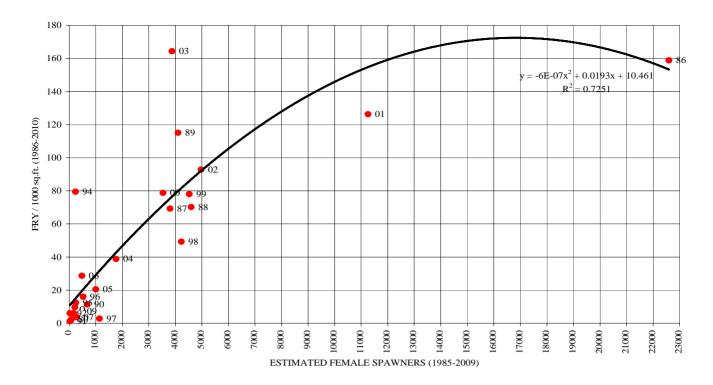
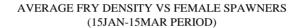


Figure 20. Tuolumne River peak fry density vs female spawners.



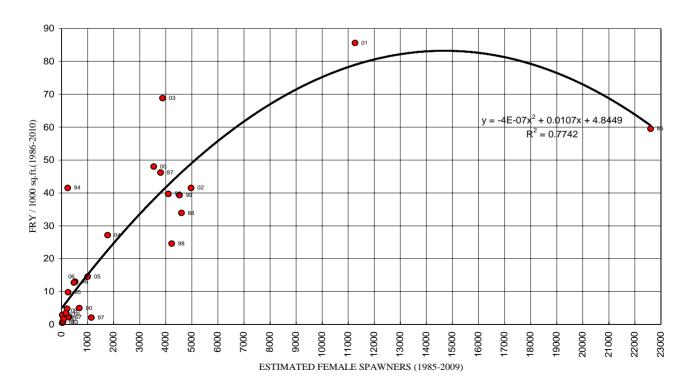


Figure 21. Tuolumne River average fry density vs female spawners.

Table 1. Summary table of weekly seine catch for the Tuolumne and San Joaquin Rivers.

TABLE 1. 2010 JUVENILE SALMON SEINING STUDY (TID/MID)

### TUOLUMNE RIVER

	SALMON	AREA	DENSITY	MINIMUM	MAXIMUM A	VERAGE	NUMBER	I	NUMBER
DATE	CATCH	(SQ. FT.)	(/1000 ft^2)	FL	FL	FL	MEAS.	SACFRY	KILLED
26JAN	14	15,250	0.9	33	47	38.7	14	0	0
17FEB	99	14,500	6.8	29	101	41.1	99	0	2
02MAR	118	15,050	7.8	34	70	46.0	118	0	3
16MAR	46	14,250	3.2	40	87	59.7	46	0	0
30MAR	62	14,050	4.4	37	88	61.1	62	0	1
13APR	25	12,050	2.1	40	87	69.9	25	0	0
27APR	18	11,750	1.5	35	90	56.7	18	0	0
11MAY	0	12,700	0.0						
25MAY	1	12,000	0.1	55	55	55.0	1	0	0
08JUN	3	11,600	0.3	48	66	54.7	3	0	0
TOTAL:	386	133,200	2.9				386	0	6

### SAN JOAQUIN RIVER

	SALMON	AREA	DENSITY	MINIMUM	MAXIMUM AVER	RAGE	NUMBER		NUMBER
DATE	CATCH	(SQ. FT.)	(/1000 ft^2)	FL	FL	FL	MEAS.	SACFRY	KILLED
26JAN	0	2,950	0.0						
17FEB	0	2,100	0.0						
02MAR	0	2,700	0.0						
16MAR	0	1,600	0.0						
30MAR	0	2300	0.0						
13APR	0	2,700	0.0						
27APR	0	2,000	0.0						
11MAY	0	1,750	0.0						
25MAY	0	1,400	0.0						
08JUN	0	2,700	0.0						
TOTAL:	0	22,200	0.0						_

Table 2. Summary table of weekly seine catch by location for the Tuolumne and San Joaquin Rivers, 2010

i able 2.	Summary	table o	ot weekl	ly seine d	atch by l	ocation	for the	Luolur	nne and	San Joaqu	un Rivers	s, 2010			
	Summary of TID/I								<u> </u>	EXTRAPOLATED					
Salmon Density	y is the Number	of Salmon	/ 1000 sq. ft	t.	Ext	rapolated				UPPER SECTION	MIDDLE SECTION	LOWER SECTION	UPPER SECTION	MIDDLE SECTION	LOWER SECTION
		Total		Measured	Measured	Density	Density	Density	Average	Density	Density	Density	Density	Density	Density
Date 26JAN	Location OLGB	Catch 3	Area 2,000	Fry 3	Juvenile 0	Fry 1.5	Juvenile 0.0	Total 1.5	FL 38.7	Fry 2.6	Fry 0.0	Fry 0.0	Juvenile 0.0	Juvenile 0.0	Juvenile 0.0
26JAN	R5	2	1,600	2	0	1.3	0.0	1.3	38.5	2.0	0.0	0.0	0.0	0.0	0.0
26JAN	TRR	9	1,800	9	0	5.0	0.0	5.0	38.8						
26JAN 26JAN	HICKMAN CHARLES	0	1,650 1,800					0.0							
26JAN	LEGION	0	2,400					0.0							
26JAN 26JAN	SERVICE SHILOH	0	1,800 2,200					0.0							
26JAN	LAIRD	0	1,350					0.0							
26JAN	GARDNER	0	1,600					0.0							
TUOL.TOT. SJR. TOT.		14 0	15250 2950	14	0	0.9	0.0	0.9 0.0	38.7						
	Summary of TID/I								<u> </u>	EXTRAPOLATED					
Salmon Density	y is the Number	of Salmon	/ 1000 sq. ft	t.	Ext	rapolated				UPPER SECTION	MIDDLE SECTION	LOWER SECTION	UPPER SECTION	MIDDLE SECTION	LOWER
		Total		Measured	Measured	Density	Density	Density	Average	Density	Density	Density	Density	Density	Density
Date 17FEB	Location OLGB	Catch 18	Area 1800	Fry 18	Juvenile 0	Fry 10.0	Juvenile 0.0	Total 10.0	FL 36.9	Fry 13.1	Fry 3.7	Fry 0.0	Juvenile 1.5	Juvenile 0.4	Juvenile 0.0
17FEB	R5	33	1600	32	1	20.0	0.6	20.6	40.8	13.1	3.1	0.0	1.5	0.4	0.0
17FEB	TRR	25	1800	18	7	10.0	3.9	13.9	44.3						
17FEB	HICKMAN	21	1650	20	1	12.1	0.6	12.7	38.3						
17FEB 17FEB	CHARLES LEGION	2	1650 2400	1	1	0.6	0.6	1.2 0.0	74.0						
17FEB	SERVICE	0	1800					0.0							
17FEB	SHILOH	0	1800					0.0							
17FEB 17FEB	LAIRD GARDNER	0	900 1200					0.0							
TUOL.TOT. SJR. TOT.	OARDIVER	99	14500 2100	89	10	6.1	0.7	6.8 0.0	41.1						
	Summary of TID/I							0.0		EXTRAPOLATED	,				
	y is the Number			t.					Ė	UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER
	,				Ext	rapolated				SECTION	SECTION	SECTION	SECTION	SECTION	SECTION
5.		Total		Measured	Measured	Density	Density	Density	Average	Density	Density	Density	Density	Density	Density
Date 02MAR	Location OLGB	Catch 7	Area 1950	Fry 6	Juvenile 1	Fry 3.1	Juvenile 0.5	Total 3.6	FL 40.3	Fry 10.1	Fry 5.8	Fry 0.0	Juvenile 4.3	Juvenile 1.6	Juvenile 0.0
02MAR	R5	30	1600	26	4	16.3	2.5	18.8	44.0	10.1	0.0	0.0	4.0	1.0	0.0
02MAR	TRR	40	1800	22	18	12.2	10.0	22.2	49.2						
02MAR 02MAR	HICKMAN CHARLES	34	1500	30 2	4 5	20.0	2.7	22.7	42.6 57.9						
02MAR	LEGION	7 0	1600 2400	2	5	1.3	3.1	4.4 0.0	57.9						
02MAR	SERVICE	Ō	1800					0.0							
02MAR	SHILOH	0	2400					0.0							
02MAR 02MAR	LAIRD GARDNER	0	1500 1200					0.0							
TUOL.TOT. SJR. TOT.	OFTICETO	118 0	15050 2700	86 0	32 0	5.7	2.1	7.8 0.0	46.0						
	Summary of TID/I			Ü	Ü			0.0		EXTRAPOLATED	1				
	y is the Number			t.					=	UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER
	,					rapolated				SECTION	SECTION	SECTION	SECTION	SECTION	SECTION
Date	Location	Total Catch	Area	Measured	Measured Juvenile	Density	Density Juvenile	Density Total	Average FL	Density	Density	Density	Density Juvenile	Density Juvenile	Density Juvenile
16MAR	OLGB	Catch 0	2000	Fry	Juvenile	Fry	Juvenile	0.0	FL	Fry 0.2	Fry 2.7	Fry 0.0	0.0	5.9	0.0
16MAR	R5	Ō	1600					0.0			=	***		***	***
16MAR	TRR	1	1800	1	0	0.6	0.0	0.6	44.0						
16MAR 16MAR	HICKMAN CHARLES	45 0	1650 1800	14	31	8.5	18.8	27.3 0.0	60.0						
16MAR	LEGION	0	1800					0.0							
16MAR	SERVICE	0	1800					0.0							
16MAR 16MAR	SHILOH LAIRD	0 0 N	1800 lot Done					0.0							
16MAR	GARDNER	0	1600					0.0							
TUOL.TOT. SJR. TOT.		46 0	14250 1600	15 0	31 0	1.1	2.2	3.2 0.0	59.7						
	Summary of TID/		. ,						<u>_</u>	EXTRAPOLATED					
Salmon Density	y is the Number	of Salmon	/ 1000 sq. ft	t.	F.,4				-	UPPER	MIDDLE SECTION	LOWER	UPPER	MIDDLE	LOWER
		Total		Measured	Measured	rapolated Density	Density	Density	Average	SECTION Density	Density	SECTION Density	SECTION Density	SECTION Density	Density
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juvenile
30MAR	OLGB	6	1800	5	1	2.8	0.6	3.3	41.3	2.3	0.0	0.0	2.5	7.0	0.0
30MAR	R5	4	1600	4	0	2.5	0.0	2.5	43.8						
30MAR 30MAR	TRR HICKMAN	15 25	1800 1650	3 0	12 25	1.7 0.0	6.7 15.2	8.3 15.2	55.3 66.4						
30MAR	CHARLES	12	1800	ő	12	0.0	6.7	6.7	73.3						
30MAR	LEGION	0	1800					0.0							
30MAR 30MAR	SERVICE SHILOH	0	1800 1800					0.0							
30MAR	LAIRD	0	900					0.0							
30MAR	GARDNER	0	1400					0.0							
TUOL.TOT. SJR. TOT.		62 0	14050 2300	12 0	50 0	0.9	3.6	4.4 0.0	61.1						

almon Done:	ummary of TID, is the Number								<u>E</u>	XTRAPOLATED UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER
almon Density	is the Number		7 1000 sq. fi			apolated				SECTION	SECTION	SECTION	SECTION	SECTION	SECTION
Date	Location	Total Catch	Area	Measured Fry	Measured Juvenile	Density Fry	Density Juvenile	Density Total	Average FL	Density Fry	Density Fry	Density Fry	Density Juvenile	Density Juvenile	Densit Juvenil
13APR	OLGB	1	1200	1	0	0.8	0.0	0.8	40.0	0.4	0.0	0.0	4.5	0.2	0.
13APR 13APR	R5 TRR	0 23	1900 1800	1	22	0.6	12.2	0.0 12.8	70.7						
13APR	HICKMAN	0	1050	•	22	0.0	12.2	0.0	70.7						
13APR	CHARLES	1	1200	0	1	0.0	0.8	0.8	82.0						
13APR 13APR	LEGION SERVICE	0	1800 1500					0.0							
13APR	SHILOH	0	1600					0.0							
13APR 13APR	LAIRD GARDNER	0	900 1800					0.0							
TUOL.TOT.	GANDINER	25	12050	2	23	0.2	1.9	2.1	69.9						
SJR. TOT.	ummary of TID	0 /MID Seinin	2700	0	0			0.0	F	XTRAPOLATED					
	is the Number				Ext	apolated			=	UPPER SECTION	MIDDLE SECTION	LOWER SECTION	UPPER SECTION	MIDDLE SECTION	LOWER
		Total		Measured	Measured	Density	Density	Density	Average	Density	Density	Density	Density	Density	Densi
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juveni
27APR 27APR	OLGB R5	0	1050 2400					0.0		1.7	0.0	0.0	1.0	0.9	0.
27APR	TRR	14	1800	9	5	5.0	2.8	7.8	48.3						
27APR	HICKMAN	2	1400	0	2	0.0	1.4	1.4	82.5						
27APR 27APR	CHARLES LEGION	2 0	1700 1200	0	2	0.0	1.2	1.2 0.0	90.0						
27APR	SERVICE	0	1200					0.0							
27APR	SHILOH	0	1000					0.0							
27APR 27APR	LAIRD GARDNER	0	1200 800					0.0							
TUOL.TOT.	GARDINER	18	11750	9	9	0.8	0.8	1.5							
SJR. TOT.		0	2000					0.0							
010 Weekly S	ummary of TID	/MID Seining	g Study						<u>E</u>	XTRAPOLATED					
almon Density	is the Number	of Salmon	/ 1000 sq. fr		Ext	apolated			_	UPPER SECTION	MIDDLE SECTION	LOWER SECTION	UPPER SECTION	MIDDLE SECTION	LOWER
		Total		Measured	Measured	Density	Density	Density	Average	Density	Density	Density	Density	Density	Densi
Date 11MAY	Location OLGB	Catch 0	Area 2400	Fry	Juvenile	Fry	Juvenile	Total 0.0	FL	Fry 0.0	Fry 0.0	Fry 0.0	Juvenile 0.0	Juvenile 0.0	Juveni 0.
11MAY	R5	0	1850					0.0		0.0	0.0	0.0	0.0	0.0	0.
11MAY	TRR	Ö	1350					0.0							
11MAY	HICKMAN	0	1600					0.0							
11MAY	CHARLES	0	1800					0.0							
11MAY 11MAY	LEGION SERVICE	0	500					0.0							
								0.0							
11MAY	SHILOH	0	1600 1600					0.0 0.0							
11MAY	LAIRD	0	1600 700					0.0							
11MAY 11MAY TUOL.TOT.		0 0 0	1600 700 1050 12700					0.0 0.0 0.0 0.0							
11MAY 11MAY TUOL.TOT. SJR. TOT.	LAIRD	0 0 0 0	1600 700 1050 12700 1750					0.0 0.0 0.0	E	XTRAPOLATED					
11MAY 11MAY TUOL.TOT. SJR. TOT.	LAIRD GARDNER	0 0 0 0 0	1600 700 1050 12700 1750 g Study		Ext	rapolated		0.0 0.0 0.0 0.0	<u>E</u>	EXTRAPOLATED  UPPER SECTION	MIDDLE SECTION	LOWER SECTION	UPPER SECTION	MIDDLE SECTION	
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S almon Density	LAIRD GARDNER ummary of TID, v is the Number	0 0 0 0 0 0/MID Seining of Salmon	1600 700 1050 12700 1750 g Study / 1000 sq. fr	Measured	Measured	rapolated Density	Density	0.0 0.0 0.0 0.0 0.0	Average	UPPER SECTION Density	SECTION Density	SECTION Density	SECTION Density	SECTION Density	SECTION Densit
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S almon Density	LAIRD GARDNER ummary of TID, v is the Number Location	0 0 0 0 0 /MID Seining of Salmon	1600 700 1050 12700 1750 g Study / 1000 sq. ft				Density Juvenile	0.0 0.0 0.0 0.0 0.0 0.0	=	UPPER SECTION Density Fry	SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Densit Juvenil
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S almon Density Date 25MAY	LAIRD GARDNER ummary of TID, v is the Number Location OLGB	0 0 0 0 0 0/MID Seining of Salmon	1600 700 1050 12700 1750 g Study / 1000 sq. ft	Measured	Measured	Density Fry	Juvenile	0.0 0.0 0.0 0.0 0.0 0.0 Density Total 0.0	Average FL	UPPER SECTION Density	SECTION Density	SECTION Density	SECTION Density	SECTION Density	SECTION Densit Juvenil
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S almon Density Date 25MAY 25MAY 25MAY	LAIRD GARDNER ummary of TID, v is the Number Location OLGB R5 TLSRA	0 0 0 0 0 0 0/MID Seining of Salmon Total Catch 0 1	1600 700 1050 12700 1750 g Study / 1000 sq. ft Area 1800 1800 1500	Measured Fry	Measured Juvenile	Density		0.0 0.0 0.0 0.0 0.0 0.0 Density Total 0.0 0.6 0.0	Average	UPPER SECTION Density Fry	SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Densit Juvenil
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S almon Density Date 25MAY 25MAY 25MAY 25MAY	LAIRD GARDNER  ummary of TID, v is the Number  Location OLGB R5 TLSRA HICKMAN	/MID Seining of Salmon / Total Catch 0 1 0 0 0	1600 700 1050 12700 17750 g Study / 1000 sq. ft Area 1800 1800 1500	Measured Fry	Measured Juvenile	Density Fry	Juvenile	0.0 0.0 0.0 0.0 0.0 0.0 Density Total 0.0 0.6 0.0	Average FL	UPPER SECTION Density Fry	SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Densit Juvenil
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S almon Density Date 25MAY 25MAY 25MAY 25MAY 25MAY	LAIRD GARDNER  ummary of TID, v is the Number  Location OLGB R5 TLSRA HICKMAN CHARLES	0 0 0 0 0 0 (MID Seining of Salmon Total Catch 0 1 0 0	1600 700 1050 12700 1750 1750 g Study (1000 sq. fi Area 1800 1800 1500 1800	Measured Fry	Measured Juvenile	Density Fry	Juvenile	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.6 0.0 0.0	Average FL	UPPER SECTION Density Fry	SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Densit Juvenil
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S almon Density Date 25MAY 25MAY 25MAY 25MAY	LAIRD GARDNER  ummary of TID, v is the Number  Location OLGB R5 TLSRA HICKMAN	/MID Seining of Salmon / Total Catch 0 1 0 0 0	1600 700 1050 12700 17750 g Study / 1000 sq. ft Area 1800 1800 1500	Measured Fry	Measured Juvenile	Density Fry	Juvenile	0.0 0.0 0.0 0.0 0.0 0.0 Density Total 0.0 0.6 0.0	Average FL	UPPER SECTION Density Fry	SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Densit Juvenil
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S almon Density Date 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TLSRA HICKMAN CHARLES LEGION BIG BEND SHILOH	0 0 0 0 0 0 0 0 0 MID Seining of Salmon Total Catch 0 0 0 0	1600 700 1050 12700 1750 3 Study / 1000 sq. ft Area 1800 1800 1500 1800 400	Measured Fry	Measured Juvenile	Density Fry	Juvenile	0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total 0.0 0.0 0.0 0.0	Average FL	UPPER SECTION Density Fry	SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Densit Juvenil
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S almon Density Date 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TLSRA HICKMAN CHARLES LEGION BIG BEND	0 0 0 0 0 0 0 0 0 MID Seining of Salmon Total Catch 0 0 0 0	1600 700 1050 12700 1750 9 Study 7 1000 sq. ft Area 1800 1500 1500 1500 400 400	Measured Fry	Measured Juvenile	Density Fry	Juvenile	0.0 0.0 0.0 0.0 0.0 0.0 Total 0.0 0.6 0.0 0.0 0.0	Average FL	UPPER SECTION Density Fry	SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	LOWER SECTION Density Juvenild 0.0
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S almon Density Date 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	LAIRD GARDNER  ummary of TID. vis the Number  Location OLGB R5 TLSRA HICKMAN CHARLES LEGION BIG BEND SHILOH LAIRD N	0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0 0 0 0	1600 700 1050 12700 1750 g Study 1000 sq. ft Area 1800 1500 1500 1800 400 1400 1800	Measured Fry	Measured Juvenile	Density Fry	Juvenile	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL	UPPER SECTION Density Fry	SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECTION Density Juvenile
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S alalmon Density Date 25MAY	LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TLSRA HICKMAN CHARLES LEGION BIG BEND SHILOH LAIRD N GARDNER	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1600 700 1050 12700 1750 9 Study 1000 sq. ft  Area 1800 1500 1500 1500 1400 1400 1400 12000 1400 12000 1400	Measured Fry 0	Measured Juvenile	Density Fry 0.0	Juvenile 0.6	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 55.0	UPPER SECTION Density Fry 0.0	SECTION Density Fry 0.0	SECTION Density Fry 0.0	SECTION Density Juvenile 0.2	SECTION Density Juvenile 0.0	SECTION Densit Juvenil 0.0
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S alalmon Density Date 25MAY	LAIRD GARDNER  ummary of TID is the Number  Location OLGB R5 TLSRA HICKMAN CHARLES LEGION BIG BEND SHILOH LAIRD N GARDNER	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1600 700 1050 12700 1750 9 Study 1000 sq. ft  Area 1800 1500 1500 1500 1400 1400 1400 12000 1400 12000 1400	Measured Fry 0	Measured Juvenile 1	Density Fry 0.0	Juvenile 0.6	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 55.0	UPPER SECTION Density Fry 0.0	SECTION Density Fry 0.0	SECTION Density Fry 0.0	SECTION Density Juvenile 0.2	SECTION Density Juvenile 0.0	SECTIOI Densit Juvenil 0.
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S alalmon Density Date 25MAY	LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TLSRA HICKMAN CHARLES LEGION BIG BEND SHILOH LAIRD N GARDNER	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1600 700 1050 12700 1750 9 Study 1000 sq. ft  Area 1800 1500 1500 1500 1400 1400 1400 12000 1400 12000 1400	Measured Fry 0	Measured Juvenile 1	Density Fry 0.0	Juvenile 0.6	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 55.0	UPPER SECTION Density Fry 0.0   EXTRAPOLATED UPPER SECTION	SECTION Density Fry 0.0	SECTION Density Fry 0.0	SECTION Density Juvenile 0.2	SECTION Density Juvenile 0.0  MIDDLE SECTION	SECTION Densit Juvenii 0.
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S ialmon Density Date 25MAY 2	LAIRD GARDNER  ummary of TID, v is the Number  Location OLGB R5 TLSRA HICKMAN CHARLES LEGION BIG BEND SHILOH LAIRD N GARDNER  ummary of TID, v is the Number	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1600 700 1050 12700 1750 3 Stud) 1000 sq. ft 1000 sq. ft 1800 1800 1500 1400 1400 12000 1400 12000 1400 sq. ft	Measured Fry 0	Measured Juvenile 1 1	Density Fry 0.0	Juvenile 0.6	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.6 0.0 0.0	Average FL 55.0	UPPER SECTION Density Fry 0.0  EXTRAPOLATED UPPER SECTION Density Fry	MIDDLE SECTION O.0	LOWER SECTION Density Fry 0.0	Density Juvenile 0.2  UPPER SECTION Density Juvenile UPPER JUPPER	SECTION Density Juvenile 0.0  MIDDLE SECTION Density Juvenile	SECTION Densit Juvenii 0.1
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S salmon Density Date 25MAY 2	LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TLSRA AHICKMAN CHARLES LEGION BIG BEND SHILOH LAIRD N GARDNER  ummary of TID. v is the Number	O O O O O O O O O O O O O O O O O O O	1600 700 700 1050 12700 1750 g Study 11000 sq. ft 1800 1500 1800 1400 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000	Measured Fry  0  0   Measured Fry	Measured Juvenile  1  1  Measured Juvenile  1  Juvenile	Density Fry 0.0  0.0  appolated Density Fry	0.6  0.1  Density Juvenile	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL Average FL	UPPER SECTION Density Fry 0.0  EXTRAPOLATED UPPER SECTION Density	SECTION Density Fry 0.0  MIDDLE SECTION Density	SECTION Density Fry 0.0  LOWER SECTION Density	SECTION Density Juvenile 0.2  UPPER SECTION Density	SECTION Density Juvenile 0.0  MIDDLE SECTION Density Density	SECTIOI Densit Juvenii 0.
11MAY 11MAY TUOL.TOT. SJR. TOT. 1010 Weekly S lailmon Density Date 25MAY	LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TLSRA HICKMAN CHARLES LEGION BIG BEND SHILOH LAIRD N GARDNER  ummary of TID. v is the Number  Location GASBURG R5	0 0 0 0 0 0 0 0 0 MID Seining of Salmon  Total Catch 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1600 700 1050 12700 1750 1750 g Study 1000 sq. ft 1800 1800 1500 1400 1400 12000 1400 1400 1400 1400 1	Measured Fry 0 0	Measured Juvenile  1  1  Ext. Measured	Density Fry 0.0 0.0 0.0	Juvenile 0.6 0.1	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 55.0	UPPER SECTION Density Fry 0.0  EXTRAPOLATED UPPER SECTION Density Fry	MIDDLE SECTION O.0	LOWER SECTION Density Fry 0.0	Density Juvenile 0.2  UPPER SECTION Density Juvenile UPPER JUPPER	SECTION Density Juvenile 0.0  MIDDLE SECTION Density Juvenile	SECTION Densit Juvenin 0.
11MAY 11MAY TUOL.TOT. SJR. TOT. D10 Weekly S almon Density Date 25MAY 25	LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TLSRA AHICKMAN CHARLES LEGION BIG BEND SHILOH LAIRD N GARDNER  ummary of TID. v is the Number	O O O O O O O O O O O O O O O O O O O	1600 700 700 1050 12700 1750 g Study 11000 sq. ft 1800 1500 1800 1400 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000 1400 12000	Measured Fry  0  0  .  Measured Fry	Measured Juvenile  1  1  Measured Juvenile  Little  Measured Juvenile	Density Fry 0.0  0.0  appolated Density Fry	0.6  0.1  Density Juvenile	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL Average FL	UPPER SECTION Density Fry 0.0  EXTRAPOLATED UPPER SECTION Density Fry	MIDDLE SECTION O.0	LOWER SECTION Density Fry 0.0	Density Juvenile 0.2  UPPER SECTION Density Juvenile UPPER JUPPER	SECTION Density Juvenile 0.0  MIDDLE SECTION Density Juvenile	SECTION Densit Juvenin 0.
11MAY 11MAY TUOL.TOT. SJR. TOT. D10 Weekly S almon Density  Date 25MAY 2	LAIRD GARDNER  ummary of TID, v is the Number  Location OLGB R5 TLSRA HICKMAN CHARLES LEGION BIG BEND SHILOH LAIRD N GARDNER  ummary of TID, v is the Number  Location GASBURG R5 TRR HICK CHARLES	0   0   0   0   0   0   0   0   0   0	1600 700 700 1050 12700 12700 1750 g Stud) (1000 sq. ft) 400 1800 1500 1400 1400 1400 12000 1400 1400 12000 1400 1800 1800 1800 1800 1800 1800 1	Measured Fry  0  0   Measured Fry 2	Measured Juvenile  1  1  Ext Measured Juvenile 0	Density Fry 0.0  0.0  apolated Density Fry 1.1	O.6  O.1  Density Juvenile  O.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.6 0.0 0.0	Average FL 49.0	UPPER SECTION Density Fry 0.0  EXTRAPOLATED UPPER SECTION Density Fry	MIDDLE SECTION O.0	LOWER SECTION Density Fry 0.0	Density Juvenile 0.2  UPPER SECTION Density Juvenile UPPER JUPPER	SECTION Density Juvenile 0.0  MIDDLE SECTION Density Juvenile	SECTION Densit Juvenin 0.
11MAY 11MAY TUOL.TOT. SJR. TOT. 010 Weekly S almon Density  Date 25MAY 2	LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TLSRA HICKMAN CHARLES LEGION SHILOH LAIRD N GARDNER  ummary of TID. v is the Number  Location GASBURG R5 TR5 TR5 TR5 TR5 TR5 TR5 TR5 TR5 TR5	0 0 0 0 0 0 0 MID Seining of Salmon  Total Catch 0 0 0 0 0 0 0 0 0 Total Catch 0 0 0 0 Total Catch 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1600 700 700 1050 12700 12700 1750 g Stud) 11000 sq. ft 1800 1800 1500 1800 1400 1400 12000 1400 1400 1400 1400 1	Measured Fry  0  0   Measured Fry 2	Measured Juvenile  1  1  Ext Measured Juvenile 0	Density Fry 0.0  0.0  apolated Density Fry 1.1	O.6  O.1  Density Juvenile  O.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 49.0	UPPER SECTION Density Fry 0.0  EXTRAPOLATED UPPER SECTION Density Fry	MIDDLE SECTION O.0	LOWER SECTION Density Fry 0.0	Density Juvenile 0.2  UPPER SECTION Density Juvenile UPPER JUPPER	SECTION Density Juvenile 0.0  MIDDLE SECTION Density Juvenile	SECTION Densit Juvenin 0.
11MAY 11MAY TUOL.TOT. SJR. TOT. D10 Weekly S almon Density  Date 25MAY 06JUN 08JUN	LAIRD GARDNER  Jummary of TID. Location OLGB R5 TLSRA HICKMAN CHARLES LEGION BIG BEND SHILOH LAIRD N GARDNER  LOCATION GARDNER  LOCATION GASBURG R5 TRR HICK CHARLES LEGION R5 TRR HICK CHARLES LEGION BIS	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1600 700 700 1050 12700 12700 1750 g Stud) 1000 sq. ft 1800 1500 1500 1400 1400 1400 1400 1400 14	Measured Fry  0  0   Measured Fry 2	Measured Juvenile  1  1  Ext Measured Juvenile 0	Density Fry 0.0  0.0  apolated Density Fry 1.1	O.6  O.1  Density Juvenile  O.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 49.0	UPPER SECTION Density Fry 0.0  EXTRAPOLATED UPPER SECTION Density Fry	MIDDLE SECTION O.0	LOWER SECTION Density Fry 0.0	Density Juvenile 0.2  UPPER SECTION Density Juvenile UPPER JUPPER	SECTION Density Juvenile 0.0  MIDDLE SECTION Density Juvenile	SECTION Densit Juvenin 0.
11MAY 11MAY TUOL.TOT. SJR. TOT.  D10 Weekly S almon Density  Date 25MAY 100.1001.	LAIRD GARDNER  JUMMARY OF TID.  Location OLGB R5 TLSRA HICKMAN BIG BEND SHILOH LAIRD N GARDNER  LOCATION GARDNER  LOCATION GARDNER  LOCATION GASBURG R5 TRR HICK CHARLES LEGION BIG BEND SHILOH LAIRD N LOCATION L	0 0 0 0 0 0 0 MID Seining of Salmon  Total Catch 0 0 0 0 0 0 0 0 0 Total Catch 0 0 0 0 Total Catch 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1600 700 700 1050 12700 12700 1750 g Stud) 11000 sq. ft 1800 1800 1500 1800 1400 1400 12000 1400 1400 1400 1400 1	Measured Fry  0  0   Measured Fry 2	Measured Juvenile  1  1  Ext Measured Juvenile 0	Density Fry 0.0  0.0  apolated Density Fry 1.1	O.6  O.1  Density Juvenile  O.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 49.0	UPPER SECTION Density Fry 0.0  EXTRAPOLATED UPPER SECTION Density Fry	MIDDLE SECTION O.0	LOWER SECTION Density Fry 0.0	Density Juvenile 0.2  UPPER SECTION Density Juvenile UPPER JUPPER	SECTION Density Juvenile 0.0  MIDDLE SECTION Density Juvenile	SECTIO Densi Juveni 0.
11MAY 11MAY TUOL.TOT. SJR. TOT. SJR. TOT. 010 Weekly S almon Density Date 25MAY 25MA	LAIRD GARDNER  ummary of TID. v is the Number  Location OLGB R5 TLSRA HICKMAN CHARLES LEGION BIG BEND SHILOH LAIRD N GARDNER  LOCATION GASBURG R5 TRR HICK CHARLES LCGION BIG BEND SHILOH BIG BEND SHILOH SHILOH	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1600 700 700 1050 12700 12700 1750 g Study 1000 sq. ft 1800 1800 1500 1400 1400 1400 12000 1400 12000 1400 g Study 1000 sq. ft	Measured Fry  0  0   Measured Fry 2	Measured Juvenile  1  1  Ext Measured Juvenile 0	Density Fry 0.0  0.0  apolated Density Fry 1.1	O.6  O.1  Density Juvenile  O.0	Density Total 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Average FL 49.0	UPPER SECTION Density Fry 0.0  EXTRAPOLATED UPPER SECTION Density Fry	MIDDLE SECTION O.0	LOWER SECTION Density Fry 0.0	Density Juvenile 0.2  UPPER SECTION Density Juvenile UPPER JUPPER	SECTION Density Juvenile 0.0  MIDDLE SECTION Density Juvenile	SECTIO Densi Juveni 0 LOWE SECTIO Densi Juveni

Table 3. Summary table of weekly seine catch by location for the Tuolumne and San Joaquin Rivers, 2010. 2010 TUOLUMNE RIVER SEINING STUDY (TID/MID) DENSITY (/1000ft^2) SECTION DENSITY
UPPER MIDDLE LOWER RIVER MILE FL MIN. FL MAX. FL AVG. NO. MEAS. NO. KILLED WATER TEMP. ELEC. COND. DATE LOCATION CATCH AREA TURB. D.O. D.O. (ppm) 10.7 12.3 11.8 12.4 12.3 11.4 11.0 26JAN 0.0 2.1 OLGB 50.5 2.000 33 47 38.7 10.8 28 2.6 0.0 48.0 42.3 31.6 24.9 17.2 8.7 1,600 1,800 1,650 1,800 10.8 10.8 10.6 10.3 10.6 26.JAN 1.3 5.0 0.0 0.0 36 36 41 44 38.5 38.8 33 49 67 102 135 158 26JAN 26JAN 26JAN 26JAN 26JAN TRR LEGION SERVICE 2,400 0.0 20.8 26JAN 1.800 0.0 10.3 19.0 26JAN 26JAN SHILOH 0.0 164 742 11.8 90.2 1,600 15250 2950 26JAN TR TOT. GARDNER 33 47 38.7 SJR TOT. 2010 TUOLUMNE RIVER SEINING STUDY (TID/MID) DENSITY FL MAX. FL AVG. NO. MEAS. NO. KILLED WATER ELEC. SMOLT SECTION DENSITY FL MIN. DATE LOCATION MILE CATCH ARFA SACERY TEMP LIPPER MIDDLE LOWER TURR DΩ D.O. (ppm) 10.7 12.5 12.2 11.8 12.2 17FEB 17FEB 17FEB 1800 1600 1800 10.0 20.6 13.9 12.7 36.9 40.8 44.3 38.3 74.0 OLGB 18 33 25 21 1.5 1.5 1.2 2.2 50.5 48.0 42.3 31.6 24.9 17.2 8.7 29 35 35 31 47 10.9 11.3 12.3 13.1 14.2 15.2 15.3 18 33 25 21 2 0 45 54 59 51 0 0 0 0 30 32 43 58 91 17FEB HICK 1650 17FEB CHARLES 1650 1.2 101 2.8 12.2 12.0 10.7 11.5 17FEB 17FEB LEGION 2400 0.0 123 156 SERVICE 1800 SHILOH LAIRD GARDNER 79.5 1200 14500 1135 39.6 10.3 29 101 41.1 99 SJR TOT. 2100 2010 TUOLUMNE RIVER SEINING STUDY (TID/MID) DENSITY (/1000ft^2) WATER TEMP. ELEC. SECTION DENSITY
UPPER MIDDLE LOWER RIVER MILE FL MIN. FL MAX. FL AVG. NO. MEAS. NO. KILLED SMOLT LOCATION CATCH AREA TURB. D.O. (ppm) 11.4 12.2 11.1 10.5 9.9 9.6 9.4 40.3 44.0 49.2 42.6 57.9 02MAR 36 37 14.4 7.5 0.0 OLGB 54 60 70 60 67 48.0 42.3 31.6 24.9 17.2 8.7 30 40 34 7 02MAR 1600 0 0 0 10.9 12.4 13.1 13.7 13.9 14.1 30 40 34 7 0 1800 1500 1600 2400 1800 22.2 22.7 4.4 0.0 3.9 6.1 21.4 12.7 15.5 02MAR TRR 58 71 104 135 144 02MAR 02MAR 02MAR 02MAR 02MAR HICK CHARLES LEGION SERVICE 0.0 02MAR SHILOH 2400 1500 9.4 90.2 14.3 GARDNER 9.9 1200 15050 34 70 46.0 118 2010 TUOLUMNE RIVER SEINING STUDY (TID/MID) DENSITY FL MAX. FI NO. MEAS. NO. KILLED WATER ELEC. SMOLT SECTION DENSITY LOCATION MILE DATE CATCH AREA (/1000ft^2) MIN AVG SACERY TEMP LIPPER MIDDLE LOWER TURB DΩ D.O. (ppm) 11.0 12.3 11.9 11.6 12.5 16MAR 16MAR 16MAR 16MAR 2000 1600 1800 0.0 0.0 0.6 10.1 10.3 12.5 13.5 OLGB 50.5 48.0 42.3 31.6 24.9 17.2 8.7 3.4 0.0 1.3 2.8 1.5 2.5 31 37 49 61 44 40 44 87 44.0 60.0 1 45 22(62-87) 45 27.3 HICK 1650 93 127 170 CHARLES 3.6 4.7 4.6 16MAR 1800 0.0 14.0 14.5 1800 1800 1800 1800 12.8 11.9 11.8 14.3 11.6 16MAR LEGION 0.0 16MAR SERVICE 15.0 16MAR 184 1140 GARDNER 79.5 24.8 973 0.0 SJR TOT 1600 2010 TUOLUMNE RIVER SEINING STUDY (TID/MID) DENSITY (/1000ft^2) FL MIN. FL MAX. NO. KILLED ELEC. COND. SMOLT FL SECTION DENSITY UPPER MIDDLE LOCATION CATCH AREA LOWER TURB. (ppm) 10.7 11.7 11.2 30MAR OLGB 0.0 1.2 1.2 1.6 2.7 50.5 1800 41.3 10.5 34 37 50 4.8 7.0 48.0 42.3 31.6 24.9 17.2 8.7 37 43 55 55 0 0 1 30MAR 1600 2.5 49 67 43.8 55.3 10.8 13.7 0 0 0 TRR 30MAR 15 1800 8.3 25 12 0 1650 1800 1800 15.2 6.7 0.0 66.4 73.3 15.2 17.2 17.3 17.5 62 116 137 187 9.9 10.4 9.6 12.7 30MAR HICK 25 12 9(68-86) 30MAR 30MAR 30MAR CHARLES LEGION SERVICE 2.4 3.4 6.0

18.4

205 1208

1040

11.3 12.8

10.3

1800

1400 14050

30MAF

30MAF 30MAR SHILOH

GARDNER

3.4 90.2

79.5

0.0

0.0

61.1

62

· ubio o (continuou)	
2010 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 UPPER	DENSITY MIDDLE	LOWER	TURB.	D.O. (ppm)
13APR	OLGB	50.5	1	1200	0.8	40	40	40.0	1	0	0	10.9	34		4.9	0.2	0.0	2.1	10.1
13APR 13APR	R5 TRR	48.0 42.3	0 23	1900 1800	0.0 12.8	48	87	70.7	23	0	0	10.6 10.3	35 37	20(61-87)				2.1 4.3	12.8
13APR	HICK	31.6	0	1050	0.0							11.1	35					5.7	10.7
13APR 13APR	CHARLES LEGION	24.9 17.2	1 0	1200 1800	0.8	82	82	82.0	1	0	0	12.4 12.9	34 47	82				3.3 4.8	12.9 10.4
13APR	SERVICE	8.7	0	1500	0.0							12.9	53					5.4	10.4
13APR 13APR	SHILOH LAIRD	3.4 90.2	0	1600 900	0.0							14.1 16.4	58 846					6.2 33.8	9.5
13APR	GARDNER	79.5	0	1800	0.0							15.6	571					18.8	9.8
TR TOT. SJR TOT.			25 0	12050 2700	2.1 0.0	40	87	69.9	25	0	0								
					0.0														
2010 TUOLU	MNE RIVER SE	INING STU	IDY (TID/MIL	0)															
		RIVER			DENSITY	FL	FL	FL	NO.	0.055	NO.	WATER	ELEC.	SMOLT	SECTION	DENSITY		T. 100	
DATE	LOCATION	MILE	CATCH	AREA	(/1000ft^2)	MIN.	MAX.	AVG.	MEAS.	SACFRY	KILLED	TEMP.	COND.	FL	UPPER	MIDDLE	LOWER	TURB.	D.O. (ppm)
27APR	OLGB	50.5	0	1050	0.0							10.6	35		2.7	0.9	0.0	1.6	14.3
27APR 27APR	R5 TRR	48.0 42.3	0 14	2400 1800	0.0 7.8	35	80	48.3	14	0	0	10.6 10.6	35 35	(76.80)				1.1 6.0	15.2 13.1
27APR	HICK	31.6	2	1400	1.4	81	84	82.5	2	0	0	11.3	37	(81,84)				1.9	14.3
27APR 27APR	CHARLES LEGION	24.9 17.2	2	1700 1200	1.2 0.0	90	90	90.0	2	0	0	13.9 13.9	42 41	(90,90)				2.8 5.6	12.9 12.1
27APR	BIG BEND	6.4	0	1200	0.0							14.8	48					3.0	12.9
27APR 27APR	SHILOH LAIRD	3.4 90.2	0	1000 1200	0.0							14.6 20.4	44 506					7.1 35.8	9.7
27APR	GARDNER	79.5	0	800	0.0							18.0	309					24.5	8.7
TR TOT. SJR TOT.			18 0	11750 2000	1.5 0.0	35	90	56.7	18	0	0								
					0.0														
2010 TUOLU	MNE RIVER SE	INING STL	IDY (TID/MI	0)															
DATE	LOCATION	RIVER	CATOU	4054	DENSITY	FL	FL	FL	NO.	OAOEDV	NO.	WATER	ELEC.	SMOLT	SECTION		LOWED	TUDD	0.0
DATE	LOCATION	MILE	CATCH	AREA	(/1000ft^2)	MIN.	MAX.	AVG.	MEAS.	SACFRY	KILLED	TEMP.	COND.	FL	UPPER	MIDDLE	LOWER	TURB.	D.O. (ppm)
11MAY	OLGB	50.5	0	2400	0.0							10.7	33		0.0	0.0	0.0	1.6	12.3
11MAY 11MAY	R5 TRR	48.0 42.3	0	1850 1350	0.0 0.0							10.8 10.5	31 33					0.9 1.2	12.3 11.7
11MAY	HICK	31.6	0	1600	0.0							10.9	34					1.3	13.6
11MAY 11MAY	CHARLES LEGION	24.9 17.2	0	1800 500	0.0							11.2 12.4	36 35					2.3 6.7	11.4 10.6
11MAY	BIG BEND	6.4	0	1600	0.0							12.4	39					7.8	N.A.
11MAY 11MAY	SHILOH	3.4	0	1600	0.0							12.6	35					5.0	N.A.
		90.2	0	700	0.0								572					35.1	
11MAY	LAIRD GARDNER	90.2 79.5	0 0	700 1050	0.0 0.0							18.1 14.6	572 211					35.1 14.5	N.A. N.A.
TR TOT.	GARDNER			1050 12700															
TR TOT. SJR TOT.	GARDNER	79.5	0 0 0	1050 12700 1750	0.0														
TR TOT. SJR TOT.	GARDNER  MNE RIVER SE	79.5	0 0 0	1050 12700 1750	0.0 0.0 0.0							14.6	211						
TR TOT. SJR TOT. 2010 TUOLU	GARDNER  MNE RIVER SE	79.5 INING STL RIVER	0 0 0 IDY (TID/MII	1050 12700 1750	0.0 0.0 0.0 DENSITY	FL	FL MAY	FL	NO.	SACERY	NO.	14.6 WATER	211 ELEC.	SMOLT	SECTION		LOWER	14.5	N.A.
TR TOT. SJR TOT. 2010 TUOLU	GARDNER  MNE RIVER SE  LOCATION	79.5 INING STU RIVER MILE	0 0 0 IDY (TID/MII CATCH	1050 12700 1750 D)	0.0 0.0 0.0 DENSITY (/1000ft^2)	FL MIN.	FL MAX.	FL AVG.	NO. MEAS.	SACFRY	NO. KILLED	WATER TEMP.	ELEC. COND.	SMOLT FL	UPPER	MIDDLE	LOWER	14.5 TURB.	D.O. (ppm)
11MAY TR TOT. SJR TOT. 2010 TUOLU DATE 25MAY	GARDNER  MNE RIVER SE  LOCATION  OLGB	79.5 INING STU RIVER MILE 50.5	0 0 0 IDY (TID/MID CATCH 0	1050 12700 1750 0) AREA 1800	0.0 0.0 0.0 DENSITY (/1000ft^2)	MIN.	MAX.	AVG.	MEAS.		KILLED	WATER TEMP.	ELEC. COND.	FL			LOWER 0.0	14.5 TURB.	D.O. (ppm) 11.3
TR TOT. SJR TOT. 2010 TUOLU	GARDNER  MNE RIVER SE  LOCATION	79.5 INING STU RIVER MILE	0 0 0 IDY (TID/MII CATCH	1050 12700 1750 D)	0.0 0.0 0.0 DENSITY (/1000ft^2)					SACFRY 0		WATER TEMP.	ELEC. COND.		UPPER	MIDDLE		14.5 TURB.	D.O. (ppm)
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE  25MAY 25MAY 25MAY 25MAY	GARDNER  MNE RIVER SE  LOCATION  OLGB  R5  TLSRA  HICK	79.5 INING STU RIVER MILE 50.5 48.0 42.0 31.6	O O O IDY (TID/MIE CATCH O 1 0 0	1050 12700 1750 D) AREA 1800 1800 1500	0.0 0.0 0.0 0.0 DENSITY (/1000ft^2) 0.0 0.6 0.0 0.0	MIN.	MAX.	AVG.	MEAS.		KILLED	14.6 WATER TEMP. 10.8 10.9 11.1 11.2	211 ELEC. COND. 28 30 33 33 33	FL	UPPER	MIDDLE		TURB. 1.2 1.1 2.1 1.6	D.O. (ppm) 11.3 N.A. N.A.
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 25MAY 25MAY	GARDNER  MNE RIVER SE  LOCATION  OLGB  R5  TLSRA	79.5 INING STU RIVER MILE 50.5 48.0 42.0	0 0 0 IDY (TID/MIE CATCH 0 1 0	1050 12700 1750 D) AREA 1800 1800 1500	0.0 0.0 0.0 DENSITY (/1000ft^2) 0.0 0.6 0.0	MIN.	MAX.	AVG.	MEAS.		KILLED	14.6 WATER TEMP. 10.8 10.9 11.1	211 ELEC. COND. 28 30 33	FL	UPPER	MIDDLE		14.5 TURB. 1.2 1.1 2.1	D.O. (ppm) 11.3 N.A. N.A.
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	GARDNER  MNE RIVER SE  LOCATION  OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND	79.5 INING STU RIVER MILE 50.5 48.0 42.0 31.6 24.9 17.2 6.4	0 0 0 0 0 0 0 0 1 0 0 0 0 0	1050 12700 1750 D) AREA 1800 1800 1500 1500 400 1400	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	MIN.	MAX.	AVG.	MEAS.		KILLED	14.6 WATER TEMP. 10.8 10.9 11.1 11.2 12.8 13.9 14.1	211 ELEC. COND. 28 30 33 33 33 34 37	FL	UPPER	MIDDLE		TURB.  1.2 1.1 2.1 1.6 2.3 2.4 3.0	D.O. (ppm) 11.3 N.A. N.A. N.A. N.A.
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	MNE RIVER SE  LOCATION  OLGB R5 TLSRA HICK CHARLES LEGION	79.5 INING STU RIVER MILE 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4	O O O O O O O O O O O O O O O	1050 12700 1750 2) AREA 1800 1800 1500 1800 400	0.0 0.0 0.0 0.0 DENSITY (/1000ft^2) 0.0 0.6 0.0 0.0 0.0	MIN.	MAX.	AVG.	MEAS.		KILLED	14.6 WATER TEMP. 10.8 10.9 11.1 11.2 12.8 13.9	211 ELEC. COND. 28 30 33 33 33 33 34	FL	UPPER	MIDDLE		14.5 TURB. 1.2 1.1 2.1 1.6 2.3 2.4	D.O. (ppm) 11.3 N.A. N.A. N.A.
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE  25MAY	MNE RIVER SE  LOCATION  OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH	79.5 INING STU RIVER MILE 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4	0 0 0 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0	1050 12700 1750 D) AREA 1800 1800 1500 1500 1400 1400 1400	0.0 0.0 0.0 0.0 DENSITY (/1000fr^2) 0.0 0.0 0.0 0.0 0.0 0.0	MIN.	MAX.	AVG.	MEAS.		KILLED	14.6 WATER TEMP. 10.8 10.9 11.1 11.2 12.8 13.9 14.1	211 ELEC. COND. 28 30 33 33 33 34 37	FL	UPPER	MIDDLE		TURB.  1.2 1.1 2.1 1.6 2.3 2.4 3.0	D.O. (ppm) 11.3 N.A. N.A. N.A. N.A.
TR TOT. SJR TOT. 2010 TUOLU  DATE  25MAY	GARDNER  MNE RIVER SE  LOCATION  OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD	79.5  RIVER MILE  50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 I	O O O O O O O O O O O O O O O O O O O	1050 12700 1750 D) AREA 1800 1500 1500 1800 400 1400 1800	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	MIN.	MAX.	AVG.	MEAS.		KILLED	14.6 WATER TEMP. 10.8 10.9 11.1 11.2 12.8 13.9 14.1 13.9	211 ELEC. COND. 28 30 33 33 33 34 37 37	FL	UPPER	MIDDLE		14.5 TURB. 1.2 1.1 2.1 1.6 2.3 2.4 3.0 4.0	D.O. (ppm) 11.3 N.A. N.A. N.A. N.A. N.A.
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 75MAY 25MAY 25MAY 25MAY 75MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	GARDNER  MNE RIVER SE  LOCATION  OLGB  R5  TLSRA  HICK  CHARLES  LEGION  BIG BEND  SHILOH  LAIRD  GARDNER	79.5  RIVER MILE  50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 I 79.5	0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0	1050 12700 1750 D) AREA 1800 1800 1500 1800 400 1400 1800 1400 12000 1400	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	MIN.	MAX.	AVG.	MEAS.		KILLED	14.6 WATER TEMP. 10.8 10.9 11.1 11.2 12.8 13.9 14.1 13.9	211 ELEC. COND. 28 30 33 33 33 34 37 37	FL	UPPER	MIDDLE		14.5 TURB. 1.2 1.1 2.1 1.6 2.3 2.4 3.0 4.0	D.O. (ppm) 11.3 N.A. N.A. N.A. N.A. N.A.
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 75MAY 25MAY 25MAY 25MAY 75MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	GARDNER  MNE RIVER SE  LOCATION  OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD	79.5  INING STU  RIVER  MILE  50.5  48.0  42.0  31.6  24.9  17.2  6.4  3.4  90.2 I  79.5	0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0	1050 12700 1750 D) AREA 1800 1800 1500 1800 400 1400 1800 1400 12000 1400	0.0 0.0 0.0 0.0 0.0 0.0 0.6 0.0 0.0 0.0	MIN. 55	MAX. 55	AVG. 55.0	MEAS.		KILLED 0	14.6 WATER TEMP. 10.8 10.9 11.1 11.2 12.8 13.9 14.1 13.9	ELEC. COND. 28 30 33 33 33 34 37 37	FL 55	UPPER 0.2	0.0		14.5 TURB. 1.2 1.1 2.1 1.6 2.3 2.4 3.0 4.0	D.O. (ppm) 11.3 N.A. N.A. N.A. N.A. N.A.
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 75MAY 25MAY 1R TOT.	GARDNER  MNE RIVER SE  LOCATION  OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER  MNE RIVER SE	79.5  INING STU  RIVER MILE 50.5 48.0 42.0 31.6 24.9 17.2 6.4 90.2 I 79.5	CATCH  CATCH  0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0	1050 12700 1750 0) AREA 1800 1500 1500 400 1400 1400 12000 1400	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	MIN. 55	MAX. 55	AVG. 55.0	MEAS.	0	KILLED 0	14.6  WATER TEMP.  10.8 10.9 11.1 11.2 12.8 13.9 14.1 13.9	ELEC. COND.  28 30 33 33 33 37 223	FL 55	UPPER 0.2	0.0 DENSITY	0.0	TURB. 1.2 1.1 2.1 1.6 2.3 2.4 3.0 4.0	D.O. (ppm) 11.3 N.A. N.A. N.A. N.A. N.A. N.A.
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 25	GARDNER  MNE RIVER SE  LOCATION  OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER  MNE RIVER SE  LOCATION	79.5  INING STU  RIVER MILE  50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 I 79.5  INING STU  RIVER MILE	O O O O O O O O O O O O O O O O O O O	1050 12700 1750 D) AREA 1800 1800 1500 1500 400 1400 1400 12000 1400 1400 0)	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	MIN. 55	MAX. 55	AVG. 55.0	MEAS.		o o	14.6  WATER TEMP.  10.8 10.9 11.1 11.2 12.8 13.9 14.1 13.9 15.1  WATER TEMP.	ELEC. COND.  28 30 33 33 34 37 37 223	FL 55	UPPER 0.2  SECTION UPPER	DENSITY MIDDLE	0.0	14.5  TURB.  1.2 1.1 2.1 1.6 2.3 2.4 3.0 4.0 15.2	D.O. (ppm) 11.3 N.A. N.A. N.A. N.A. N.A. N.A. N.A. N.
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 25	GARDNER  MNE RIVER SE  LOCATION  OLGB R5 R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER  MNE RIVER SE  LOCATION GASBURG R5	79.5  INING STU  RIVER MILE  50.5 48.0 42.0 31.6 24.9 17.2 6.4 90.2 I 79.5  INING STU  RIVER MILE  50.3 48.0	O O O O O O O O O O O O O O O O O O O	1050 12700 1750 D) AREA 1800 1500 1500 1500 1400 1400 12000 1400 1400 1400 1400 1	DENSITY (/1000ft^2)  DENSITY (/1000ft^2)  0.0 0.0 0.0 0.0 0.0 0.0 DENSITY (/1000ft^2) 0.0 0.1 0.1 0.0	MIN. 55	MAX. 55	AVG. 55.0	MEAS.	0	KILLED 0	14.6  WATER TEMP.  10.8 10.9 11.1 11.2 12.8 13.9 14.1 13.9 15.1  WATER TEMP.	ELEC. COND.  28 30 33 33 34 7 223  ELEC. COND.	FL 55	UPPER 0.2	0.0 DENSITY	0.0	14.5  TURB. 1.2 1.1 2.1 1.6 2.3 2.4 3.0 4.0  15.2  TURB. 0.7 0.6	N.A.  D.O. (ppm) 11.3 N.A. N.A. N.A. N.A. N.A. N.A. N.A. 1.1 N.A. N.A.
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 7E TOT. 2010 TUOLU  DATE 08JUN 08JUN 08JUN	MNE RIVER SE  LOCATION  OLGB R5 R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER  MNE RIVER SE  LOCATION GASBURG R5 TRR	79.5  RIVER MILE  50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 I 79.5  INING STL  RIVER MILE  50.3 48.0 42.3	0 0 0 0 IDY (TID/MIE 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1050 12700 1750 D) AREA 1800 1800 1500 1500 400 1400 1400 12000 1400 1400 1400 14	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN. 48	FL MAX.	FL AVG. 49.0	NO. MEAS.	0 SACFRY 0	NO. KILLED	14.6  WATER TEMP.  10.8 10.9 11.1 11.2 12.8 13.9 14.1 13.9 15.1  WATER TEMP.  12.3 13.1 11.5	ELEC. COND.  28 30 33 33 34 47 7 37 223  ELEC. COND.	FL 55 SMOLT FL	UPPER 0.2  SECTION UPPER	DENSITY MIDDLE	0.0	14.5  TURB.  1.2 1.1 2.1 1.6 2.3 2.4 3.0 4.0  15.2  TURB.  0.7 0.6 3.4	D.O. (ppm) 11.3 N.A. N.A. N.A. N.A. N.A. N.A. 11.1 N.A. N.A.
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 25	GARDNER  MNE RIVER SE  LOCATION  OLGB RS RS TLSRA HICK CHARLES LEGION SHILOH LAIRD GARDNER  MNE RIVER SE  LOCATION GASBURG R5 TRR HICK CHARLES	79.5  INING STU  RIVER MILE  50.5 48.0 42.0 31.6 24.9 17.2 6.4 90.2 I 79.5  INING STU  RIVER MILE  50.3 48.0	O O O O O O O O O O O O O O O O O O O	1050 12700 1750 D) AREA 1800 1500 1500 1500 1400 1400 12000 1400 1400 1400 1400 1	DENSITY (/1000ft^2)  DENSITY (/1000ft^2)  0.0 0.0 0.0 0.0 0.0 0.0 DENSITY (/1000ft^2) 0.0 0.1 0.1 0.0	FL MIN.	FL MAX.	FL AVG.	MEAS.  1  NO. MEAS.	0 SACFRY	NO. KILLED	14.6  WATER TEMP.  10.8 10.9 11.1 11.2 12.8 13.9 14.1 13.9 15.1  WATER TEMP.	ELEC. COND.  28 30 33 33 34 47 37 223  ELEC. COND.	FL 55	UPPER 0.2  SECTION UPPER	DENSITY MIDDLE	0.0	14.5  TURB. 1.2 1.1 2.1 1.6 2.3 2.4 3.0 4.0  15.2  TURB. 0.7 0.6	D.O. (ppm) 11.3 N.A. N.A. N.A. N.A. N.A. N.A. 11.1 N.A. N.A.
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 25	GARDNER  MNE RIVER SE  LOCATION  OLGB R5 R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER  MNE RIVER SE  LOCATION GASBURG R5 TRR HICK CHARLES LEGION	79.5  RIVER MILE 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 3.4 179.5  INING STL RIVER MILE 50.3 48.0 42.3 31.6 6 24.9 17.2	0 0 0 0 0 1DY (TID/MIE CATCH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1050 12700 1750 D) AREA 1800 1800 1500 1500 1400 1400 1400 1400 1400 12000 1400 0) AREA 1800 1800 1800 1800 1800 1800 1800 180	DENSITY (/1000fr/2)  DENSITY (/1000fr/2)  0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.0 DENSITY (/1000fr/2) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	FL MIN. 48	FL MAX.	FL AVG. 49.0	NO. MEAS.	0 SACFRY 0	NO. KILLED	14.6  WATER TEMP.  10.8 10.9 11.1 11.2 12.8 13.9 14.1 13.9 15.1  WATER TEMP.  12.3 13.1 11.5 12.9 14.9 17.1	ELEC. COND.  28 30 33 33 34 37 77 223  ELEC. COND.  27 29 31 32 31 33 33	FL 55 SMOLT FL	UPPER 0.2  SECTION UPPER	DENSITY MIDDLE	0.0	14.5  TURB. 1.2 1.1 2.1 1.6 2.3 2.4 3.0 4.0  15.2  TURB. 0.7 0.6 3.4 1.5 1.5 2.8	N.A.  D.O. (ppm) 11.3 N.A. N.A. N.A. N.A. N.A. N.A. 11.0 11.0 11.0 11.0 11.0 11.0 11.0
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 25	GARDNER  MNE RIVER SE  LOCATION  OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER  MNE RIVER SE  LOCATION GASBURG R5 TRR HICK CHARLES LEGION GASBURG R5 TRR HICK CHARLES LEGION BIG BEND	79.5  RIVER MILE  50.5 48.0 31.6 24.9 17.2 6.4 3.4 90.2 I 79.5  INING STL  RIVER MILE  50.3 48.0 42.3 31.6 24.9 17.2 6.4	O O O O O O O O O O O O O O O O O O O	1050 12700 1750 D) AREA 1800 1800 1500 1500 1500 1800 400 1400 1400 12000 1400 0) AREA 1800 1800 1800 1100 1800 1800 1100 1800 1800 1800 1800 1100 1800	DENSITY (/1000ft^2)  DENSITY (/1000ft^2)  0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 DENSITY (/1000ft^2) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	FL MIN. 48	FL MAX.	FL AVG. 49.0	NO. MEAS.	0 SACFRY 0	NO. KILLED	14.6  WATER TEMP.  10.8 10.9 11.1 11.2 12.8 13.9 14.1 13.9 15.1  WATER TEMP.  12.3 13.1 11.5 12.9 14.9 17.1	ELEC. COND.  28 30 33 33 34 47 37 223  ELEC. COND.	FL 55 SMOLT FL	UPPER 0.2  SECTION UPPER	DENSITY MIDDLE	0.0	14.5  TURB. 1.2 1.1 1.6 2.3 2.4 3.0 4.0  15.2  TURB. 0.7 0.6 3.4 1.5 2.8 10.2	D.O. (ppm) 11.1 3 N.A. N.A. N.A. N.A. N.A. N.A. 11.1 11.1
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 25	GARDNER  MNE RIVER SE  LOCATION  OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER  MNE RIVER SE  LOCATION GASBURG R5 TRR HICK CHARLES LEGION GIS BEND SHILOH JAIRD GASBURG R5 TRR HICK CHARLES LEGION BIG BEND SHILOH LAIRD	79.5  RIVER MILE  50.5 48.00 42.0 31.6 6.4 3.4 90.2 ! 79.5  INING STU  RIVER MILE  50.3 48.00 42.3 31.6 24.9 17.2 6.4 3.4 90.2 !	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1050 12700 1750 D) AREA 1800 1500 1500 1500 1400 1400 1400 1400 12000 1400 12000 1400 12000 1500 1500 1500 1500 1500 1500 1	DENSITY (/1000ft^2)  DENSITY (/1000ft^2)  0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.0 DENSITY (/1000ft^2)  DENSITY (/1000ft^2)  0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	FL MIN. 48	FL MAX.	FL AVG. 49.0	NO. MEAS.	0 SACFRY 0	NO. KILLED	WATER TEMP.  10.8 10.9 11.1 11.2 12.8 13.9 14.1 13.9 15.1  WATER TEMP.  12.3 13.1 11.5 12.9 14.9 17.1 17.5 16.7 25.8	ELEC. COND.  28 30 33 34 37 37 223  ELEC. COND.  27 29 31 32 31 33 47 40 595	FL 55 SMOLT FL	UPPER 0.2  SECTION UPPER	DENSITY MIDDLE	0.0	14.5  TURB.  1.2 1.1 1.6 2.3 2.4 3.0 4.0  15.2  TURB.  0.7 0.6 3.4 1.5 1.5 2.8 10.2 4.3 10.2 4.3 15.6 10.2	D.O. (ppm) 11.3 N.A. N.A. N.A. N.A. N.A. N.A. N.A. N.
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 25	GARDNER  MNE RIVER SE  LOCATION  OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER  MNE RIVER SE  LOCATION GASBURG R5 TRR TRR HICK CHARLES LEGION BIG BEND SHILOH	79.5  RIVER MILE 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 I 79.5  INING STL RIVER MILE 50.3 48.0 42.3 31.6 624.9 17.2 6.4 3.4 31.6 624.9	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1050 12700 1750 D) AREA 1800 1800 1500 1500 1400 1400 1400 1400 12000 1400 D) AREA 1800 1800 1800 1800 1800 1800 1800 180	DENSITY (/1000ft^2)  DENSITY (/1000ft^2)  0.0 0.6 0.0 0.0 0.0 0.0 0.0 0.1 0.0  DENSITY (/1000ft^2) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	FL MIN. 48	FL MAX.	FL AVG. 49.0	NO. MEAS.	0 SACFRY 0	NO. KILLED	14.6  WATER TEMP.  10.8 10.9 11.1 11.2 12.8 13.9 14.1 13.9 15.1  WATER TEMP.  12.3 13.1 11.5 12.9 14.9 17.1 17.5	ELEC. COND.  28 30 33 33 34 37 37  223  ELEC. COND.  27 29 31 32 31 33 47 40	FL 55 SMOLT FL	UPPER 0.2  SECTION UPPER	DENSITY MIDDLE	0.0	14.5  TURB.  1.2 1.1 2.1 1.6 2.3 2.4 3.0 4.0  15.2  TURB.  0.7 0.6 3.4 1.5 1.5 2.8 10.2 4.3	D.O. (ppm) 11.3 N.A. N.A. N.A. N.A. N.A. N.A. 11.0 11.0 11.0 11.0 11.0 11.0 11.0 1
11MAY TR TOT. SJR TOT. 2010 TUOLU  DATE 25MAY 25	GARDNER  MNE RIVER SE  LOCATION  OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER  MNE RIVER SE  LOCATION GASBURG R5 TRR HICK CHARLES LEGION GIS BEND SHILOH JAIRD GASBURG R5 TRR HICK CHARLES LEGION BIG BEND SHILOH LAIRD	79.5  RIVER MILE  50.5 48.00 42.0 31.6 6.4 3.4 90.2 ! 79.5  INING STU  RIVER MILE  50.3 48.00 42.3 31.6 24.9 17.2 6.4 3.4 90.2 !	0 0 0 0 1DY (TID/MIE CATCH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1050 12700 1750 D) AREA 1800 1800 1500 1500 1400 1400 1400 1400 12000 1400 1000 1800 1800 1800 1800 1800 1	DENSITY (/1000ft^2)  DENSITY (/1000ft^2)  0.0 0.6 0.0 0.0 0.0 0.0 0.0 0.1 0.0  DENSITY (/1000ft^2)	FL MIN. 48 66	FL MAX. 50 66	FL AVG. 49.0 66.0	NO. MEAS.	0 SACFRY 0	NO. KILLED	WATER TEMP.  10.8 10.9 11.1 11.2 12.8 13.9 14.1 13.9 15.1  WATER TEMP.  12.3 13.1 11.5 12.9 14.9 17.1 17.5 16.7 25.8	ELEC. COND.  28 30 33 34 37 37 223  ELEC. COND.  27 29 31 32 31 33 47 40 595	FL 55 SMOLT FL	UPPER 0.2  SECTION UPPER	DENSITY MIDDLE	0.0	14.5  TURB.  1.2 1.1 1.6 2.3 2.4 3.0 4.0  15.2  TURB.  0.7 0.6 3.4 1.5 1.5 2.8 10.2 4.3 10.2 4.3 15.6 10.2	D.O. (ppm) 11.3 N.A. N.A. N.A. N.A. N.A. N.A. N.A. N.

Table 4. 2010 Other species sampled during seining studies on juvenile salmon.

SPECIES SAMPLED (ACTUAL COUNTS OR ESTIMATED ABUNDANCE)

SAM	DATE	SITE	LOCATION	MILE	LP	TFS	RT	СР	GF	GSH	SBF	нн	HCH	РМ	ST	PRS	FHM	SKR	WCF	GAM	ISS	SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
28  AM   3   TRK		1																2															
26.NN 4 4 HICK 31.6 S														20				6															
28.MN   5												14																					
26,004   6																				2					_								
Series   S																									1	1					3		
2   2   2   2   2   2   3   3   3   3																				3					'	'					5		
March   Marc																2										1					3		
DATE SITE   LOCATION MILE   P TS   RT   CP   G   SH   SF   HH   CH   PM   ST   PS   FMM   SKR   WC   GAM   ISS   SB   WCR   GSF   BG   LMB   SMB   BLP   TP   RSCP   RSF   CCF   CENT   TFERB   SMS																					1					•					Ü		
DATE SITE   LOCATION MILE LP TRS RT   CP GF GSH S8F HH HCH PM ST PRS FMM SKR WCF GAM ISS SB WCR GSF BG LMB SMB BLP TP RSCP RSF CCF CENT																					2				6						2		
17FEB   1																																	
17FEB   2		SITE			LP	TFS		CP	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
17FEB   3		1					10											1															
17FEB   4																		7															
17FEB   5												12								10													
17FEB 6   SERVICE 8.7   SERV																					2					1							
17FEB   7   SERVICE   8.7   SERVICE   1   1   1   1   1   1   1   1   1																					2												
17FEB 8   8   SHILOH 3.4																									1	4					2		
17FEB   9																20									1	1					3		
DATE SITE   LOCATION MILE LP TFS RT   CP GF GSH   SBF HH   CH PM ST PRS   FHM   SKR   WCF GAM   SS SB   WCR   GSF   BG   LMB   SMB   SLP   TP   RSCP   RSF   CCF   CENT   COMMAR   1																				2					1	1							
DATE SITE   LOCATION MILE   P   FS   RT   CP   GF   GSH   SBF   H   HCH   PM   ST   PRS   FHM   SKR   WCF   GAM   ISS   SB   WCR   GSF   BG   LMB   SMB   BLP   TP   RSCP   RSF   CCF   CENT   COMMAR   1																							4DCD										
OZMAR   OLGB   60.5   2	1/FEB	10	GARDNER	11.0												100+							IBCK										
OZMAR   2					LP	TFS		CP	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
OZMAR   3   TRR   42.3   1   1   1   1   6   7   7   1   1   1   1   1   1   1   1							2					_						1															
OZMAR   S																		3															
CMAR   S							1					1								6													
Camar   Cama																				_													
OZMAR   7   SERVICE   8.7																									1	1							
OZMAR   8																				15													
OZMAR   9																															1		
OZMAR   10   GARDNER   77.8																					00												
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																																	
16MAR 1 OLGB 50.5 5	UZMAR	10	GARDNER	77.8												100+					5				2		1						
16MAR 2 R5 48.0 1 16MAR 3 TRR 42.3 1 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DATE	SITE	LOCATION	MILE	LP	TFS	RT	CP	GF	GSH	SBF	НН	HCH	РМ	ST	PRS	FHM	SKR	WCF	GAM	ISS	SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
16MAR   4							5																										
16MAR	16MAR	2	R5	48.0			1											6															
ISMAR   6	16MAR	3	TRR	42.3								1																		1			
18MAR   6																				3													
16MAR 7 SERVICE 8.7 SERVICE 8.																																	
16MAR   8																									1						2		
16MAR 9 LAIRD 90.2   100 SARONER 77.8   100   10																				3						1					2		
The color of the																1									2	1					1		
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 30MAR 1 OLGB 50.5 1 3 30MAR 2 R5 48.0 2 3 30MAR 3 TRR 42.3 1 1 2 112 112 112 112 112 112 112 112																									_								
30MAR 1 OLGB 50.5 1 30MAR 2 R5 48.0 2 3 30MAR 3 TRR 42.3 12 1 30MAR 4 HICK 31.6 1 2 12 30MAR 5 CHARLES 24.9 5 5 16 30MAR 6 LEGION 17.2 10 5 1 30MAR 7 SERVICE 8.7 3 3 3 30MAR 8 SHILOH 3.4 2 100 100 1100 1100 1100 1100 1100 110	16MAR	10	GARDNER	77.8												100									3	1							
30MAR 2 R5 48.0 2 3 30MAR 4 HICK 31.6 1 2 12 30MAR 5 CHARLES 24.9 5 16 30MAR 6 LEGION 17.2 10 5 1 30MAR 7 SERVICE 8.7 3 3 3 30MAR 8 SHILOH 3.4 5 1 30MAR 9 LAIRD 90.2 100 100	DATE	SITE	LOCATION	MILE	LP	TFS	RT	CP	GF	GSH	SBF	НН	HCH	РМ	ST	PRS	FHM	SKR	WCF	GAM	ISS	SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
30MAR 3 TRR 42.3 30MAR 4 HICK 31.6 1 2 12 30MAR 5 CHARLES 24.9 30MAR 6 LEGION 17.2 30MAR 7 SERVICE 8.7 30MAR 8 SHILOH 3.4 30MAR 9 LAIRD 90.2 100 112 112 112 112 112 112 112 112 11	30MAR	1	OLGB	50.5			1																										
30MAR 4 HICK 31.6 1 2 12 30MAR 5 CHARLES 24.9 5 5 16 30MAR 6 LEGION 17.2 10 5 1 30MAR 7 SERVICE 8.7 3 3 3 30MAR 8 SHILOH 3.4 30MAR 9 LAIRD 90.2 100 100	30MAR	2	R5	48.0			2											3															
30MAR     4     HICK     31.6     1     2     12       30MAR     5     CHARLES     24.9     5     16       30MAR     6     LEGION     17.2     10     5     1       30MAR     7     SERVICE     8.7     3     3       30MAR     8     SHILOH     3.4       30MAR     9     LAIRD     90.2     100     1	30MAR	3	TRR	42.3																12										1			
30MAR     6     LEGION 17.2     10     5     1       30MAR     7     SERVICE 8.7     3     3       30MAR     8     SHILOH 3.4     2     4       30MAR     9     LAIRD 90.2     100     1	30MAR	4	HICK	31.6						1				2						12													
30MAR     7     SERVICE     8.7       30MAR     8     SHILOH     3.4       30MAR     9     LAIRD     90.2     100	30MAR	5	CHARLES	24.9																5					16								
30MAR 8 SHILOH 3.4 2 4 30MAR 9 LAIRD 90.2 100 1	30MAR	6	LEGION	17.2																10					5	1							
30MAR 9 LAIRD 90.2 100 1		7																		3					3								
	30MAR	8	SHILOH	3.4																					2	4							
30MAR 10 GARDNER 77.8 50 6 15 5 1	30MAR	9	LAIRD	90.2												100										1							
	30MAR	10	GARDNER	77.8												50					6				15	5					1		

Table 4. 2010 Other Species sampled (continued)

DATE			cics sa																											
	SITE	LOCATION	MILE L	P TFS	RT	CP	GF	GSH	SBF	HH	HCH	PM S	T PRS	FHM	SKR	WCF	GAM	ISS	SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
13APR	1	OLGB	50.5																											
13APR	2		48.0		5					1		1			10												2			
					5					1					10												2			
13APR	3		42.3									2																		
13APR	4	HICK	31.6									1					1													
13APR	5	CHARLES	24.9																			2								
13APR	6	LEGION													YOY		12													
															101															
13APR	7	SERVICE	8.7														2													
13APR	8	SHILOH	3.4										1				6													
13APR	9	LAIRD	90.2										200										1					1		
13APR	10	GARDNER											50									1	1							
IJAIIX	10	GANDINEN	77.0										30																	
DATE	SITE	LOCATION	MILE L	P TFS	RT	CP	GF	GSH	SBF	HH	HCH	PM S	T PRS	FHM	SKR	WCF	GAM	ISS	SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
27APR	1	OLGB	50.5												4															
27APR	2		48.0									6			8		2													
												0			0															
27APR	3		42.3														2										8			
27APR	4	HICK	31.6																			1								
27APR	5	CHARLES	24.9												YOY		2						1							
27APR	6	LEGION													YOY		1					1								
															YOY															
27APR	7	BIG BEND	6.4														10													
27APR	8	SHILOH													YOY								1							
27APR	9	LAIRD	90.2										200										1							
27APR	10	GARDNER											200					6												
277311		O, II LD I LETT																												
DATE	CITE	LOCATION	MILE	) TEC	рт	CB	CE	Celi	CDE	шш	пСп	DM C	T DDG	EU.	CKD	WCE	GAM	ISS	SB	WCR	CCE	DC.	LMB	CMD	BLP	TD	RSCP	DCL	CCE	CENT
	SIIE			115	ΚI	UP	GF	GSH	ODF	пп	пСп	PIVI 3	I PRO	ΓΠIVI		WCF	GAIVI	100	SB	WCR	GSF	ВС	LIVID	SIVID	DLP	IP	ROUP	KOF	CCF	CENT
11MAY	1	OLGB	50.5		1										YOY															
11MAY	2	R5	48.0		1							6			YOY															
11MAY	3		42.3		-							-			2		10										3			
																	10										3			
11MAY	4	HICK													YOY															
11MAY	5	CHARLES	24.9												YOY							3	1							
11MAY	6	LEGION	17.2												YOY		12													
11MAY	7	BIG BEND	6.4												YOY															
11MAY	8	SHILOH											4		YOY															
11MAY	9	LAIRD	90.2									1	200																	
11MAY	10	GARDNER											200					6												
		ONNER																												
DATE	CITE		77.8	D TEC	DT	CD	CF.	CCLL	CDE		LICII	DM C		FUM	CIVD	WCE	CAM		CD	WCD	CCE	D.C.	LMD	CMD	DI D	TD	DCCD	DCE	CCE	CENT
DATE	SITE	LOCATION	77.8 MILE LE	P TFS	RT	СР	GF	GSH	SBF	нн	HCH	PM S		FHM		WCF	GAM		SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
DATE 25MAY	SITE 1	LOCATION OLGB	77.8 MILE LE 50.5	P TFS	RT	СР	GF	GSH	SBF	нн	HCH	PM S		FHM	SKR	WCF	GAM		SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
25MAY	1	LOCATION OLGB	77.8 MILE LE 50.5	P TFS	RT	СР	GF	GSH	SBF	НН	HCH	PM S		FHM		WCF	GAM		SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
25MAY 25MAY	1 2	LOCATION OLGB R5	77.8 MILE LI 50.5 48.0	P TFS	RT	СР	GF	GSH	SBF	НН	НСН	PM S		FHM	YOY	WCF			SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
25MAY 25MAY 25MAY	1 2 3	LOCATION OLGB R5 TLSRA	77.8 MILE LI 50.5 48.0 42.0	P TFS	RT	СР	GF	GSH	SBF	НН	HCH	PM S		FHM	YOY YOY YOY	WCF	40		SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
25MAY 25MAY 25MAY 25MAY	1 2 3 4	LOCATION OLGB R5 TLSRA HICK	77.8 MILE LI 50.5 48.0 42.0 31.6	P TFS	RT	СР	GF	GSH	SBF	НН	HCH	PM S		FHM	YOY YOY YOY YOY	WCF			SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
25MAY 25MAY 25MAY	1 2 3	LOCATION OLGB R5 TLSRA	77.8 MILE LI 50.5 48.0 42.0 31.6	P TFS	RT	СР	GF	GSH	SBF	НН	НСН	PM S		FHM	YOY YOY YOY YOY	WCF	40		SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
25MAY 25MAY 25MAY 25MAY	1 2 3 4	LOCATION OLGB R5 TLSRA HICK CHARLES	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9	P TFS	RT	СР	GF	GSH	SBF	НН	нсн	PM S		FHM	YOY YOY YOY YOY	WCF	40		SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	1 2 3 4 5 6	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2	P TFS	RT	СР	GF	GSH	SBF	НН	НСН	PM S		FHM	YOY YOY YOY YOY YOY	WCF	40		SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	1 2 3 4 5 6 7	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4	P TFS	RT	СР	GF	GSH	SBF	НН	HCH	PM S	T PRS	FHM	YOY YOY YOY YOY YOY YOY YOY	WCF	40 12		SB	WCR	GSF	BG		SMB	BLP	TP	RSCP	RSF	CCF	CENT
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	1 2 3 4 5 6 7 8	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4	P TFS	RT	СР	GF	GSH	SBF	НН	HCH_	PM S		FHM	YOY YOY YOY YOY YOY	WCF	40		SB	WCR	GSF	BG	LMB	SMB	BLP	TP	RSCP	RSF	CCF	CENT
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	1 2 3 4 5 6 7 8 9	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2	P TFS	RT	CP	GF	GSH	SBF	НН	HCH_	PM S	T PRS		YOY YOY YOY YOY YOY YOY YOY	WCF	40 12		SB	WCR	GSF	BG		SMB	BLP	TP	RSCP	RSF	CCF	CENT
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	1 2 3 4 5 6 7 8	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2	P TFS	RT	CP	GF	GSH	SBF	НН	HCH	PM S	T PRS		YOY YOY YOY YOY YOY YOY YOY	WCF	40 12		SB	WCR	GSF	BG 1		SMB	BLP	TP	RSCP	RSF	CCF	CENT
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	1 2 3 4 5 6 7 8 9	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2	P TFS	RT	СР	GF	GSH	SBF	НН	HCH	PM S	T PRS		YOY YOY YOY YOY YOY YOY YOY	WCF	40 12		SB	WCR	GSF	BG		SMB	BLP	TP	RSCP	RSF	CCF	CENT
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	1 2 3 4 5 6 7 8 9	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 77.8										10 200-		YOY YOY YOY YOY YOY YOY YOY		40 12 8	ISS				1	1							
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	1 2 3 4 5 6 7 8 9	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 77.8  MILE LI										10 200-		YOY YOY YOY YOY YOY YOY YOY		40 12 8	ISS				1			BLP		RSCP			CENT
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	1 2 3 4 5 6 7 8 9 10 SITE	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION SHILOH LAIRD GARDNER LOCATION OLGB	77.8  MILE LI 50.5  48.0  42.0  31.6  24.9  17.2  6.4  3.4  90.2  77.8  MILE LI 50.5									PM S	10 200-		YOY YOY YOY YOY YOY YOY YOY		40 12 8	ISS				1	1							
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY	1 2 3 4 5 6 7 8 9	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION SHILOH LAIRD GARDNER LOCATION OLGB	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 77.8  MILE LI										10 200-		YOY YOY YOY YOY YOY YOY YOY		40 12 8	ISS				1	1							
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 08JUN 08JUN	1 2 3 4 5 6 7 8 9 10 SITE	LOCATION  OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER LOCATION  OLGB R5	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 77.8  MILE LI 50.5 48.0									PM S	10 200-		YOY YOY YOY YOY YOY YOY YOY SKR		40 12 8	ISS				1	1				RSCP 1			
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 08JUN 08JUN	1 2 3 4 5 6 7 8 9 10 SITE	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER LOCATION OLGB R5 TRR	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 77.8  MILE LI 50.5 48.0 42.3									PM S	10 200-		YOY YOY YOY YOY YOY YOY YOY		40 12 8	ISS				1	1							
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 08JUN 08JUN 08JUN 08JUN	1 2 3 4 5 6 7 8 9 10 SITE 1 2 3 4	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION SHILOH LAIRD GARDNER LOCATION OLGB R5 TRR HICK	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 77.8  MILE LI 50.5 48.0 42.3 31.6									PM S	10 200-		YOY YOY YOY YOY YOY YOY YOY SKR		40 12 8 GAM	ISS				1	1				RSCP 1			
25MAY 25MAY	1 2 3 4 5 6 7 8 9 10 SITE	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER LOCATION OLGB R5 TRR HICK CHARLES	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 77.8  MILE LI 50.5 48.0 42.3 31.6 24.9									PM S	10 200-		YOY YOY YOY YOY YOY YOY YOY SKR		40 12 8 GAM	ISS			GSF	1	1 LMB				RSCP 1	RSF		
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 08JUN 08JUN 08JUN 08JUN	1 2 3 4 5 6 7 8 9 10 SITE 1 2 3 4	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION SHILOH LAIRD GARDNER LOCATION OLGB R5 TRR HICK	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 77.8  MILE LI 50.5 48.0 42.3 31.6 24.9									PM S	10 200-		YOY YOY YOY YOY YOY YOY YOY SKR		40 12 8 GAM	ISS				1	1				RSCP 1			
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 08JUN 08JUN 08JUN 08JUN 08JUN 08JUN	1 2 3 4 5 6 7 8 9 10 SITE 1 2 3 4 5 6	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER  LOCATION OLGB R5 TRR HICK CHARLES LEGION	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 77.8  MILE LI 50.5 48.0 42.3 31.6 24.9 17.2									PM S	10 200-		YOY YOY YOY YOY YOY YOY YOY SKR		40 12 8 GAM	ISS			GSF	1	1 LMB				RSCP 1	RSF		
25MAY 25MAY	1 2 3 4 5 6 7 8 9 10 SITE 1 2 3 4 5 6	LOCATION  OLGB R5 TLSRA HICK CHARLES LEGION SHILOH LAIRD GARDNER  LOCATION OLGB R5 TRR HICK CHARLES LEGION BIG BEND	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 90.2 77.8  MILE LI 50.5 48.0 42.3 31.6 24.9 17.2 6.4									PM S	10 200-		YOY YOY YOY YOY YOY YOY YOY SKR		40 12 8 GAM 2 10 10	ISS			GSF	1	1 LMB				RSCP 1	RSF		
25MAY 25MAY	1 2 3 4 5 6 7 8 9 10 SITE 1 2 3 4 5 6 7 8	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER  LOCATION OLGB R5 TRR HICK CHARLES LEGION BIG BEND SHILOH	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 77.8  MILE LI 50.5 48.0 42.3 31.6 24.9 17.2 6.4 3.4									PM S	10 200-		YOY YOY YOY YOY YOY YOY SKR YOY YOY		40 12 8 GAM 2 10 10 1	ISS			GSF	1 BG	1 LMB	SMB			RSCP 1	RSF		
25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 25MAY 08JUN 08JUN 08JUN 08JUN 08JUN 08JUN 08JUN	1 2 3 4 5 6 7 8 9 10 SITE 1 2 3 4 5 6 7 8 9	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER  LOCATION OLGB R5 TRR HICK CHARLES LEGION BIG BEND SHILOH LAIRD	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 77.8  MILE LI 50.5 48.0 42.3 31.6 24.9 17.2 6.4 3.4 90.2									PM S	10 200- ET PRS		YOY YOY YOY YOY YOY YOY YOY SKR		40 12 8 GAM 2 10 10	ISS			GSF	1	1 LMB				RSCP 1	RSF		
25MAY 25MAY	1 2 3 4 5 6 7 8 9 10 SITE 1 2 3 4 5 6 7 8	LOCATION OLGB R5 TLSRA HICK CHARLES LEGION BIG BEND SHILOH LAIRD GARDNER  LOCATION OLGB R5 TRR HICK CHARLES LEGION BIG BEND SHILOH	77.8  MILE LI 50.5 48.0 42.0 31.6 24.9 17.2 6.4 3.4 90.2 77.8  MILE LI 50.5 48.0 42.3 31.6 24.9 17.2 6.4 3.4 90.2									PM S	10 200-		YOY YOY YOY YOY YOY YOY SKR YOY YOY		40 12 8 GAM 2 10 10 1	ISS			GSF	1 BG	1 LMB	SMB			RSCP 1	RSF		

Table 4. KEY TO OTHER SPECIES SAMPLED AND DISTRIBUTION (List includes all species caught during 1986-2010 seining studies)

FAMILY	COMMON NAME	NATIVE SPECIES	ABBREV.	SAN JOAQUIN	TUOL.
TAME	TVAIVIL	DI LCILD	ADDICE V.	JOHQUIN	TOOL.
Petromyzontidae	Pacific lamprey	N	LP		
Clupeidae	threadfin shad		TFS		
Salmonidae	Chinook salmon	N	CS		Χ
Salmonidae	rainbow trout	N	RT		Χ
Cyprinidae	carp		CP		
Cyprinidae	goldfish		GF		
Cyprinidae	golden shiner		GSH		Χ
Cyprinidae	Sacramento blackfish	N	SBF		
Cyprinidae	hitch	N	HCH		
Cyprinidae	hardhead	N	НН		Χ
Cyprinidae	Sacramento pikeminnow	N	PM	X	Χ
Cyprinidae	Sacramento splittail	N	ST		
Cyprinidae	red shiner		PRS	X	Χ
Cyprinidae	fathead minnow		FHM		
Catostomidae	Sacramento sucker	N	SKR	Х	Χ
Ictaluridae	channel catfish		CCF		Χ
Ictaluridae	white catfish		WCF		
Ictaluridae	brown bullhead		BBH		
Poeciliidae	western mosquitofish		GAM	Х	Χ
Atherinidae	inland silverside		ISS	Х	Χ
Percichthyidae	striped bass		SB		
Centrarchidae	white/black crappie		WCR/BCR	X	
Centrarchidae	warmouth		WM		
Centrarchidae	green sunfish		GSF		Χ
Centrarchidae	bluegill		BG	X	Χ
Centrarchidae	redear sunfish		RSF	Х	Χ
Centrarchidae	largemouth bass		LMB	Х	Χ
Centrarchidae	smallmouth bass		SMB	Х	Χ
Percidae	bigscale logperch		BLP		
Embiotocidae	tule perch	N	TP		
Cottidae	prickly sculpin	N	PSCP		
Cottidae	riffle sculpin	N	RSCP		Х
TOTAL:	32			10	16

2010 species presence designated with 'X'

Table 5. Tuolumne River Seining Summary, 1986-2010.

-	TUOLUMNE	RIVER				SAN JOAQI	UIN		STANISLA				
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	8.0	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
2008	10	198	8	1.4	0.66	0	2	0				22JAN	27MAY
2009	11	779	8	4.7	0.64	0	2	0				13JAN	02JUN
2010	10	386	8	2.9	0.65	0	2	0				26JAN	08JUN

<sup>---</sup> Not Sampled

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

Table 6. Summary table of locations sampled, 1986-2010

1986 TO 2010 SEINING LOCATIONS TUOLUMNE RIVER

TUOLUMNE RIVER		198	6 1987	7 1088	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 -	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Site Location	River Mile	150	0 1307	1300	1505	1000	1551	1002	1000	1554	1000	1000	1007	1550	1000 /	2000 /	2001	2002	2000	2004	2000	2000	2001	2000	2000	2010
1 Old La Grange Bridge	50.5		X X	( X	X	X	Х	Х	Х			Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	X	Х	Х	Х
2 Riffle 4B	48.4	2	x x	( X	X	X	Х				X	Х	Х	Х								Х				
3 Riffle 5	47.9		Х	( X	X	X	X	Х	X	X					X	Χ	Х	X	X	Х	Χ		X	Х	Х	Х
4 Tuolumne River Resort	42.4			X	X	X	X	X	X	X	X	X	X	X	X	X	Χ	X	X	Х	X	X	X	Х	X	X
5 Turlock Lake State Rec. Area	42.0	)	X X	(																						
6 Reed Gravel	34.0	)	X X	( X	X	X	X																			
7 Hickman Bridge	31.6	)	X X	( X	X	X	X	X	X	X	X	X	X	X	X	X	Χ	X	X	X	X	X	X	Χ	X	X
8 Charles Road	24.9		Х	( X	X	X	X	X	X				X	X	X	X	Χ	X	X	Х	X	X	X	Х	X	X
9 Legion Park	17.2	)	X X	( X	X	X	X	X	X	X	X	X	X	X	X	X	Χ	X	X	Х	X	X	X	Х	X	X
10 RDP / Service Rd. / Venn	12.3 - 7.4		Х	( X	X	X	X								X	Χ	Χ	X	Χ	Х	Χ	X	X	X	X	X
11 McCleskey Ranch	6.0	)	X X	( X	X	X	X	X	X	X																
12 Shiloh Bridge	3.4	)	X X	X	X	X	Χ		Χ		Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Х	X	X	X	X	Х	X
SAN JOAQUIN RIVER		400	0 400-		4000	4000	4004	4000	1000	4004	1005	1000	1007	4000	1000		0004	0000	0000	0004	0005	0000	2007	0000	0000	0040
Site Location	River Mile	1980	6 1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 .	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
13 Laird Park	90.2		х х	X		Х	Х		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х		Х	Х	X	Х	Х	Х
14 Gardner Cove	77.8		^ ^					X	X	X	X	X	X	X	X	X	X	X	X	X		X				
15 Maze Road	76.6		X X			^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^
16 Sturgeon Bend	74.3		^ ^																							
17 Durham Ferry Park	71.3		x x			X	Х	×	Х																	
18 Old River	53.7		X		,	^	^	,	,																	
STANISLAUS RIVER																										
		198	6 1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Site Location	River Mile																									
19 Caswell State Park	8.5			Х	X		Х	Х	Х																	
DRY CREEK																										
		198	6 1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Site Location	River Mile																									
	I CI V CI IVIII C																									

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

Table 7. Tuolumne River analysis of female spawners to fry density.

		Juvenil	e Seining	
Tuolumne	Total	_	Peak	Average
Fall-run	Female	Fr	y Density	Fry Density
Estimate	Spawners	15JAN	I-15MAR	15JAN-15MAR
1985	22600	1986	158.8	59.5
1986	3800	1987	69.3	46.2
1987	4600	1988	70.2	33.9
1988	4100	1989	115.1	39.7
1989	680	1990	11.4	5.0
1990	28	1991	1.3	0.5
1991	28	1992	6.1	2.9
1992	55	1993	1.7	0.9
1993	237	1994	79.5	41.5
1994	249	1995	12.5	9.8
1995	522	1996	16.1	13.0
1996	1142	1997	2.8	2.1
1997	4224	1998	49.3	24.6
1998	4527	1999	78.0	39.3
1999	3535	2000	78.8	48.0
2000	11260	2001	126.3	85.6
2001	4970	2002	92.8	41.5
2002	3876	2003	164.3	68.8
2003	1768	2004	38.8	27.2
2004	1004	2005	20.5	14.6
2005	478	2006	28.7	12.7
2006	282	2007	3.7	2.2
2007	80	2008	2.4	1.7
2008	212	2009	9.7	4.8
2009	170	2010	6.1	3.5

 $Table\ 8.\ Summary\ table\ of\ fish\ species\ caught\ during\ the 1992-2010\ seine\ studies.$ 

Fish species caught in the Tuolumne River during the seine studies

	COMMON	NATIVE								4000	****	****	****	****	****	****	****	****	****	****	****
FAMILY	NAME	SPECIES	ABBREV.	1992	1993	1994	1995	1996	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Petromyzontidae	Pacific lamprey	N	LP											X		X					
Clupeidae	threadfin shad		TFS					X	X			X									
Salmonidae	Chinook salmon	N	CS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Salmonidae	rainbow trout	N	RT						X	X	X	X	X	X	X	X	X	X	X	X	X
Cyprinidae	carp		CP														X				
Cyprinidae	goldfish		GF																		
Cyprinidae	golden shiner		GSH	X	X	X							X		X		X		X	X	X
Cyprinidae	Sacramento blackfish	N	SBF																		
Cyprinidae	hitch	N	HCH																		
Cyprinidae	hardhead	N	HH	X		X						X	X		X	X	X	X	X	X	X
Cyprinidae	Sacramento pikeminnow	N	PM	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cyprinidae	Sacramento splittail	N	ST																		
Cyprinidae	red shiner		PRS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cyprinidae	fathead minnow		FHM								X										
Catostomidae	Sacramento sucker	N	SKR	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ictaluridae	channel catfish		CCF								X			X						X	X
Ictaluridae	white catfish		WCF		X	X						X									
Ictaluridae	brown bullhead		BBH			X															
Poeciliidae	western mosquitofish		GAM	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Atherinidae	inland silverside		ISS	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X
Percichthyidae	striped bass		SB									X									
Centrarchidae	white/black crappie		WCR/BCR																		
Centrarchidae	warmouth		WM		X																
Centrarchidae	green sunfish		GSF	X	X		X				X	X	X	X	X	X	X			X	X
Centrarchidae	bluegill		BG	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X
Centrarchidae	redear sunfish		RSF	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Centrarchidae	largemouth bass		LMB	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
Centrarchidae	smallmouth bass		SMB	X		X						X	X	X	X				X	X	X
Percidae	bigscale logperch		BLP	X			X		X	X								X	X		
Embiotocidae	tule perch	N	TP																		
Cottidae	prickly sculpin	N	PSCP				X	X	X						X	X	X				
Cottidae	riffle sculpin	N	RSCP	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
TOTAL:	32			15	13	15	12	11	14	11	14	17	15	15	16	15	16	12	15	15	16

(List includes all species caught during 1986-2010 seining studies)

Fish species caught in the San Joaquin River during the seine studies

FAMILY	COMMON NAME	NATIVE SPECIES	ABBREV.	1992	1993	1994	1995	1996	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Petromyzontidae	Pacific lamprey	N	LP																		
Clupeidae	threadfin shad		TFS		X		X		X	X	X			X							
Salmonidae	Chinook salmon	N	CS	X		X	X	X	X	X	X	X	X	X		X	X				
Salmonidae	rainbow trout	N	RT																		
Cyprinidae	carp		CP	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X		
Cyprinidae	goldfish		GF	X		X	X	X	X	X		X	X		X	X	X				
Cyprinidae	golden shiner		GSH	X			X								X						
Cyprinidae	Sacramento blackfish	N	SBF	X	X	X	X	X	X	X	X										
Cyprinidae	hitch	N	HCH					X		X	X										
Cyprinidae	hardhead	N	НН																		
Cyprinidae	Sacramento pikeminnow	N	PM	X	X		X	X	X		X	X			X	X	X		X	X	X
Cyprinidae	Sacramento splittail	N	ST	X			X	X	X			X					X				
Cyprinidae	red shiner		PRS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cyprinidae	fathead minnow		FHM	X	X	X	X	X	X	X	X	X	X		X	X	X				
Catostomidae	Sacramento sucker	N	SKR	X	X	X	X	X	X	X		X		X	X	X	X	X	X	X	X
Ictaluridae	channel catfish		CCF			X		X										X			
Ictaluridae	white catfish		WCF											X							
Ictaluridae	brown bullhead		BBH					X													
Poeciliidae	western mosquitofish		GAM	X	X		X	X	X			X	X	X	X		X			X	X
Atherinidae	inland silverside		ISS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Percichthyidae	striped bass		SB	X	X	X		X	X		X	X			X						
Centrarchidae	white/black crappie		WCR/BCR	X		X		X					X		X	X					X
Centrarchidae	warmouth		WM																		
Centrarchidae	green sunfish		GSF	X	X		X	X	X				X	X	X		X				
Centrarchidae	bluegill		BG	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X
Centrarchidae	redear sunfish		RSF	X	X	X	X			X			X	X	X					X	X
Centrarchidae	largemouth bass		LMB		X	X	X	X		X	X	X	X	X	X	X			X	X	X
Centrarchidae	smallmouth bass		SMB	X		X				X	X				X			X		X	X
Percidae	bigscale logperch		BLP			X	X	X	X	X	X	X	X	X	X						
Embiotocidae	tule perch	N	TP	X	X	X	X	X	X		X	X	X	X	X				X		
Cottidae	prickly sculpin	N	PSCP				X	X	X	X						X	X				
Cottidae	riffle sculpin	N	RSCP																		
TOTAL:	32			19	15	17	20	21	18	16	15	15	14	14	18	12	13	5	8	9	10

(List includes all species caught during 1986-2010 seining studies)