UNITED STATES OF AMERICA BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

Turlock Irrigation District)
)
and)
)
Modesto Irrigation District)

Project No. 2299

2011 LOWER TUOLUMNE RIVER ANNUAL REPORT

Report 2011-3

2011 Seine Report and Summary Update

Prepared by

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EXECUTIVE SUMMARY

The 2011 seining survey was conducted at two-week intervals from 19 January to 24 May for a total of 10 sample periods. This was the 26th consecutive annual seining study on the Tuolumne River conducted by the Turlock and Modesto Irrigation Districts. 2011 flow releases were significantly higher than recent years going back to 2006 when flows at La Grange last exceeded 8,000 cubic feet per second (cfs). Chinook salmon catch was much lower this year due to the increased volume of water in the river and subsequent reduction of fish density. Sampling areas were also limited to flooded margins along the floodplain and micro-habitat conditions at the survey sites were less than ideal for large catches of salmon, especially juveniles >50 mm FL.

A total of 164 natural Chinook salmon were caught in the Tuolumne River and 19 in the San Joaquin River. This was the 4th lowest number of salmon caught during the 1986-2011 period and salmon were caught throughout the Tuolumne and at both San Joaquin sites. Peak density of salmon caught in the Tuolumne was 4.3 salmon per 1,000 square feet on 01 February and 3.2 salmon per 1,000 square feet on 15 March in the San Joaquin River. Minimum and maximum fork length (FL) in the Tuolumne River both occurred on 01 February and were 31 and 76 mm FL, respectively. Minimum Fl in the San Joaquin River was 37 mm FL on 15 February and 01 March and maximum FL was 68 mm FL on 15 March.

Flows during the sampling period ranged from about 1,600 to 8,300 cubic feet per second (cfs) in the Tuolumne River at La Grange and from about 6,800 to 31,000 cfs in the San Joaquin River at Vernalis. Flows in 2011 were significantly higher than average due to abundant precipitation.

Water temperature in the Tuolumne ranged from 10.0° C to 16.8° C and in the San Joaquin from 10.7° C to 20.1° C. Conductivity in the Tuolumne River ranged from 24 to 57 μ S and in the San Joaquin from 123 to 514 μ S.

A comparative review of fork length and salmon density for the 2006-2011 period is included. Increase in average fork length in 2011 was much smaller in magnitude to the pattern observed in other years, due to low catch numbers.

Density of fry (≤ 50 mm) peaked on 15 February, similar in timing to other years of the 2006-2011 period. The density of juveniles (> 50 mm) peaked on 01 February, which was much earlier than other years in the period. In 2011, the average density of salmon in the Tuolumne River was 1.2 salmon per 1,000 ft², similar to 2007 and 2008.

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1 INTRODUCTION

Stillwater Sciences with assistance from FISHBIO conducted Chinook salmon seine surveys in the Tuolumne and San Joaquin Rivers in 2011 for the Turlock and Modesto Irrigation Districts (TID/MID). Seine sampling was done in both rivers pursuant to the Don Pedro Project (FERC #2299) river-wide monitoring program. The purpose of the seine monitoring program was to document juvenile Chinook salmon size, abundance and distribution in the Tuolumne and San Joaquin rivers. The Chinook salmon captured during the 2011 seine surveys were the progeny of the 2010 fall spawning run, which was estimated at about 766 fish as counted at the Tuolumne River weir (through Nov 2010).

This report, which is the 26th in the annual series, contains the results of the 2011 seining effort and a summary of monitoring data collected since 1996.

1.1 STUDY SITES

The seining study area includes 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) downstream to Gardner Cove (RM 79.4) (Figure 1). A total of 10 sites were sampled each survey period, eight on the Tuolumne and two on the San Joaquin. These sites have generally been sampled since the beginning of the program in 1986. However, alternate sites were utilized as necessary during high flows when conditions at the primary study locations were unsuitable for monitoring activities. The locations of the monitoring sites were as follows:

Site	Location	River Mile
	Tuolumne River	
1	Old La Grange Bridge (OLGB)	50.5 ^a
2	Riffle 4B, 5	48.4, 48.0
3	Turlock Lake State Recreation Area (TLSRA)	42.0
4	Hickman Bridge	31.6
5	Charles Road	24.9
6	Legion Park	17.2
7	Riverdale Park, Venn Ranch	12.3, 6.4
8	Shiloh Road	3.4
	San Joaquin River	
9	Laird Park	90.2 ^b
10	Gardner Cove, Old Fishermen's Club	79.4, 80.7
As measured from t	he confluence with the San Joaquin River	

^a As measured from the confluence with the San Joaquin River

^b As measured from the confluence with the Sacramento River

The Tuolumne River monitoring reach was divided into three sections. The upper section (RM 52 to 34) that contained sites 1-3, was a higher gradient reach that included most of the primary

spawning riffles in the river. The middle section (RM 34 to 17), containing sites 4-6, was the transitional area from the gravel-bedded to sand-bedded river reaches. This section contained most of the in-channel sand/gravel mined areas. The lower section (RM 17 to 0), sites 7-8, was a low gradient, mostly sand-bottom reach located downstream of the Dry Creek confluence.

2 METHODS

2.1 STUDY TIMING

The 2011 seining study began on 19 January and ended on 24 May. Seining efforts were conducted on two-week intervals for a total of 10 sampling dates.

2.2 SAMPLING METHODS AND DATA RECORDING

Seining was conducted using a 4-foot high, 1/8-inch mesh nylon seine net 20 feet in length. Seine hauls were made with the current and parallel to shore. The captured Chinook salmon were anesthetized with MS-222, measured (FL in mm) and then revived before being released. Other data recorded during the seine surveys included the area sampled (determined from estimating average length and width of a seine haul), water temperature in degrees Celsius (C), dissolved oxygen in milligrams per liter (mg/L), underwater visibility, conductivity in microsiemens (μ S), turbidity in Nephelometric Turbidity Units (NTU), and maximum depth. Other recorded observations included time of day, weather conditions, habitat type, substrate type, and other fish species captured in the seine hauls. Also noted were any salmon displaying signs of smoltification, such as losing scales or silvering up.

2.3 DATA ANALYSIS

Seining catch data were analyzed, arranged, and reported on a site, river section, and river-wide basis. Catch densities of salmon were divided into two size groups for analysis. The density index for "fry" (fish \leq 50 mm FL) and for "juveniles" (>50 mm FL) were computed by multiplying the number of salmon caught by 1,000 and dividing it by the area of the site or section that was sampled. The 2011 density indices were compared to previous years catch and density data. Densities and sizes of salmon fry and juveniles were analyzed for each of the upper, middle, and lower river sections.

3 RESULTS AND DISCUSSION

3.1 2011 TUOLUMNE AND SAN JOAQUIN RIVER SAMPLING CONDITIONS

Flow releases during the 2011 study period were similar to those in 2006, which was the last wet year. Flows at the U.S. Geological Survey (USGS) gage (#11289500) in the Tuolumne River below La Grange Dam were approximately 1,600 cubic feet per second (cfs) in early February, which was the lowest level during the 2011 seine study period (Figure 2). Flows were gradually increased through the month, were lowered slightly in mid-March and then increased to over 8,000 cfs through mid-April. Flows remained above 3,000 cfs through the end of May. Although

seine surveys were terminated at the end of May due to low capture numbers, flows to the lower river increased to about 7,000 cfs in June, before decreasing through July.

The USGS stream gage at Vernalis (#11303500) (RM 72.5) and the California Department of Water Resources gage at Patterson Bridge (SJP) (RM 98.5) were used to represent flow levels at the Laird Park and Gardner Cove sampling locations. Laird Park and Gardner Cove are located on the San Joaquin River, upstream and downstream of the mouth of the Tuolumne River, respectively. Flows in the San Joaquin River at Vernalis (RM 72.5) ranged from 6,800 to 31,000 cfs from January through June 2011. Flows at Patterson ranged from 3,600 to 22,700 cfs from January through June 2011.

The minimum water temperature recorded in the Tuolumne River during the study period, based on hand-held temperature measurements, was 10.0°C (50.0°F) at Hickman Bridge on 01 March and the maximum temperature was 16.8°C (62.2°F) at the Venn Ranch on 24 May (Figure 3). The lowest San Joaquin River water temperature, 10.7°C (51.3°F) was at Laird Park on 01 February; the highest was 20.1°C (68.2°F) at Laird Park on 24 May.

Dissolved oxygen concentration in the Tuolumne River ranged from 8.7 to 14.1 mg/L and 7.0 to 11.2 mg/L in the San Joaquin River (Figure 3).

Conductivity in the Tuolumne River generally increased with increasing distance below La Grange Dam, from a low of 24 μ S at OLGB to a high of 57 μ S at Venn Ranch (Table 1). Conductivity was relatively low throughout the year due to high flows (Figure 4).

Conductivity in the San Joaquin River was much higher than in the Tuolumne and ranged from a low of 123 μ S at the Old Fishermen's Club to a high of 514 μ S at Laird Park (Table 1 and Figure 4).

Turbidity in the Tuolumne River was less than 7.5 NTU except for one reading at Legion Park on 01 February that was likely the result of storm runoff (Table 1). 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 11.3 at Gardner Cove to 33.4 NTU measured at Laird Park (Table 1 and Figure 4)

3.2 SEINE CATCH

A total of 164 fry and juvenile Chinook salmon were caught in the Tuolumne River and 19 in the San Joaquin (Table 2). Although the 2011 salmon catch was relatively low when compared to past years, salmon were caught at all of the Tuolumne and San Joaquin River survey sites.

3.2.1 Density of Fry and Juvenile Salmon

3.2.1.1 Tuolumne River

The highest density of Chinook salmon fry (14.5/1000 ft²) was recorded at the TLSRA site on 15 February (Table 3). The highest density of juvenile Chinook salmon (4.8/1000 ft²) was recorded at the Hickman site on 1 February (Table 3). On 1 February, the Hickman site also had the

highest combined density of fry and juveniles at 15.2 fish/1000 ft² (Table 3). The density of salmon fry by location exhibited a peak from 19 January to 15 February (Figure 5). The density of juveniles generally peaked from 01 February to 01 March for most locations (Figure 5).

The density of Chinook salmon fry in the Tuolumne River peaked in the upper section on 15 February with 4.3/1,000 ft² (Table 3 and Figure 6). The fry densities in the middle and lower sections peaked on 01 February with 6.2/1,000 ft² and 2.3/1,000 ft², respectively (Table 2 and Figure 6). The density of juveniles in the Tuolumne River peaked in the upper section on 26 April with 0.3/1,000 ft² (Table 2 and Figure 6). The juvenile densities in the middle and lower sections peaked on 01 February with 1.7/1,000 ft² and 0.4/1,000 ft², respectively (Table 2 and Figure 6).

The peak density of salmon fry in the Tuolumne River for the combined survey locations was 3.6/1,000 ft² found on 15 February (Table 2). The peak density of juvenile salmon in the Tuolumne River was 0.8/1,000 ft² found on 01 February. The highest combined fry and juvenile density for the entire Tuolumne River survey reach was 4.3/1000 ft² (Table 2). The average combined density of fry and juveniles for the entire survey period was 1.2/1000 ft² (Table 2).

3.2.1.2 San Joaquin River

A total of 19 fry and juvenile Chinook salmon were caught in the San Joaquin River from 01 February to 15 March at the Laird and Gardner Cove survey locations. The last year Chinook salmon were caught at these locations was in 2006 under similar high flow conditions. The peak fry density $(2.7/1000 \text{ ft}^2)$ and juvenile density $(2.0/1000 \text{ ft}^2)$ both occurred on 15 March at Gardner Cove (Table 2). The peak combined fry and juvenile density at this location and date was $4.7/1000 \text{ ft}^2$.

The peak combined fry and juvenile Chinook salmon density for both the Laird and Gardner Cove sites was 3.2/1000 ft². The average combined density of fry and juveniles for the entire survey period was 0.6/1000 ft² (Table 2).

3.2.2 Size, Growth, and Smoltification

The fork length of salmon caught in the Tuolumne River ranged from 31 mm to 76 mm (Tables 1 and 3). The average fork length (FL) of salmon generally increased throughout the survey period (Table 2 and Figure 7). The indirect method to estimate growth rate usually made by dividing the increase in maximum FL, over a period of time was not calculated in 2011 due to low numbers of juvenile salmon caught.

Length frequency distributions by survey period are shown in Figures 8 and 9. The change in FL by location generally shows no pattern throughout the survey period (Figure 10). Usually a pattern of increasing FL in a downstream direction is observed. None of the salmon that were caught in 2011 exhibited smolting characteristics.

3.2.3 Other Fish Species Caught

A list of other fish species caught during the seining study by species, location, and date is in Table 4. Ten species other than Chinook salmon were caught in the Tuolumne River and 11

other species in the San Joaquin River. Seven of these species were common to both rivers and 14 species were caught overall. Seven rainbow trout (*O. mykiss*) fry (21–40 mm FL) were caught in the Tuolumne River between 01 February and 26 April at OLGB, R4B, and R5 (Table 4).

4 COMPARATIVE REVIEW

The comparative review of Chinook salmon fork lengths and densities in this report is primarily for the 2006 to 2011 period.

4.1 SEINE: 1986–2011

Annual TID/MID Tuolumne River seining surveys began in 1986. Up to 11 sites and varying degrees of effort have been employed in the Tuolumne River during the course of the 1986 to 2011 study period (Tables 5 and 6). Beginning in 1999, the sites discussed in this report have been consistently monitored. However, two alternate sites (Riffle 4B and TSLRA) were utilized during the 2011 effort because the Riffle 5 and TRR sites were unsuitable due to high flows (Tables 5 and 6). The number of salmon caught and the related density indices are subject to river conditions that affect the seining operations. For example, high flow conditions may result in marginal seining conditions at one location and improved at others, which is what occurred in 2011.

The number of salmon captured in the Tuolumne River has ranged from 120 in 1991 to 14,825 in 1987 (Table 5). The total number of salmon captured in 2011 was 164, which was the fourth lowest for the entire 26-year study period.

The San Joaquin River Laird and Gardner Cove sites have been during each of the study years. The total number of salmon captured at these sites has ranged from 0 to 854 with average densities much lower than the Tuolumne (Table 5). Nineteen salmon were captured in the San Joaquin River during 2011, which followed four years in a row of no captures.

4.1.1 Size and Growth

The average minimum FL found in 2011 remained below 43 mm through April (Figure 11). The 2011 increase in average FL during the January to March period was smaller than what was previously observed during the 2006 to 2010 period (Figure 12). In 2011, the average maximum FL for each of the survey periods was the lowest of the past six years (Figure 13). The estimated growth rate for 2011 was not calculated due to low catch numbers (Table 5).

4.1.2 Fry and Juvenile Salmon Density

4.1.2.1 Tuolumne River Section Density

For the 2006 to 2011 period, fry densities in the upper section of the river generally peaked from early February to early March and steadily declined through March (Figure 14). Peak juvenile Chinook salmon densities for the 2006 to 2011 period occur about a month later than the fry (Figure 14). In 2011, fry and juvenile salmon densities were generally low when compared to the earlier survey years.

Middle section density of fry generally peaks from early February to mid-March similar timing to the upper section (Figure 15). Middle section density of juveniles often peak from late February to late March. In 2011 juvenile density peaked on 01 February, the same date as the peak in fry occurred.

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 occurred on 01 February in 2011 (Figure 16). Peak density of juveniles was low throughout the 2011 surveys. The capture of fry and juvenile salmon in the lower section, while low, indicates salmon survival throughout the river.

Section density indices of fry and juvenile salmon combined were standardized as a percent of the annual riverwide average density index and plotted at section midpoints for recent years (Figure 17). In 2011 the standardized section density indices was highest in the middle section.

4.1.2.2 Tuolumne River-wide Density

The density of Tuolumne River Chinook salmon fry during the early winter of 2011 remained below those that were recorded in 2006, 2009, and 2010, but were higher that in 2007 and 2008 (Figure 18). Late winter through mid-spring fry densities were similar for 2006 to 2011.

The density of Tuolumne River Chinook salmon juveniles was extremely low throughout the survey period and generally lower than those experienced during 2006 to 2010 (Figure 19). High flows during the monitoring period limited sampling to the shallower margins which reduced the likelihood of capturing larger juvenile-sized salmon.

The combined fry and juvenile densities for the Tuolumne River for the years 2006–2011 are shown in Figure 20. In general, the 2011 densities were lower than those recorded in 2006–2010 (Figure 20). The 2011 average combined density $(1.2/1000 \text{ ft}^2)$ was the third lowest recorded since 1986 (Table 5).

4.1.2.3 San Joaquin River Density

Densities of salmon caught in the San Joaquin River at Laird Park and Gardner Cove sites were reviewed to compare relative abundance of salmon upstream and downstream of the Tuolumne River confluence. The density indices were developed by combining the fry and juvenile salmon due to the low numbers of fish that were caught.

The average salmon density at Laird Park, downstream of the Merced confluence, was extremely low for all years between 1986 and 2011(Figure 21). The total number of wild Chinook salmon caught at Laird Park during the 1986 to 2011 period of record was 152. Four salmon were caught at Laird Park in 2011.

A total of 1,097 salmon were caught at Gardner Cove during the 1986–2011 period, 509 of which were caught in 1999. Fifteen salmon were caught at Gardner Cove in 2011. The average density at Gardner Cove, downstream of the Tuolumne River confluence, was much higher in 1986 and 1999 and moderately higher in 1995, 1998, 2001, 2006 and 2011.

4.1.3 Tuolumne River Fry Density versus Number of Female Spawners

An analysis to determine the relationship of adult female spawner escapement to the following peak and average fry densities was conducted using the 1986 to 2011 data sets. All fry density data for the individual study years were entered into an Excel spreadsheet and plotted on a chart. A "best fit" line was run through the data points to determine if a correlation between spawning females and fry could be identified. The best fit line through the peak fry density data points resulted in an R-squared of .732 for the 1986–2011 period (Figure 22, Table 7). A similar result with R-squared of .780 was found using average fry density from 15 January to 15 March (Figure 23). However, a review of Figures 20 and 21 show a wide variation between relatively similar female spawner numbers and the subsequent fry densities.

4.1.4 Other Fish Species

Between 10 and 16 fish species, other than Chinook salmon, were caught during 1992–2011 seining efforts in the Tuolumne River (Table 8). The numbers of captured individuals of each species for the 2011 survey season are listed by site and date of capture in Table 4. Ten other species were caught in the Tuolumne River during 2011, including 5 native species. Eleven other fish species, including 3 native, were caught in the San Joaquin River in 2011.

Sacramento pikeminnow, Sacramento sucker and prickly sculpin, all native species, were caught in both the Tuolumne and San Joaquin rivers. Other native species including rainbow trout, hardhead, and riffle sculpin were caught only in the Tuolumne River. Native species recorded in prior years, but not caught in either river in 2011, were Pacific lamprey, Sacramento blackfish, hitch, Sacramento splittail, and tule perch. The number of species observed in the Tuolumne River during the 1992–2011 period of years has remained fairly constant (Table 8). The number of species observed in the San Joaquin River has decreased since 2005.

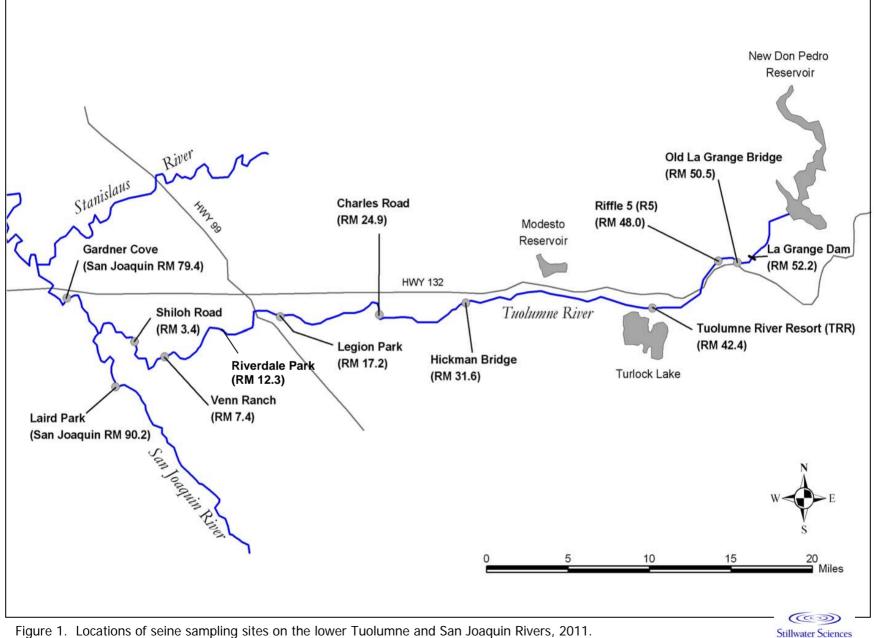
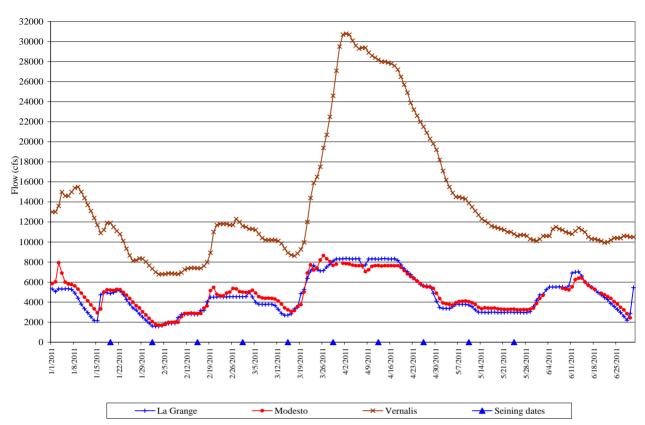


Figure 1. Locations of seine sampling sites on the lower Tuolumne and San Joaquin Rivers, 2011.



2011 Tuolumne and San Joaquin River daily mean flow Provisional USGS data

2011 San Joaquin River daily mean flow Provisional CDEC data

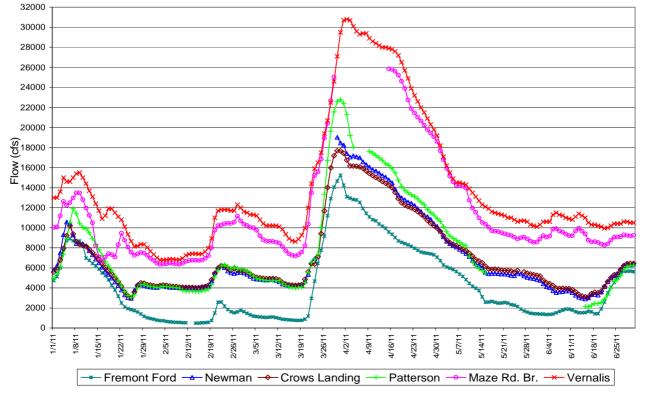
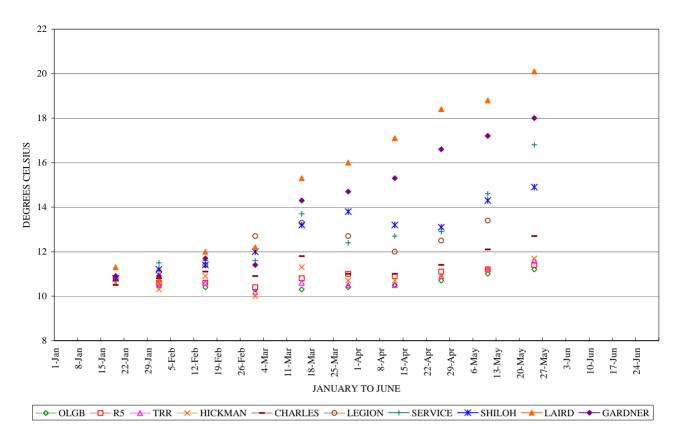
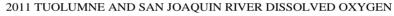


Figure 2. 2011 Tuolumne and San Joaquin River daily mean flows.



2011 TUOLUMNE AND SAN JOAQUIN RIVER WATER TEMPERATURE



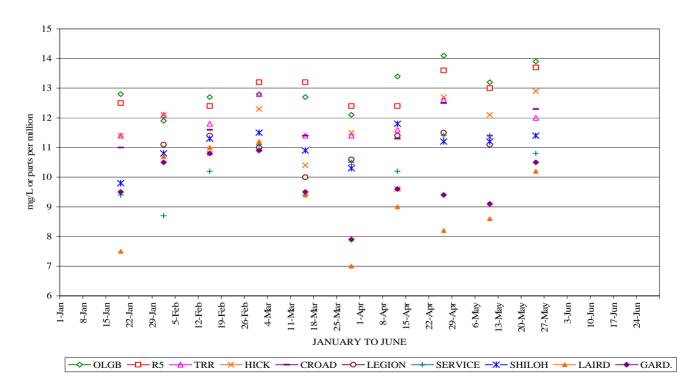
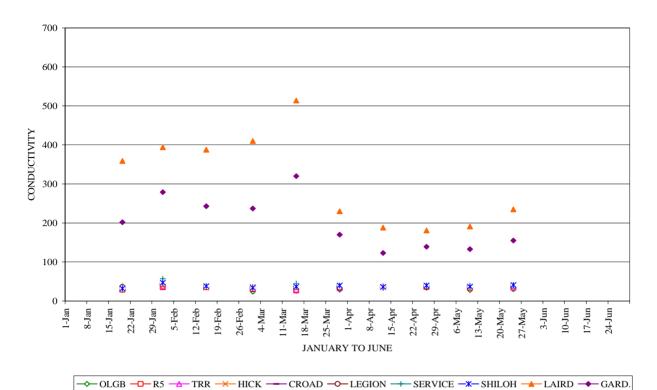
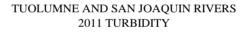


Figure 3. 2011 Tuolumne and San Joaquin River water temperature and dissolved oxygen.

TUOLUMNE AND SAN JOAQUIN RIVERS 2011 CONDUCTIVITY





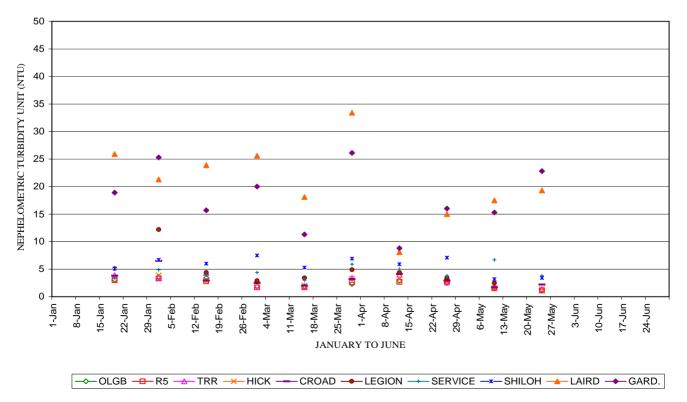


Figure 4. Conductivity and turbidity in the Tuolumne and San Joaquin Rivers, 2011.

TUOLUMNE RIVER JUVENILE SALMON STUDY 2011 SEINING - DENSITY OF FRY BY LOCATION

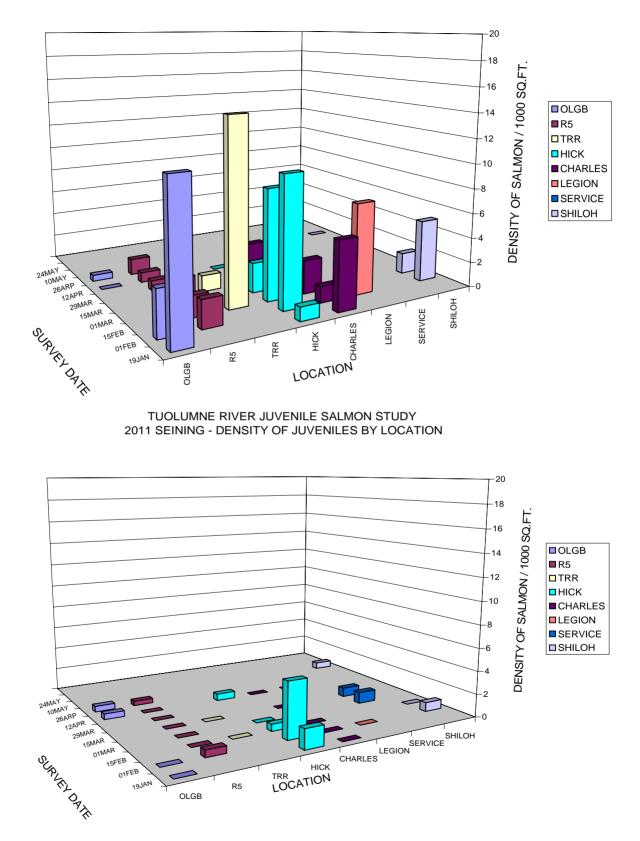
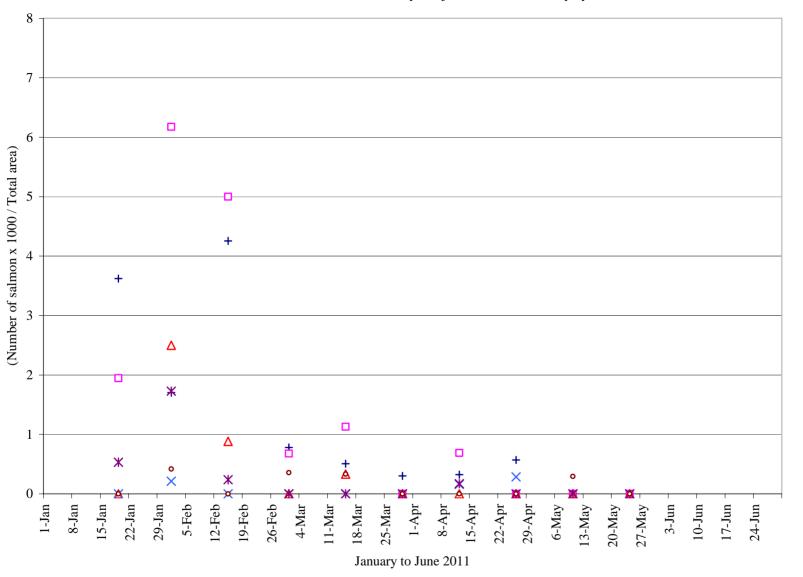


Figure 5. Tuolumne River density of fry and juvenile Chinook salmon by location.



2011 Tuolumne River fry and juvenile salmon density by section

+- up-fry

-D- mid-fry

<mark>-∆</mark> low-fry

→ up-juv → mid-juv

→ low-juv

Figure 6. 2011 Tuolumne River fry and juvenile salmon density by section.

2011 TUOLUMNE RIVER JUVENILE SALMON SEINING STUDY

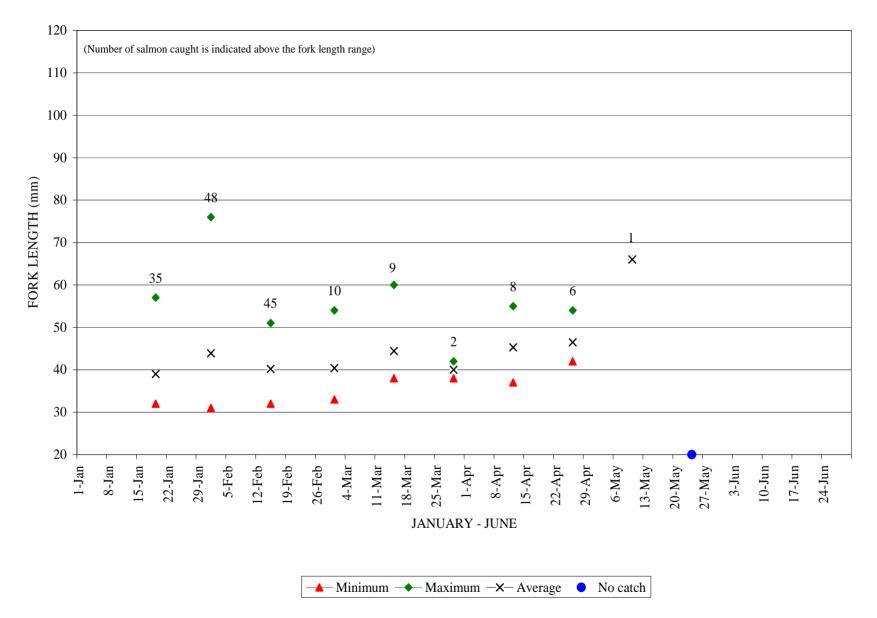
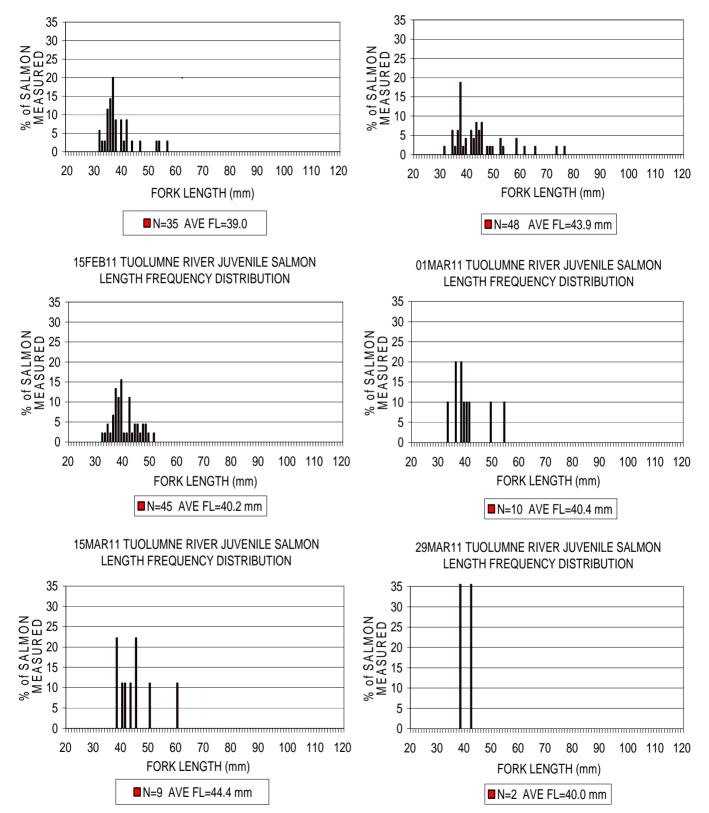


Figure 7. Fork length ranges of wild salmon in the Tuolumne River, 2011.



01FEB11 TUOLUMNE RIVER JUVENILE SALMON

LENGTH FREQUENCY DISTRIBUTION

Figure 8. Length frequency distribution by date of salmon in the Tuolumne River, 2011.

19JAN11 TUOLUMNE RIVER JUVENILE SALMON LENGTH FREQUENCY DISTRIBUTION

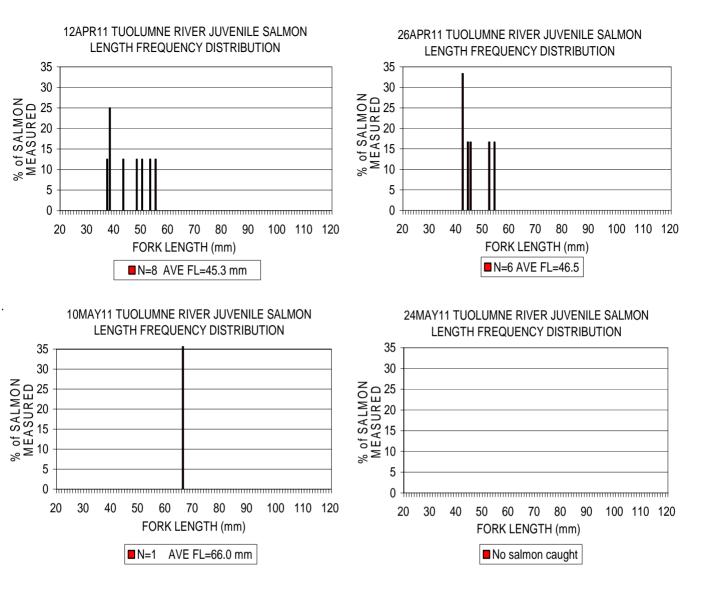
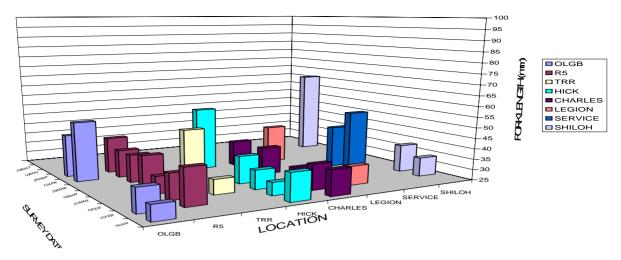
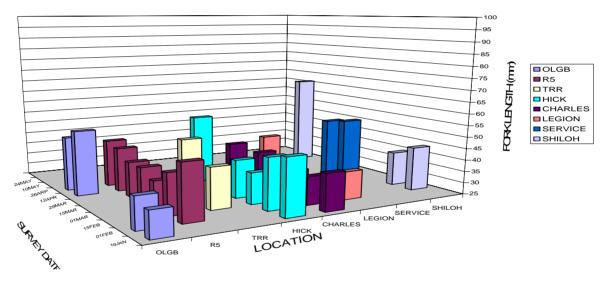


Figure 9. Length frequency distribution by date of salmon in the Tuolumne River, 2011.

TUOLUMNE RIVER JUVENILE SALMON STUDY 2011 SEINING - MINIMUM FORK LENGTH



TUOLUMNE RIVER JUVENILE SALMON STUDY 2011 SEINING - AVERAGE FORK LENGTH



TUOLUMNE RIVER JUVENILE SALMON STUDY 2011 SEINING - MAXIMUM FORK LENGTH

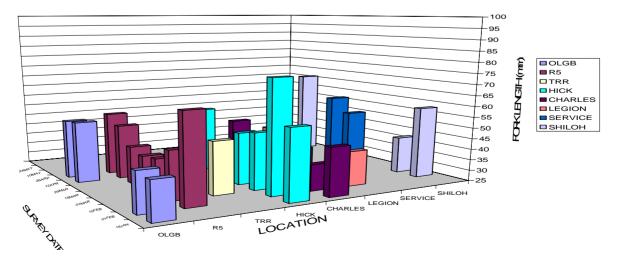
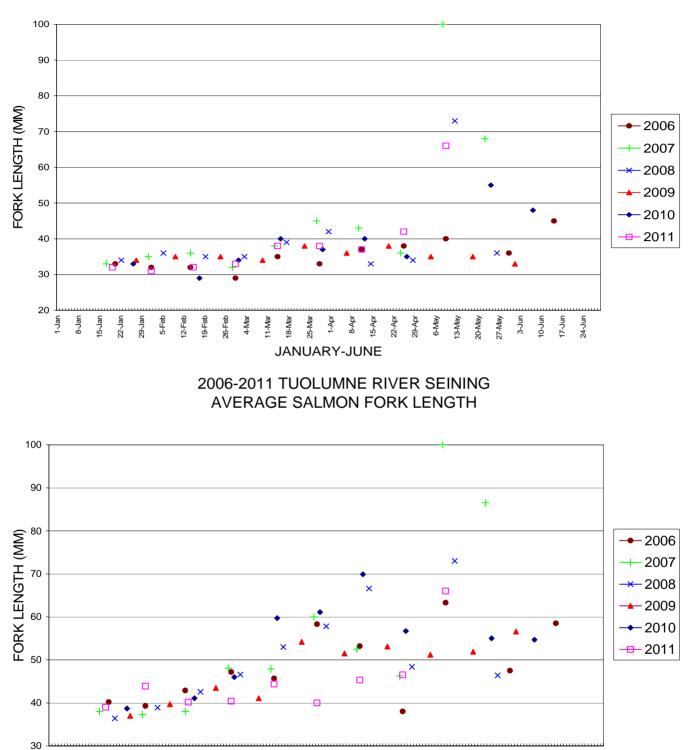


Figure 10. Minimum, average, and maximum Chinook salmon fork length by location and survey period, 2011.

2006-2011 TUOLUMNE RIVER SEINING MINIMUM SALMON FORK LENGTH



Figures 11 & 12. Minimum and average fork lengths of fry and juvenile Chinook salmon, 2006-2011.

JANUARY-JUNE

29-Apr

6-May

15-Apr 22-Apr

8-Apr

13-May

20-May

27-May 3-Jun 10-Jun 17-Jun 24-Jun

19-Feb 26-Feb 4-Mar 11-Mar 18-Mar 25-Mar 1-Apr

5-Feb 12-Feb

22-Jan 29-Jan

1-Jan

8-Jan 15-Jan

2006-2011 TUOLUMNE RIVER SEINING MAXIMUM SALMON FORK LENGTH

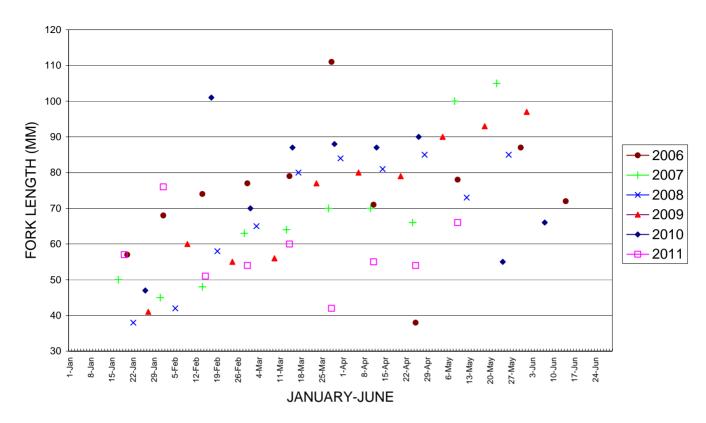
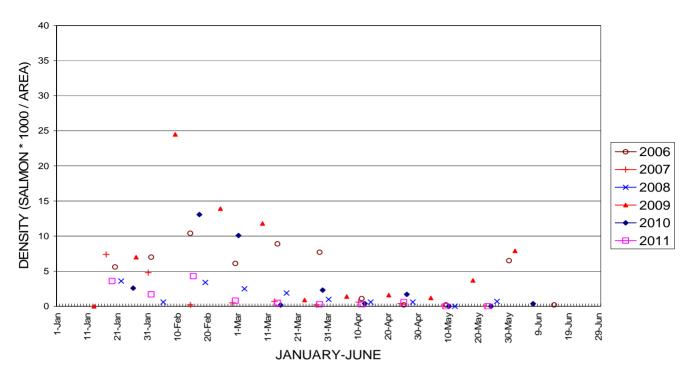


Figure 13. Maximum fork length of Tuolumne River Chinook salmon fry, 2006-2011.

2006-2011 TUOLUMNE RIVER SEINING UPPER SECTION SALMON FRY (< OR = 50MM)



2006-2011 TUOLUMNE RIVER SEINING UPPER SECTION SALMON JUVENILES (>50MM)

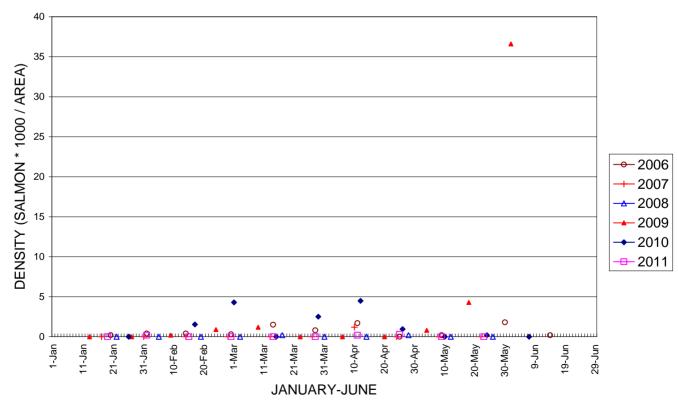


Figure 14. Upper section density indices for salmon fry and juveniles, 2006-2011.

2006-2011 TUOLUMNE RIVER SEINING MIDDLE SECTION SALMON FRY(< OR = 50MM)

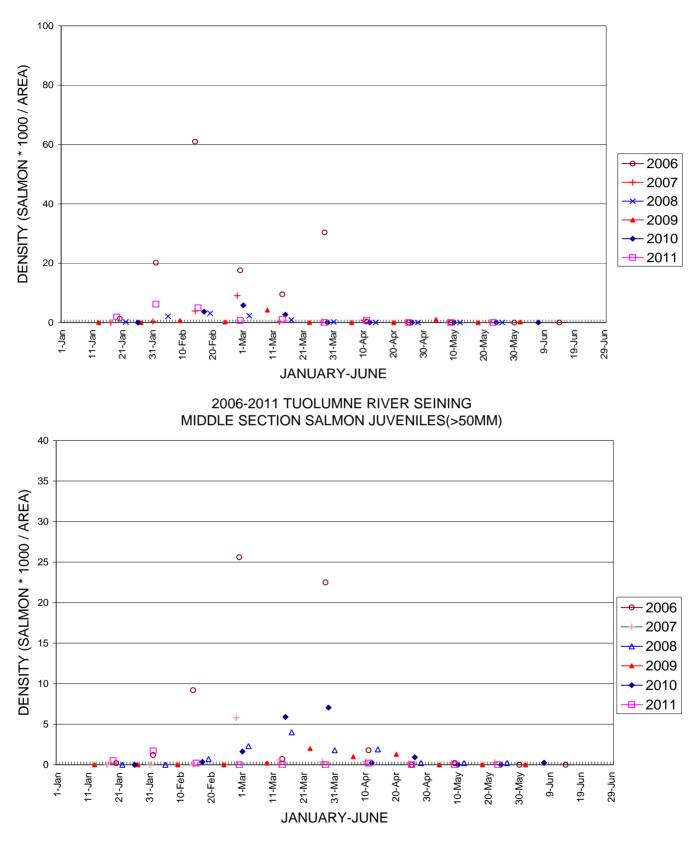


Figure 15. Middle section density indices for salmon fry and juveniles, 2006-2011.

2006-2011 TUOLUMNE RIVER SEINING LOWER SECTION SALMON FRY(< OR = 50MM)

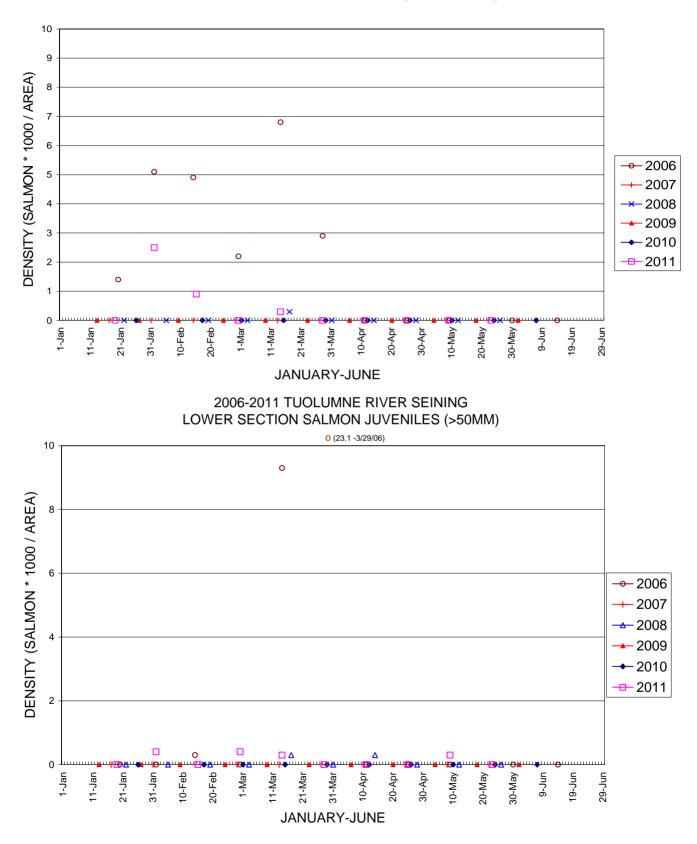


Figure 16. Lower section density indices for salmon fry and juveniles, 2006-2011.

TUOLUMNE RIVER DENSITY INDICES STANDARDIZED BY SECTION

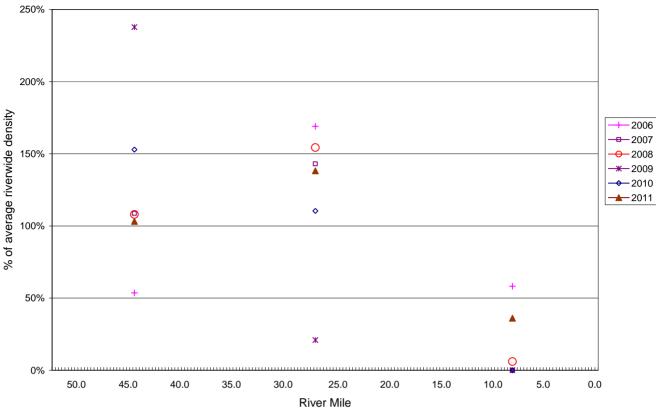
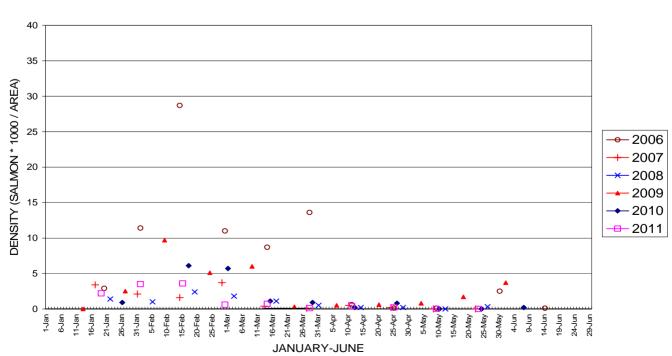


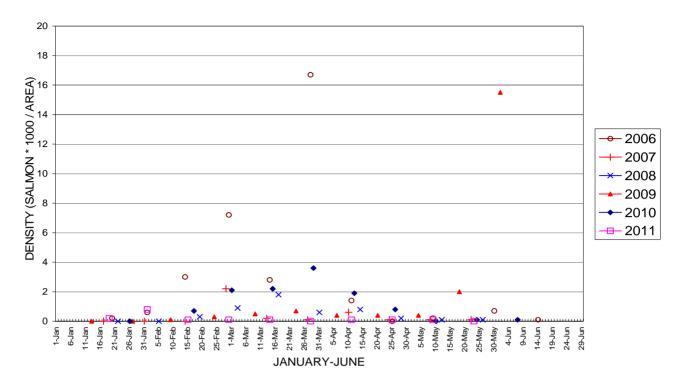
Figure 17. Tuolumne River abundance indices standardized by section, 2006-2011.



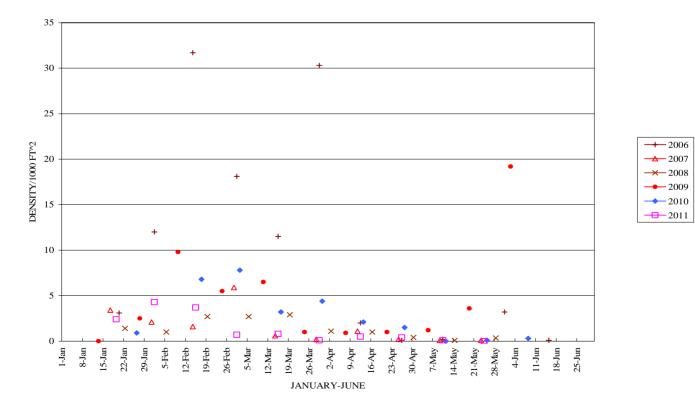
2006-2011 TUOLUMNE RIVER SEINING DENSITY OF SALMON FRY (< OR = 50 mm)

Figure 18. Density of Tuolumne River Chinook salmon fry, 2006-2011.

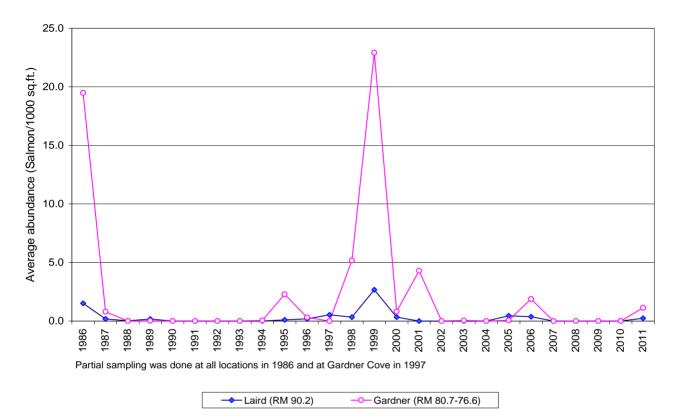
2006-2011 TUOLUMNE RIVER SEINING DENSITY OF SALMON JUVENILES (> 50 mm)



2006-2011 TUOLUMNE RIVER SEINING COMBINED FRY AND JUVENILE SALMON DENSITY INDEX

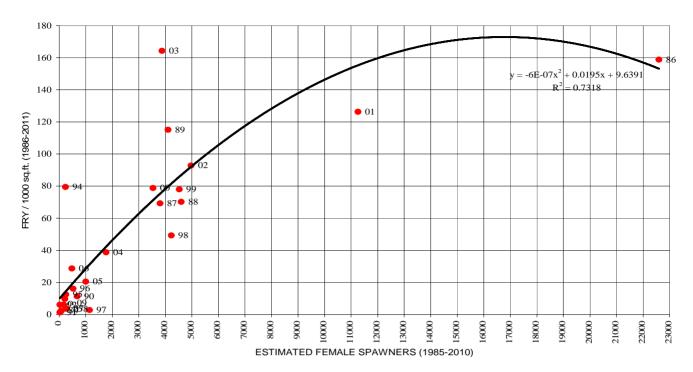


Figures 19 & 20. Density index of Chinook salmon juveniles (>50 mm) and combined fry and juvenile catch, 2006-2011.



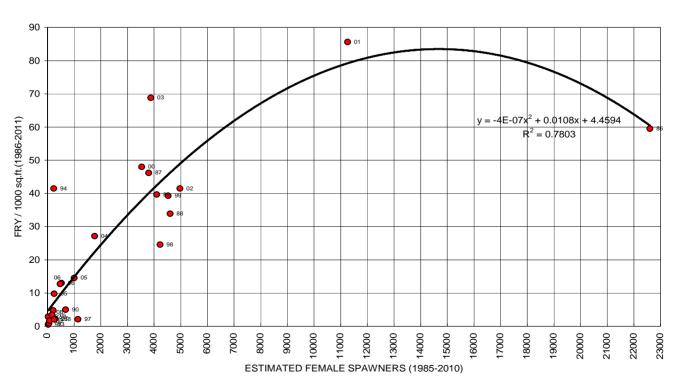
San Joaquin River Abundance Indices by Location

Figure 21. San Joaquin River Chinook salmon abundance indices by location, 1986-2011.



PEAK FRY DENSITY VS FEMALE SPAWNER (15JAN-15MAR PERIOD)

Figure 22. Tuolumne River peak Chinook salmon fry density vs female spawners.



AVERAGE FRY DENSITY VS FEMALE SPAWNERS (15JAN-15MAR PERIOD)

Figure 23. Tuolumne River average Chinook salmon fry density vs female spawners.

Table 1. Summary table of weekly seine catch by location for the Tuolumne and San Joaquin Rivers, 2011.

2011 TUOLUMNE RIVER SEINING STUDY (TID/MID)

DATE	LOCATION	RIVER MILE	CATCH	AREA	DENSITY (/1000ft^2)	FL MIN.	FL MAX.	FL AVG.	NO. MEAS.	SACFRY		WATER TEMP.		SMOLT FL	SECTION UPPER	DENSITY MIDDLE	LOWER	TURB.	D.O. (ppm)
19JAN 19JAN	OLGB R4B	50.5 48.4	21 0	1,800 2,000	11.7 0.0	32	42	35.9	21	0	0	10.8 10.8	28 29		3.6	2.5	0.0	3.1 3.0	(ppm) 12.8 12.5
19JAN	TLSRA	42.0	0 0	2,000	0.0							10.9	36					3.9	11.4
19JAN	HICK	31.6	5	1,800	2.8	38	57	49.2	5	0	0	10.6	33					3.5	11.4
19JAN	CHARLES	24.9	9	1,650	5.5	37	47	40.8	9	0	0	10.5	29					3.8	11.0
19JAN	LEGION	17.2	0	2,200	0.0							10.8	36					5.1	9.8
19JAN	VENN	6.4	0	1,650	0.0							10.9	38					3.4 5.1	9.4
19JAN 19JAN	SHILOH	3.4	0	1,650 1,350	0.0							10.8	32					25.9	9.8
19JAN		79.5	0	600	0.0							10.9	202					18.9	9.5
TR TOT.			35	14,750	2.4	32	57	39.0	35	0	0								
SJR TOT.			0	1,950	0.0														
2011 TUOL	UMNE RIVER	R SEININ	IG STUDY (TID/MID)															
		RIVER			DENSITY	FL	FL	FL	NO.		NO	WATER	FLEC	SMOLT	SECTION	DENSITY			
DATE	LOCATION		CATCH	AREA	(/1000ft^2)	MIN.	MAX.	AVG.	MEAS.	SACFRY	KILLED	TEMP.	COND.	FL		MIDDLE	LOWER	TURB.	D.O.
					, ,														(ppm)
01FEB	OLGB	50.5	4	1,100	3.6	36	43	38.3	4	0	0	10.5	37		1.9	7.9	2.9	3.6	11.9
01FEB	R5	48.0	5	1,800	2.8	42	65	48.8	5	0	0	10.6	35					3.3	N.A.
01FEB 01FEB	TRR HICK	42.3 31.6	0 22	1,800 1,450	0.0 15.2	31	76	47.0	22	0	0	10.5 10.3	38 38					3.5 3.9	12.1 12.1
01FEB	CHARLES	24.9	22	1,430	1.3	37	37	37.0	22	0	0	10.3	42					6.5	10.8
01FEB	LEGION	17.2	8	1,100	7.3	34	41	37.1	8	0	ő	11.1	45					12.2	11.1
01FEB	VENN	6.4	0	1,200	0.0							11.5	57					4.9	8.7
01FEB	SHILOH	3.4	7	1,200	5.8	34	58	43.9	7	0	0	11.2	47					6.7	10.8
01FEB	LAIRD	90.2	0	1,200	0.0							10.7	394					21.3	10.7
01FEB TR TOT	GARDNER	79.5	2 48	1,200	1.7	42	43 76	42.5	48	0	0	10.9	279					25.3	10.5
SJR TOT.			40	2,400	4.3	42	43	43.9	40	0	0								
00111011			-	2,100	0.0		.0	12.0	-	0	0								
2011 TUOL	UMNE RIVER	R SEININ	IG STUDY (TID/MID)															
					DENO(T)	-	-	-								DEMONTH			
DATE	LOCATION	RIVER MILE	CATCH		DENSITY (/1000ft^2)	FL	FL	FL	NO.	SACFRY	NU.	WATER	ELEC.	SMOLT	SECTION	MIDDLE		TURB	DO
DATE	LOCATION	WILL	CATCH	ANLA	(/100010-2)	IVIIIN.	wina.	AVG.	WEAS.	SACENT	RILLED	ILIVIE.	COND.		OFFER	MIDDLL	LOWER	TURB.	(ppm)
15FEB	OLGB	50.5	0	1,200	0.0							10.4	35		4.3	5.2	0.9	3.4	12.7
15FEB	R5	48.0	4	2,400	1.7	37	47	42.5	4	0	0	10.6	35					2.8	12.4
15FEB	TLSRA	42.0	16	1,100	14.5	32	49	42.7	16	0	0	10.6	38					4.3	11.8
15FEB 15FEB	HICK	31.6	16 6	1,700	9.4	34 33	51 42	38.4	16	0	0	10.9	34 36					2.8 2.9	10.8
15FEB	CHARLES LEGION	24.9 17.2	0	2,200 300	2.7 0.0	33	42	37.2	6	0	0	11.1 11.4	36					2.9 4.4	11.6 11.4
15FEB 15FEB	VENN SHILOH	6.4 3.4	03	1,600 1,800	0.0	38	42	39.7	3	0	0	11.4 11.6 11.4	38 38					4.0	10.2 11.3
15FEB 15FEB 15FEB	VENN SHILOH LAIRD	6.4 3.4 90.2	03	1,600 1,800 1,650	0.0	40	40	40.0	3	0	0	11.6 11.4 12.0	38 38 388					4.0 6.0 23.9	10.2 11.3 11.0
15FEB 15FEB 15FEB 15FEB	VENN SHILOH	6.4 3.4	0 3 1 4	1,600 1,800 1,650 1,650	0.0 1.7 0.6 2.4	40 37	40 45	40.0 41.3	1	0	0	11.6 11.4	38 38					4.0 6.0	10.2 11.3
15FEB 15FEB 15FEB 15FEB TR TOT.	VENN SHILOH LAIRD	6.4 3.4 90.2	0 3 1 4 45	1,600 1,800 1,650 1,650 12300	0.0 1.7 0.6 2.4 3.7	40 37 32	40 45 51	40.0 41.3 40.2	1 4 45	0 0 0	000000000000000000000000000000000000000	11.6 11.4 12.0	38 38 388					4.0 6.0 23.9	10.2 11.3 11.0
15FEB 15FEB 15FEB 15FEB	VENN SHILOH LAIRD	6.4 3.4 90.2	0 3 1 4	1,600 1,800 1,650 1,650	0.0 1.7 0.6 2.4	40 37	40 45	40.0 41.3	1	0	0	11.6 11.4 12.0	38 38 388					4.0 6.0 23.9	10.2 11.3 11.0
15FEB 15FEB 15FEB 15FEB TR TOT. SJR TOT.	VENN SHILOH LAIRD	6.4 3.4 90.2 79.5	0 3 1 4 45 5	1,600 1,800 1,650 1,650 12300 3300	0.0 1.7 0.6 2.4 3.7	40 37 32	40 45 51	40.0 41.3 40.2	1 4 45	0 0 0	000000000000000000000000000000000000000	11.6 11.4 12.0	38 38 388					4.0 6.0 23.9	10.2 11.3 11.0
15FEB 15FEB 15FEB 15FEB TR TOT. SJR TOT.	VENN SHILOH LAIRD GARDNER	6.4 3.4 90.2 79.5	0 3 1 4 45 5	1,600 1,800 1,650 1,650 12300 3300	0.0 1.7 0.6 2.4 3.7 1.5	40 37 32 37	40 45 51 45	40.0 41.3 40.2 41.0	1 4 45 5	0 0 0	000000000000000000000000000000000000000	11.6 11.4 12.0 11.7	38 38 388 243					4.0 6.0 23.9	10.2 11.3 11.0
15FEB 15FEB 15FEB 15FEB TR TOT. SJR TOT. 2011 TUOL	VENN SHILOH LAIRD GARDNER	6.4 3.4 90.2 79.5 R SEININ RIVER	0 3 1 4 45 5 IG STUDY (1,600 1,800 1,650 1,650 12300 3300 TID/MID)	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY	40 37 32 37 FL	40 45 51 45 FL	40.0 41.3 40.2 41.0	1 4 45 5 NO.	000000000000000000000000000000000000000	0 0 0 0 0	11.6 11.4 12.0 11.7 WATER	38 38 243 ELEC.		SECTION			4.0 6.0 23.9 15.7	10.2 11.3 11.0 10.8
15FEB 15FEB 15FEB 15FEB TR TOT. SJR TOT. 2011 TUOL	VENN SHILOH LAIRD GARDNER	6.4 3.4 90.2 79.5	0 3 1 4 45 5	1,600 1,800 1,650 1,650 12300 3300 TID/MID)	0.0 1.7 0.6 2.4 3.7 1.5	40 37 32 37 FL	40 45 51 45 FL	40.0 41.3 40.2 41.0	1 4 45 5	000000000000000000000000000000000000000	0 0 0 0 0	11.6 11.4 12.0 11.7	38 38 243 ELEC.	SMOLT FL	SECTION	DENSITY MIDDLE	LOWER	4.0 6.0 23.9	10.2 11.3 11.0 10.8
15FEB 15FEB 15FEB 15FEB TR TOT. SJR TOT. 2011 TUOL DATE	VENN SHILOH LAIRD GARDNER	6.4 3.4 90.2 79.5 R SEININ RIVER MILE	0 3 1 4 45 5 IG STUDY (CATCH	1,600 1,800 1,650 1,650 12300 3300 TID/MID) AREA	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ft^2)	40 37 32 37 FL	40 45 51 45 FL	40.0 41.3 40.2 41.0	1 4 45 5 NO.	000000000000000000000000000000000000000	0 0 0 0 0	11.6 11.4 12.0 11.7 WATER TEMP.	38 38 243 ELEC. COND.		UPPER	MIDDLE		4.0 6.0 23.9 15.7 TURB.	10.2 11.3 11.0 10.8 D.O. (ppm)
15FEB 15FEB 15FEB 15FEB TR TOT. SJR TOT. 2011 TUOL	VENN SHILOH LAIRD GARDNER	6.4 3.4 90.2 79.5 R SEININ RIVER	0 3 1 4 45 5 IG STUDY (1,600 <u>1,800</u> 1,650 1,650 12300 3300 TID/MID) AREA 2,400	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY	40 37 32 37 FL	40 45 51 45 FL	40.0 41.3 40.2 41.0	1 4 45 5 NO.	000000000000000000000000000000000000000	0 0 0 0 0	11.6 11.4 12.0 11.7 WATER	38 38 243 ELEC.				LOWER 0.4	4.0 6.0 23.9 15.7 TURB. 1.9	10.2 11.3 11.0 10.8
15FEB 15FEB 15FEB TR TOT. SJR TOT. 2011 TUOL DATE 01MAR 01MAR	VENN SHILOH LAIRD GARDNER LUMNE RIVEF LOCATION OLGB R4B TLSRA	6.4 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0	0 3 1 4 45 5 IG STUDY (CATCH 0 5 0	1,600 1,800 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ft^2) 0.0 2.3 0.0	40 40 37 32 37 FL MIN. 33	40 45 51 45 FL MAX. 41	40.0 41.3 40.2 41.0 FL AVG. 36.8	1 4 45 5 NO. MEAS.	0 0 0 0 0 0 0 SACFRY 0	0 0 0 0 NO. KILLED	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2	38 388 243 ELEC. COND. 24 30 35		UPPER	MIDDLE		4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0	10.2 11.3 11.0 10.8 D.O. (ppm) 12.8 13.2 12.8
15FEB 15FEB 15FEB TR TOT. SJR TOT. 2011 TUOL DATE 01MAR 01MAR 01MAR	VENN SHILOH LAIRD GARDNER UMNE RIVER	6.4 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 31.6	0 3 1 4 45 5 IG STUDY (CATCH 0 5 0 4	1,600 1,800 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800 1,700	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ft^2) 0.0 2.3 0.0 2.4	40 37 32 37 FL MIN.	40 45 51 45 FL MAX.	40.0 41.3 40.2 41.0 FL AVG.	1 4 45 5 NO. MEAS.	0 0 0 0 SACFRY	0 0 0 NO. KILLED	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0	38 388 243 ELEC. COND. 24 35 36		UPPER	MIDDLE		4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3	10.2 11.3 11.0 10.8 D.O. (ppm) 12.8 13.2 12.8 12.3
15FEB 15FEB 15FEB TR TOT. SJR TOT. 2011 TUOL DATE 01MAR 01MAR 01MAR 01MAR	VENN SHILOH LAIRD GARDNER UMNE RIVER LOCATION OLGB R4B TLSRA HICK CHARLES	6.4 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9	0 3 1 4 45 5 IG STUDY (CATCH 0 5 0 4 0	1,600 1,800 1,650 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800 1,700 1,800	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ft^2) 0.0 2.3 0.0 2.4 0.0	40 40 37 32 37 FL MIN. 33	40 45 51 45 FL MAX. 41	40.0 41.3 40.2 41.0 FL AVG. 36.8	1 4 45 5 NO. MEAS.	0 0 0 0 0 0 0 SACFRY 0	0 0 0 0 NO. KILLED	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0 10.9	38 388 243 ELEC. COND. 24 30 355 36 36		UPPER	MIDDLE		4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5	10.2 <u>11.3</u> <u>11.0</u> <u>10.8</u> D.O. (ppm) <u>12.8</u> <u>13.2</u> <u>12.8</u> <u>13.2</u> <u>12.8</u> <u>13.2</u> <u>12.8</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13.2</u> <u>13</u>
15FEB 15FEB 15FEB 15FEB TR TOT. SJR TOT. 2011 TUOL DATE 01MAR 01MAR 01MAR 01MAR 01MAR	VENN SHILOH LAIRD GARDNER LOCATION OLGB R4B TLSRA HICK CHARLESS LEGION	6.4 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2	0 3 1 4 45 5 IG STUDY (CATCH 0 5 0 4 0 0	1,600 1,800 1,650 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800 1,700 1,800 2,400	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ft*2) 0.0 2.3 0.0 2.4 0.0 0.0 0.0 0.4 0.0 0.0 0.0 0	40 37 32 37 FL MIN. 33 38	40 45 51 45 FL MAX. 41 49	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5	1 45 5 NO. MEAS. 5	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 KILLED 0 0	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0 10.9 12.7	38 388 243 ELEC. COND. 24 30 35 36 36 36 32		UPPER	MIDDLE		4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9	D.O. (ppm) 12.8 12.3 10.8 10.8
15FEB 15FEB 15FEB TR TOT. SJR TOT. 2011 TUOL DATE 01MAR 01MAR 01MAR 01MAR	VENN SHILOH LAIRD GARDNER UMNE RIVER LOCATION OLGB R4B TLSRA HICK CHARLES	6.4 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4	0 3 1 4 45 5 IG STUDY (CATCH 0 5 0 4 0	1,600 1,800 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800 1,700 1,800 2,400 1,000	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ft^2) 0.0 2.3 0.0 2.4 0.0 0.2 4 0.0 0.2 4 0.0 0.0 0.0 0.0 0.0 0.0 0.0	40 40 37 32 37 FL MIN. 33	40 45 51 45 FL MAX. 41 49	40.0 41.3 40.2 41.0 FL AVG. 36.8	1 4 45 5 NO. MEAS.	0 0 0 0 0 0 0 SACFRY 0	0 0 0 0 NO. KILLED	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0 10.9 12.7 11.6	38 388 243 ELEC. COND. 24 30 355 36 36		UPPER	MIDDLE		4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5	10.2 11.3 11.0 10.8 D.O. (ppm) 12.8 13.2 12.8 13.2 12.8 13.2 12.3 10.9 11.0
15FEB 15FEB 15FEB 15FEB 1FTC TT. SJR TOT. 2011 TUOL DATE 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR	VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD LAIRD	6.4 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 90.2	0 3 1 4 45 5 6 G STUDY (CATCH 0 5 0 0 4 0 0 1 0 0 0 0	1,600 1,650 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800 1,700 1,800 2,400 1,800	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ft^2) 0.0 2.3 0.0 0.0 2.4 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	40 37 32 37 FL MIN. 33 38 54	40 45 51 45 FL MAX. 41 49 54	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0	1 4 45 5 NO. MEAS. 5 4	0 0 0 0 0 0 SACFRY 0 0 0	0 0 0 0 0 KILLED 0 0	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0 10.9 12.7 11.6 12.0 0 12.2	38 388 243 ELEC. COND. 24 30 35 36 36 32 36 34 410		UPPER	MIDDLE		4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6	10.2 <u>11.3</u> 11.0 10.8 D.O. (ppm) 12.8 13.2 12.8 12.3 10.9 11.0 11.1 <u>11.5</u> 11.2
15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 17R TOT. 2011 TUOL 2011 TUOL 2011 TUOL 2011 TUOL 01MAR 01MAR 01MAR 01MAR 01MAR	VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH	6.4 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4	0 3 1 4 45 5 6 G STUDY (CATCH 0 5 0 4 4 0 0 1 1 0 0 2	1,600 1,650 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800 1,700 1,800 1,600 1,800 1,650	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ft^2) 0.0 2.3 0.0 0.4 4 0.0 0.0 0.4 4 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 54	40 45 51 45 MAX. 41 49 54 38	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 37.5	1 4 45 5 NO. MEAS. 5 4 1	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0 10.9 12.7 11.6 12.0	38 388 243 ELEC. COND. 24 35 36 36 36 32 36 34		UPPER	MIDDLE		4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5	10.2 11.3 11.0 10.8 D.O. (ppm) 12.8 12.8 12.8 12.3 10.9 11.0 11.1 11.5
15FEB 15FEB	VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD LAIRD	6.4 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 90.2	0 3 1 4 45 5 8G STUDY (CATCH 0 5 0 0 4 0 0 1 0 0 2 10	1,600 1,650 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800 1,700 1,800 2,400 1,700 1,650 1,000 1,5100	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ftv2) 0.0 2.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	40 37 32 37 FL MIN. 33 38 54 37 33	40 45 51 45 MAX. 41 49 54 38 54	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 37.5 40.4	1 4 45 5 NO. MEAS. 5 4 1 2 10	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0 10.9 12.7 11.6 12.0 0 12.2	38 388 243 ELEC. COND. 24 30 35 36 36 32 36 34 410		UPPER	MIDDLE		4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6	10.2 <u>11.3</u> 11.0 10.8 D.O. (ppm) 12.8 13.2 12.8 12.3 10.9 11.0 11.1 <u>11.5</u> 11.2
15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 17R TOT. 2011 TUOL 2011 TUOL 2011 TUOL 2011 TUOL 01MAR 01MAR 01MAR 01MAR 01MAR	VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD LAIRD	6.4 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 90.2	0 3 1 4 45 5 6 G STUDY (CATCH 0 5 0 4 4 0 0 1 1 0 0 2	1,600 1,650 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800 1,700 1,800 1,600 1,800 1,650	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ft^2) 0.0 2.3 0.0 0.4 4 0.0 0.0 0.4 4 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 54	40 45 51 45 MAX. 41 49 54 38	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 37.5	1 4 45 5 NO. MEAS. 5 4 1	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0 10.9 12.7 11.6 12.0 0 12.2	38 388 243 ELEC. COND. 24 30 35 36 36 32 36 34 410		UPPER	MIDDLE		4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6	10.2 <u>11.3</u> 11.0 10.8 D.O. (ppm) 12.8 13.2 12.8 12.3 10.9 11.0 11.1 <u>11.5</u> 11.2
15FEB 15FEB	VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD GARDNER	6.4 3.4 90.2 79.5 REVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 90.2 79.5	0 3 1 4 4 5 5 8 G STUDY (CATCH 0 5 0 0 4 0 0 1 0 0 2 10 2	1,600 1,800 1,650 1,650 12300 3300 TID/MID) AREA 2,400 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,850	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ftv2) 0.0 2.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	40 37 32 37 FL MIN. 33 38 54 37 33	40 45 51 45 MAX. 41 49 54 38 54	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 37.5 40.4	1 4 45 5 NO. MEAS. 5 4 1 2 10	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0 10.9 12.7 11.6 12.0 0 12.2	38 388 243 ELEC. COND. 24 30 35 36 36 32 36 34 410		UPPER	MIDDLE		4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6	10.2 <u>11.3</u> 11.0 10.8 D.O. (ppm) 12.8 13.2 12.8 12.3 10.9 11.0 11.1 <u>11.5</u> 11.2
15FEB 15FEB	VENN SHILOH LAIRD GARDNER UMNE RIVET LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN VENN SHILOH LAIRD GARDNER	6.4 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 31.6 24.9 27.9 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 90.2 79.5 8 8 8 8 90.2 79.5 8 8 8 8 90.2 79.5 8 8 8 8 8 90.2 79.5 8 8 8 90.2 79.5 8 8 8 90.2 79.5 8 8 8 90.2 79.5 8 8 90.2 79.5 8 8 8 90.2 79.5 8 8 90.2 79.5 8 8 90.2 79.5 8 90.2 79.5 8 8 90.2 90.5 90.5 8 90.5 90.5 90.5 90.5 90.5 90.5 90.5 90.5	0 3 1 4 4 5 5 8 G STUDY (CATCH 0 5 0 0 4 0 0 1 0 0 2 10 2	1,600 1,800 1,650 1,650 12300 3300 TID/MID) AREA 2,400 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,850	0.0 1.77 0.6 2.4 3.77 1.5 DENSITY (/1000ftv2) 0.0 0.3 0.0 2.4 0.0 0.3 0.0 2.4 0.0 0.0 0.3 0.0 0.2 4 0.0 0.0 0.0 0.0 0.0 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 54 37 33 37	40 45 51 45 FL MAX. 41 49 54 54 38 54 38	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 <u>37.5</u> 40.4 37.5	1 4 45 5 NO. MEAS. 5 4 1 2 20 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0 10.9 12.7 11.6 12.0 12.2 11.4	38 388 243 ELEC. COND. 24 30 355 36 32 36 32 36 32 36 32 34 410 237	FL	UPPER 0.8	MIDDLE 0.7		4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6	10.2 <u>11.3</u> <u>11.0</u> 10.8 D.O. (ppm) 12.8 13.2 12.8 12.3 10.9 11.0 11.1 <u>11.5</u> 11.2
15FEB 15FEB 15FEB 15FEB 1FT TOT. 2011 TUOL DATE 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR	VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R4B R1SRA HICK CHARLES LEGION VENN SHILOH LAIRD GARDNER	6.4 3.4 90.2 79.5 79.5 R SEININ RIVER MILE 50.5 48.4 48.4 48.4 24.9 90.2 79.5 8 8 SEININ RIVER	0 3 1 4 4 5 5 6 6 5 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	1,600 1,650 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800 2,400 1,700 1,800 2,400 1,600 1,600 1,600 1,600 1,600 1,650 1,650 1,650 1,650 1,650 1,650 1,650 1,650 1,200 1,650 1,200 1,200 1,650 1,200 1	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ft ² 2) 0.0 2.3 0.0 0.2 4 0.0 0.0 0.0 0.0 0.0 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 33 37 FL	40 45 51 45 FL MAX. 41 49 54 54 38 54 54 54	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 <u>37.5</u> 40.4 37.5 FL	1 4 45 5 5 8 8 8 8 9 8 9 8 9 8 9 8 9 8 9 8 9	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0 10.9 12.7 11.4 WATER	38 38 243 ELEC. COND. 24 30 35 36 36 32 36 34 410 237 ELEC.	FL	UPPER 0.8 SECTION	MIDDLE 0.7	0.4	4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6 20.0	10.2 11.3 11.0 10.8 D.O. (ppm) 12.8 12.8 12.3 12.8 12.3 10.9 11.1 11.2 10.9 11.1 10.9
15FEB 15FEB 15FEB 15FEB 1FT TOT. 2011 TUOL DATE 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR	VENN SHILOH LAIRD GARDNER UMNE RIVET LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN VENN SHILOH LAIRD GARDNER	6.4 3.4 90.2 79.5 79.5 R SEININ RIVER MILE 50.5 48.4 48.4 48.4 24.9 90.2 79.5 8 8 SEININ RIVER	0 3 1 4 4 5 5 8 G STUDY (CATCH 0 5 0 0 4 0 0 1 0 0 2 10 2	1,600 1,650 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800 2,400 1,700 1,800 2,400 1,600 1,600 1,600 1,600 1,600 1,650 1,650 1,650 1,650 1,650 1,650 1,650 1,650 1,200 1,650 1,200 1,200 1,650 1,200 1	0.0 1.77 0.6 2.4 3.77 1.5 DENSITY (/1000ftv2) 0.0 0.3 0.0 2.4 0.0 0.3 0.0 2.4 0.0 0.0 0.3 0.0 0.2 4 0.0 0.0 0.0 0.0 0.0 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 33 37 FL	40 45 51 45 FL MAX. 41 49 54 54 38 54 54 54	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 <u>37.5</u> 40.4 37.5 FL	1 4 45 5 5 8 8 8 8 9 8 9 8 9 8 9 8 9 8 9 8 9	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0 10.9 12.7 11.6 12.0 12.2 11.4	38 38 243 ELEC. COND. 24 30 35 36 36 32 36 34 410 237 ELEC.	FL	UPPER 0.8 SECTION	MIDDLE 0.7		4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6	10.2 11.3 11.0 11.0 10.8 D.O. (ppm) 12.8 13.2 12.3 10.9 11.1 11.5 11.2 10.9 11.1 11.2 10.9 D.O.
15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 17R TOT. 2011 TUOL 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR	VENN SHILOH LAIRD CARDNER UMNE RIVER LOCATION OLGB R4B R1SRA HICK CHARLES LEGION VENN VENN SHILOH LAIRD GARDNER	64 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 90.2 79.5 R SEININ RIVER RIVER MILE	0 3 1 4 4 5 5 6 6 5 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	1,600 1,650 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800 1,700 1,800 1,800 1,800 1,800 1,650 1,800	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ft*2) 0.0 2.3 0.0 0.2 4 0.0 0.0 0.0 0.0 0.0 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 33 37 FL	40 45 51 45 FL MAX. 41 49 54 54 38 54 54 54	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 <u>37.5</u> 40.4 37.5 FL	1 4 45 5 5 8 8 8 8 9 8 9 8 9 8 9 8 9 8 9 8 9	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.2 11.4 12.0 12.2 11.4 WATER TEMP.	38 38 388 243 243 243 243 243 243 243 243 243 243	FL	UPPER 0.8 SECTION UPPER	DENSITY MIDDLE	0.4	4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6 20.0	10.2 11.3 11.0 10.8 D.O. (ppm) 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 10.9 11.1 11.5 11.2 10.9 11.0 D.O. (ppm) 10.8 D.O. (ppm) 13.2 13.2 14.0 15.2 15.
15FEB 15FEB 15FEB 15FEB 17F TOT. 2011 TUOL DATE 01MAR 00MAR	VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB	64 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 90.2 79.5 R SEININ RIVER MILE 50.5 5.5 5.5 5.5 5.5 7.5 7.5 7.5 7.5 7.5 7	0 3 1 4 4 5 5 6 6 5 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	1,600 1,800 1,650 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,600 1,600 1,600 1,600 1,600 1,800 1,000 1,800 1,000	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ft ² 2) 0.0 2.3 0.0 0.2 4 0.0 0.0 0.0 0.0 0.0 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 33 37 FL	40 45 51 45 FL MAX. 41 49 54 54 38 54 54 54	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 <u>37.5</u> 40.4 37.5 FL	1 4 45 5 5 8 8 8 8 9 8 9 8 9 8 9 8 9 8 9 8 9	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	116.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0 10.9 12.7 11.6 12.2 11.4 WATER TEMP. 10.3 12.2 11.4	38 38 243 243 243 243 243 243 243 243 243 243	FL	UPPER 0.8 SECTION	MIDDLE 0.7	0.4	4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6 20.0 TURB. 1.9	10.2 11.3 11.0 11.0 10.8 D.O. (ppm) 12.8 13.2 12.3 10.9 11.1 11.5 11.2 10.9 11.1 11.2 10.9 D.O.
15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 17R TOT. 2011 TUOL 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR	VENN SHILOH LAIRD CARDNER UMNE RIVER LOCATION OLGB R4B R1SRA HICK CHARLES LEGION VENN VENN SHILOH LAIRD GARDNER	64 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 90.2 79.5 R SEININ RIVER RIVER MILE	0 3 1 4 4 5 IG STUDY (CATCH 0 5 0 4 0 0 2 IG STUDY (CATCH 0 0 2 IG STUDY (CATCH 0 0 0 0 0 0 0 0 0 0 0 0 0	1,600 1,650 1,650 12300 3300 TID/MID) AREA 2,400 2,200 1,800 1,700 1,800 1,800 1,800 1,800 1,650 1,800	0.0 1.77 0.6 2.4 3.77 1.5 DENSITY (/1000ft*2) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	40 37 32 37 FL MIN. 33 38 54 37 54 54 54	40 45 51 45 FL MAX. 41 49 54 54 38 54 38 54 38 54 38 54 38	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 <u>37.5</u> 40.4 37.5 FL AVG.	1 4 4 5 5 NO. MEAS. 5 4 1 2 10 2 NO. MEAS.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.2 11.4 12.0 12.2 11.4 WATER TEMP.	38 38 388 243 243 243 243 243 243 243 243 243 243	FL	UPPER 0.8 SECTION UPPER	DENSITY MIDDLE	0.4	4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6 20.0	10.2 11.3 11.0 10.8 D.O. (ppm) 12.8 13.2 12.3 10.9 11.1 11.5 11.2 10.9 11.0 11.1 11.2 10.9 11.0 11.0 11.0 10.8
15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 01MAR 00MAR	VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD GARDNER LOCATION OLGB R5 TLSRA HICK	64 3.4 90.2 79.5 RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 90.2 79.5 RIVER RIVER MILE 50.5 48.0	0 3 1 4 4 5 16 5 10 5 10 10 10 10 10 10 10 10 10 10	1,600 1,800 1,650 1,2300 3300 TID/MID) AREA 2,400 2,200 1,80	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ftv2) 0.0 2.3 0.0 0.2 4 0.0 0.0 0.0 0.0 0.0 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 37 54 54 54 40	40 45 51 45 FL MAX. 41 49 54 54 38 54 38 FL 38 54 38 54 38 40	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 <u>37.5</u> 40.4 37.5 FL AVG. 40.4 37.5	1 4 4 5 5 NO. MEAS. 5 4 1 10 2 NO. MEAS. 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	116.6 11.4 12.0 11.7 WATER TEMP. 10.3 10.4 10.2 10.0 10.9 12.7 11.6 12.0 12.2 11.4 WATER TEMP. 10.3 12.0 12.0 12.2 11.4 10.4 11.4 11.4 12.0 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10	388 388 243 243 243 243 243 243 243 243 243 24 306 35 36 32 35 36 32 35 36 32 35 36 32 237 29 20 22 29 22 29 22	FL	UPPER 0.8 SECTION UPPER	DENSITY MIDDLE	0.4	4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6 20.0 TURB. 1.9 1.7	10.2 11.3 11.0 11.0 10.8 D.O. (ppm) 12.8 13.2 12.8 12.3 10.9 11.1 11.5 11.2 10.9 11.0 11.1 11.5 11.2 12.8 12.3 12.9 12.8 12.8 12.9 12.9 12.0 12.8 12.8 12.9 12.9 12.8 12.9 12.7 12.7
15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 10FE 10MAR 01MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 0	VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN VENN VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R5 TLSRA	6.4 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 90.2 79.5 R SEININ RIVER MILE 50.5 8 8 SEININ RIVER MILE 50.5 48.0 42.0 90.2 79.5	0 3 1 4 5 IG STUDY (CATCH 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0	1.600 1.800 1.650 1.850 1.850 1.850 3.3000 3.3000 3.3000 3.3000 3.3000 3.3000 3.3000 3.3000 3.3000 3.3000 3.3000 3.3000 3.3000 3.3000 3.3000 3.30000 3.3000 3.3000 3.30000 3.30000 3.30000 3.300000000	0.0 1.7 0.6 2.4 3.7 1.5 DENSITY (/1000ft*2) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	40 37 32 37 FL MIN. 33 38 54 37 54 54 54 40	40 45 51 45 FL MAX. 41 49 54 54 38 54 38 FL 38 54 38 54 38 40	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 <u>37.5</u> 40.4 37.5 FL AVG. 40.4 37.5	1 4 4 5 5 NO. MEAS. 5 4 1 10 2 NO. MEAS. 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	111.6 11.4 12.0 11.7 12.0 11.7 12.0 12.0 11.7 11.7 11.7 11.7 11.7 11.7 11.7 11	388 388 243 243 243 243 243 243 243 243 243 243	FL	UPPER 0.8 SECTION UPPER	DENSITY MIDDLE	0.4	4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.3 2.5 2.9 4.4 7.5 2.9 4.4 7.5 2.0 20.0 TURB. 1.9 1.7 1.9 1.7 2.0 2.0 2.0	10.2 11.3 11.0 10.8 D.O. (ppm) 12.8 12.8 12.8 12.3 10.9 11.0 11.1 11.5 11.2 10.9 D.O. (ppm) 12.7 13.2 12.7 13.4 10.4 11.4
15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 11MAR 15MAR 15MAR 15MAR 15MAR	VENN SHILOH LAIRD GARDNER UMNE RIVER LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LOCATION OLGB R5 TLSRA HICK CHARLES LEGION	6.4 3.4 90.2 79.5 8 SEININ RIVER MILE 50.5 48.4 42.0 31.6 42.0 31.6 42.0 90.2 79.5 8 SEININ RIVER RIVER RIVER S0.5 5.5 5.5 48.0 24.9 90.2 79.5	0 3 1 4 4 5 1G STUDY (CATCH 0 0 2 10 10 2 10 2 10 CATCH 0 0 2 10 10 10 10 10 10 10 10 10 10	1.600 1.820 1.850 1.850 1.850 1.850 1.850 1.2300 3.300 3.300 3.300 3.300 3.300 3.300 3.300 2.200 2.200 2.200 2.200 2.200 1.800	0.0 1.77 0.6 2.4 3.77 1.5 DENSITY (/1000ftv2) 0.0 0.3 0.0 2.4 0.0 0.3 0.0 2.4 0.0 0.3 0.0 2.4 0.0 0.3 0.0 0.2 4 0.0 0.0 0.0 0.0 0.0 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 37 54 54 37 7 33 37 FL MIN. 40 50 38	40 45 51 45 51 45 MAX. 41 49 54 54 38 54 38 54 38 54 38 54 38 54 38 54 38 54 38 54 38 54 54 54 55 54 55 54 55 54 55 54 55 55	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 <u>37.5</u> 54.0 <u>37.5</u> FL AVG. 40.0 50.0 41.0	1 1 4 4 5 5 1 1 2 10 2 10 2 NO. MEAS. 1 1 1 5 5 4 4 5 5 4 4 5 5 5 6 6 7 7 8 8 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	111.6 11.4 12.0 11.7 12.0 11.7 10.3 10.4 10.2 10.3 10.4 10.2 10.0 10.0 10.0 10.0 12.7 11.6 12.0 12.2 11.4 10.3 10.8 10.8 10.8 10.8 10.8 10.8 10.8 10.8	388 388 243 243 243 243 243 243 243 243 243 243	FL	UPPER 0.8 SECTION UPPER	DENSITY MIDDLE	0.4	4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6 20.0 TURB. 1.9 1.7 1.9 1.7 1.9 2.0 0 2.3 0 3.4	10.2 11.3 11.0 11.0 10.8 D.O. (ppm) 12.8 13.2 12.3 12.3 12.3 12.3 12.3 12.3 12.3 12.9 11.0 11.1 11.5 11.2 10.9 11.1 11.2 10.9 11.0 11.0 11.0 11.0 13.2 11.0 11.0 11.0 13.2 11.0 11.0 11.0 13.2 11.0 11.0 11.0 13.2 11.0 11.0 11.0 13.2 11.0
15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 17R TOT. 2011 TUOL 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 15MAR 15MAR 15MAR 15MAR	VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES GARDNER UVENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R55 TLSRA UMNE RIVEF	6.4 34 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 91.7 22 6.4 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 8 8 8 8 8 90.2 79.5 8 8 8 90.2 79.5 8 8 8 90.2 79.5 9 17.2 6 9 17.2 6 17.5 17.5 17.5 17.5 17.5 17.5 17.5 17.5	0 3 1 4 4 5 1 6 5 1 6 5 1 6 7 1 0 0 0 0 1 0 0 0 1 0 0 0 1 2 10 10 10 10 10 10 10 10 10 10 10 10 10	1,600 1,800 1,850 1,850 1,850 1,850 1,2300 3,300 3,300 3,300 3,300 3,300 3,300 3,300 3,300 3,300 3,300 3,200 1,200 2,200	0.0 1.77 0.6 2.4 3.77 1.5 DENSITY (/1000ftv2) 0.0 2.3 0.0 0.2 4 0.0 0.2 0.0 0.2 0.0 0.2 0.0 0.2 0.0 0.2 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 54 37 54 8 54 8 54 9 6 10 8 7 7 8 33 37 7 8 8 8 8 8 9 7 8 8 8 8 8 8 8 8 9 7 7 8 9 7 8 9 7 7 8 9 7 7 7 8 9 7 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 7 8 9 8 9	40 45 51 45 FL MAX. 41 49 54 54 38 54 38 54 38 54 38 54 38 54 38 54 38 54 38 54 38 54 38 54 54 54 54 54 54 54 54 54 54 54 54 54	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 <u>37.5</u> 40.4 37.5 FL AVG. 40.0 50.0	1 4 4 4 5 5 1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	111.6 11.4 12.0 11.7 12.0 11.7 12.0 12.0 10.0 10.9 12.7 11.6 12.0 10.0 10.9 12.7 11.6 12.0 10.0 12.2 11.4 10.4 11.4 10.4 10.4 10.4 10.4 10.4	388 389 243 243 ELEC. COND. 244 40 35 36 36 36 36 36 36 36 36 32 36 36 22 37 36 237 29 32 29 32 29 32 37 36 45	FL	UPPER 0.8 SECTION UPPER	DENSITY MIDDLE	0.4	4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6 20.0 TURB. 1.9 1.7 1.9 1.7 1.9 2.0 3.4 3.0	10.2 11.3 11.0 10.8 D.O. (ppm) 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 10.9 11.1 11.2 10.9 11.1 11.2 10.9 11.2 11.2 10.9 11.2 11.4
15FEB 15FEB 15FEB 15FEB 15FEB 17R TOT. 2011 TUOL 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 15MAR 15MAR 15MAR 15MAR 15MAR	VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LOCATION OLGB R5 TLSRA HICK CHARLES LEGION VENN SHILOH	6.4 3.4 90.2 73.5 73.5 8 EININ RIVER MILE 50.5 548.4 42.0 31.6 24.9 90.2 79.5 8 EININ RIVER MILE 8 EININ RIVER 6.4 49.0 17.2 6.4 4.0 31.6 34.0 42.0 31.6 24.9 17.2 6.4 4.0 42.0 31.6 24.9 17.2 6.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3	0 3 1 4 4 5 1G STUDY (CATCH 0 2 10 2 10 2 10 2 10 2 10 2 10 2 10 2 10 2 10 2 0 0 2 0 0 1 1 0 2 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	1.600 1.820 1.820 1.820 1.820 1.820 1.2300 3.3000 3.300 3.300 3.300 3.300 3.300 3.300 3.300 3.300 3.300 3.300 3.300 3.300 3.300 3.300 3.300 3.300 3.300 3.300 3.30000 3.3000 3.3000 3.30000 3.30000 3.30000 3.30000 3.300000000	0.0 1.77 0.6 2.4 3.77 1.5 DENSITY (/1000ftv2) 0.0 0.2 0.0 0.0 0.0 0.0 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 54 37 73 33 37 FL MIN. 40 50 38 45	40 45 51 45 51 45 MAX. 41 49 54 38 54 38 54 38 54 38 54 38 54 38 54 38 60 45 60	40.0 41.3 40.2 41.0 41.0 FL AVG. 36.8 41.5 54.0 37.5 40.4 37.5 FL AVG. 40.0 50.0 41.0 52.5	1 4 4 5 5 MEAS. 5 4 1 1 2 NO. MEAS. 1 1 5 2 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	111.6 11.4 12.0 11.7 12.0 11.7 12.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0	388 383 243 243 243 243 243 243 243 243 243 24	FL	UPPER 0.8 SECTION UPPER	DENSITY MIDDLE	0.4	4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6 20.0 TURB. 1.9 1.7 7.2 0.0 2.3 2.5 2.9 9 4.4 7.5 2.5 2.0 0 3.4 4 3.0 0 3.4 3.3	10.2 11.3 11.0 11.0 10.8 D.O. (ppm) 12.8 13.2 12.3 10.9 11.1 11.5 11.2 10.9 11.0 11.1 11.2 10.9 11.0 11.0 11.2 10.9 11.0 11.0 11.0 12.2 12.3 10.9 11.0 11.0 11.0 12.2 13.2 10.9 11.0 11.0 11.0 10.8 13.2 10.9 11.0 11.0 11.0 10.8 13.2 10.9 11.0 10.9 11.0 10.9 11.0 10.9 11.0 10.9 11.0 10.9 11.0 10.9 11.0 10.9 11.0 10.9 11.0 10.9 11.0 10.9 11.0 10.4 11.0 10.4 11.0 10.9 10.4 10.9 10.0
15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 17R TOT. 2011 TUOL 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 15MAR 15MAR 15MAR 15MAR	VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES GARDNER UVENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB R55 TLSRA UMNE RIVEF	6.4 34 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 91.7 22 6.4 3.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 8 8 8 8 8 90.2 79.5 8 8 8 90.2 79.5 8 8 8 90.2 79.5 9 17.2 6 9 17.2 6 17.5 17.5 17.5 17.5 17.5 17.5 17.5 17.5	0 3 1 4 4 5 1 6 5 1 6 5 1 6 7 1 0 0 0 0 1 0 0 0 1 0 0 0 1 2 10 10 10 10 10 10 10 10 10 10 10 10 10	1,600 1,800 1,850 1,850 1,850 1,850 1,2300 3,300 3,300 3,300 3,300 3,300 3,300 3,300 3,300 3,300 3,300 3,200 1,200 2,200	0.0 1.77 0.6 2.4 3.77 1.5 DENSITY (/1000ftv2) 0.0 2.3 0.0 0.2 4 0.0 0.2 0.0 0.2 0.0 0.2 0.0 0.2 0.0 0.2 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 37 54 54 37 7 33 37 FL MIN. 40 50 38	40 45 51 45 51 45 MAX. 41 49 54 54 38 54 38 54 38 54 38 54 38 54 38 54 38 54 38 54 38 54 54 54 55 54 55 54 55 54 55 54 55 55	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 <u>37.5</u> 54.0 <u>37.5</u> FL AVG. 40.0 50.0 41.0	1 1 4 4 5 5 1 1 2 10 2 10 2 NO. MEAS. 1 1 1 5 5 4 4 5 5 4 4 5 5 5 6 6 7 7 8 8 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	111.6 11.4 12.0 11.7 12.0 11.7 12.0 12.0 10.0 10.9 12.7 11.6 12.0 10.0 10.9 12.7 11.6 12.0 10.0 12.2 11.4 10.4 11.4 10.4 10.4 10.4 10.4 10.4	388 389 243 243 ELEC. COND. 244 40 35 36 36 36 36 36 36 36 36 32 36 36 22 37 36 237 29 32 29 32 29 32 37 36 45	FL	UPPER 0.8 SECTION UPPER	DENSITY MIDDLE	0.4	4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.9 4.4 7.5 25.6 20.0 TURB. 1.9 1.7 1.9 1.7 1.9 2.0 3.4 3.0	10.2 11.3 11.0 10.8 D.O. (ppm) 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 10.9 11.1 11.2 10.9 11.1 11.2 10.9 11.2 11.2 10.9 11.2 11.4
15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 15FEB 01MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR 00MAR	VENN SHILOH LAIRD CARDNER UMNE RIVER LOCATION OLGB R4B TLSRA HICK CHARLES LOCATION UENN CARD LAIRD LAIRD LOCATION OLGB R5 TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD	6.4 34 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 91.7 20 79.5 R SEININ RIVER MILE 50.5 48.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 R SEININ RIVER MILE 50.5 7 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5	0 3 1 4 4 5 16 5 10 10 0 0 0 0 0 0 0 0 0 0 0 0 0	1.600 1.800 1.800 1.800 1.850 1.800 1.800 3.300 3.0000 3.00000 3.0000 3.0000 3.0000 3.00000 3.00000 3.00000 3.00000 3.00000 3.00000 3.00000000	0.0 1.77 0.6 2.4 3.77 1.5 DENSITY (/1000ftv2) 0.0 2.3 0.0 0.2 4.4 0.0 0.0 0.0 0.2 4.4 0.0 0.0 0.2 4.4 0.0 0.0 0.2 4.4 0.0 0.0 0.2 1.5 DENSITY (/1000ftv2) 0.0 0.2 0.0 0.0 0.0 0.0 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 54 54 54 8 54 8 54 8 54 8 54 8	40 45 51 45 FL MAX. 41 49 54 38 54 38 54 38 54 38 54 38 54 38 54 40 50 60 59 60 60	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 37.5 54.0 37.5 FL AVG. 40.4 37.5 54.0 40.4 37.5 54.0 53.0 40.4 40.4 40.2 55.5 53.0 54.4	1 445 5 5 MEAS. 5 4 1 1 2 10 2 10 2 10 2 10 2 10 2 10 5 2 11 5 2 2 3 3 7 7 9	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NO. NO. NO. NO. NO. NO. NO. 0 0 0 0 0 0 0 0 0 0 0 0 0	111.6 11.4 12.0 11.7 12.0 11.7 12.0 11.7 12.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0	388 389 243 243 243 243 243 243 243 243 243 243	FL	UPPER 0.8 SECTION UPPER	DENSITY MIDDLE	0.4	4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.0 3.4 4.4 7.5 2.5 2.0 0 3.4 4.4 3.0 3.0 3.0 3.0 3.0 1.7 1.7 1.7 2.0 2.0 2.0 3.4 1.7 1.7 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 3.5 1.7 1.7 1.7 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5	10.2 11.3 11.0 10.8 D.O. (ppm) 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 13.2 14.1 11.5 11.2 10.9 11.1 11.5 11.2 10.9 11.1 11.5 11.2 10.9 11.1 11.5 11.2 10.9 11.1 11.5 11.2 10.9 11.1 11.5 11.2 11.4 10.9 11.4
15FEB 15FEB 15FEB 15FEB 17FT0T. 2011 TUOL DATE 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 01MAR 15MAR 15MAR 15MAR 15MAR 15MAR 15MAR 15MAR	VENN SHILOH LAIRD CARDNER UMNE RIVER LOCATION OLGB R4B TLSRA HICK CHARLES LOCATION UENN CARD LAIRD LAIRD LOCATION OLGB R5 TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD	6.4 34 90.2 79.5 R SEININ RIVER MILE 50.5 48.4 42.0 91.7 20 79.5 R SEININ RIVER MILE 50.5 48.4 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 R SEININ RIVER MILE 50.5 48.0 90.2 79.5 R SEININ RIVER MILE 50.5 7 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5	0 3 1 4 4 5 IG STUDY (CATCH 0 5 0 4 0 0 2 IG STUDY (CATCH 0 1 1 0 2 CATCH 0 2 0 3 7 7	1.600 1.800 1.850 1.850 1.850 1.850 1.850 3.300 3.300 3.300 3.300 2.200 2.200 2.200 2.200 2.200 1.800 2.200 1.800	0.0 1.77 0.6 2.4 3.77 1.5 DENSITY (/1000ftv2) 0.0 0.2 0.0 0.0 0.0 0.0 0.0 0.0	40 37 32 37 FL MIN. 33 38 54 54 37 33 37 FL 40 50 38 45 46 44	40 45 51 45 71 45 71 45 74 40 54 38 54 38 54 38 54 38 74 50 60 59 68	40.0 41.3 40.2 41.0 FL AVG. 36.8 41.5 54.0 37.5 40.4 37.5 FL AVG. 40.0 50.0 41.0 53.0 53.3	1 4 4 5 5 MEAS. 5 4 1 1 1 1 5 2 3 7 7	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	111.6 11.4 12.0 11.7 12.0 11.7 12.0 11.7 12.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0	388 389 243 243 243 243 243 243 243 243 243 243	FL	UPPER 0.8 SECTION UPPER	DENSITY MIDDLE	0.4	4.0 6.0 23.9 15.7 TURB. 1.9 1.7 2.0 2.3 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.0 3.4 4.4 7.5 2.5 2.0 0 3.4 4.4 3.0 3.0 3.0 3.0 3.0 1.7 1.7 1.7 2.0 2.0 2.0 3.4 1.7 1.7 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 3.5 1.7 1.7 1.7 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5	10.2 11.3 11.0 10.8 D.O. (ppm) 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 12.8 13.2 13.2 14.1 11.5 11.2 10.9 11.1 11.5 11.2 10.9 11.1 11.5 11.2 10.9 11.1 11.5 11.2 10.9 11.1 11.5 11.2 10.9 11.1 11.5 11.2 11.4 10.9 11.4

Table 1. Summary table of weekly seine catch by location for the Tuolumne and San Joaquin Rivers, 2011.

continued. 2011 TUOLUMNE RIVER SEINING STUDY (TID/MID)

		RIVER			DENSITY	FL	FL	FL	NO.		NO			SMOLT	SECTION	DENCITY			
DATE	LOCATION	MILE	CATCH	AREA	(/1000ft^2)					SACFRY	KILLED	TEMP.	COND.	FL	SECTION UPPER	MIDDLE	LOWER	TURB.	D.O. (ppm)
29MAR	OLGB	50.5	0	2,200	0.0							10.4	29		0.3	0.0	0.0	2.3	12.1
29MAR 29MAR	R4B TLSRA	48.4 42.0	2	2,400 2.000	0.8	38	42	40.0	2	0	0	11.0 10.5	34 33					2.6 3.4	12.4 11.4
29MAR	HICK	31.6	0	1,800	0.0							10.7	36					3.3	11.5
29MAR 29MAR	CHARLES LEGION	24.9 17.2	0	1,800 1,800	0.0							11.0 12.7	37 34					3.2 4.9	10.4 10.6
29MAR	RDP	12.3	0	1,800	0.0							12.4	39					5.9	10.5
29MAR	SHILOH	3.4	0	1,800								13.8	40					6.9	10.3
29MAR 29MAR	LAIRD GARDNER	90.2 79.5	0	2,400 1.800	0.0							16.0 14.7	230 170					33.4 26.1	7.0 7.9
TR TOT.			2	15600		38	42	40.0	2	0	0								
SJR TOT.			0	4200	0.0														
2011 TUOL	UMNE RIVER	R SEININ	IG STUDY (1	ID/MID)															
		RIVER			DENSITY	FL	FL	FL	NO.		NO	WATER	FLEC		SECTION	DENSITY			
DATE	LOCATION		CATCH	AREA	(/1000ft^2)					SACFRY				FL			LOWER	TURB.	D.O.
12APR	OLGB	50.5	1	2 000	0.5	53	53	53.0	1	0	0	10.5	34		0.5	0.0	0.0	2.9	(ppm)
12APR 12APR	R4B	50.5 48.4	1	2,000 2,400	0.5 0.8	53 38	53 50	53.0 44.0	2	0	0	10.5 10.9	34 36		0.5	0.9	0.0	2.9	13.4 12.4
12APR	TLSRA	42.0	0	1,800	0.0							10.5	38					4.0	11.6
12APR 12APR	HICK	31.6 25.4	1	1,600 1,800	0.6 1.7	55 37	55 48	55.0 41.0	1	0	0	10.7 11.0	36 35					3.2 4.1	9.6 11.3
12APR	LEGION	17.2	1	2,400	0.4	43	43	43.0	1	0	Ő	12.0	35					4.4	11.4
12APR	RDP	12.3	0	2,200	0.0							12.7	34					5.0	10.2
12APR 12APR	SHILOH LAIRD	3.4	0	2,000	0.0							13.2	36 188					5.9 8.1	<u>11.8</u> 9.0
12APR	OFC	80.7	0	2,400	0.0							15.3	123					8.8	9.6
TR TOT. SJR TOT.			8 0	16200 4200	0.5 0.0	37	55	45.3	8	0	0								
					0.0														
2011 TUOL	UMNE RIVER	R SEININ	IG STUDY (T	TID/MID)															
		RIVER			DENSITY	FL	FL	FL	NO.						SECTION				
DATE	LOCATION	MILE	CATCH	AREA	(/1000ft^2)	MIN.	MAX.	AVG.	MEAS.	SACFRY	KILLED	TEMP.	COND.	FL	UPPER	MIDDLE	LOWER	TURB.	D.O.
26APR	OLGB	50.5	2	2,200	0.9	45	52	48.5	2	0	0	10.7	34		0.9	0.0	0.0	2.5	(ppm) 14.1
26APR	R4B	48.4	4	2,400	1.7	42	54	45.5	4	0	0	11.1	36					2.7	13.6
26APR 26APR	TLSRA HICK	42.0 31.6	0	2,400 2,100	0.0							10.9 10.9	37 37					2.6 2.6	12.6 12.7
26APR	STREETER	25.4	0	1,650	0.0							11.4	38					2.9	12.5
26APR	LEGION RDP	17.2	0	2,400								12.5	36					3.4	11.5
26APR																			
26APR	SHILOH	12.3 3.4	0	1,800 1,400	0.0							12.9 13.1	38 40					3.8 7.1	11.4 11.2
26APR	SHILOH LAIRD	3.4 90.2	0	1,400 1,800	0.0							13.1 18.4	40					7.1 15.0	11.2 8.2
	SHILOH	3.4	0	1,400	0.0	42	54	46.5	6	0	0	13.1	40					7.1	11.2
26APR 26APR	SHILOH LAIRD	3.4 90.2	0 0 0	1,400 1,800 1,300	0.0 0.0 0.0	42	54	46.5	6	0	0	13.1 18.4	40					7.1 15.0	11.2 8.2
26APR 26APR TR TOT. SJR TOT.	SHILOH LAIRD OFC	3.4 90.2 80.7	0 0 6 0	1,400 1,800 1,300 16350 3100	0.0 0.0 0.0 0.4	42	54	46.5	6	0	0	13.1 18.4	40					7.1 15.0	11.2 8.2
26APR 26APR TR TOT. SJR TOT.	SHILOH LAIRD	3.4 90.2 80.7	0 0 6 0	1,400 1,800 1,300 16350 3100	0.0 0.0 0.4 0.0	42			6	0		13.1 18.4 16.6	40 181 139					7.1 15.0	11.2 8.2
26APR 26APR TR TOT. SJR TOT. 2011 TUOL	SHILOH LAIRD OFC	3.4 90.2 80.7 R SEININ RIVER	0 0 6 0 IG STUDY (T	1,400 1,800 1,300 16350 3100 FID/MID)	0.0 0.0 0.4 0.0 DENSITY	FL	FL	FL	NO.		NO.	13.1 18.4 16.6 WATER	40 181 139 ELEC.		SECTION			7.1 15.0 16.0	11.2 8.2 9.4
26APR 26APR TR TOT. SJR TOT. 2011 TUOL	SHILOH LAIRD OFC	3.4 90.2 80.7 R SEININ RIVER	0 0 6 0	1,400 1,800 1,300 16350 3100 FID/MID)	0.0 0.0 0.4 0.0	FL	FL	FL	NO.		NO.	13.1 18.4 16.6 WATER	40 181 139 ELEC.	SMOLT			LOWER	7.1 15.0	11.2 8.2
26APR 26APR TR TOT. SJR TOT. 2011 TUOL DATE 10MAY	SHILOH LAIRD OFC LUMNE RIVER	3.4 90.2 80.7 R SEININ RIVER MILE 50.5	0 0 6 0 IG STUDY (T CATCH 0	1,400 1,800 1,300 16350 3100 FID/MID) AREA 1,800	0.0 0.0 0.4 0.0 DENSITY (/1000ft^2) 0.0	FL	FL	FL	NO.		NO.	13.1 18.4 16.6 WATER TEMP. 11.0	40 181 139 ELEC. COND. 28				LOWER 0.3	7.1 15.0 16.0 TURB. 1.6	D.O. (ppm) 13.2
26APR 26APR TR TOT. SJR TOT. 2011 TUOL DATE 10MAY 10MAY	SHILOH LAIRD OFC .UMNE RIVER LOCATION OLGB R4B	3.4 90.2 80.7 R SEININ RIVER MILE 50.5 48.4	0 0 6 0 IG STUDY (T CATCH 0 0	1,400 1,800 1,300 16350 3100 FID/MID) AREA 1,800 1,800	0.0 0.0 0.4 0.0 DENSITY (/1000ft^2) 0.0 0.0	FL	FL	FL	NO.		NO.	13.1 18.4 16.6 WATER TEMP. 11.0 11.2	40 181 139 ELEC. COND. 28 33		UPPER	MIDDLE		7.1 15.0 16.0 TURB. 1.6 1.5	D.O. (ppm) 13.2 13.0
26APR 26APR TR TOT. SJR TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY	SHILOH LAIRD OFC UMNE RIVER LOCATION OLGB R4B TLSRA HICK	3.4 90.2 80.7 R SEININ RIVER MILE 50.5 48.4 42.0 31.6	0 0 6 0 IG STUDY (1 CATCH 0 0 0 0	1,400 1,800 1,300 16350 3100 TID/MID) AREA 1,800 1,800 1,800 1,800	0.0 0.0 0.4 0.4 (/1000ft^2) 0.0 0.0 0.0 0.0	FL	FL	FL	NO.		NO.	13.1 18.4 16.6 WATER TEMP. 11.0 11.2 11.2 11.2	40 181 139 ELEC. COND. 28 33 39 34		UPPER	MIDDLE		7.1 15.0 16.0 TURB. 1.6 1.5 1.9 1.5	D.O. (ppm) 13.2 13.0 11.3 12.1
26APR 26APR TR TOT. SJR TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY	SHILOH LAIRD OFC LOCATION OLGB R4B TLSRA HICK CHARLES	3.4 90.2 80.7 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9	0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0	1,400 1,800 1,300 16350 3100 TID/MID) AREA 1,800 1,800 1,800 1,800 1,800	0.0 0.0 0.4 0.0 (/1000ft^2) 0.0 0.0 0.0 0.0 0.0	FL	FL	FL	NO.		NO.	13.1 18.4 16.6 WATER TEMP. 11.0 11.2 11.2 11.2 11.2 11.2	40 181 139 ELEC. COND. 28 33 39 34 34		UPPER	MIDDLE		7.1 15.0 16.0 TURB. 1.6 1.5 1.9 1.5 1.7	11.2 8.2 9.4 D.O. (ppm) 13.2 13.0 11.3 12.1 11.4
26APR 26APR TR TOT. SJR TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY	SHILOH LAIRD OFC UMNE RIVER LOCATION OLGB R4B TLSRA HICK	3.4 90.2 80.7 R SEININ RIVER MILE 50.5 48.4 42.0 31.6	0 0 6 0 IG STUDY (1 CATCH 0 0 0 0	1,400 1,800 1,300 16350 3100 TID/MID) AREA 1,800 1,800 1,800 1,800	0.0 0.0 0.4 0.0 (/1000ft^2) 0.0 0.0 0.0 0.0 0.0	FL	FL	FL	NO.		NO.	13.1 18.4 16.6 WATER TEMP. 11.0 11.2 11.2 11.2	40 181 139 ELEC. COND. 28 33 39 34		UPPER	MIDDLE		7.1 15.0 16.0 TURB. 1.6 1.5 1.9 1.5	D.O. (ppm) 13.2 13.0 11.3 12.1
26APR 26APR TR TOT. SJR TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY	SHILOH LAIRD OFC LOCATION CLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH	3.4 90.2 80.7 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4	0 0 6 0 1G STUDY (T CATCH 0 0 0 0 0 0 0 0 0 1	1,400 1,800 1,300 16350 3100 (ID/MID) AREA 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800	0.0 0.0 0.0 0.4 0.4 0.0 0.0 0.0 0.0 0.0	FL	FL	FL AVG.	NO.		NO.	13.1 18.4 16.6 WATER TEMP. 11.0 11.2 11.2 11.2 11.2 11.2 11.2 11.	40 181 139 ELEC. COND. 28 333 39 34 34 34 37 40 37		UPPER	MIDDLE		7.1 15.0 16.0 TURB. 1.6 1.5 1.7 2.5 6.7 3.2	11.2 8.2 9.4 D.O. (ppm) 13.2 13.0 11.3 12.1 11.4 11.1 11.4
26APR 26APR TR TOT. SJR TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD	3.4 90.2 80.7 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 90.2	0 0 6 0 1G STUDY (T CATCH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1,400 1,800 1,300 3100 (ID/MID) AREA 1,800 1,800 1,800 1,800 1,600 1,800 1,800 1,800	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN.	FL MAX.	FL AVG.	NO.	SACFRY	NO. KILLED	13.1 18.4 16.6 WATER TEMP. 11.0 11.2 11.2 12.1 13.4 14.6 14.3 18.8	40 181 139 ELEC. COND. 28 339 34 34 34 37 40 37 191		UPPER	MIDDLE		7.1 15.0 16.0 TURB. 1.6 1.5 1.9 1.5 1.7 2.5 6.7 3.2 17.5	11.2 8.2 9.4 D.O. (ppm) 13.2 13.0 11.3 12.1 11.4 11.1 11.4 11.2 8.6
26APR 26APR 26APR TR TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY	SHILOH LAIRD OFC LOCATION CLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH	3.4 90.2 80.7 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 90.2	0 0 6 0 IG STUDY (T CATCH 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1	1,400 1,800 1,300 16350 3100 TID/MID) AREA 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN.	FL MAX.	FL AVG. 66.0	NO.	SACFRY	NO. KILLED	13.1 18.4 16.6 WATER TEMP. 11.0 11.2 11.2 11.2 11.2 11.2 11.2 11.	40 181 139 ELEC. COND. 28 333 39 34 34 34 37 40 37		UPPER	MIDDLE		7.1 15.0 16.0 TURB. 1.6 1.5 1.7 2.5 6.7 3.2	11.2 8.2 9.4 D.O. (ppm) 13.2 13.0 11.3 12.1 11.4 11.1 11.4
26APR 26APR TR TOT. SJR TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD	3.4 90.2 80.7 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 90.2	0 0 0 16 0 16 0 10 0 0 0 0 0 0 0 0 0 0 0	1,400 1,800 1,300 16350 3100 TID/MID) AREA 1,800 1,800 1,800 1,800 1,600 1,600 1,600 1,600 1,600 1,600 1,800 0,000 1,000	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN.	FL MAX. 66	FL AVG. 66.0	NO. MEAS.	SACFRY 0	NO. KILLED	13.1 18.4 16.6 WATER TEMP. 11.0 11.2 11.2 12.1 13.4 14.6 14.3 18.8	40 181 139 ELEC. COND. 28 339 34 34 34 37 40 37 191		UPPER	MIDDLE		7.1 15.0 16.0 TURB. 1.6 1.5 1.9 1.5 1.7 2.5 6.7 3.2 17.5	11.2 8.2 9.4 D.O. (ppm) 13.2 13.0 11.3 12.1 11.4 11.1 11.4 11.2 8.6
26APR 26APR TR TOT. SJR TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD	3.4 90.2 80.7 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 90.2 79.5 1	0 0 6 0 0 1G STUDY (T CATCH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0	1,400 1,800 1,300 16350 3100 TID/MID) AREA 1,800 1,800 1,800 1,800 1,600 1,600 1,600 1,600 1,800 0 1,800 0 1,800 1,	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN.	FL MAX. 66	FL AVG. 66.0	NO. MEAS.	SACFRY 0	NO. KILLED	13.1 18.4 16.6 WATER TEMP. 11.0 11.2 11.2 12.1 13.4 14.6 14.3 18.8	40 181 139 ELEC. COND. 28 339 34 34 34 37 40 37 191		UPPER	MIDDLE		7.1 15.0 16.0 TURB. 1.6 1.5 1.9 1.5 1.7 2.5 6.7 3.2 17.5	11.2 8.2 9.4 D.O. (ppm) 13.2 13.0 11.3 12.1 11.4 11.1 11.4 11.2 8.6
26APR 26APR TR TOT. SJR TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD GARDNER	3.4 90.2 80.7 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 8 24.9 17.2 6.4 3.4 8 24.9 17.2 8 50.5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 0 6 0 0 1G STUDY (T CATCH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0	1,400 1,800 1,300 16350 3100 TID/MID) AREA 1,800 1,800 1,800 1,800 1,600 1,600 1,600 1,600 1,800 0 1,800 0 1,800 1,	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN. 66	FL MAX. 66	FL AVG. 66.0	NO. MEAS. 1	SACFRY 0	NO. KILLED 0	13.1 18.4 16.6 WATER TEMP. 11.0 11.2 11.2 11.2 11.2 11.2 11.2 11.	40 181 139 ELEC. COND. 288 333 39 34 34 34 37 40 377 191 133	FL	UPPER 0.0	MIDDLE 0.0		7.1 15.0 16.0 TURB. 1.6 1.5 1.9 1.5 1.7 2.5 6.7 3.2 17.5	11.2 8.2 9.4 D.O. (ppm) 13.2 13.0 11.3 12.1 11.4 11.1 11.4 11.2 8.6
26APR 26APR 26APR TR TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD GARDNER	3.4 90.2 80.7 RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 90.2 79.5 1 79.5 1 RIVER	0 0 6 0 0 1G STUDY (T CATCH 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0	1,400 1,800 1,300 16350 3100 IGD/MID) AREA 1,800 1	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN. 66 FL	FL MAX. 66 FL	FL AVG. 66.0 FL	NO. MEAS. 1 1	SACFRY 0 0	NO. KILLED 0 0	13.1 18.4 16.6 WATER TEMP. 11.0 11.2 11.2 11.2 12.1 13.4 14.6 14.3 18.8 17.2 WATER	40 40 181 139 ELEC. COND. 28 33 39 34 34 37 40 0 37 191 133 ELEC.	FL	UPPER 0.0 SECTION	MIDDLE 0.0 DENSITY		7.1 15.0 16.0 TURB. 1.6 1.5 1.9 1.5 1.7 2.5 6.7 3.2 17.5	11.2 8.2 9.4 D.O. (ppm) 13.2 13.0 11.3 12.1 11.4 11.1 11.4 11.2 8.6
26APR 26APR TR TOT. 2011 TUOL DATE 10MAY	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD GARDNER	3.4 90.2 80.7 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9 90.2 79.5 I R SEININ RIVER MILE	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1,400 1,800 1,300 16350 3100 TID/MID) AREA 1,800 1	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN. 66 FL	FL MAX. 66 FL	FL AVG. 66.0 FL	NO. MEAS. 1 1	SACFRY 0 0	NO. KILLED 0 0	13.1 18.4 16.6 WATER TEMP. 11.0 11.2 12.1 1.2 12.1 1.3.4 14.6 14.3 18.8 17.2 WATER TEMP.	40 181 139 ELEC. COND. 28 33 39 34 40 37 133 ELEC. COND. ELEC. COND. ELEC. COND. ELEC. COND. ELEC. COND. ELEC. COND. ELEC. COND. ELEC. COND. ELEC. COND. ELEC. COND. ELEC. ELEC. COND. ELEC. E	FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.3	7.1 15.0 16.0 16.0 16.0 1.6 1.6 1.5 1.9 1.5 1.7 5.6 7 17.5 15.3 TURB.	D.O. (ppm) 13.2 13.0 11.3 12.1 11.4 11.1 11.4 11.2 8.6 9.1
26APR 78APR 78 APR 78 TOT. 2011 TUOL DATE 10MAY	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD GARDNER UMNE RIVEF LOCATION OLGB	3.4 90.2 80.7 RIVER MILE 50.5 48.4 42.0 31.6 24.9 17.2 6.4 3.4 90.2 79.5 1 79.5 1 RIVER	0 0 6 0 IG STUDY (T CATCH 0 0 0 0 0 0 0 0 0 0 0 0 0	1.400 1.800 1.800 1.800 1.800 1.8350 3100 1.8350 1.800	0.0 0.0 0.0 0.4 0.0 DENSITY (/1000ft^2) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	FL MIN. 66 FL	FL MAX. 66 FL	FL AVG. 66.0 FL	NO. MEAS. 1 1	SACFRY 0 0	NO. KILLED 0 0	13.1 18.4 16.6 WATER TEMP. 11.0 11.2 11.2 11.2 11.2 11.2 11.2 11.	40 181 139 ELEC. COND. 28 33 39 34 34 34 34 37 191 193 193 193 193 193 193 193 193 30 37 30 30 30 30 30 30 30 30 30 30 30 30 30	FL	UPPER 0.0 SECTION	MIDDLE 0.0 DENSITY	0.3	7.1 15.0 16.0 TURB. 1.6 1.5 1.7 1.5 1.7 2.5 6.7 17.5 15.3 TURB. 1.2	D.O. (ppm) 13.2 13.0 11.3 12.1 11.1 11.4 11.2 8.6 9.1 D.O. (ppm) 13.9
26APR 26APR 7R TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 2011 TUOL 2011 TUOL 2011 TUOL DATE 24MAY 24MAY 24MAY	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD GARDNER LUCATION OLGB R4B TLSRA	3.4 90.2 80.7 R SEININ RIVER MILE 50.5 48.4 42.0 31.6 44.4 42.0 31.6 44.4 90.2 79.5 R RIVER MILE 8 SEININ RIVER 8 SEININ RIVER 48.4 42.0 8 8 SEININ 8 8 SEININ 8 8 8 8 8 8 8 8 8 8 8 8 9 8 9 8 8 8 8	0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.400 1.800 1.300 16350 3100 3100 3100 16350 3100 16350 16350 16350 16350 16350 16350 1.800 1.400	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN. 66 FL	FL MAX. 66 FL	FL AVG. 66.0 FL	NO. MEAS. 1 1	SACFRY 0 0	NO. KILLED 0 0	13.1.1 18.4 18.6 16.6 11.0 11.2 11.1 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.4 11.6 11.2 11.4	40 181 139 ELEC. COND. 28 33 39 34 43 37 191 133 ELEC. COND. 30 34 35	FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.3	7.1 15.0 16.0 TURB. 1.6 1.5 1.7 1.5 1.7 2.5 6.7 3.2 17.5 15.3 TURB. 1.2 1.1 1.4	D.O. (ppm) 13.2 13.0 11.3 12.1 11.4 11.4 11.2 8.6 9.1 0.0. (ppm) 13.9 13.7 12.0
26APR 26APR 7R TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 20MAY 24MAY 24MAY 24MAY 24MAY	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD GARDNER LOCATION OLGB R4B TLSRA HICK	3.4 90.2 80.7 80.7 8 SEININ 8 SEININ 8 SEININ 90.2 79.5 1 8 SEININ 8 SEININ 8 SEININ 8 SEININ 8 SEININ 8 SEININ 90.2 79.5 1 8 SEININ 8 SEININ 90.2 79.5 1 8 SEININ 8 SEININ 90.2 8 SEININ 90.2 90.2 8 SEININ 90.2 90.2 90.2 90.2 90.2 90.2 90.2 90.2	0 0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.400 1.800 1.300 1.6356 3100 AREA 1.800 1	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN. 66 FL	FL MAX. 66 FL	FL AVG. 66.0 FL	NO. MEAS. 1 1	SACFRY 0 0	NO. KILLED 0 0	13.1 18.4 18.4 16.6 16.6 16.6 11.0 11.2 11.1 11.2 11.2 12.2 11.2 12.2 11.3 18.8 17.2 13.4 14.3 18.8 17.2 11.4 14.1 11.6 11.2 11.4 11.4 11.6 11.7 11.4	40 181 139 ELEC. COND. 28 33 39 34 35 36 2000 133 39 34 35 50 2000 2000 2000 2000 2000 2000 200	FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.3	7.1 15.0 16.0 16.0 16.0 1.6 1.5 1.7 2.5 6.7 2.5 17.5 15.3 TURB. 1.2 1.1 1.4 1.4	D.O. (ppm) 13.2 13.0 11.3 12.1 11.4 11.4 11.1 11.4 11.4 11.1 11.4 11.1 11.4 11.1 11.4 11.1 11.4 11.1 11.4 11.2 8.6 9.1
26APR 26APR 7R TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 2011 TUOL 2011 TUOL 2011 TUOL DATE 24MAY 24MAY 24MAY	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD CHARLES CHARLES	3.4 90.2 80.7 8 SEININ RIVER MILE 50.5 48.4 42.0 31.6 90.2 79.5 1 79.5 1 8 SEININ RIVER MILE 50.5 48.4 42.0 31.6 24.9	0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.400 1.800 1.300 16350 3100 3100 3100 16350 3100 16350 16350 16350 16350 16350 16350 1.800 1.400	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN. 66 FL	FL MAX. 66 FL	FL AVG. 66.0 FL	NO. MEAS. 1 1	SACFRY 0 0	NO. KILLED 0 0	13.1.1 18.4 18.6 16.6 11.0 11.2 11.1 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.4 11.6 11.2 11.4	40 181 139 ELEC. COND. 28 33 39 34 43 37 191 133 ELEC. COND. 30 34 35	FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.3	7.1 15.0 16.0 TURB. 1.6 1.5 1.7 1.5 1.7 2.5 6.7 3.2 17.5 15.3 TURB. 1.2 1.1 1.4	D.O. (ppm) 13.2 13.0 11.3 12.1 11.4 11.4 11.2 8.6 9.1 0.0. (ppm) 13.9 13.7 12.0
26APR 26APR 78 TR TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 2004 10MAY 2004 10MAY 2004 2011 TUOL DATE 24MAY 24MAY 24MAY 24MAY	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD CARDES	3.4 90.2 80.7 8 SEININ RIVER MILE 50.5 48.4 42.0 42.0 90.2 79.5 1 79.5 1 8 SEININ RIVER MILE 50.5 5.5 48.4 90.2 79.5 1 8 SEININ 8	0 0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.400 1.800 1.300 16350 3100 AREA 1.800 1.	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN. 66 FL	FL MAX. 66 FL	FL AVG. 66.0 FL	NO. MEAS. 1 1	SACFRY 0 0	NO. KILLED 0 0	13.1.1 18.4 18.6 18.6 18.6 18.6 18.6 18.6 18.6 16.6 11.0 11.2 11.2 11.2 11.2 12.1 13.4 14.8 14.8 17.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.4 11.5 11.7 11.8 11.7 11.8 11.7 11.8 11.7 11.8 11.7 11.8 11.7 11.8 11.1	40 181 139 139 139 139 28 33 33 39 39 34 43 4 34 34 37 191 191 191 193 193 193 193 193 193 193	FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.3	7.1 15.0 16.0 TURB. 1.6 1.5 1.9 1.5 1.7 5 6.7 7 5.5 6.7 17.5 15.3 TURB. 1.2 1.2 1.2 1.4 1.4 1.4 2.2 3.8	D.O. (ppm) 13.2 13.3 12.1 11.4 11.4 11.4 11.4 11.4 11.4 11.4
26APR 26APR 78 TR TOT. 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 20MAY 24MAY 24MAY 24MAY 24MAY 24MAY	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH	3.4 90.2 90.2 80.7 80.7 80.7 80.7 80.7 80.7 80.7 80.7	0 0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.400 1.800 1.300 16350 3100 AREA 1.800 1.400 1.800 1.400 1.800 1.400 1.400 1.400 1.800 1.400 1.800 1.400 1.800 1.400 1.800 1.400 1.800 1.400 1.800 1.400 1.800 1.400 1.800 1.400 1.800 1.400 1.400 1.800 1.	0.0 0.0 0.0 0.4 0.4 0.4 0.0 0.0 0.0 0.0	FL MIN. 66 FL	FL MAX. 66 FL	FL AVG. 66.0 FL	NO. MEAS. 1 1	SACFRY 0 0	NO. KILLED 0 0	13.1.1 18.4 18.4 16.6 11.0 11.2 11.1 11.2 11.2 12.1 11.2 12.1 11.3 14.6 14.3 18.8 17.2 11.1 14.4 16.6 14.3 18.8 17.2 11.1 14.4 16.6 11.7 12.7 16.8 14.9	40 1811 139 286 333 339 344 347 37 434 339 344 337 1911 133 200 200 200 200 200 200 200 200 200 2	FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.3	7.1 15.0 16.0 16.0 16.0 1.6 1.5 1.5 1.5 1.5 1.7 2.5 5.5 15.3 17.5 15.3 17.5 15.3 17.5 15.3	D.O. (ppm) 13.2 13.0 11.3 12.1 11.4 11.4 11.4 11.4 11.4 11.4 11.4
26APR 26APR 78 TR TOT. 2011 TUOL 2011 TUOL DATE 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 10MAY 20MAY 24MAY 24MAY 24MAY 24MAY 24MAY 24MAY	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD CARDES	3.4 90.2 80.7 8 SEININ RIVER MILE 50.5 48.4 42.0 42.0 90.2 79.5 1 79.5 1 8 SEININ RIVER MILE 50.5 5.5 48.4 90.2 79.5 1 8 SEININ 8	0 0 6 0 16 STUDY (1 CATCH 0 0 0 0 0 0 0 0 0 0 0 0 0	1.400 1.800 1.300 16350 3100 AREA 1.800 1.	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN. 66 FL	FL MAX. 66 FL	FL AVG. 66.0 FL	NO. MEAS. 1 1	SACFRY 0 0	NO. KILLED 0 0	13.1.1 18.4 18.6 18.6 18.6 18.6 18.6 18.6 18.6 16.6 11.0 11.2 11.2 11.2 11.2 12.1 13.4 14.8 14.8 17.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.2 11.4 11.5 11.7 11.8 11.7 11.8 11.7 11.8 11.7 11.8 11.7 11.8 11.7 11.8 11.1	40 181 139 139 139 139 28 33 33 39 39 34 43 4 34 34 37 191 191 191 193 193 193 193 193 193 193	FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.3	7.1 15.0 16.0 TURB. 1.6 1.5 1.9 1.5 1.7 5 6.7 7 5.5 6.7 17.5 15.3 TURB. 1.2 1.2 1.2 1.4 1.4 1.4 2.2 3.8	D.O. (ppm) 13.2 13.3 12.1 11.4 11.4 11.4 11.4 11.4 11.4 11.4
26APR 26APR 76 APR 76 A	SHILOH LAIRD OFC UMNE RIVEF LOCATION OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD LAIRD OLGB R4B TLSRA HICK CHARLES LEGION VENN SHILOH LAIRD	3.4 90.2 90.2 80.7 8 SEININ RIVER MILE 50.5 48.4 42.0 31.6 42.0 90.2 79.5 1 8 SEININ RIVER MILE 50.5 50.5 48.4 42.0 90.2 79.5 1 8 SEININ RIVER 8 SEININ 8 SE	0 0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.400 1.800 1.300 16350 3100 AREA 1.800 1.	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	FL MIN. 66 FL	FL MAX. 66 FL	FL AVG. 66.0 FL	NO. MEAS. 1 1	SACFRY 0 0	NO. KILLED 0 0	13.1.1 18.4 18.4 18.6 18.6 18.6 WATER TEMP. 11.0 11.2 11.2 11.2 11.2 12.1 13.4 18.8 17.2 11.2 12.1 13.4 14.6 14.3 18.8 17.2 11.4 11.6 11.7 16.8 14.9 20.1	40 181 139 ELEC. COND. 28 33 39 94 43 44 37 191 191 133 ELEC. COND. 28 33 34 43 37 191 191 193 193 193 193 193 193	FL	UPPER 0.0 SECTION UPPER	DENSITY MIDDLE	0.3	7.1 15.0 16.0 TURB. 1.6 1.5 1.9 1.5 1.7 2.5 6.7 17.5 15.3 TURB. 1.2 1.2 1.2 1.2 1.4 1.4 1.4 1.4 2.2 3.8 3.8 3.4 3.4	D.O. (ppm) 13.2 13.2 13.0 11.3 12.1 11.4 11.4 11.4 11.4 11.4 11.4 11.4

TABLE 2. 2011 JUVENILE SALMON SEINING STUDY (TID/MID)

TUOLUMNE RIVER

	SALMON	AREA	DENSITY	MINIMUM	MAXIMUM A'	VERAGE	NUMBER	1	NUMBER
DATE	CATCH	(SQ. FT.)	(/1000 ft^2)	FL	FL	FL	MEAS.	SACFRY	KILLED
19JAN	35	14,750	2.4	32	57	39.0	35	0	0
01FEB	48	11,150	4.3	31	76	43.9	48	0	0
15FEB	45	12,300	3.7	32	51	40.2	45	0	0
01MAR	10	15,100	0.7	33	54	40.4	10	0	0
15MAR	9	11,375	0.8	38	60	44.4	9	0	0
29MAR	2	15,600	0.1	38	42	40.0	2	0	0
12APR	8	16,200	0.5	37	55	45.3	8	0	0
26APR	6	16,350	0.4	42	54	46.5	6	0	0
10MAY	1	14,000	0.1	66	66	66.0	1	0	0
24MAY	0	11,850	0.0						
TOTAL:	164	138,675	1.2				164	0	0

SAN JOAQUIN RIVER

	SALMON	AREA	DENSITY	MINIMUM	MAXIMUM AV	'ERAGE	NUMBER	1	NUMBER
DATE	CATCH	(SQ. FT.)	(/1000 ft^2)	FL	FL	FL	MEAS.	SACFRY	KILLED
19JAN	0	1,950	0.0						
01FEB	2	2,400	0.8	42	43	42.5	2	0	0
15FEB	5	3,300	1.5	37	45	41.0	5	0	0
01MAR	2	2,650	0.8	37	38	37.5	2	0	0
15MAR	10	3100	3.2	44	68	53.2	10	0	0
29MAR	0	4,200	0.0						
12APR	0	4,200	0.0						
26APR	0	3,100	0.0						
10MAY	0	1,800	0.0						
24MAY	0	3,400	0.0						
TOTAL:	19	30,100	0.6				19	0	0

Table 3. Summary table of weekly seine catch by location for the Tuolumne and San Joaquin Rivers, 2011

2011 Weekly S	ummary of TID	/MID Seinin	g Study		EXTRAPOL	ATED									
Salmon Density	is the Number	of Salmon	/ 1000 sa	ft.					-	UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER
					Ex	trapolated				SECTION	SECTION	SECTION	SECTION	SECTION	SECTION
		Total		Measured	Measured	Density	Density	Density	Average	Density	Density	Density	Density	Density	Density
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juvenile
19JAN	OLGB	21	1,800	21	0	11.7	0.0	11.7	35.9	3.6	1.9	0.0	0.0	0.5	0.0
19JAN	R4B	0	2,000					0.0							
19JAN	TLSRA	0	2,000					0.0							
19JAN	HICKMAN	5	1,800	2	3	1.1	1.7	2.8	49.2						
19JAN	CHARLES	9	1,650	9	0	5.5	0.0	5.5	40.8						
19JAN	LEGION	0	2,200					0.0							
19JAN	VENN	0	1,650					0.0							
19JAN	SHILOH	0	1,650					0.0							
19JAN	LAIRD	0	1,350					0.0							
19JAN	GARDNER	0	600					0.0							
TUOL.TOT.		35	14750	32	3	2.2	0.2	2.4	39.0						
SJR. TOT.		0	1950					0.0							
2011 Weekly S	ummary of TID	/MID Seinin	g Study							EXTRAPOL	ATED				
Salmon Density	is the Number	of Salmon	/ 1000 sq.	ft.						UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER
,					Ex	trapolated				SECTION	SECTION	SECTION	SECTION	SECTION	SECTION
		Total		Measured	Measured	Density	Density	Density	Average	Density	Density	Density	Density	Density	Density
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juvenile
01FEB	OLGB	4	1,100	4	0	3.6	0.0	3.6	38.3	1.7	6.2	2.5	0.2	1.7	0.4
01FEB	R5	5	1,800	4	1	2.2	0.6	2.8	48.8						
01FEB	TRR	0	1,800					0.0							

UTLD		0	1,000					0.0	
01FEB	HICKMAN	22	1,450	15	7	10.3	4.8	15.2	47.0
01FEB	CHARLES	2	1,500	2	0	1.3	0.0	1.3	37.0
01FEB	LEGION	8	1,100	8	0	7.3	0.0	7.3	37.1
01FEB	VENN	0	1,200					0.0	
01FEB	SHILOH	7	1,200	6	1	5.0	0.8	5.8	43.9
01FEB	LAIRD	0	1,200					0.0	
01FEB	GARDNER	2	1,200	2	0	1.7	0.0	1.7	42.5
TUOL.TOT.		48	11150	39	9	3.5	0.8	4.3	43.9
SJR. TOT.		2	2400	2	0	0.8	0.0	0.8	42.5

	ummary of TID/		· ·							EXTRAPOL					
non Density	is the Number	of Salmon	/ 1000 sq.	ft.						UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER
					Ext	rapolated				SECTION	SECTION	SECTION	SECTION	SECTION	SECTION
		Total		Measured	Measured	Density	Density	Density	Average	Density	Density	Density	Density	Density	Densit
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juvenil
15FEB	OLGB	0	1,200					0.0		4.3	5.0	0.9	0.0	0.2	0.0
15FEB	R5	4	2,400	4	0	1.7	0.0	1.7	42.5						
15FEB	TLSRA	16	1,100	16	0	14.5	0.0	14.5	42.7						
15FEB	HICKMAN	16	1,700	15	1	8.8	0.6	9.4	38.4						
15FEB	CHARLES	6	2,200	6	0	2.7	0.0	2.7	37.2						
15FEB	LEGION	0	300					0.0							
15FEB	VENN	0	1,600					0.0							
15FEB	SHILOH	3	1,800	3	0	1.7	0.0	1.7	39.7						
15FEB	LAIRD	1	1,650	1	0	0.6	0.0	0.6	40.0						
15FEB	GARDNER	4	1,650	4	0	2.4	0.0	2.4	41.3						
JOL.TOT.		45	12300	44	1	3.6	0.1	3.7	40.2						
SJR. TOT.		5	3300	5	0	1.5	0.0	1.5	41.0						

Extrapolated SECTION S	2011 Weekly S	ummary of TID/	MID Seining	g Study		EXTRAPOL	ATED									
Total Measured Measured Density Density <t< td=""><td>Salmon Density</td><td>is the Number</td><td>of Salmon /</td><td>1000 sq.</td><td>ft.</td><td>UPPER</td><td>MIDDLE</td><td>LOWER</td><td>UPPER</td><td>MIDDLE</td><td>LOWER</td></t<>	Salmon Density	is the Number	of Salmon /	1000 sq.	ft.	UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER					
Date Location Catch Area Fry Juvenile Total FL Frý Frý Frý Juvenile Juvenile<						Ex	trapolated				SECTION	SECTION	SECTION	SECTION	SECTION	SECTION
O'IMAR OLGB 0 2,400 0.0 0.6 0.7 0.0 0.0 0.4 O'IMAR R4B 5 2,200 5 0 2.3 0.0 2.3 36.8 0.0 0.0 0.4 0.0 0.0 0.4 O'IMAR TLSRA 0 1,800 0.			Total		Measured	Measured	Density	Density	Density	Average	Density	Density	Density	Density	Density	Density
OTMAR R4B 5 2,20 5 0 2.3 0.0 2.3 36.8 OTMAR TLSRA 0 1,800 0.0 0.0 0.0 OTMAR HICKMAN 4 1,700 4 0 2.4 41.5 OTMAR CHARLES 0 1,800 0.0 0.0 OTMAR LEGION 0 2,400 0.0 0.0 OTMAR LEGION 0 2,400 0.0 0.0 OTMAR LEGION 0 2,400 0.0 0.0 OTMAR LEGION 0 1,800 0.0 0.0 OTMAR SHILOH 0 1,860 0.0 0.0 OTMAR LAIRD 0 1,650 0.0 0.0 OTMAR GARDNER 2 1,000 2.0 0.0 2.0 37.5 TUOLTOT 10 15100 9 1 0.6 0.1 0.4	Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juvenile
01MAR TLSRA 0 1,800 0.0 01MAR HICKMAN 4 1,700 4 0 2.4 0.0 2.4 415 01MAR CHARLES 0 1,800 0.0 0.0 0.0 01MAR CHARLES 0 1,800 0.0 0.0 0.0 01MAR LEGION 0 2,400 0.0 0.0 0.0 01MAR VENN 1 1,000 0 1 0.0 0.0 01MAR SHILOH 0 1,860 0.0 0.0 0.0 01MAR GARDNER 2 1,000 2 0 2.0 37.5 TUOL.TOT. 10 15100 9 1 0.6 0.1 0.7 40.4	01MAR	OLGB	0	2,400					0.0		0.8	0.7	0.0	0.0	0.0	0.4
OfMAR HICKMAN 4 1700 4 0 2.4 0.0 2.4 41.5 OfMAR CHARLES 0 1,800 0.0 0.0 0.0 OfMAR LEGION 0 2,400 0.0 0.0 OfMAR VENN 1 1,000 0 1 0.0 0.0 OfMAR SHILOH 0 1,800 0.0 0.0 0.0 OfMAR SHILOH 0 1,800 0.0 0.0 0.0 OfMAR SHILOH 0 1,600 0.0 0.0 0.0 0.0 OfMAR GADNER 2 1,000 2 0 0.0 2.0 37.5 TUOL.TOT. 10 15100 9 1 0.6 0.1 0.7 40.4	01MAR	R4B	5	2,200	5	0	2.3	0.0	2.3	36.8						
01MAR CHARLES 0 1,800 0.0 01MAR LEGION 0 2,400 0.0 01MAR VENN 1 1,000 0 1 0.0 01MAR VENN 1 1,000 0 1 0.0 1.0 1.0 01MAR SHILOH 0 1,800 0.0 0.0 0.0 01MAR LAIRD 0 1,650 0.0 0.0 0.0 01MAR GARDNER 2 1,000 2 0 2.0 37.5 TUOL.TOT. 10 15100 9 1 0.6 0.1 0.7 40.4	01MAR	TLSRA	0	1,800					0.0							
O'IMAR LEGION 0 2,400 0.0 O'IMAR VENN 1 1,000 0 1 0.0 1.0 1.0 54.0 O'IMAR SHILOH 0 1,800 0.0 0.0 0.0 O'IMAR LAIRD 0 1,650 0.0 0.0 O'IMAR GARDNER 2 1,000 2 0 2.0 37.5 TUOL.TOT. 10 15100 9 1 0.6 0.1 0.7 40.4	01MAR	HICKMAN	4	1,700	4	0	2.4	0.0	2.4	41.5						
01MAR VENN 1 1,000 0 1 0.0 1.0 1.0 54.0 01MAR SHILOH 0 1,800 0.0 0.0 01MAR LAIRD 0 1,650 0.0 01MAR GARDNER 2 1,000 2 0 2.0 37.5 TUOL.TOT. 10 15100 9 1 0.6 0.1 0.7 40.4	01MAR	CHARLES	0	1,800					0.0							
01MAR SHILOH 0 1,800 0.0 01MAR LAIRD 0 1,650 0.0 01MAR GARDNER 2 1,000 2 0 2.0 37.5 TUOL.TOT. 10 15100 9 1 0.6 0.1 0.7 40.4	01MAR	LEGION	0	2,400					0.0							
O1MAR LAIRD 0 1,660 0.0 O1MAR GARDNER 2 1,000 2 0 2.0 37.5 TUOL.TOT. 10 15100 9 1 0.6 0.1 0.7 40.4	01MAR	VENN	1	1,000	0	1	0.0	1.0	1.0	54.0						
01MAR GARDNER 2 1,000 2 0 2.0 0.0 2.0 37.5 TUOL.TOT. 10 15100 9 1 0.6 0.1 0.7 40.4	01MAR	SHILOH	0	1,800					0.0							
TUOL.TOT. 10 15100 9 1 0.6 0.1 0.7 40.4	01MAR	LAIRD	0	1,650					0.0							
	01MAR	GARDNER	2	1,000	2	0	2.0	0.0	2.0	37.5						
SJR. TOT. 2 2650 2 0 0.8 0.0 0.8 37.5	TUOL.TOT.		10	15100	9	1	0.6	0.1	0.7	40.4						
	SJR. TOT.		2	2650	2	0	0.8	0.0	0.8	37.5						

2011 Weekly S	ummary of TID/	MID Seining	g Study		EXTRAPOL	ATED									
Salmon Densit	y is the Number	of Salmon	/ 1000 sq	. ft.					-	UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOWER
					Ext	trapolated				SECTION	SECTION	SECTION	SECTION	SECTION	SECTION
		Total		Measured	Measured	Density	Density	Density	Average	Density	Density	Density	Density	Density	Density
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juvenile
15MAR	OLGB	0	1,350					0.0		0.5	1.1	0.3	0.0	0.0	0.3
15MAR	R5	1	1,800	1	0	0.6	0.0	0.6	40.0						
15MAR	TLSRA	1	800	1	0	1.3	0.0	1.3	50.0						
15MAR	HICKMAN	0	1,650					0.0							
15MAR	CHARLES	5	1,950	5	0	2.6	0.0	2.6	41.0						
15MAR	LEGION	0	825					0.0							
15MAR	VENN	2	1,200	1	1	0.8	0.8	1.7	52.5						
15MAR	SHILOH	0	1,800					0.0							
15MAR	LAIRD	3	1,600	1	2	0.6	1.3	1.9	53.0						
15MAR	GARDNER	7	1,500	4	3	2.7	2.0	4.7	53.3						
TUOL.TOT.		9	11375	8	1	0.7	0.1	0.8	44.4						
SJR. TOT.		10	3100	5	5	1.6	1.6	3.2	53.2						

Table 3. Summary table of weekly seine catch by location for the Tuolumne and San Joaquin Rivers, 2011 (cont.)

annon Density	in the Numb	MID Seinin		4						EXTRAPOL				MIDDLE	1.004
	is the Number	ot Salmon	/ 1000 sq	. Tf.	E	rapolated				UPPER SECTION	MIDDLE SECTION	LOWER SECTION	UPPER SECTION	MIDDLE SECTION	LOW
		Total		Measured		rapolated Density	Density	Density	Average			Density		Density	Den
Date	Location	Catch	Area	Fry	Juvenile		Density Juvenile	Total	Average FL	Density	Density		Density Juvenile	Juvenile	Juve
				FIY	Juvenile	Fry	Juvenile		FL	Fry	Fry	Fry			
29MAR	OLGB	0	2,200	_	-			0.0		0.3	0.0	0.0	0.0	0.0	
29MAR	R4B	2	2,400	2	0	0.8	0.0	0.8	40.0						
29MAR	TLSRA	0	2,000					0.0							
29MAR	HICKMAN	0	1,800					0.0							
29MAR	CHARLES	0	1,800					0.0							
29MAR	LEGION	0	1,800					0.0							
29MAR	VENN	0	1,800					0.0							
29MAR	SHILOH	ō	1,800					0.0							
29MAR	LAIRD	0	2,400					0.0							
29MAR	GARDNER	0	1,800					0.0							
	GARDNER								40.0						
TUOL.TOT.		2	15600	2	0	0.1	0.0	0.1	40.0						
SJR. TOT.		0	4200					0.0							
11 Weekly S	ummary of TID/	MID Seinin	a Study							EXTRAPOL	ATED				
,	is the Number		. ,	ft						UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOW
inter Beneity		or ournor.	, 1000 04		Ext	rapolated				SECTION		SECTION	SECTION	SECTION	SECTI
		Total		Measured		Density	Density	Doncity	Average	Density	Density	Density	Density	Density	Den
Dete	1		A												
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile	Juvenile	Juve
12APR	OLGB	1	2,000	0	1	0.0	0.5	0.5	53.0	0.3	0.7	0.0	0.2	0.2	
12APR	R4B	2	2,400	2	0	0.8	0.0	0.8	44.0						
12APR	TLSRA	0	1,800					0.0							
12APR	HICKMAN	1	1,600	0	1	0.0	0.6	0.6	55.0						
12APR	STREETER	3	1,800	3	0 0	1.7	0.0	1.7	41.0						
12APR	LEGION	1	2,400	1	0	0.4	0.0	0.4	43.0						
12APR	RDP	0	2,200					0.0							
12APR	SHILOH	0	2,000					0.0							
12APR	LAIRD	0	1,800					0.0							
12APR	OFC	ő	2,400					0.0							
UOL.TOT.		8	16200	6	2	0.4	0.1	0.5	45.3						
SJR. TOT.		0	4200					0.0							
11 Weekly S	ummary of TID/	MID Seinin	g Study							EXTRAPOL	ATED				
Imon Density	is the Number	of Salmon	/ 1000 sq	. ft.						UPPER	MIDDLE	LOWER	UPPER	MIDDLE	LOW
					Ext	rapolated				SECTION	SECTION	SECTION	SECTION	SECTION	SECT
		Total		Measured		Density	Density	Donsity	Average	Density	Density	Density	Density	Density	De
Dete	1		A											Juvenile	
Date	Location	Catch	Area	Fry	Juvenile	Fry	Juvenile	Total	FL	Fry	Fry	Fry	Juvenile		Juv
26APR	OLGB	2	2,200	1	1	0.5	0.5	0.9	48.5	0.6	0.0	0.0	0.3	0.0	
26APR	R4B	4	2,400	3	1	1.3	0.4	1.7	45.5						
26APR	TLSRA	0	2,400					0.0							
26APR	HICKMAN	ō	2,100					0.0							
26APR	STREETER	0	1,650					0.0							
26APR	LEGION	0	2,400					0.0							
26APR 26APR	LEGION RDP	0 0	2,400 1,800					0.0 0.0							
26APR 26APR 26APR	LEGION RDP SHILOH	0 0 0	2,400 1,800 1,400					0.0 0.0 0.0							
26APR 26APR 26APR 26APR 26APR	LEGION RDP SHILOH LAIRD	0 0 0	2,400 1,800 1,400 1,800					0.0 0.0 0.0 0.0							
26APR 26APR 26APR 26APR 26APR 26APR	LEGION RDP SHILOH	0 0 0 0	2,400 1,800 1,400 1,800 1,300		2	0.2	0.1	0.0 0.0 0.0 0.0 0.0	46.5						
26APR 26APR 26APR 26APR 26APR UOL.TOT.	LEGION RDP SHILOH LAIRD	0 0 0 0 6	2,400 1,800 1,400 1,800 1,300 16350	4	2	0.2	0.1	0.0 0.0 0.0 0.0 0.0 0.0	46.5						
26APR 26APR 26APR 26APR 26APR UOL.TOT.	LEGION RDP SHILOH LAIRD	0 0 0 0	2,400 1,800 1,400 1,800 1,300	4	2	0.2	0.1	0.0 0.0 0.0 0.0 0.0	46.5						
26APR 26APR 26APR 26APR 26APR UOL.TOT. SJR. TOT.	LEGION RDP SHILOH LAIRD OFC	0 0 0 0 6 0	2,400 1,800 1,400 1,800 1,300 16350 3100	4	2	0.2	0.1	0.0 0.0 0.0 0.0 0.0 0.0		EXTRAPOL	ATED				
26APR 26APR 26APR 26APR 26APR 26APR UOL.TOT. SJR. TOT.	LEGION RDP SHILOH LAIRD OFC	0 0 0 0 6 0 /MID Seinin	2,400 1,800 1,400 1,800 1,300 16350 3100 g Study		2	0.2	0.1	0.0 0.0 0.0 0.0 0.0 0.0		EXTRAPOL		LOWER	UPPER	MIDDI E	LOV
26APR 26APR 26APR 26APR 26APR 26APR UOL.TOT. SJR. TOT.	LEGION RDP SHILOH LAIRD OFC	0 0 0 0 6 0 /MID Seinin	2,400 1,800 1,400 1,800 1,300 16350 3100 g Study				0.1	0.0 0.0 0.0 0.0 0.0 0.0		UPPER	MIDDLE	LOWER	UPPER	MIDDLE	
26APR 26APR 26APR 26APR 26APR UOL.TOT. SJR. TOT. 11 Weekly S	LEGION RDP SHILOH LAIRD OFC	0 0 0 6 0 /MID Seinin	2,400 1,800 1,400 1,800 1,300 16350 3100 g Study	. ft.	Ex	rapolated		0.0 0.0 0.0 0.0 0.0 0.4 0.0	·	UPPER SECTION	MIDDLE SECTION	SECTION	SECTION	SECTION	SECT
26APR 26APR 26APR 26APR 26APR UOL.TOT. SJR. TOT. 11 Weekly S mon Density	LEGION RDP SHILOH LAIRD OFC ummary of TID/ v is the Number	0 0 0 6 0 /MID Seinin, of Salmon, Total	2,400 1,800 1,400 1,800 1,300 16350 3100 g Study / 1000 sq	. ft. Measured	E <u>xt</u> Measured	trapolated Density	Density	0.0 0.0 0.0 0.0 0.4 0.0 Density	Average	UPPER SECTION Density	MIDDLE SECTION Density	SECTION Density	SECTION Density	SECTION Density	SECT De
26APR 26APR 26APR 26APR 26APR 06APR UOL.TOT. SJR. TOT. 11 Weekly S mon Density Date	LEGION RDP SHILOH LAIRD OFC ummary of TID/ v is the Number Location	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,400 1,800 1,300 16350 3100 g Study / 1000 sq	. ft.	Ex	rapolated		0.0 0.0 0.0 0.0 0.4 0.0 Density Total	·	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 26APR 26APR 26APR 26APR UOLTOT. SJR. TOT. 11 Weekly S mon Density Date 10MAY	LEGION RDP SHILOH LAIRD OFC ummary of TID/ is the Number Location OLGB	0 0 0 6 0 /MID Seinin of Salmon Total Catch 0	2,400 1,800 1,400 1,800 1,300 16350 3100 g Study / 1000 sq Area 1,800	. ft. Measured	E <u>xt</u> Measured	trapolated Density	Density	0.0 0.0 0.0 0.0 0.0 0.4 0.0 Density Total 0.0	Average	UPPER SECTION Density	MIDDLE SECTION Density	SECTION Density	SECTION Density	SECTION Density	SECT De
26APR 26APR 26APR 26APR 26APR 26APR UOL.TOT. SJR. TOT. 1 Weekly S mon Density Date 10MAY 10MAY	LEGION RDP SHILOH LAIRD OFC ummary of TID/ v is the Number Location OLGB R4B	0 0 0 6 0 /MID Seinin, r of Salmon Total Catch 0 0	2,400 1,800 1,400 1,800 1,300 16350 3100 g Study / 1000 sq Area 1,800 1,800	. ft. Measured	E <u>xt</u> Measured	trapolated Density	Density	0.0 0.0 0.0 0.0 0.4 0.0 0.0 0.0 Density Total 0.0 0.0	Average	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 26APR 26APR 26APR 26APR 20L.TOT. SJR. TOT. 11 Weekly S Imon Density Date 10MAY	LEGION RDP SHILOH LAIRD OFC ummary of TID/ is the Number Location OLGB	0 0 0 6 0 /MID Seinin of Salmon Total Catch 0	2,400 1,800 1,400 1,800 1,300 16350 3100 g Study / 1000 sq Area 1,800	. ft. Measured	E <u>xt</u> Measured	trapolated Density	Density	0.0 0.0 0.0 0.0 0.0 0.4 0.0 Density Total 0.0	Average	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 10L.TOT. SJR. TOT. 11 Weekly S mon Density Date 10MAY 10MAY	LEGION RDP SHILOH LAIRD OFC ummary of TID/ v is the Number Location OLGB R4B	0 0 0 6 0 /MID Seinin, r of Salmon Total Catch 0 0	2,400 1,800 1,400 1,800 1,800 16350 3100 g Study / 1000 sq Area 1,800 1,800 1,800	. ft. Measured	E <u>xt</u> Measured	trapolated Density	Density	0.0 0.0 0.0 0.0 0.4 0.0 Density Total 0.0 0.0 0.0	Average	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 26APR 26APR 26APR 26APR 200L.TOT. SJR. TOT. 11 Weekly S mon Density Date 10MAY 10MAY 10MAY	LEGION RDP SHILOH LAIRD OFC ummary of TID/ is the Number Location OLGB R4B TLSRA HICKMAN	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,800 1,300 16350 3100 g Study / 1000 sq Area 1,800 1,800 1,800 1,800	. ft. Measured	E <u>xt</u> Measured	trapolated Density	Density	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 26APR 26APR 26APR 26APR 26APR 100LTOT. SJR. TOT. 1 Weekly S mon Density Date 10MAY 10MAY 10MAY 10MAY	LEGION RDP SHILOH LAIRD OFC ummary of TID/ v is the Number Location OLGB R4B TLSRA HICKMAN CHARLES	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,400 1,300 16350 3100 g Study / 1000 sq Area 1,800 1,800 1,800 1,800	. ft. Measured	Ext Measured	trapolated Density	Density	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 26APR 26APR 26APR 26APR 20LTOT. SJR. TOT. 11 Weekly S Imon Density Date 10MAY 10MAY 10MAY 10MAY 10MAY	LEGION RDP SHILOH LAIRD OFC ummary of TID is the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION	0 0 0 6 0 /MID Seinin of Salmon Total Catch 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,800 1,800 1,300 16350 3100 g Study / 1000 sq 1,800 1,800 1,800 1,800 1,800 1,800 1,800	. ft. Measured	Ext Measured	trapolated Density	Density	0.0 0.0 0.0 0.0 0.0 0.0 0.4 0.0 Total 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 26APR 26APR 26APR 26APR 26APR UOLTOT. SJR. TOT. 11 Weekly S mon Density 10 MAY 10 MAY 10 MAY 10 MAY	LEGION RDP SHILOH LAIRD OFC ummary of TID/ v is the Number Location OLGB R4B TLSRA HICKMAN CHARLES	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,400 1,300 16350 3100 g Study / 1000 sq Area 1,800 1,800 1,800 1,800	. ft. Measured	Ext Measured	trapolated Density Fry	Density	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 26APR 26APR 26APR 26APR 20LTOT. SJR. TOT. 11 Weekly S mon Density Date 10MAY 10MAY 10MAY 10MAY 10MAY	LEGION RDP SHILOH LAIRD OFC ummary of TID is the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION	0 0 0 6 7 0 10 10 10 10 10 10 10 10 10 10 10 10 1	2,400 1,800 1,800 1,800 1,300 16350 3100 g Study / 1000 sq 1,800 1,800 1,800 1,800 1,800 1,800 1,800	. ft. Measured	Ext Measured	trapolated Density	Density	0.0 0.0 0.0 0.0 0.0 0.0 0.4 0.0 Total 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 26APR 26APR 26APR 26APR 26APR 26APR 20LTOT. SJR. TOT. 11 Weekly S Imon Density 10MAY 10MAY 10MAY 10MAY 10MAY	LEGION RDP SHILOH LAIRD OFC OFC Ummary of TID/ is the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN	0 0 0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,400 1,300 1,300 16350 3100 g Study / 1000 sq 1,800 1,800 1,800 1,800 1,800 1,600	. ft. Measured Fry	E <u>xt</u> Measured Juvenile	trapolated Density Fry	Density 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	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	LOV SECT Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC ummary of TID/ v is the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH	0 0 0 6 0 1 MID Seinin of Salmon Total Catch 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,400 1,300 16350 3100 g Study / 1000 sq 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800	. ft. Measured Fry 0	E <u>xt</u> Measured Juvenile	trapolated Density Fry	Density 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	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 104PT 104PT 104PT 104PT 104PT 104PT 104PT 104PT 104PT 104PT 104PT 104PT	LEGION RDP SHILOH LAIRD OFC vis the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH LAIRD	0 0 0 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	2,400 1,800 1,400 1,800 1,6350 33100 g Study / 1000 sq 1,800 1,800 1,800 1,800 1,800 1,600 1,600 1,600 1,800 due to his	. ft. Measured Fry 0	E <u>xt</u> Measured Juvenile	trapolated Density Fry 0.0	Density Juvenile	0.0 0.0 0.0 0.4 0.4 0.0 Total 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	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20MAY 10MAY	LEGION RDP SHILOH LAIRD OFC vis the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH LAIRD	0 0 0 6 0 1 MID Seinin of Salmon Total Catch 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,400 1,800 1,300 16350 3100 g Study / 1000 sq 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800	. ft. Measured Fry 0 gh flow	E <u>xt</u> Measured Juvenile	trapolated Density Fry	Density Juvenile 0.6	0.0 0.0 0.0 0.0 0.4 0.0 0.4 0.0 0.0 0.0	Average FL	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20APR 20MAY 10MAY	LEGION RDP SHILOH LAIRD OFC vis the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH LAIRD	0 0 0 6 7MID Seinin of Salmon Total Catch 0 0 0 0 0 0 0 0 0 1 1 1	2,400 1,800 1,400 1,800 1,6350 33100 g Study / 1000 sq 1,800 1,800 1,800 1,800 1,600 1,600 1,600 1,800 due to his	. ft. Measured Fry 0 gh flow	E <u>xt</u> Measured Juvenile	trapolated Density Fry 0.0	Density Juvenile 0.6	0.0 0.0 0.0 0.4 0.4 0.0 Total 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	MIDDLE SECTION Density Fry	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 26APR	LEGION RDP SHILOH LAIRD OFC vis the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH LAIRD	0 0 0 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	2,400 1,400 1,400 1,300 1,300 1,300 3100 g Study / 1000 sq Area 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800 1,800	. ft. Measured Fry 0 gh flow	E <u>xt</u> Measured Juvenile	trapolated Density Fry 0.0	Density Juvenile 0.6	0.0 0.0 0.0 0.0 0.4 0.0 0.4 0.0 0.0 0.0	Average FL 66.0	UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0	SECTION Density Fry	SECTION Density Juvenile	SECTION Density Juvenile	SECT De
26APR 26APR	LEGION RDP SHILOH LAIRD OFC vis the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH LAIRD GARDNER N	0 0 0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,400 1,400 1,800 1,300 1,300 9 Study / 1000 sq / 1000 sq / 1000 sq / 1000 sq 1,800	. ft. Measured Fry 0 gh flow 0	E <u>xt</u> Measured Juvenile	trapolated Density Fry 0.0	Density Juvenile 0.6	0.0 0.0 0.0 0.0 0.4 0.0 0.4 0.0 0.0 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0	MIDDLE SECTION Density Fry 0.0	SECTION Density Fry 0.0	SECTION Density Juvenile 0.0	SECTION Density Juvenile	SECT De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC ummary of TID/ is the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN VENN SHILOH LAIRD GARDNER N	0 0 0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,400 1,400 1,800 1,300 1,300 9 Study / 1000 sq / 1000 sq / 1000 sq / 1000 sq 1,800	. ft. Measured Fry 0 gh flow 0	E <u>xi</u> Measured Juvenile 1	irapolated Density Fry 0.0	Density Juvenile 0.6	0.0 0.0 0.0 0.0 0.4 0.0 0.4 0.0 0.0 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER	MIDDLE SECTION Density Fry 0.0 ATED MIDDLE	SECTION Density Fry 0.0	SECTION Density Juvenile 0.0	SECTION Density Juvenile 0.0 MIDDLE	SEC1 De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC vis the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH LAIRD GARDNER N	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,400 1,400 1,800 1,300 1,300 9 Study / 1000 sq / 1000 sq / 1000 sq / 1000 sq 1,800	. ft. Measured Fry 0 gh flow 0 . ft.	Ext Measured Juvenile 1 1	rrapolated Density Fry 0.0 0.0	Density 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 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION	MIDDLE SECTION Density Fry 0.0 0.0 MIDDLE SECTION	SECTION Density Fry 0.0 UOUER	SECTION Density Juvenile 0.0 UPPER SECTION	SECTION Density Juvenile 0.0 MIDDLE SECTION	SECT De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC ummary of TID/ is the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH LAIRD GARDNER N Ummary of TID/ is the Number	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,000 1,800 1,0000	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density	SECTION Density Juvenile 0.0 UPPER SECTION Density	SECTION Density Juvenile 0.0 MIDDLE SECTION Density	SECT De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC vis the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH LAIRD GARDNER N ummary of TID, v is the Number Location	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,900	ft. Measured Fry 0 gh flow 0 . ft. Measured	Ext Measured Juvenile 1 1	rrapolated Density Fry 0.0 0.0	Density 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 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density Fry	SECTION Density Juvenite 0.0 UPPER SECTION Density Juvenite	SECTION Density Juvenile 0.0 MIDDLE SECTION Density Juvenile	SECT De
26APR 26APR	LEGION RDP SHILOH LAIRD OFC ummary of TID/ is the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH LAIRD GARDNER N Ummary of TID/ is the Number	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,000 1,800 1,0000	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density	SECTION Density Juvenile 0.0 UPPER SECTION Density	SECTION Density Juvenile 0.0 MIDDLE SECTION Density	SECT De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC OFC vis the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH LAIRD GARDNER N Ummary of TID/ v is the Number Location OLGB	0 0 0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,800 1,800 1,800 1,800 1,800 1,300 9 Study 1,800 1,80	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density Fry	SECTION Density Juvenite 0.0 UPPER SECTION Density Juvenite	SECTION Density Juvenile 0.0 MIDDLE SECTION Density Juvenile	SECT De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC ummary of TID/ is the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH LAIRD GARDNER N Ummary of TID/ is the Number Location OLGB R4B	0 0 0 0 6 0 7 7 7 7 7 7 7 7 7 7 7 8 8 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,400 1,800	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density Fry	SECTION Density Juvenite 0.0 UPPER SECTION Density Juvenite	SECTION Density Juvenile 0.0 MIDDLE SECTION Density Juvenile	SECT De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC OFC Location OLGB R4B TLSRA HICKMAN CHARLES SHILOH LAIRD GARDNER N Ummary of TID/ is the Number Location OLGB R4B R4B TLSRA	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2.400 1.800 1.800 1.800 1.800 1.800 1.800 3100 g Study 1/100 sq 1.8000 1	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density Fry	SECTION Density Juvenite 0.0 UPPER SECTION Density Juvenite	SECTION Density Juvenile 0.0 MIDDLE SECTION Density Juvenile	SECT De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC ummary of TID/ is the Number Location OLGB R4B TLSRA HICKMAN VENN SHILOH LAIRD GARDNER N Ummary of TID/ is the Number Location OLGB R4B TLSRA HICKMAN	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,400 1,800	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density Fry	SECTION Density Juvenite 0.0 UPPER SECTION Density Juvenite	SECTION Density Juvenile 0.0 MIDDLE SECTION Density Juvenile	SECT De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC OFC Location OLGB R4B TLSRA HICKMAN CHARLES SHILOH LAIRD GARDNER N Ummary of TID/ is the Number Location OLGB R4B R4B TLSRA	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2.400 1.800 1.800 1.800 1.800 1.800 1.800 3100 g Study 1/100 sq 1.8000 1	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density Fry	SECTION Density Juvenite 0.0 UPPER SECTION Density Juvenite	SECTION Density Juvenile 0.0 MIDDLE SECTION Density Juvenile	SECT De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC OFC is the Number Location OLGB R4B TLSRA HICKMAN CHARLES CHARLES	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2.400 1.800 1.400	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density Fry	SECTION Density Juvenite 0.0 UPPER SECTION Density Juvenite	SECTION Density Juvenile 0.0 MIDDLE SECTION Density Juvenile	SECT De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC Ummary of TID/ is the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION N VENN SHILOH LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD LAIRD CHARLES LEGION N	0 0 0 0 6 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800 1,800 1,800 1,800 1,800 1,800 9 Study 1,000 sq 1,800 1	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density Fry	SECTION Density Juvenite 0.0 UPPER SECTION Density Juvenite	SECTION Density Juvenile 0.0 MIDDLE SECTION Density Juvenile	SECT De Juv
26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 26APR 10MAY 24MAY	LEGION SHILOH LAIRD OFC OFC OFC OFC OFC OFC OFC COFC LOCATION CHARLES LEGION VENN VENN VENN CHARLES LEGION CHARLES LEGION CHARLES LEGION CHARLES CHARLES LEGION CHARLES CHARLES LEGION CHARLES	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2.400 1.800 1.800 1.800 3100 3100 3 g Study 1/1000 sq 8 study 1.800 1.80	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density Fry	SECTION Density Juvenite 0.0 UPPER SECTION Density Juvenite	SECTION Density Juvenile 0.0 MIDDLE SECTION Density Juvenile	SECT De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC OFC is the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION N VENN SHILOH	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2.400 1.800 1.800 1.800 1.800 1.800 1.800 3100 3 g Study 1/100 sq 1.800	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density Fry	SECTION Density Juvenite 0.0 UPPER SECTION Density Juvenite	SECTION Density Juvenile 0.0 MIDDLE SECTION Density Juvenile	SECT De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC Ummary of TID/ is the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH LAIRD CHARDES LEGION N VENN SHILOH LARD CHARLES LEGION N VENN SHILOH LAIRD	0 0 0 0 6 0 7 MID Seinin of Salmon Total Catch 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density Fry	SECTION Density Juvenite 0.0 UPPER SECTION Density Juvenite	SECTION Density Juvenile 0.0 MIDDLE SECTION Density Juvenile	SECT De Juv
26APR 10MAY 20MAY 24MAY 24MAY 24MAY	LEGION RDP SHILOH LAIRD OFC OFC is the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION N VENN SHILOH	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2.400 1.800 1.800 1.800 1.800 1.800 1.800 3100 sq 9 Study 1/1000 sq 9 Study 1/1000 sq 1.800 1.80	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.0.0 0.0.00 0.0.00 0.0.00 0.0.000000	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density Fry	SECTION Density Juvenite 0.0 UPPER SECTION Density Juvenite	SECTION Density Juvenile 0.0 MIDDLE SECTION Density Juvenile	SECT De Juv
26APR 26APR	LEGION RDP SHILOH LAIRD OFC Ummary of TID/ is the Number Location OLGB R4B TLSRA HICKMAN CHARLES LEGION VENN SHILOH LAIRD CHARDES LEGION N VENN SHILOH LARD CHARLES LEGION N VENN SHILOH LAIRD	0 0 0 0 6 0 7 MID Seinin of Salmon Total Catch 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2,400 1,800	ft. Measured Fry 0 gh flow 0 . ft. Measured	Measured Juvenile 1 1 E <u>X</u> Measured	irapolated Density Fry 0.0 0.0 rapolated Density	Density Juvenile 0.6 0.1 Density	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Average FL 66.0	UPPER SECTION Density Fry 0.0 EXTRAPOL UPPER SECTION Density Fry	MIDDLE SECTION Density Fry 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	SECTION Density Fry 0.0 LOWER SECTION Density Fry	SECTION Density Juvenite 0.0 UPPER SECTION Density Juvenite	SECTION Density Juvenile 0.0 MIDDLE SECTION Density Juvenile	SEC D Ju Ju LO SEC D

Table 4. 2011 Other species sampled during seining studies on juvenile salmon.

OTHER SPECIES SAMPLED	(ACTUAL	COUNTS (OR ESTIMATED	ABUNDANCE)

DATE	SITE	LOCATION N		LP TFS	RT	СР	GF	GSH S	BF HF	нсн	PM S	Г PRS	FHM	I SKR	WCF	GAM	ISS	SB	WCR	GSF	BG	LMB	SMB BLP	TP	RSCP RSF	CCF	CENT
19JAN	1		50.5											1													
19JAN 19JAN	2 3	R4B TLSRA	48.4						10		10					20											
19JAN 19JAN	4	HICK							10		10 2					20											
19JAN	5		24.9								~																
19JAN	6		17.2											1		1											
19JAN	7	VENN	6.4											1													
19JAN	8		3.4									1		1													
19JAN	9		90.2									50		5													
19JAN	10	GARDNER	77.8									40					4										
DATE	SITE	LOCATION M	1ILE	LP TFS	RT	СР	GF	GSH S	BF HF	нсн	PM S	г prs	FHM	I SKR	WCF	GAM	ISS	SB	WCR	GSF	BG	LMB	SMB BLP	TP	RSCP RSF	CCF	CENT
01FEB	1		50.5																								
01FEB	2		48.0		1									1													
01FEB	3		42.3								40			YOY		1											
01FEB 01FEB	4 5	HICK CHARLES	31.6 24.9						1					1													
01FEB	6		17.2						1					1		11											1
01FEB	7		6.4											1		20											1
01FEB	8		3.4									2															1
01FEB	9	LAIRD	90.2									200					5										
01FEB	10	GARDNER	77.8									80					15								1	l	
DATE	SITE	LOCATION N	4ILE	LP TFS	RT	СР	GF	GSH S	BF HH	нсн	PM S	Г PRS	FHM	I SKR	WCF	GAM	ISS	SB	WCR	GSF	BG	LMB	SMB BLP	TP	RSCP RSF	CCF	CENT
15FEB	1	OLGB	50.5																								
15FEB	2	R5																									
15FEB	3	TLSRA												5													
15FEB	4	HICK							1		2																
15FEB 15FEB	5 6		24.9 17.2											4													
15FEB	7		6.4											2													
15FEB	8		3.4									6															
15FEB	9		90.2									40					10										
15FEB	10	GARDNER	77.8									20	1				10										
DATE	SITE	LOCATION M	1ILE	LP TFS	RT	СР	GF	GSH S	BF HF	нсн	PM S	Г PRS	FHM	I SKR	WCF	GAM	ISS	SB	WCR	GSF	BG	LMB	SMB BLP	ТР	RSCP RSF	CCF	CENT
01MAR	1		50.5				-							1		2											
01MAR	2		48.4																								
01MAR	3		42.0											20		3											
01MAR	4	HICK												3													
01MAR	5		24.9								1	-															
01MAR	6	LEGION										2				,											
01MAR	7 8	RDP										10		2		1 2											
01MAR 01MAR	8 9	SHILOH LAIRD	3.4 90.2									20		2		5											
01MAR	10	GARDNER										20				5	1				1						
DATE 15MAP		LOCATION N OLGB		LP TFS	RT	CP	GF	GSH S	BF HF	HCH	PM S	Γ PRS	FHM	I SKR	WCF	GAM	ISS	SB	WCR	GSF	BG	LMB	SMB BLP	TP	RSCP RSF	CCF	CENT
15MAR 15MAR	1 2	R5												1													
15MAR	3	TLSRA												2							1						
15MAR	4	HICK									1			2							1						
15MAR	5		24.9								1																
15MAR	6		17.2													1											
15MAR	7		6.4											1													
15MAR	8		3.4											YOY		2											
15MAR	9	LAIRD										200	1				20										
15MAR	10	GARDNER	77.8									40					5										

		Other spe																									
DATE	SITE	LOCATION		LP TFS		CP	GF	GSH	SBF	HH H	CH	PM ST	PRS	FHM SI	CR WC	F GAM	ISS	SB	WCR	GSF	BG	LMB	SMB BI	LP TP	RSCP RSF	CCF	CENT
29MAR 29MAR	1 2	OLGB R4B	50.5 48.4		1											1											
29MAR	3	TLSRA																									
29MAR	4	HICK										1															
29MAR	5	CHARLES														2											
29MAR	6	LEGION	17.2									10				6											
29MAR	7	RDP	12.3													1											
29MAR	8	SHILOH	3.4									3															
29MAR	9	LAIRD											100				6										
29MAR	10	GARDNER	77.8													2											
	SITE	LOCATION		LP TFS	RT	СР	GF	GSH	SBF	нн н	ICH	PM ST	PRS	FHM SH	KR WO	CF GAM	ISS	SB	WCR	GSF	BG	LMB	SMB BI	LP TP	RSCP RSF	CCF	CENT
12APR	1	OLGB	50.5												3												
12APR	2		48.4																								
12APR	3 4	TLSRA										1				1											
12APR 12APR	5	HICK CHARLES	31.6 24.9									1				2											
12APR 12APR	5	LEGION														12											
12APR	7		12.3										1	YO	r	5											
12APR	8	SHILOH	3.4										2			5											
12APR	9	LAIRD											1			6											
12APR	10	GARDNER	77.8										6			5				1							
DATE	SITE	LOCATION	MILE	LP TFS	RT	СР	GF	GSH	SBF	нн н	ICH	PM ST	PRS	FHM SH	KR WO	F GAM	ISS	SB	WCR	GSF	BG	LMB	SMB BI	LP TP	RSCP RSF	CCF	CENT
26APR	1	OLGB	50.5		4																						
26APR	2	R4B	48.4		1																						
26APR	3	TLSRA	42.0									5				12									15		
26APR	4	HICK																									
26APR	5	CHARLES	24.9												2	1											
26APR 26APR	6 7	LEGION RDP	17.2 12.3											YO	3	1											
26APR	8	SHILOH	3.4			20								YO											IPSCP		
26APR	9	LAIRD	90.2			1								YO		5									4PSCP		
26APR	10	GARDNER				-						1	30			-	1										
DATE	SITE	LOCATION	MILE	LP TES	RT	CP	GF	GSH	SBF	нн н	СН	PM ST	PRS	FHM SH	CR WO	'E GAM	ISS	SB	WCR	GSF	BG	LMB	SMB BI	РТР	RSCP RSF	CCF	CENT
10MAY	1	OLGB	50.5	Li 110		Ċ.	0.	0011	001				110		iit iit	. 0.110	100	00	nen	001	20	Linb	0.00 0.		noer nor	001	CLITI
10MAY	2	R4B	48.4																								
10MAY	3	TLSRA										20		YO	ć	20											
10MAY	4	HICK																									
10MAY	5	CHARLES	24.9																								
10MAY	6	LEGION											2														
10MAY	7	RDP	12.3			5																			4PSCP		
10MAY	8	SHILOH	3.4			100							200	VO	,												
10MAY 10MAY	9 10	LAIRD GARDNER	90.2			100							300	YO	r												
TUMAY	10	GARDNER	77.8																								
	SITE	LOCATION		LP TFS	RT	СР	GF	GSH	SBF	нн н	ICH	PM ST	PRS	FHM SH	KR WO	CF GAM	ISS	SB	WCR	GSF	BG	LMB	SMB BI	LP TP	RSCP RSF	CCF	CENT
24MAY	1	OLGB	50.5																								
24MAY	2	R4B	48.4											VO	,	20									4		
24MAY	3	TLSRA	42.0									1		YO		20									4		
24MAY 24MAY	4 5	HICK CHARLES	31.6 24.9											YOY YOY											3 2		
24MAY	6	LEGION												10											2		
24MAY	7	RDP	17.2			60								YO	r i												
24MAY	8	SHILOH	3.4			00							15	.0	-												
	9	LAIRD	90.2			100							200	YO	ć												
24MAY	9												100												PSCP(3)		

Table 4. KEY TO OTHER SPECIES SAMPLED AND DISTRIBUTION(List includes all species caught during 1986-2011 seining studies)

FAMILY	COMMON NAME	NATIVE SPECIES	ABBREV.	SAN JOAQUIN	TUOL.
Petromyzontidae	Pacific lamprey	Ν	LP		
Clupeidae	threadfin shad		TFS		
Salmonidae	Chinook salmon	Ν	CS	Х	Х
Salmonidae	rainbow trout	Ν	RT		Х
Cyprinidae	carp		СР	Х	Х
Cyprinidae	goldfish		GF		
Cyprinidae	golden shiner		GSH		
Cyprinidae	Sacramento blackfish	Ν	SBF		
Cyprinidae	hitch	Ν	HCH		
Cyprinidae	hardhead	Ν	HH		Х
Cyprinidae	Sacramento pikeminnow	Ν	PM	х	Х
Cyprinidae	Sacramento splittail	Ν	ST		
Cyprinidae	red shiner		PRS	Х	Х
Cyprinidae	fathead minnow		FHM	Х	
Catostomidae	Sacramento sucker	Ν	SKR	Х	Х
Ictaluridae	channel catfish		CCF		
Ictaluridae	white catfish		WCF		
Ictaluridae	brown bullhead		BBH		
Poeciliidae	western mosquitofish		GAM	Х	Х
Atherinidae	inland silverside		ISS	Х	
Moronidae	striped bass		SB		
Centrarchidae	white/black crappie		WCR/BCR		
Centrarchidae	warmouth		WM		
Centrarchidae	green sunfish		GSF	Х	
Centrarchidae	bluegill		BG	Х	х
Centrarchidae	redear sunfish		RSF	Х	
Centrarchidae	largemouth bass		LMB		
Centrarchidae	smallmouth bass		SMB		
Percidae	bigscale logperch		BLP		
Embiotocidae	tule perch	Ν	ТР		
Cottidae	prickly sculpin	Ν	PSCP	х	Х
Cottidae	riffle sculpin	Ν	RSCP		Х
TOTAL:	32			12	11

2011 species presence designated with 'X'

-	TUOLUMNE	ERIVER				SAN JOAQI	JIN		STANISLA	US			
Sampling	Sampling	Salmon	Sites	Average	Growth Rate	Salmon	Sites	Average	Salmon	Sites	Average	Start	End
Year	Periods	Captured	Sampled	Density	Index (mm/day)	Captured	Sampled			Sampled	Density	Date	Date
1986	18	5514	8	20.7	0.45	854	3	14.2				22JAN	27JUN
1987	21	14825	11	22.4	0.45	734	6	1.9				05JAN	04JUN
1988	14	6134	11	14.3	0.58	295	4	2.1	84	1	2.9	05JAN	17MAY
1989	13	10043	11	27.0	0.64	83	3	0.6	1206	1	45.4	05JAN	12MAY
1990	14	2286	11	6.0	0.57	48	3	0.5				04JAN	11MAY
1991	8	120	11	0.5	No estimate	0	3	0	3	1	0.2	15JAN	24MAY
1992	5	144	7	1.2	No estimate	0	3	0	54	1	3.9	27JAN	13MAY
1993	7	124	8	0.8	0.68	0	3	0	6	1	0.3	26JAN	12MAY
1994	7	2068	5	21.6	0.65	2	2	0				25JAN	20MAY
1995	8	512	5	6.1	0.79	43	2	1.1				09FEB	12JUL
1996	8	785	6	7.6	0.66	7	2*	0.2				17JAN	13JUN
1997	10	379	7	2.7	0.48	11	2*	0.4				14JAN	28MAY
1998	10	1950	7	14.4	0.46	99	2	2.5				14JAN	21MAY
1999	10	3443	8	24.6	0.54	560	2	13.6				14JAN	19MAY
2000	10	3213	8	27.0	0.46	19	2	0.6				11JAN	17MAY
2001	11	5567	8	41.3	0.67	83	2	2.6				09JAN	30MAY
2002	10	3486	8	25.6	0.64	0	2	0				15JAN	21MAY
2003	10	5983	8	39.3	0.68	1	2	0				21JAN	28MAY
2004	11	3280	8	19.3	0.55	0	2	0				20JAN	25MAY
2005	10	1341	8	8.9	0.53	8	2*	0.2				19JAN	25MAY
2006	11	1558	8	10.2	0.79	39	2	1.2				20JAN	15JUN
2007	10	204	8	1.5	0.58	0	2	0				17JAN	23MAY
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
2011	10	164	8	1.2	No estimate	19	2	0.6				19JAN	24MAY

Table 5. Tuolumne River Seining Summary, 1986-2011.

--- Not Sampled *All San Joaquin River locations were not always sampled

Table 6. Summary table of locations sampled, 1986-2011

1986 TO 2011 SEINING LOCATIONS TUOLUMNE RIVER

TUOLUMNE RIVER		1000	1007	1000	1000	1000	1001	4000	1000	1004	1005	1000	1007	1000	1000	2000	2004	2002	2003	2004	2005	2000		2000	2009	2010	2011
Site Location	River Mile	1900	1907	1900	1909	1990	1991	1992	1993	1994	1995	1990	1997	1990	1999	2000	2001	2002	2003	2004	2005	2006	2007	2006	2009	2010	2011
1 Old La Grange Bridge	50.5	Х	Х	Х	Х	Х	Х	Х	Х			Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
2 Riffle 4B	48.4	Х	Х	Х	Х	Х	Х				Х	Х	Х	Х								Х					Х
3 Riffle 5	47.9		Х	Х	Х	Х	Х	Х	Х	Х					Х	Х	Х	Х	Х	Х	Х		Х	Х	Х	Х	
4 Tuolumne River Resort	42.4			Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	х х	Х	Х	Х	
5 Turlock Lake State Rec. Area	42.0	Х	Х																								Х
6 Reed Gravel	34.0	Х	Х	Х	Х	Х	Х																				
7 Hickman Bridge	31.6	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	х х	Х	Х	Х	Х
8 Charles Road	24.9		Х	Х	Х	Х	Х	Х	Х				Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	х х	Х	Х	Х	Х
9 Legion Park	17.2	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	х х	Х	Х	Х	Х
10 RDP / Service Rd. / Venn	12.3 - 7.4		Х	Х	Х	Х	Х								Х	Х	Х	Х	Х	Х	Х	Х	х х	Х	Х	Х	Х
11 McCleskey Ranch	6.0	Х	Х	Х	Х	Х	Х	Х	Х	Х																	
12 Shiloh Bridge	3.4	Х	Х	Х	Х	Х	Х		Х		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	x	Х	Х	Х	Х
SAN JOAQUIN RIVER																											
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Site Location	River Mile																										
13 Laird Park	90.2	Х	Х	Х	Х	Х	Х	Х	Х	Х		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х		Х		Х	Х
14 Gardner Cove	77.8		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	X X	Х	Х	Х	Х
15 Maze Road	76.6	Х	Х	Х																							
16 Sturgeon Bend	74.3		Х	Х																							
17 Durham Ferry Park	71.3	Х	Х	Х	Х	Х	Х	Х	Х																		
18 Old River	53.7		Х																								
STANISLAUS RIVER																											
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Site Location	River Mile																										
19 Caswell State Park	8.5			Х	Х		Х	Х	Х																		
DRY CREEK																											
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Site Location	River Mile																										
20 Beard Brook Park	0.5							Х	Х																		

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

		Jı	uvenile Sei	ning
Tuolumne	Total		Peak	Average
Fall-run	Female	Fry	y Density	Fry Density
Estimate	Spawners	15JAN	-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
2010	258	2011	3.6	2.0

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

Table 8. Summary table of fish species caught during the1992-2011 seine studies.

Tuolumne River

	COMMON	NATIVE																				
FAMILY	NAME	SPECIES	ABBREV.	1992	1993	1994	1995	1996	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Petromyzontidae	Pacific lamprey	Ν	LP											х		х						
Clupeidae	threadfin shad	14	TFS					х	х			х		~		~						
Salmonidae	Chinook salmon	Ν	CS	х	х	х	х	X	X	х	х	X	х	х	х	х	х	х	х	х	х	х
Salmonidae	rainbow trout	N	RT				~		X	x	x	X	x	x	x	x	X	x	X	X	X	x
Cyprinidae	carp	14	CP							~	~		~				x					X
Cyprinidae	goldfish		GF														~					
Cyprinidae	golden shiner		GSH	х	х	х							х		х		х		х	х	х	
Cyprinidae	Sacramento blackfish	Ν	SBF																			
Cyprinidae	hitch	N	HCH																			
Cyprinidae	hardhead	N	нн	х		х						х	х		х	х	х	х	х	х	х	х
Cyprinidae	Sacramento pikeminnow	N	PM	x	Х	x	Х	Х	Х	Х	х	x	x	х	x	x	x	x	x	x	x	x
Cyprinidae	Sacramento splittail	N	ST																			
Cyprinidae	red shiner		PRS	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х
Cyprinidae	fathead minnow		FHM								x											
Catostomidae	Sacramento sucker	Ν	SKR	х	Х	Х	Х	Х	Х	Х	X	х	Х	х	х	Х	Х	х	х	Х	Х	х
Ictaluridae	channel catfish		CCF								x			x						x	x	
Ictaluridae	white catfish		WCF		х	х						х										
Ictaluridae	brown bullhead		BBH			X																
Poeciliidae	western mosquitofish		GAM	х	х	x	Х	х	Х	Х	х	Х	х	Х	х	Х	Х	Х	Х	х	Х	х
Atherinidae	inland silverside		ISS	х	х	х	х	х	х	Х	х	х	х	Х	х	х	х		х		х	
Moronidae	striped bass		SB									X										
Centrarchidae	white/black crappie		WCR/BCR																			
Centrarchidae	warmouth		WM		Х																	
Centrarchidae	green sunfish		GSF	х	х		х				х	х	х	х	х	х	х			х	х	
Centrarchidae	bluegill		BG	х	х	х			х	Х	х	х	х	Х	х	х	х	Х	х	х	х	х
Centrarchidae	redear sunfish		RSF	Х	х	х	х	х	х	Х	х	х	х	Х	х	х	х	Х	х	х	х	
Centrarchidae	largemouth bass		LMB	Х	х	х	х	х	х		х	х	х	Х	х	х	х	Х	х	х	х	
Centrarchidae	smallmouth bass		SMB	Х		х						х	х	Х	х				х	х	х	
Percidae	bigscale logperch		BLP	Х			х		х	х								х	Х			
Embiotocidae	tule perch	Ν	TP																			
Cottidae	prickly sculpin	N	PSCP				х	х	х						Х	Х	х					Х
Cottidae	riffle sculpin	Ν	RSCP	х		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
TOTAL:	32			15	13	15	12	11	14	11	14	17	15	15	16	15	16	12	15	15	16	11
TOTAL:	32			15	13	15	12	11	14	11	14	17	15	15	16	15	16	12	15	15	1	6

(List includes all species caught during 1986-2011 seining studies

San Joaquin River

	COMMON	NATIVE																				
FAMILY	NAME	SPECIES	ABBREV.	1992	1993	1994	1995	1996	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Petromyzontidae	Pacific lamprey	Ν	LP																			
Clupeidae	threadfin shad	14	TFS		х		х		х	х	х			х								
Salmonidae	Chinook salmon	Ν	CS	х	л	х	X	х	X	X	X	х	х	X		х	х					х
Salmonidae	rainbow trout	N	RT	~				~	~		~						~					~
Cyprinidae	carp	14	CP	х	х	х	х	х	х	х	х	х	х	х	х	х	х		х			х
Cyprinidae	goldfish		GF	x	~	X	X	x	x	X	~	X	X		x	X	x		~			~
Cyprinidae	golden shiner		GSH	X		~	X	~	~	~					x							
Cyprinidae	Sacramento blackfish	Ν	SBF	x	х	х	x	х	х	х	х				~							
Cyprinidae	hitch	N	HCH	~	~	~		x	~	X	x											
Cyprinidae	hardhead	N	нн					~		~	~											
Cyprinidae	Sacramento pikeminnow	N	PM	х	х		х	х	х		х	х			х	х	х		х	Х	х	х
Cyprinidae	Sacramento splittail	N	ST	x	~		X	x	x		~	X			~		x		~			
Cyprinidae	red shiner	14	PRS	x	х	х	X	x	x	х	х	X	Х	х	х	х	x	х	х	Х	х	х
Cyprinidae	fathead minnow		FHM	x	x	X	x	x	x	X	x	X	X	~	x	X	x	~	~			x
Catostomidae	Sacramento suckei	N	SKR	x	x	X	X	x	x	X	~	X		х	x	X	x	х	х	х	х	x
Ictaluridae	channel catfish	14	CCF		~	X		x	~	~				~	~			X	~			
Ictaluridae	white catfish		WCF											х								
Ictaluridae	brown bullhead		BBH					х						~								
Poeciliidae	western mosquitofish		GAM	х	х		х	x	х			х	Х	х	х		х			Х	х	х
Atherinidae	inland silverside		ISS	x	x	х	x	x	x	х	х	x	x	x	x	х	x	х	х	x	x	x
Moronidae	striped bass		SB	x	x	X		x	x	~	x	X		~	x			~	~			~
Centrarchidae	white/black crappie		WCR/BCR	x		x		x					Х		x	х					х	
Centrarchidae	warmouth		WM																			
Centrarchidae	green sunfish		GSF	х	х		х	х	Х				х	Х	х		х					х
Centrarchidae	bluegill		BG	x	x	х	X		X	х	х	Х	X	X	X	Х	X		х	Х	Х	x
Centrarchidae	redear sunfish		RSF	x	x	x	x			x			x	x	x					x	x	x
Centrarchidae	largemouth bass		LMB		x	X	x	х		X	Х	Х	X	X	X	Х			х	X	X	
Centrarchidae	smallmouth bass		SMB	х		X				X	X				x			Х		X	X	
Percidae	bigscale logperch		BLP			X	х	х	Х	X	X	Х	х	х	X							
Embiotocidae	tule perch	Ν	TP	х	х	X	x	X	X		X	X	X	X	X				х			
Cottidae	prickly sculpin	N	PSCP				X	x	x	Х						х	Х					х
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	12

(List includes all species caught during 1986-2011 seining studies