

Potter Valley Project Pikeminnow Suppression ERRC Meeting, 2/15/13

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Pikeminnow Suppression Requirements

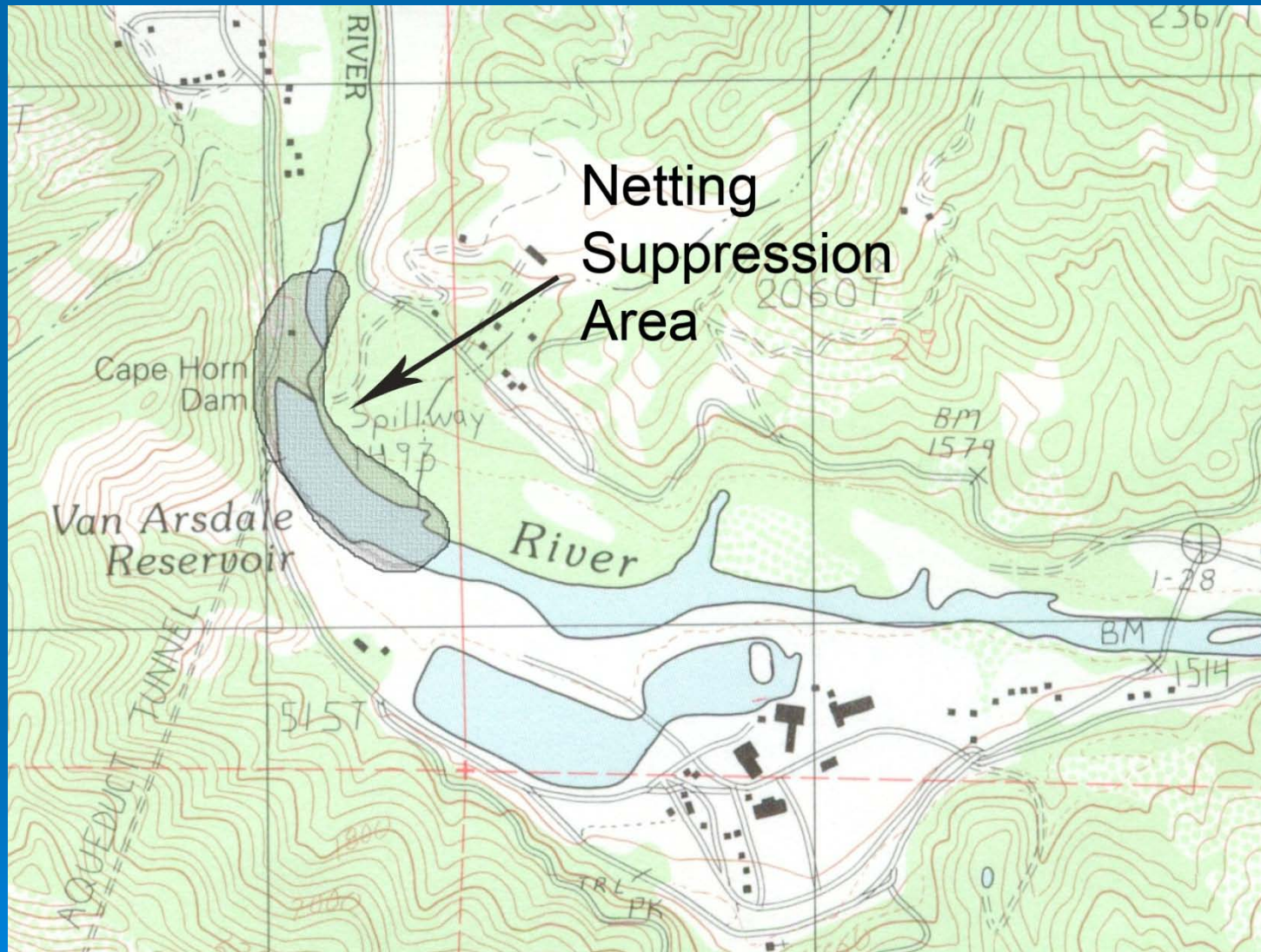
- Per RPA, RPMs, & FERC license amendment, prepare:
 - adaptive management plan for pikeminnow suppression in Project vicinity
 - annual suppression operations plans
- *Pikeminnow Adaptive Management and Suppression Operation Plans* approved by FERC November 2005

Components of Approved Plan

- Evaluation of various techniques for pikeminnow suppression
- Monitoring to determine pikeminnow population levels & effects of suppression activities

Fulfillment of Approved Plan

- Feasibility trials for pikeminnow suppression using gill nets above & below Cape Horn Dam, July/August 2006
 - Catch: 61 pikeminnow, 46 sucker, 13 steelhead
 - Suppression activities suspended due to take of steelhead













Fulfillment of Approved Plan (cont.)

- Annual raft electrofishing at 3 sites in Eel River between Scott & Cape Horn dams, 2005-2012 (with exception of 2011)

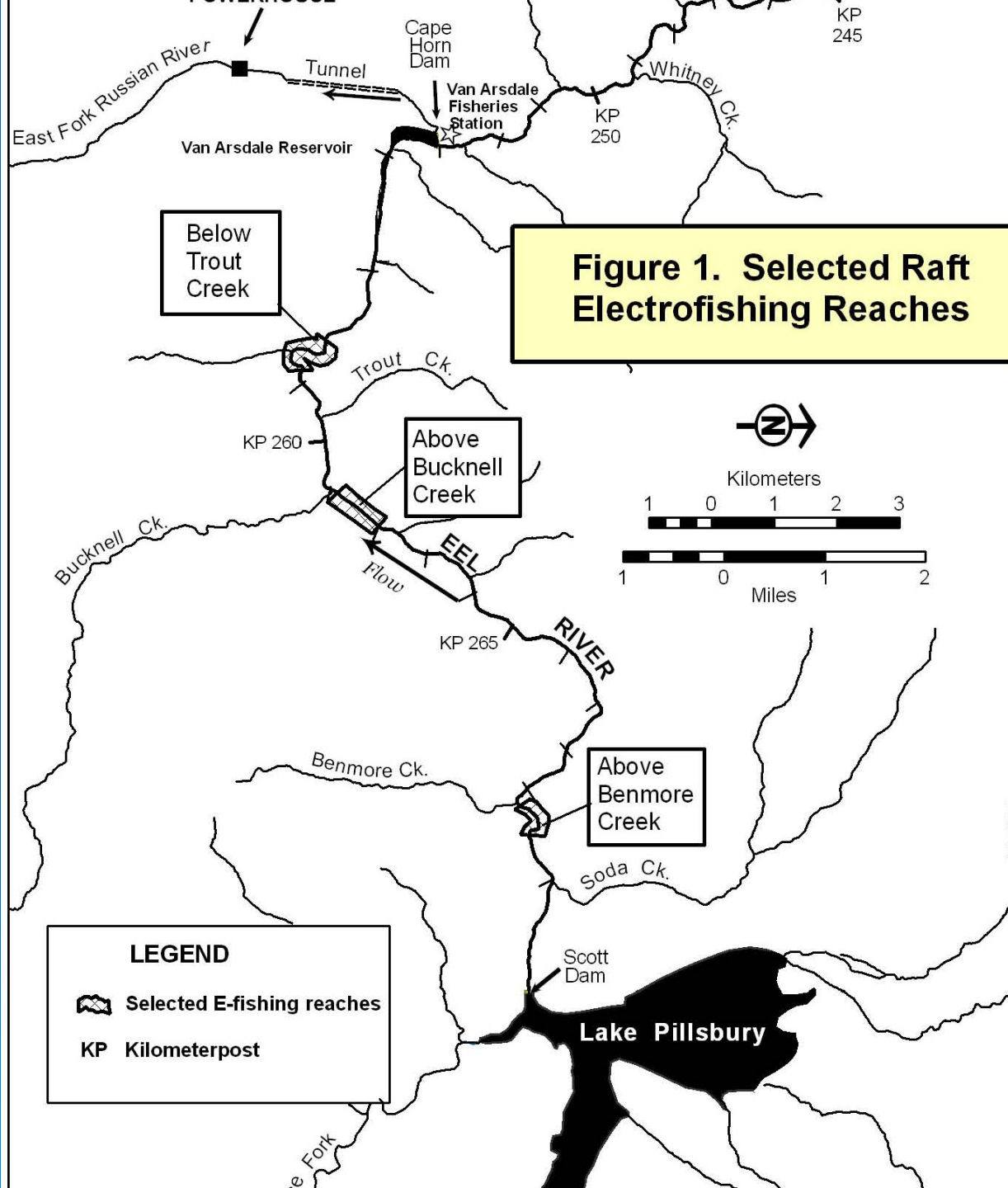
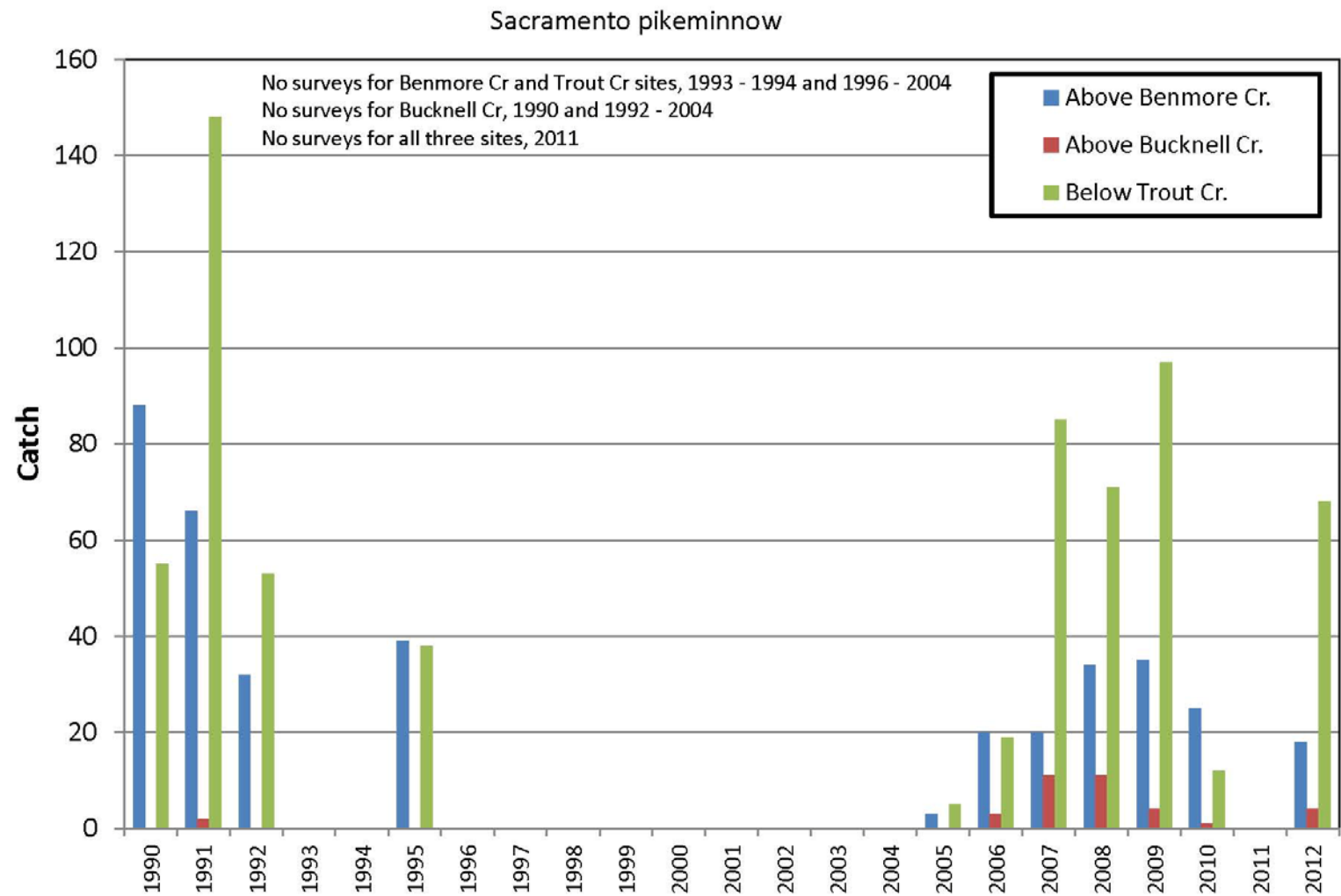




Figure 7. Historical raft electrofishing catch data for surveys during August in the Mainstem Eel River above Cape Horn Dam



Pikeminnow Population Trends

- Pikeminnow introduced to Eel River system late 1970s
 - First catch at PVP during 1980 monitoring
- Population explosion during 1980s
- Population has likely decreased since initial explosion
- Current population relatively stable; equilibrium established

Figure 15. Estimated historical lineal densities for steelhead trout and Sac. pikeminnow captured during summer rearing surveys from the site Eel below Cape Horn Dam

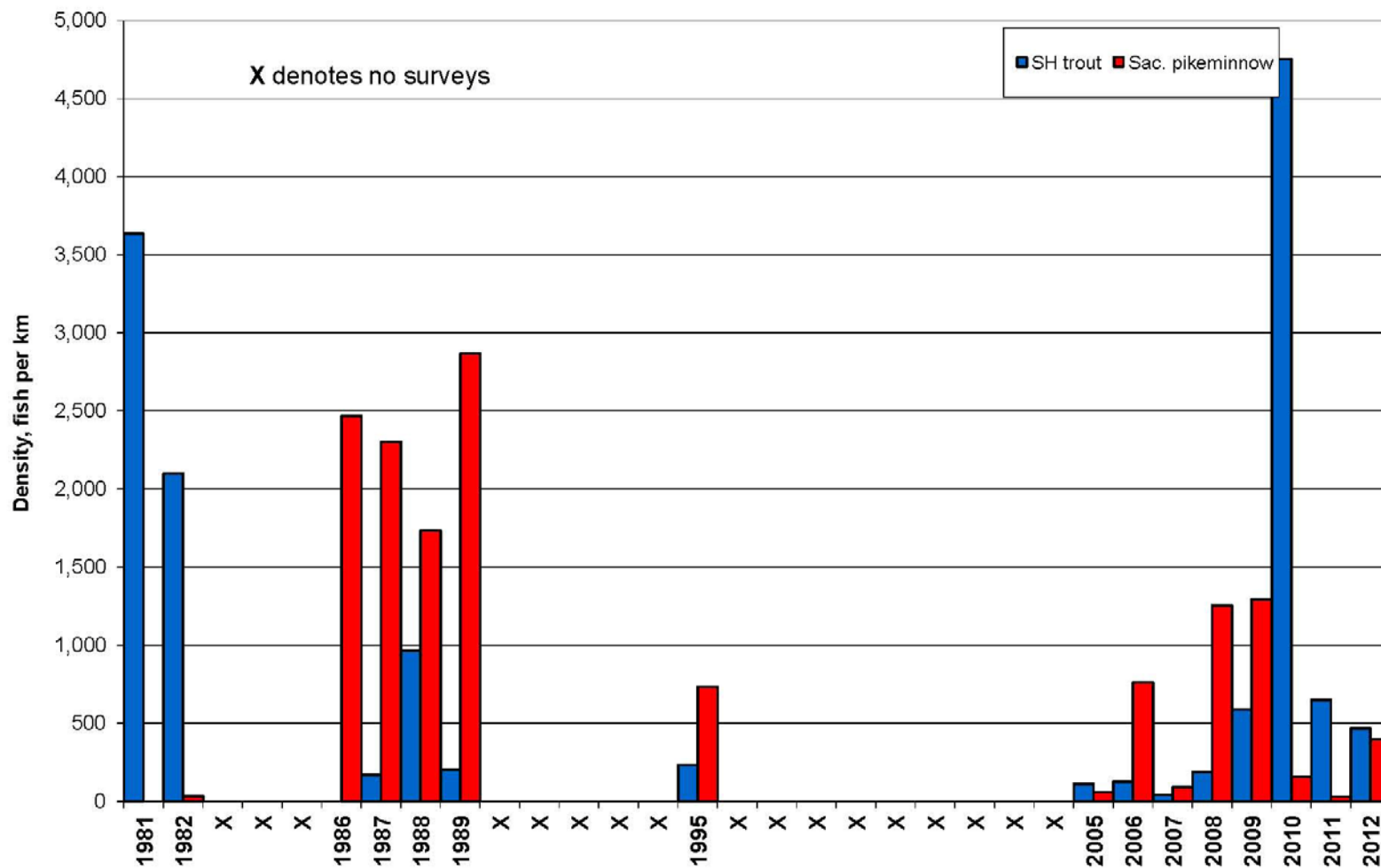


Figure 16. Estimated historical lineal densities for steelhead trout and Sac. pikeminnow captured during summer rearing surveys from the site Eel below Emandal

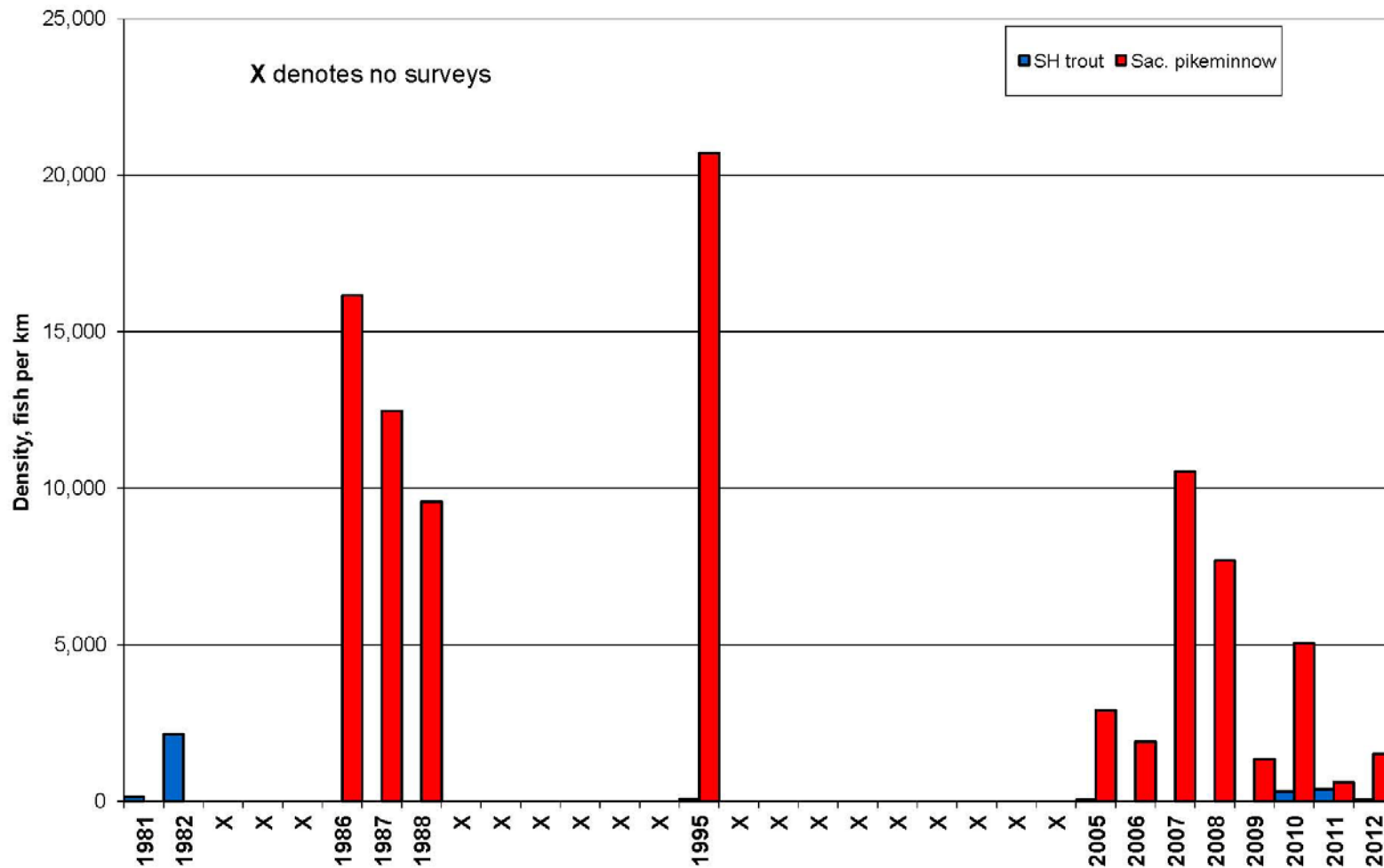


Table 10. Historical lineal density length frequencies for pikeminnow captured during summer rearing surveys in the mainstem Eel River

Units: Estimated fish per kilometer - original measured sample expanded by ratio total estimated divided by total actually measured and ratio 1000 meters divided by section length.

Color Key: 1 MIN
27 30TH PERCENT
1644 MAX

Eel River below Cape Horn Dam

FL, mm	1961	1962	X	X	X	1966	1967	1968	1969	X	X	X	X	X	1985	X	X	X	X	X	X	X	X	2005	2006	2007	2008	2009	2010	2011	2012
≤ 19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	10	39	10	20	-	-	-	32
35	-	33	-	-	-	247	1644	230	173	813	-	-	-	-	13	-	-	-	-	-	-	-	-	156	273	20	376	-	-	-	32
55	-	-	-	-	-	576	173	404	896	-	-	-	-	-	1	-	-	-	-	-	-	-	-	97	30	-	228	-	-	-	-
75	-	-	-	-	-	-	173	116	86	-	-	-	-	-	-	-	-	-	-	-	-	-	10	19	20	42	276	-	10	48	
95	-	-	-	-	-	-	173	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	10	70	100	-	20	95	
115	-	-	-	-	-	-	345	116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	84	24	-	95	
135	-	-	-	-	-	-	403	173	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	24	-	-	-	
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195	-	-	-	-	-	-	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	12	24	-	-	
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Table 11. Historical lineal density length frequencies for pikeminnow captured during summer rearing surveys in the mainstem Eel River

Units: Estimated fish per kilometer - original measured sample expanded by ratio total estimated divided by total actually measured and ratio 1000 meters divided by section length.

Color Key: 1 MIN
193 30TH PERCENT
8500 MAX

Eel River below Emandal

FL, mm	1961	1962	X	X	X	1966	1967	1968	X	X	X	X	X	X	1965	X	X	X	X	X	X	X	X	2005	2006	2007	2008	2009	2010	2011	2012
≤ 19	-	-	-	-	-	299	-	517	-	-	-	-	-	-	1300	-	-	-	-	-	-	-	73	-	-	-	-	100	-	-	
35	-	-	-	-	-	898	416	1293	-	-	-	-	-	-	3450	-	-	-	-	-	-	-	437	64	45	75	10	1000	11	91	
	-	-	-	-	-	3593	3324	2844	-	-	-	-	-	-	8000	-	-	-	-	-	-	-	1164	663	2675	3091	385	550	279	649	
55	-	-	-	-	-	5688	5818	3878	-	-	-	-	-	-	4830	-	-	-	-	-	-	-	873	492	2185	2337	385	200	107	483	
	-	-	-	-	-	4191	1662	1034	-	-	-	-	-	-	3450	-	-	-	-	-	-	-	218	193	1605	905	128	-	-	45	
75	-	-	-	-	-	1497	1247	-	-	-	-	-	-	-	690	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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Potential Pikeminnow Suppression Methods

- Gill nets
- Seines
- Fish traps
- Electrofishing
- Poisons
- Explosives
- Spears
- Angling

Potential Issues with Pikeminnow Suppression Methods

- Take of juvenile steelhead
- Sampling effectiveness
- Overall effectiveness in reducing pikeminnow population

Suppression Examples

- Columbia River – Pikeminnow
 - Reward angling program
- Lake Davis – Northern Pike
 - Eradication by multiple methods
- Sacramento-SJ Delta – Striped Bass
 - Control program being considered
- Eel River – Pikeminnow
 - Fishing derbies
 - Detonation cord & netting trials

**ELECTRO-RAFT SURVEYS in the MAINSTEM EEL RIVER
FORK LENGTH-FREQUENCY DISTRIBUTIONS for
SACRAMENTO SQUAWFISH
SITE: COMBINED SITES (REPEATED SITES ONLY)
SURVEY DATES: MAY, 1990 and AUGUST, 1990**

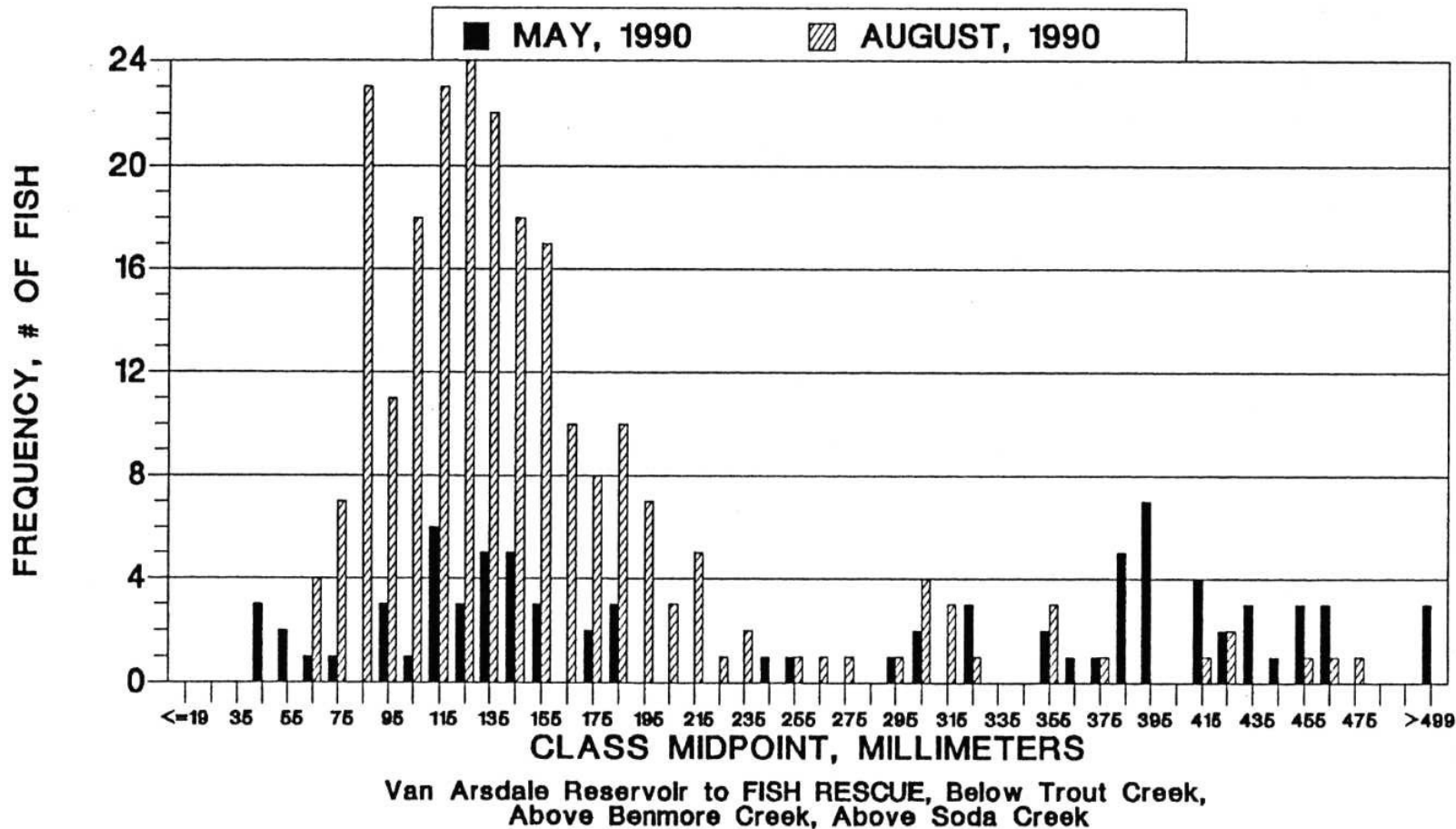


Figure 2.11-8 Fork length-frequency distributions for Sacramento squawfish captured during electro-raft surveys at combined sites in the upper mainstem Eel River, May and August, 1990.

COMBDATE, RFT

Length Frequency Distribution 1991 Electro-Raft Surveys in the Mainstem Eel River SACRAMENTO SQUAWFISH

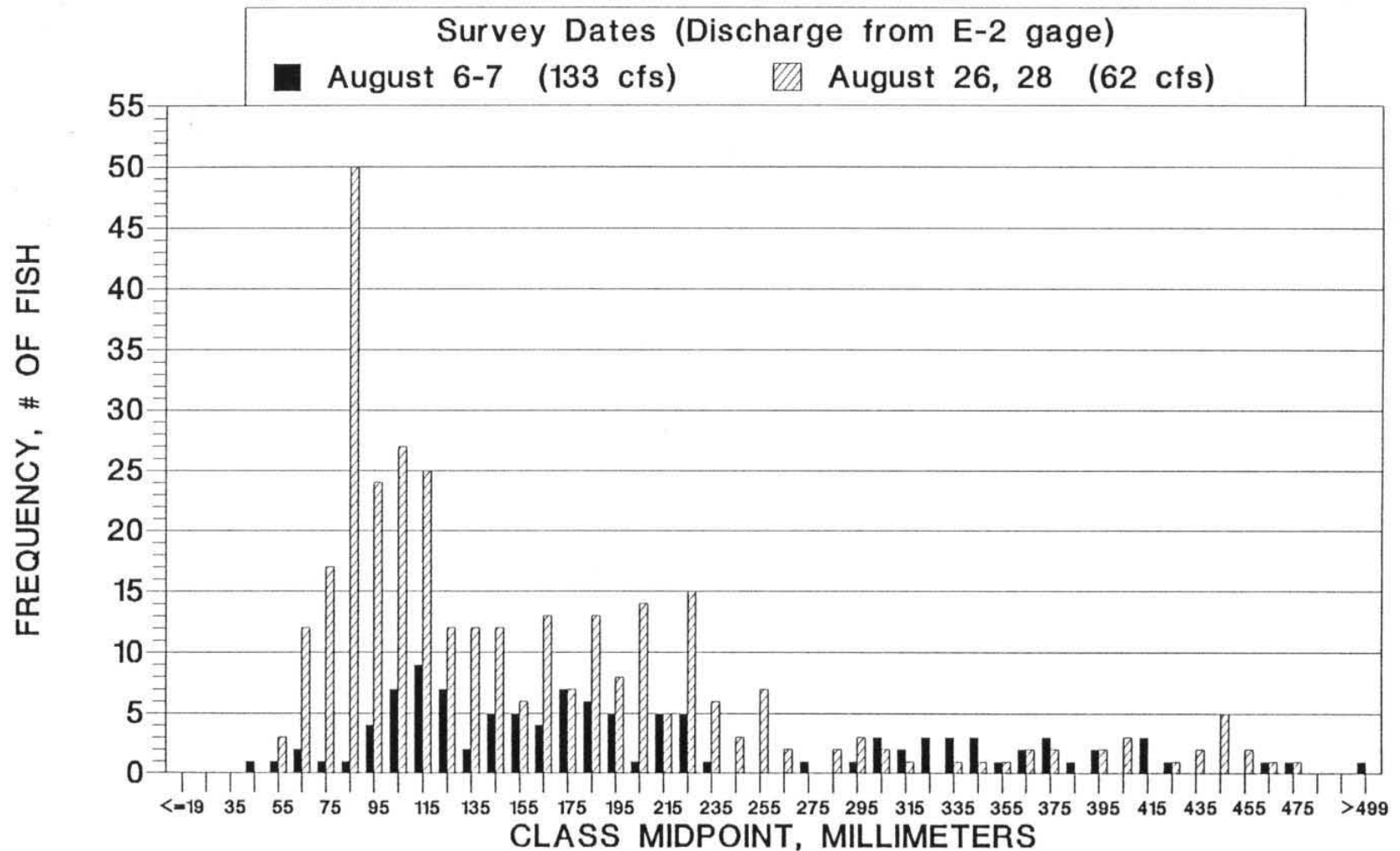


Figure 2.11-7 Fork length-frequency distributions for Sacramento squawfish captured during 1991 electro-raft surveys at three combined index sites (Below Trout Creek, Above Benmore Creek, and Above Soda Creek) in the upper mainstem Eel River, August 6-7 and August 26, 28 surveys.

COMBDATE -
DUALBARS

SACRAMENTO SQUAWFISH - Length Frequency Distributions 1992 Electro-Raft Surveys in the Mainstem Eel River Two combined index sites above Cape Horn Dam

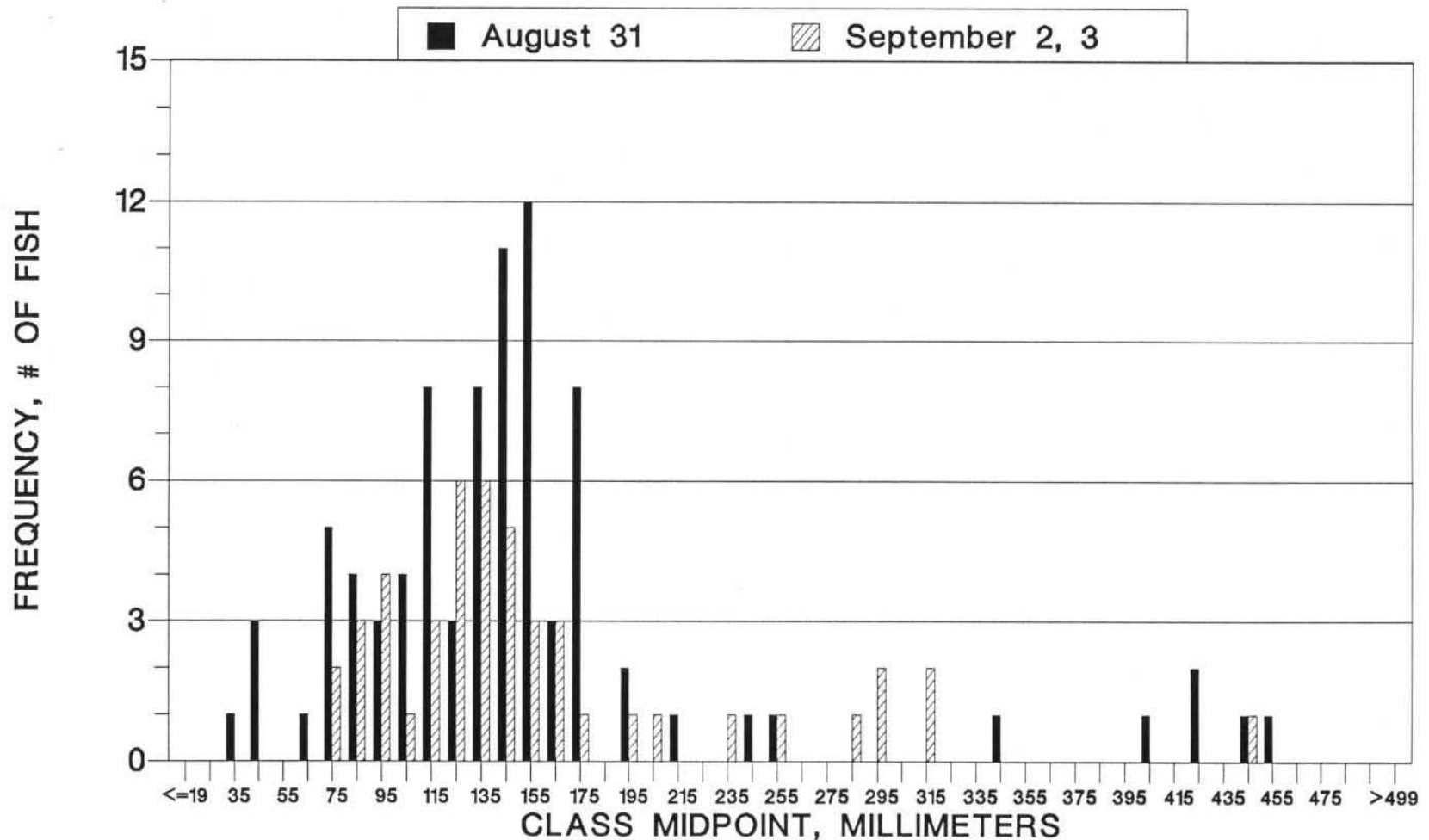


Figure 2.11-7 Fork length-frequency distributions for Sacramento squawfish captured during 1992 electro-raft surveys in the upper mainstem Eel River at two combined index sites, Below Trout Creek and Above Benmore Creek. Results are plotted separately for initial surveys on August 31 and repeat surveys on September 2 and 3. Discharge at E-2 gage was 47 cfs during both surveys.

Current Status of Pikeminnow Suppression Issue

- PG&E, NMFS, & CDFW continue to consider suppression methods, & discuss fulfillment of RPA & RPMs (as recently as last week)
- No method identified yet that avoids steelhead take & has high likelihood of effectively suppressing pikeminnow

Potter Valley Project Pikeminnow Suppression

Questions?

