CRUISE REPORT
Central Valley-Bay Delta Branch
Sport Fish Monitoring Program
30 June 2005

VESSEL(S): CDFG R/V Kayot

CRUISE DATES: 19 April - 28 May 2005

PROJECT: Adult Striped Bass Monitoring Project (Fyke Trap Tagging)

OBJECTIVE: To tag adult striped bass and document previously tagged fish, for an ongoing mark-recapture program to estimate abundance and mortality rate.

METHODS:
We tended fyke traps (length 20'; width 10') in the Sacramento River near Knights Landing. Five traps were placed on the left bank about one mile upstream of the Knights Landing Bridge and 5 fyke traps were placed on the left bank about one mile downstream of the Knights Landing Bridge. Each trap was placed approximately 50' to 150' apart.

We used a cable-and-block system to roll the traps up the bank to a point where a trap door could be reached easily from the Kayot (a 24 ft aluminum pontoon boat), always adjusting trap position to minimize stress to captured fish. When the trap door was in position and open, we dipped-netted fish from the trap onto the Kayot.

Standard crew size was four, including one boat operator (usually a Scientific Aide or a Fish and Wildlife Technician), two Scientific Aides (Taggers), and one lead person (a Fish and Wildlife Technician, an Associate Biologist, or a Senior Biologist). The Kayot is fitted with three tagging stations, and we tagged simultaneously at all three stations when it was feasible.

We met and departed from the Knights Landing Sting Ray's private dock every morning (Sunday – Saturday). We typically started at 0800 and tagged striped bass until 1700 hours. Depending on the number of fish caught in the fyke traps, sometimes longer hours were required. The number of fyke traps set each day depended on many variables, including river stage, the amount of debris flowing downstream, the condition of our traps (e.g. if holes needed to be repaired), and the number of fish we observed that day. Striped bass were measured to the nearest centimeter fork length (cm FL). Legal-sized striped bass (greater than or equal to 42 cm FL) were measured, sexed, and marked with a disk-dangler tag. One-tenth of the tags offer rewards of $20, $50, or $100 for their return to us. If a fish was already marked, its tag number was checked against a list to

determine the release year. We recorded tag number, cm FL, and sex from fish tagged in previous years. Sublegal striped bass were measured only and recorded separately.

In addition to the disk-dangler tags used, we investigated the feasibility of using t-bar anchor tags. The t-bar anchor tags are 4.4" long with a 1" monofilament. The tag end is shaped like the letter T. Using a heavy duty tag application gun, this part is inserted into the fleshy part of the striped bass just below the middle of the dorsal fin closest to the anterior. The part of the tag sticking out of the striped bass reveals the same information that is on a disk dangler tag, only the tag numbers differ.

Chinook salmon and steelhead lengths were estimated, not measured, in an effort to release them as quickly as possible without further stress. Condition and coloration was also noted, along with presence/absence of steelhead adipose fins.

RESULTS AND DISCUSSION:

We tended traps on 29 days and tended traps 177 times, averaging 6 traps tended per day. Of 5,019 legal-sized striped bass observed, we tagged 4,142 striped bass and recaptured 25 striped bass tagged in previous years. We released 846 legal-sized striped bass alive (recorded as *overs* in the data) and 6 dead. Of the 846 *overs*, we measured FL, determine sex, and took scale samples from 332 striped bass. We also measured 717 sub-legal striped bass.

We tagged a near-record number of striped bass and tagged during higher flows than ever before (Figure 1). During Week 1 we tagged 686 striped bass and tended traps 40 times, in Week 2 we tagged 684 striped bass and tended traps 41 times, in Week 3 we tagged 698 striped bass and tended traps 46 times. River stage increased rapidly during Week 4 and reached monitoring stage at the Sacramento River-Knights Landing well into the Week 6. During Week 4 we tagged 1,328 striped bass and tended traps 29 times, in Week 5 we tagged 430 striped bass and tended traps 7 times, and in Week 6 (the final week) we tagged 316 striped bass and tended traps 25 times.

We applied two tags (disk and T-bar) to 165 legal-sized striped bass. The heavy duty tag T-bar application gun was relatively easy to use. Due to limited experience with this tagging system, the tags loaded in the gun often jammed after we tagged a few fish. This also created a gap in the sequence of t-bar tag numbers. With proper training and practice, this minor difficulty can be avoided.

Throughout the six weeks of striped bass tagging, mean fork length frequencies varied little (Figure 2)

Salmonid bycatch was 18 Chinook salmon and 1 steelhead. Salmon were captured throughout the season; their condition varied from fair to good and their coloration varied from bright to slightly dark.

Non-salmonid bycatch included 14 white sturgeon (Acipenser transmontanus), 485 American shad (Alosa sapidissima), 17 channel catfish (Ictalurus punctatus), 4 Sacramento squawfish (Ptychoceilus grandis), 4 black crappie (Pomoxis nigromaculatus), 3 carp (Cyprinus carpio), 2 white catfish (Ameiurus catus), and 1 Sacramento sucker (Catostomus occidentalis).

Our biggest challenge this year was accessing trap doors from the Kayot. There are 2 doors on each trap through which crew members remove fish. Because the traps shift from their original position (parallel to the levy) due to fluctuating river stage, this caused daily difficulties with door access. Crew members were able to reach and open one of the doors from shore, but this didn't allow for sufficient water levels in the trap for the fish. Rubber tubs filled with water helped greatly during these difficulties, although tubs were not able to hold more than a few fish at a time while crew members tagged. During situations like this, we released legal-sized striped bass and recorded them as *overs* in the data.

River stage was at times exceptionally high (Figure 1). In the past, traps were pulled completely out of the water when stage was extremely high and fishing resumed only when water levels decreased substantially. This year we changed procedure and fished fyke throughout high flows, pulling traps from the water only during a few heavy-debris days. The few days that we fished traps during heavy debris flows, debris (including large tree trunks) collected on the nose and anchor cables of the traps and hindered our ability to pull the traps up out of the water to tag fish safely.

DISPOSITION OF DATA:

Striped bass and sturgeon data - Nina Kogut, CDFG, 4001 N. Wilson Way, Stockton, CA 95205

Chinook salmon and steelhead data - Heather McIntire, CDFG, 4001 N. Wilson Way, Stockton, CA 95205

SUMMARY OF RECOMMENDED CHANGES

Add two more doors to each trap. Additional doors would increase efficiency and reduce stress to captured fish.

Post in clear view on the Kayot a written document listing the priority of various protocols for situations involving limited door access with a high volume of fish.

Secure doors to traps using braided line and perhaps some sort of clip rather than three-strand line. The three-strand often frays quickly and becomes difficult to use. Easier access to trap doors will improve efficiency and reduce stress to captured fish.

PERSONNEL:

Dan Andrews	Scientific Aide	CDFG, Stockton, CA
Richard Journey	Scientific Aide	CDFG, Stockton, CA
Victoria Lopez	Scientific Aide	CDFG, Stockton, CA
John Selke	Scientific Aide	CDFG, Stockton, CA
Emily Stevens	Scientific Aide	CDFG, Stockton, CA
Phil Voong	Scientific Aide	CDFG, Stockton, CA
Tara Warwick	Scientific Aide	CDFG, Stockton, CA
Tori Warwick	Scientific Aide	CDFG, Stockton, CA
Lester Yamaguchi	Fish and Wildlife Technician	CDFG, Stockton, CA
Michael D. Harris	Associate Biologist	CDFG, Stockton, CA
Nina Kogut	Associate Biologist	CDFG, Stockton, CA
Marty Gingras	Senior Biologist	CDFG, Stockton, CA
Par Coulston	Supervising Biologist	CDFG, Stockton, CA
Dave Kohlhorst	Volunteer (Ret. Senior Biologist)	CDFG, Stockton, CA

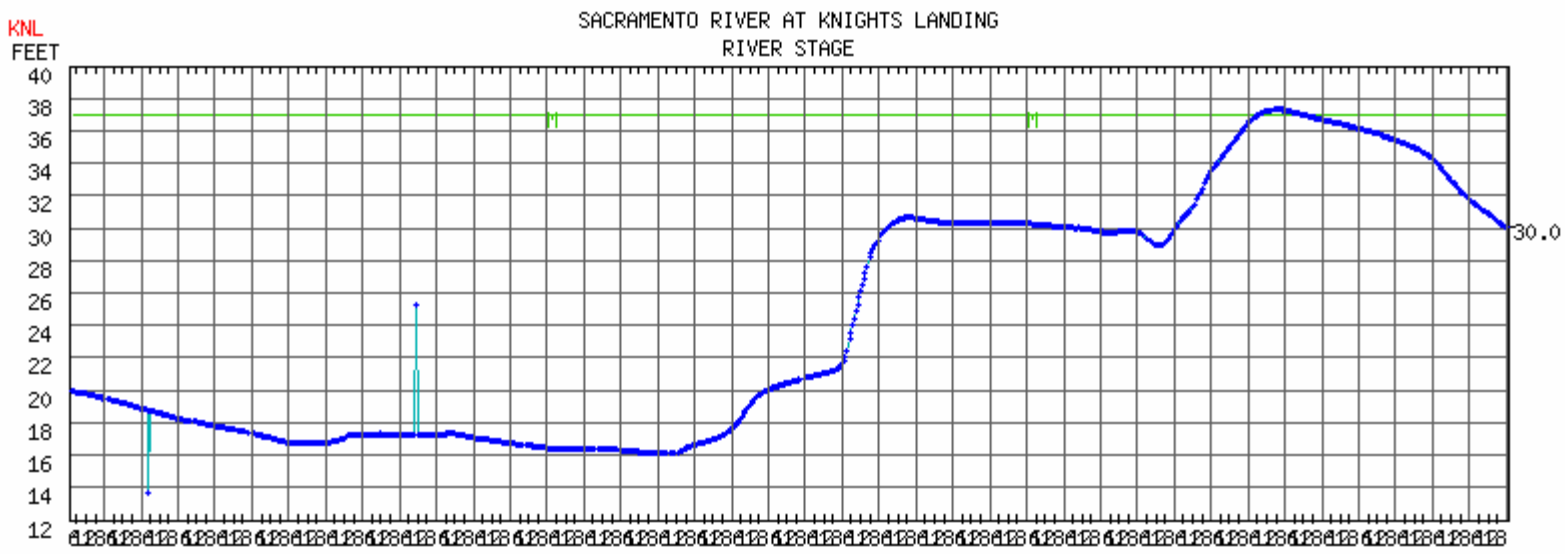
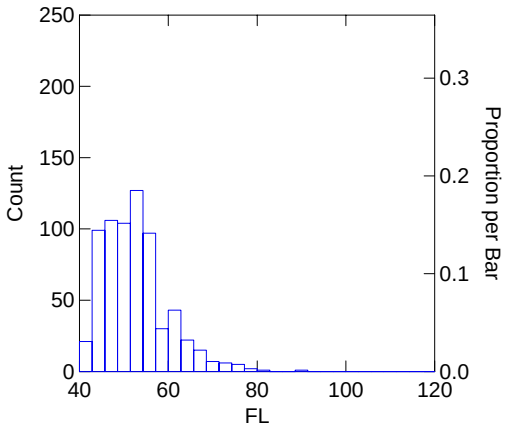


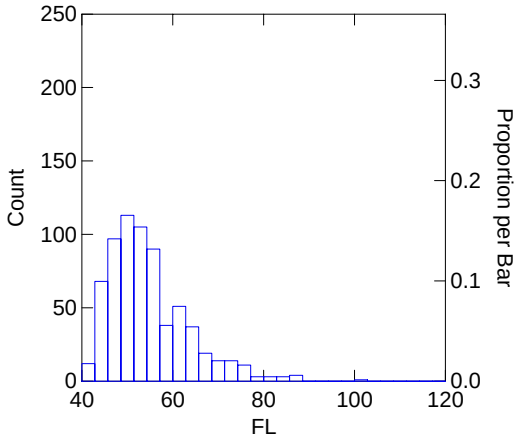
Figure 1 CDEC Flows for Knights Landing 04/19/05 - 05/28/05

Fork Length Frequency Distributions by Week

The following results are for:
WEEK 1



The following results are for:
WEEK 2



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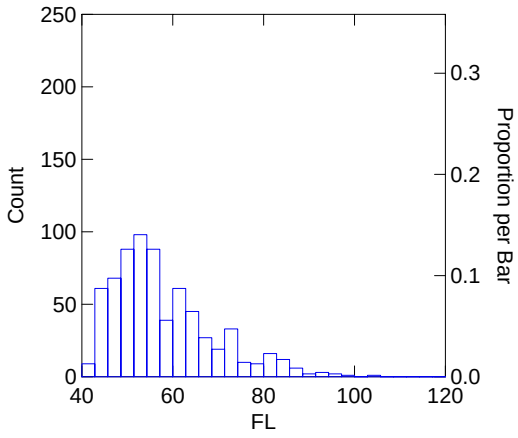
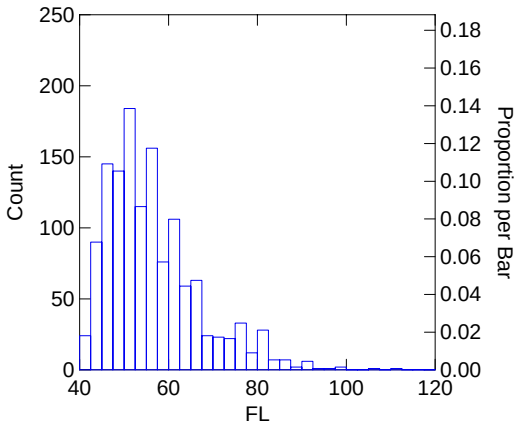
WEEK 3



The following results are for:
WEEK 4



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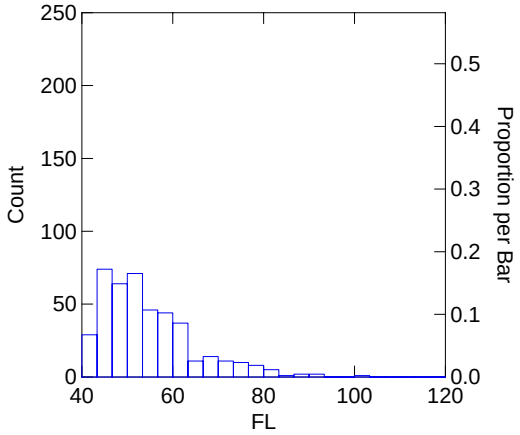
WEEK 5



The following results are for:
WEEK 6