2010 Sturgeon Fishing Report Card: Preliminary Data Report

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Summary

The 2010 Sturgeon Fishing Report Card (Card) was printed using Bay-Delta Sport Fishing Enhancement Stamp funds and then issued to any angler at no charge. Card data were managed using Sport Fish Restoration Act and Interagency Ecological Program funds.

One hundred forty thousand (140,000) Cards were printed at a cost of \$18,514 including tax and surcharge. Approximately 67,000 Cards were issued, of which 6,611 were returned to the Department and 1,628 of those Cards had data on sturgeon catch.

Anglers released 151 green sturgeon, retained 1,322 white sturgeon, and released 4,124 white sturgeon. Catch was 10-16% of the total sturgeon catch (N = 5,670) for each of the following months: January; February; March; April; November; and December. Catch for all other months each was $\leq 7\%$ of the total catch.

Anglers reported total length measurements for 22 green sturgeon (range 15-72 inches, average 40.0 inches). Of the white sturgeon retained, anglers reported total length measurements for 1,319 (range 28-72 inches¹, average 54.8 inches). Of the white sturgeon released, anglers reported total length measurement for 731 (range 3-102 inches, average 42.4 inches).

Catch of green sturgeon was greatest in the Sacramento River from Rio Vista to Chipps Island and in Suisun Bay. Catch of white sturgeon was greatest in Suisun Bay and in the Sacramento River from Rio Vista to Chipps Island.

Introduction

This report summarizes data from the 2010 California Sturgeon Fishing Report Card (Card). The Card became part of a suite of sport fishing regulations in March 2007 that was intended to protect California's year-round white sturgeon fishery while increasing protections for the federally-threatened green sturgeon population and adding resiliency to the conservation-dependent white sturgeon population.

The 2010 Card was distributed to any angler at no charge and was required of every angler — including minors, anglers fishing only from piers, and anglers fishing on "free fishing" days — who fished for and retained or released a sturgeon in California.

Cards were printed using Bay-Delta Sport Fishing Enhancement Stamp funds. Sport Fish Restoration Act and Interagency Ecological Program funds were used to manage Card data and prepare this report.

Cards included fields for contact information, retained fish, and released fish (Appendix 1). Changes to the 2010 Card were (1) fields for anglers to record the Fish and Game disc tag number in the event the angler caught a tagged fish and (2) a box to mark if the angler did not fish for sturgeon. To aid the Department's efforts to reduce illegal commercialization of sturgeon and to enforce the daily and annual bag limits on white sturgeon, the Cards included detachable single-use serially-numbered Card-specific tags to be placed on fish retained by anglers.

Information on catch of sturgeon from 2010 Cards is complementary to on-going research conducted by the Department and others and will be used in planned articles and technical reports. Future year-specific California Sturgeon Fishing Report Card data reports will include a bibliography of documents that used Card data.

Card Distribution and Return

One hundred forty thousand (140,000) Cards were printed at a cost of \$18,515 (including tax and surcharge) then distributed beginning in late 2009 to Department offices and licensed sales

¹ See notes 1 and 2 in "Length Data" section

agents using the License and Revenue Branch "steelhead card distribution list". Approximately 67,000 Cards were issued to anglers.

Anglers began returning Cards almost immediately after distribution. The few Cards returned during preparation of this report are not described here. Six thousand six hundred eleven (6,611) Cards were returned of which 3,688 had no data (effort but no catch), 1,295 did not fish (no effort), and 1,628 had data on sturgeon catch.

Angler Data

The Card included fields for general, personal, and contact information, as well as for catch data and — if applicable — reward disc tag number (Appendix 1). Contact information included California fishing license number, street address, phone, and e-mail.

One hundred seventy-two (172) anglers supplied no California fishing license number, or submitted illegible or non-standard license numbers. Seven of these anglers were specifically described as "under age", "minor", or under the age of 16.

Catch Data

The Card contained three sections for reporting sturgeon catch (1) Sturgeon Retained, (2) Sturgeon Released (no reward disc present), and (3) Sturgeon Released (reward disc present). These sections included fields to report month, day, location, and reward disc number. The "Sturgeon Retained" section also contained a field for reporting length and reminded anglers only white sturgeon 44–66 inches total length may be retained. The "Sturgeon Released (no reward disc present)" section also contained check boxes for species identification that some anglers also used to report fish length.

Twenty-three² anglers each caught one tagged white sturgeon and one angler caught two tagged white sturgeon. Of the 25 tagged white sturgeon, seven were released and 18 were kept. No tagged green sturgeon were reported.

Catch data — Anglers reported releasing 151 green sturgeon, while keeping 1,322 white sturgeon and releasing 4,124 white sturgeon (Table 1). Seventy-three (73) sturgeon were not identified to species.

		White Sturgeon	Green Sturgeon	Unidentified Sturgeon	Overall Total
	Measured	1,319	0	0	1,319
Retained	Not Measured	3	0	0	3
	Total	1,322	0	0	1,322
	Measured	731	22	3	756
Released	Not Measured	3,393	129	70	3,592
	Total	4,124	151	73	4,348
	Overall Total	5,446	151	73	5,670

Table 1. White and green sturgeon catch reported on 2010 Cards

One thousand (1,000) anglers reported retaining white sturgeon (Table 2; average of 1.3 sturgeon). Fifty-nine anglers retained the limit of three white sturgeon.

One thousand thirty-six (1,036) anglers reported catching and releasing white sturgeon (Table 2). Of these anglers, 88 each released 10-50 fish, and one angler released 52 fish.

² One angler just wrote "yes" in the "Reward Disk #" section but did not supply a tag number

One hundred fourteen (114) anglers reported releasing green sturgeon (Table 2; average of 1.3 sturgeon). Seventeen anglers each released 2-4 fish. One angler reported releasing 9 green sturgeon.

	Number of Anglers	Number of Sturgeon	Maximum Number of Sturgeon per Angler	Average Number of Sturgeon per Angler
Retained White Sturgeon	1,000	1,322	3	1.3
Released White Sturgeon	1,036	4,124	52	4.0
Green Sturgeon	114	151	9	1.3
Unidentified Sturgeon	21	73	17	3.5

Table 2. Summary statistics for per-angler catch from 2010 Cards with catch data

Of the 1,607 anglers who caught white sturgeon, 216³ anglers retained and released white sturgeon on the same day (average = 1.7 anglers/day, maximum = 5 anglers/day). Of those 216 anglers, one released seven in the same day. Because the length of sturgeon released was not a required field on the Card, the number of white sturgeon voluntarily conserved could not be calculated.

Length data — Green sturgeon total length ranged 15.0-72.0 inches and averaged 40.3 inches (Figure 1). Retained white sturgeon total length ranged 28.0-72.0 (see Note 1 and Note 2) inches and averaged 54.8 inches (Figure 2). Released white sturgeon total length ranged 3.0-102.0 inches and averaged 42.4 inches (Figure 3).

Lengths of retained white sturgeon were skewed slightly to the lower end of the slot limit (46-66 inches total length; Figure 2). Of the released white sturgeon for which a length measurement was reported, 206 were within the slot limit (Figure 3), the majority was below the slot limit (N = 438), and 87 were above the slot limit.

Note 1: Length was not recorded for three retained white sturgeon.

<u>Note 2</u>: Min and max of range were the only two lengths of retained white sturgeon not within the legal-sized slot limit (46–66 inches TL). Both lengths were legible and confirmed as accurate entries in the database. The angler reporting "28" also kept one white sturgeon of 52 inches TL and released eight (seven whites and one green) over several days with no lengths reported. The angler reporting "72" recorded on the Card '6'' (appearing on the Card as possibly intending to write '66'); this angler also released one white sturgeon (no length) on a separate day.

³ Six individual anglers retained and released white sturgeon on three separate days, 25 individual anglers retained and released white sturgeon on two separate days, and 148 individual anglers retained and released white sturgeon on one day.

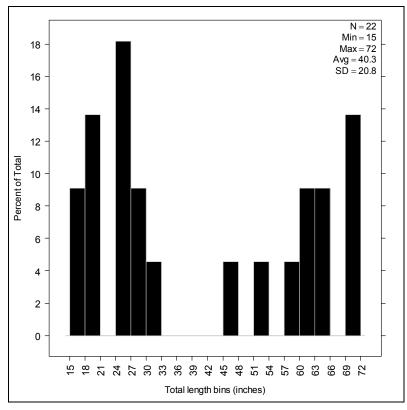


Figure 1. Length frequency distribution of green sturgeon reported on 2010 Cards

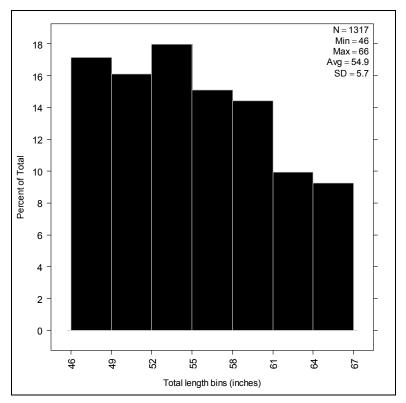


Figure 2. Length frequency distribution of white sturgeon retained as reported on 2010 Cards; single length measurements of "28" and 72" not shown

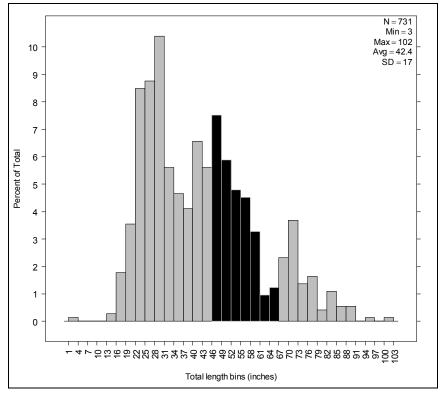


Figure 3. Length frequency distribution of white sturgeon released as reported on 2010 Cards (dark bars denote slot limit of 46–66 inches TL)

Seasonality — Catch of green sturgeon and white sturgeon was greatest during the winter and spring (Table 3). Catch per month ranged approximately 10-16% of the total sturgeon catch (N = 5,670) for each of the following months: January; February; March; April; November; and December (Table 3).

Month	White Sturgeon	Green Sturgeon	Unknown Sturgeon	Catch Total	Percent of Total
Not given	4			4	0.1%
January	738	12	2	752	13.3%
February	795	9	8	812	14.3%
March	858	16	17	891	15.7%
April	584	15	12	611	10.8%
May	303	4	1	308	5.4%
June	144	5	11	160	2.8%
July	147	4	4	155	2.7%
August	108	5	1	114	2.0%
September	149	3	1	153	2.7%
October	366	24	7	397	7.0%
November	598	28	7	633	11.2%
December	652	26	2	680	12.0%
Totals	5,446	151	73	5,670	
Season*	White Sturgeon	Green Sturgeon	Unknown Sturgeon	Catch Total	Percent of Total
Winter	2,185	47	12	2,244	39.6%
Spring	1,745	35	30	1,810	31.9%
Summer	399	14	16	429	7.6%
Fall	1,113	55	15	1,183	20.9%
Totals	5,442	151	73	5,666	

Table 3. Green sturgeon and white sturgeon catch per month and per season (Winter=December-February, Spring=March-May, Summer=June-August, Fall=September-November

*does not include fish from month "Not given"

Location data — Sturgeon were collected from 26^4 of the 28 locations listed on the Card (Figure 4). Locations where 1-50 sturgeon were collected were grouped as "All Other Locations" (N = 11). Location codes were either not specified or were illegible (grouped as "Unknown"; Figure 4) for 22 retained white sturgeon, 30 released white sturgeon, one green, and one unidentified sturgeon.

⁴ Absent were locations "1B" – Sac River (Red Bluff to Hwy 32 bridge) and "24" – Pacific Ocean (Point Sur to San Diego)

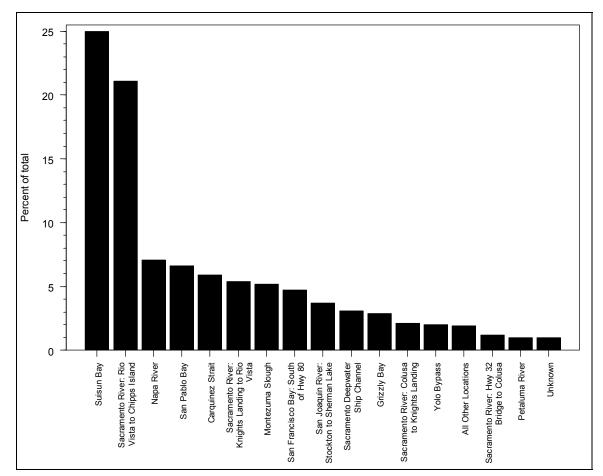


Figure 4. Percent of total catch of all sturgeon by location as reported on 2010 Cards

Catch of green sturgeon was greatest in the Sacramento River from Rio Vista to Chipps Island and from Suisun Bay (Table 4). Catch of white sturgeon was greatest from Suisun Bay and in the Sacramento River from Rio Vista to Chipps Island (Tables 5 and 6). Sixty-five (65) percent of anglers who reported catching white sturgeon (N = 1,607), caught 1-2 fish each (Figure 5).

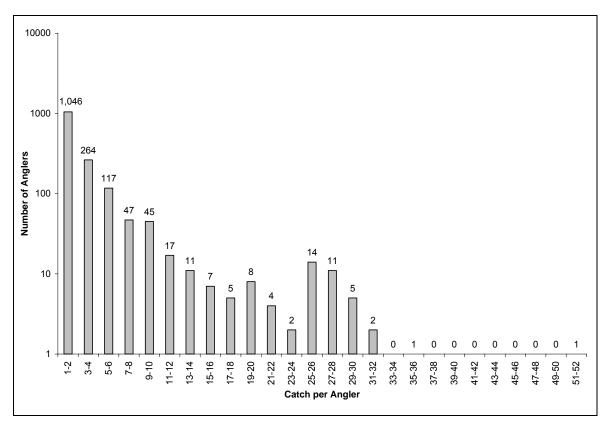


Figure 5. Frequency distribution of white sturgeon catch per angler as reported on 2010 Cards (numbers of anglers above each column)

Table 4. Green sturgeon catch and associated length by location and season as provided on 2010 Cards. The five locations where total catch was highest were ranked. Seasons were defined as follows: Winter=December-February, Spring= March-May, Summer=June-August, Fall=September-November

Location	Location Name	Rank of Catch	Number of Anglers	No Date of Capture	Winter Catch	Spring Catch	Summer Catch	Fall Catch	Total Catch	Number Measured	Minimum Length (inches)	Maximum Length (inches)	Average Length (inches)
	Unknown		1	-	-	1	-	-	1	1	72	72	72.0
1A	Sacramento River: Upstream of Red Bluff		-	-	-	-	-	-	-	-			
1B	Sacramento River: Red Bluff to Hwy 32 bridge		-	-	-	-	-	-	-	-			
1C	Sacramento River: Hwy 32 bridge to Colusa		1	-	-	1	-	-	1	-			
2	Sacramento River: Colusa to Knights Landing		2	-	2	-	-	-	2	-			
3	Sacramento River: Knights Landing to Rio Vista		5	-	1	2	-	2	5	1	70	70	70.0
4	Sacramento River: Rio Vista to Chipps Island	1	40	-	19	8	4	28	59	8	17	70	42.5
5	Feather River		1	-	1	-	-	-	1	-			
6	American River		-	-	-	-	-	-	-	-			
7	Sacramento Deepwater Ship Channel		3	-	2	-	-	2	4	2	24	27	25.5
8	Yolo Bypass		-	-	-	-	-	-	-	-			
9	Montezuma Slough		3	-	1	2	-	-	3	-			
10	Napa River		8	-	2	5	-	1	8	1	27	27	27.0
11	Petaluma River		-	-	-	-	-	-	-	-			
12	San Joaquin River: Upstream of HWY 140 bridge		1	-	1	-	-	-	1	-			
13	San Joaquin River: HWY 140 bridge to Stockton		1	-	-	2	-	-	2	2	26	31	28.5
14	San Joaquin River: Stockton to Sherman Lake		3	-	-	3	-	2	5	1	46	46	46.0
15	Old River		-	-	-	-	-	-	-	-			
16	San Pablo Bay	3	9	-	9	3	-	-	12	-			
17	Carquinez Strait	4	9	-	3	1	2	4	10	-			
18	Suisun Bay	2	25	-	5	7	7	7	26	6	15	60	37.3
19	Grizzly Bay		1	-	1	-	-	-	1	-			
20	San Francisco Bay: North of HWY 80		-	-	-	-	-	-	-	-			
21	San Francisco Bay: South of HWY 80	5	1	-	-	-	-	9	9	-			
22	Pacific Ocean: North of Golden Gate Bridge		1	-	-	-	1	-	1	-			
23	Pacific Ocean: Golden Gate Bridge to Point Sur		-	-	-	-	-	-	-	-			
24	Pacific Ocean: Point Sur to San Diego		-	-	-	-	-	-	-	-			
25	Any reservoir or lake		-	-	-	-	-	-	-	-			
26	Klamath River		-	-	-	-	-	-	-	-			

* = 1 angler fished and caught a green sturgeon at 2 different locations, 114 anglers fished and caught a green sturgeon at 1 location

Table 5. Retained white sturgeon catch and associated length by location and season as provided on 2010 Cards. The five locations where total catch was highest were ranked. Seasons were defined as follows: Winter=December-February, Spring= March-May, Summer=June-August, Fall=September-November

Location Code	Location Name		Number of Anglers	No Date of Capture	Winter Catch	Spring Catch	Summer Catch	Fall Catch	Total Catch	Number Measured	Minimum Length (inches)	Maximum Length (inches)	Average Length (inches)
			19	-	8	8	2	4	22	22	47	66	55.8
1A	Sacramento River: Upstream of Red Bluff		4	-	-	3	1	-	4	4	49	59	55.0
1B	Sacramento River: Red Bluff to Hwy 32 bridge		-	-	-	-	-	-	-	-			
1C	Sacramento River: Hwy 32 bridge to Colusa		18	-	7	15	-	-	22	22	47	65	57.6
2	Sacramento River: Colusa to Knights Landing		41	-	11	35	-	-	46	46	48	66	60.0
3	Sacramento River: Knights Landing to Rio Vista	3	115	-	57	72	-	15	144	144	46	66	56.1
4	Sacramento River: Rio Vista to Chipps Island	2	176	-	75	55	6	90	226	226	46	66	54.2
5	Feather River		-	-	-	-	-	-	-	-			
6	American River		-	-	-	-	-	-	-	-			
7	Sacramento Deepwater Ship Channel		39	-	16	6	1	23	46	46	46	65	53.5
8	Yolo Bypass		22	-	14	11	1	3	3 29		46	66	58.6
9	Montezuma Slough		51	-	21	20	9	9	59	59	46	66	55.1
10	Napa River		83	-	36	47	10	4	97	97	46	72	54.6
11	Petaluma River		20	-	6	14	-	-	20	18	46	65	53.9
12	San Joaquin River: Upstream of HWY 140 bridge		2	-	1	-	-	2	3	3	50	66	60.3
13	San Joaquin River: HWY 140 bridge to Stockton		-	-	-	-	-	-	-	-			
14	San Joaquin River: Stockton to Sherman Lake		37	-	19	13	6	10	48	48	46	65	53.5
15	Old River		2	-	2	-	-	-	2	2	54	60	57.0
16	San Pablo Bay	5	85	1	61	34	4	3	103	102	46	66	54.0
17	Carquinez Strait		44	2	16	27	6	5	56	56	46	66	54.9
18	Suisun Bay	1	198	-	85	78	19	65	247	247	28	66	53.9
19	Grizzly Bay		20	-	7	8	-	7	22	22	46	65	54.5
20	San Francisco Bay: North of HWY 80		11	-	14	3	1	-	18	18	47	62	53.9
21	San Francisco Bay: South of HWY 80	4	83	-	90	3	-	11	104	104	46	65	54.9
22	Pacific Ocean: North of Golden Gate Bridge		1	-	-	-	1	-	1	1	57	57	57.0
23	Pacific Ocean: Golden Gate Bridge to Point Sur		1	-	-	1	-	-	1	1	49	49	49.0
24	Pacific Ocean: Point Sur to San Diego		-	-	-	-	-	-	-	-			
25	Any reservoir or lake		1	-	1	-	-	-	1	1	53	53	53.0
26	Klamath River		1	-	1	-	-	-	1	1	66	66	66.0

Totals 1,074* 3 548 453 67 251 1,322 1,319

* = 2 anglers caught and retained fish at 3 different locations, 71 anglers caught and retained fish at 2 different locations, and 927 anglers caught and retained fish at 1 location

Table 6. Released white sturgeon catch and associated length by location and season as provided on 2010 Cards. The five locations where total catch was highest were ranked. Seasons were defined as follows: Winter=December-February, Spring= March-May, Summer=June-August, Fall=September-November

n Location Name		Number of Anglers	No Date of Capture	Winter Catch	Spring Catch	Summer Catch	Fall Catch	Total Catch	Number Measured	Minimum Length (inches)	Maximum Length (inches)	Average Length (inches)
Unknown		21	-	12	5	-	13	30	14	28	85	48.4
Sacramento River: Upstream of Red Bluff		2	-	1	1	1	-	3	2	59	72	65.5
Sacramento River: Red Bluff to Hwy 32 bridge		-	-	-	-	-	-	-	-			
Sacramento River: Hwy 32 bridge to Colusa		17	-	14	20	-	1	35	11	44	88	63.0
Sacramento River: Colusa to Knights Landing		29	-	20	41	-	-	61	5	65	90	74.2
Sacramento River: Knights Landing to Rio Vista		82	-	66	70	2	17	155	19	14	78	51.8
Sacramento River: Rio Vista to Chipps Island	2	232	-	333	208	52	314	907	82	3	84	39.1
Feather River		1	-	-	1	-	-	1	-			
American River		1	-	-	4	-	-	4	-			
Sacramento Deepwater Ship Channel		46	-	61	15	-	51	127	29	18	72	34.5
Yolo Bypass		27	-	42	17	-	27	86	43	19	72	46.1
Montezuma Slough		88	-	63	84	39	47	233	84	20	102	42.7
Napa River	3	122	-	117	131	28	21	297	31	21	78	36.2
Petaluma River		23	-	10	24	1	-	35	8	22	78	55.0
San Joaquin River: Upstream of HWY 140 bridge		3	-	5	-	-	2	7	-			
San Joaquin River: HWY 140 bridge to Stockton		5	-	4	11	4	-	19	10	48	84	56.3
San Joaquin River: Stockton to Sherman Lake		47	-	57	47	8	46	158	14	24	69	33.2
Old River		4	-	8	2	-	1	11	2	45	50	47.5
San Pablo Bay	5	90	-	144	83	3	20	250	25	14	86	49.5
Carquinez Strait	4	72	-	82	115	38	28	263	26	24	73	45.0
Suisun Bay	1	266	1	410	351	148	218	1,128	236	17	94	36.6
Grizzly Bay		53	-	61	28	5	40	134	21	20	90	48.0
San Francisco Bay: North of HWY 80		5	-	16	6	-	-	22	-			
San Francisco Bay: South of HWY 80		41	-	111	28	-	16	155	69	22	89	52.2
Pacific Ocean: North of Golden Gate Bridge		1	-	-	-	1	-	1	-			
Pacific Ocean: Golden Gate Bridge to Point Sur		-	-	-	-	-	-	-	-			
Pacific Ocean: Point Sur to San Diego		-	-	-	-	-	-	-	-			
Any reservoir or lake		1	-	-	-	2	-	2	-			
Klamath River		-	-	-	-	-	-	-	-			
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Totals 1,279* 1 1,637 1,292 332 862 4,124 731

* = 1 angler caught and released fish at 5 different locations, 9 anglers caught and released fish at 4 different locations, 34 anglers caught and released fish at 3 different locations, 144 anglers caught and released fish at 2 different locations, and 848 anglers caught and released fish at 1 location

Discussion

The 2010 Sturgeon Fishing Report Cards provided pertinent information for relatively little cost. We recommend continuing use of Sturgeon Fishing Report Cards.

Highlights of information from 2010 Cards include the following:

- (1) Both white and green sturgeon were reported to have been caught in locations 12 and 13 (San Joaquin River). This is (basically) the first time anglers reported catching both species in these two reaches of the San Joaquin River
- (2) The fraction of unidentified sturgeon (1.3%) was the highest since the Cards were first issued (2007)
- (3) Recapture data (25 disk-tagged fish caught and reported) will be used to augment our mark-recapture data, and thus is important for the precision and perhaps accuracy of estimates of abundance, harvest rate and survival rate.
- (4) More than half the anglers who fished for sturgeon were not successful and successful anglers retained on average less than half the annual bag limit of three white sturgeon.
- (5) Just three strong white sturgeon age-classes appeared susceptible to sport fishing gear.

Acknowledgements

This effort was funded by the Bay-Delta Sport Fishing Enhancement Stamp, the Sport Fish Restoration Act, and the Interagency Ecological Program. Special thanks to Virginia Haakinson for sorting many returned Cards. Very special thanks to all anglers who returned Cards and provided valuable information on Card format/function.

3	Card invalid after December 31, 2010 EXAMPLE 10 Card invalid after December 31, 2010) ME												INSTRUCTIONS FOR STURGEON ANGLERS The 14, Sections 1.74, 5.79 and 27.92, of the California Code of Regulations require that this card be in your possession while fishing incomtange and inclina waters in and that you recordyour catch and tag each sturgeon taken in accordance with these instructions. Use a ball point pen with indible ink to make a new entry for each sturgeon related or released. If you retain a sturgeon, immediately record the following information on the front of this card under the heading STURGEON RETAINED: 1. Record the month, day, location, using the codes listed below, and the total length of the							
NAME								DATE ISSU	ED											
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Appendix 1. 2010 California Sturgeon Fishing Report Card (front and back, color = salmon)