

# **2014 Sturgeon Fishing Report Card: Preliminary Data Report**

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## **Summary**

Approximately 49,260 2014 Sturgeon Fishing Report Cards (Cards) were issued. This report was written 5-Feb-2015 using information from the 9,566 Cards that had been received from anglers (5,231 via the Internet and 4,335 via mail) by that date.

Most catch of sturgeon (both species) was in the Sacramento River from Rio Vista to Chipps Island and in Suisun Bay. Anglers reported the release of 154 Green Sturgeon, retention of 1,894 White Sturgeon, and release of 3,768 White Sturgeon. As has been the case since 2007, about 50% of 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.

Anglers reported fork length measurements for 50 Green Sturgeon (range 10-84 inches, average 32 inches). Of the White Sturgeon retained, anglers reported fork length measurements for 1,884 fish (range 40-60 inches, average 50 inches). Of the White Sturgeon released, anglers reported a length measurement for 1,482 fish (range 1-108 inches, average 42 inches).

## **Introduction**

This report summarizes data from the 2014 California Sturgeon Fishing Report Card (Card). The Card is part of a suite of sport fishing regulations that are 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 2014 Card was distributed to any angler for a fee of \$8.13 exclusively through the Automated License Data System (ALDS) and was required of every angler — including minors, anglers fishing only from piers, and anglers fishing on 'free fishing' days — to fish for or retain a sturgeon in California.

Cards included fields for contact information, retained White Sturgeon, and released White Sturgeon (Appendix 1). 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 also included detachable single-use serially-numbered Card-specific tags to be placed on White Sturgeon retained by anglers.

Information on catch of sturgeon from 2014 Cards is complementary to on-going research and monitoring conducted by the Department (including application of disk-tags to wild fish) and others and will be used in planned articles and technical reports.

## **Card Distribution and Return**

Approximately 49,260 2014 Cards were issued to anglers. Anglers began returning Cards (on-line or via mail) almost immediately after distribution. Cards returned after preparation of this report began are not described here (cutoff date 05-Feb-2015).

Nine thousand five hundred sixty-six (9,566) Cards were returned. Of the Cards returned, 4,782 had no data (effort but no catch; 2,589 via the Internet and 2,163 via mail), 2,626 indicated no fishing effort (did not fish; 1,614 via the Internet and 1,012 via mail), and 2,158 (1,028 via the Internet and 1,130 via mail) had data on sturgeon catch.

## **Angler Data**

The Card included fields for general, personal, and contact information (Appendix 1), but those data are not summarized here.

## Catch Data

The Card contained three sections for reporting sturgeon catch: (1) Sturgeon Retained, (2) Sturgeon Released (no reward disk present), and (3) Sturgeon Released (reward disk present). See Appendix 1.

*Recapture of disk-tagged fish* — Twenty-seven (27) anglers each caught one disk-tagged White Sturgeon or disk-tagged unidentified sturgeon (Table 1). No disk-tagged Green Sturgeon were reported.

**Table 1. Angler-reported tag recaptures from 2014 Cards with corresponding CDFW tagging data; table sorted by date tagged**

Angler-reported Tag Recaptures						CDFW Tagging Data			
Date (2014)	Location	Species	Retained	Fork Length (inches)	Tag Number	Date Tagged	Species	Fork Length (inches)	Days at large
12-Apr	San Pablo Bay	Unknown	No	80	ST10785	2-Oct-97	White	45	6,036
20-Mar	Sacramento River: Knights Landing to Rio Vista	Unknown	No	NA	FF874	29-Oct-02	White	51	4,160
1-Nov	Sacramento River: Rio Vista to Chipps Island	White	Yes	59	HH1007	23-Aug-06	White	58	2,992
7-Nov	San Joaquin River: Stockton to Sherman Lake	White	Yes	53	FF1550	25-Sep-07	White	48	2,600
28-Nov	Grizzly Bay	Unknown	No	NA	HH1263	15-Oct-07	White	41	2,601
4-Dec	Yolo Bypass	Unknown	No	NA	HH1832	11-Aug-10	White	45	1,576
28-May	Suisun Bay	Unknown	No	NA	HH1900	20-Sep-10	White	42	1,346
2-Nov	Sacramento River: Rio Vista to Chipps Island	Unknown	No	NA	FF1902	20-Sep-10	White	46	1,504
24-Dec	Sacramento River: Knights Landing to Rio Vista	White	Yes	52	HH2001	1-Aug-11	White	51	1,241
2-Nov	Sacramento River: Knights Landing to Rio Vista	White	Yes	47	FF2127	29-Aug-11	White	36	1,526
16-Feb	Suisun Bay	White	Yes	55	HH2180	7-Aug-12	White	52	558
18-Apr	Montezuma Slough	White	Yes	50	HH2210	17-Sep-12	White	45	578
22-Mar	Suisun Bay	White	Yes	56	ST13213	18-Sep-12	White	53	550
28-Mar	Sacramento River: Rio Vista to Chipps Island	White	Yes	45	FF2112	8-Oct-12	White	44	536
21-Jun	San Joaquin River: HWY 140 bridge to Stockton	Unknown	No	43	HH2218	17-Oct-12	White	37	612
27-Dec	Sacramento River: Rio Vista to Chipps Island	Unknown	No	NA	ST12954	17-Sep-13	White	49	466
5-Mar	San Pablo Bay	Unknown	No	NA	FF1958	19-Sep-13	White	39	167
29-Dec	Montezuma Slough	White	Yes	40	ST13123	23-Oct-13	White	37	432
5-Dec	Suisun Bay	Unknown	No	NA	ST13254	30-Sep-14	White	37	66
22-Oct	Suisun Bay	White	Yes	55	50.00	-	-	-	-
21-Nov	Suisun Bay	White	Yes	59	1799	-	-	-	-
27-Apr	Suisun Bay	Unknown	No	50	952052486	-	-	-	-
14-Mar	Suisun Bay	White	Yes	59	N0	-	-	-	-
24-Dec	Old River	White	Yes	54	1802	-	-	-	-
5-Nov	Sacramento River: Rio Vista to Chipps Island	White	Yes	59	2466	-	-	-	-
8-Mar	Sacramento River: Knights Landing to Rio Vista	White	Yes	59	2018	-	-	-	-
3-May	Montezuma Slough	Unknown	No	54	952052488	-	-	-	-

- = Cannot determine with information supplied

NA = not available

*Catch* — Anglers reported releasing 154 Green Sturgeon, releasing 3,768 White Sturgeon, and retaining 1,894 White Sturgeon (Table 2). Forty-nine (49) released sturgeon were not identified to species.

**Table 2. White Sturgeon and Green Sturgeon catch reported on 2014 Cards**

		White Sturgeon	Green Sturgeon	Unidentified Sturgeon	Overall Total
<b>Retained</b>	Measured	1,884	NA	0	1,884
	Not Measured	10	NA	0	10
	Total	1,894	NA	0	1,894
<b>Released</b>	Measured	1,482	50	4	1,536
	Not Measured	2,286	104	45	2,435
	Total	3,768	154	49	3,971
<b>Overall Total</b>		5,662	154	49	5,865

One thousand four hundred forty-eight (1,448) anglers reported retaining White Sturgeon (Table 3; average of 1.3 sturgeon). Sixty-seven (67) anglers retained the limit of three White Sturgeon.

One thousand one hundred seventy-eight (1,178) anglers reported releasing White Sturgeon (Table 3). Of those anglers, 77 each released 10-30 fish and (not included in this report) four each released > 30 fish.

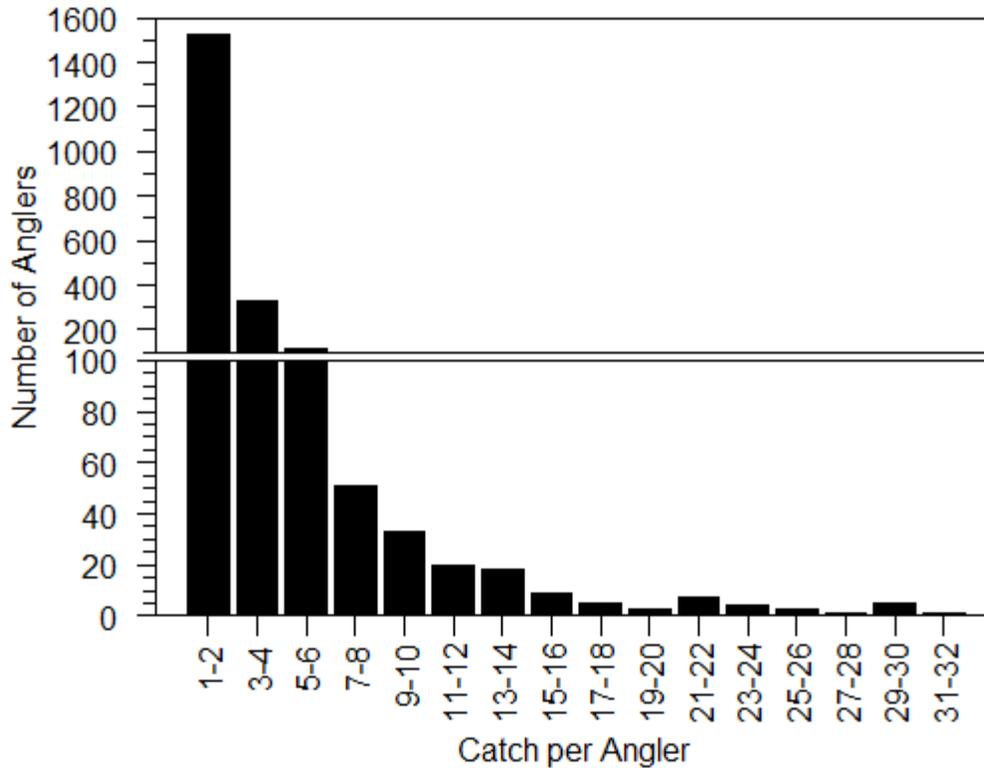
One hundred twenty (120) anglers reported releasing Green Sturgeon (Table 3; average of 1.3 sturgeon). Of those anglers, 20 each released 2-5 fish and one reported releasing seven fish.

**Table 3. Summary statistics for per-angler catch from 2014 Cards with catch data**

	Number of Anglers	Number of Sturgeon	Maximum Number of Sturgeon per Angler	Average Number of Sturgeon per Angler
Retained White Sturgeon	1,448	1,894	3	1.3
Released White Sturgeon	1,178	3,768	30	3.2
Green Sturgeon	120	154	7	1.3
Unidentified Sturgeon	28	49	6	1.8

Far and away most of the successful White Sturgeon anglers caught 1-2 fish (Figure 1). Two hundred sixteen (216<sup>1</sup>) anglers retained and released White Sturgeon on the same day. The number of White Sturgeon voluntarily conserved could not be calculated, because the length of sturgeon released was not a required field on the Card.

<sup>1</sup> Of the 216 anglers, two retained and released White Sturgeon on three separate days, 27 retained and released White Sturgeon on two separate days, and 187 retained and released White Sturgeon on one day.



**Figure 1. Frequency distribution of White Sturgeon catch per angler as reported on 2014 Cards; not shown here (and not included in this report) are four angler’s catch of > 32 fish each; y-axis break at 100 for ease of display**

*Lengths* — Green Sturgeon length ranged 10-84 inches and averaged 32 inches (Figure 2). Retained White Sturgeon length ranged 40-60 inches<sup>2</sup> and averaged 50 inches (Figure 3). For the released White Sturgeon for which a length measurement was reported<sup>3</sup> (Figure 4), length ranged 1-108 inches and averaged 42 inches, 291 were within the slot limit, 913 were below the slot limit, and 278 were above the slot limit.

<sup>2</sup> For 10 retained White Sturgeon, length was not recorded, illegible, or reported as greater than 60 inches.

<sup>3</sup> Length of released fish is not a required field, but many anglers volunteered the information.

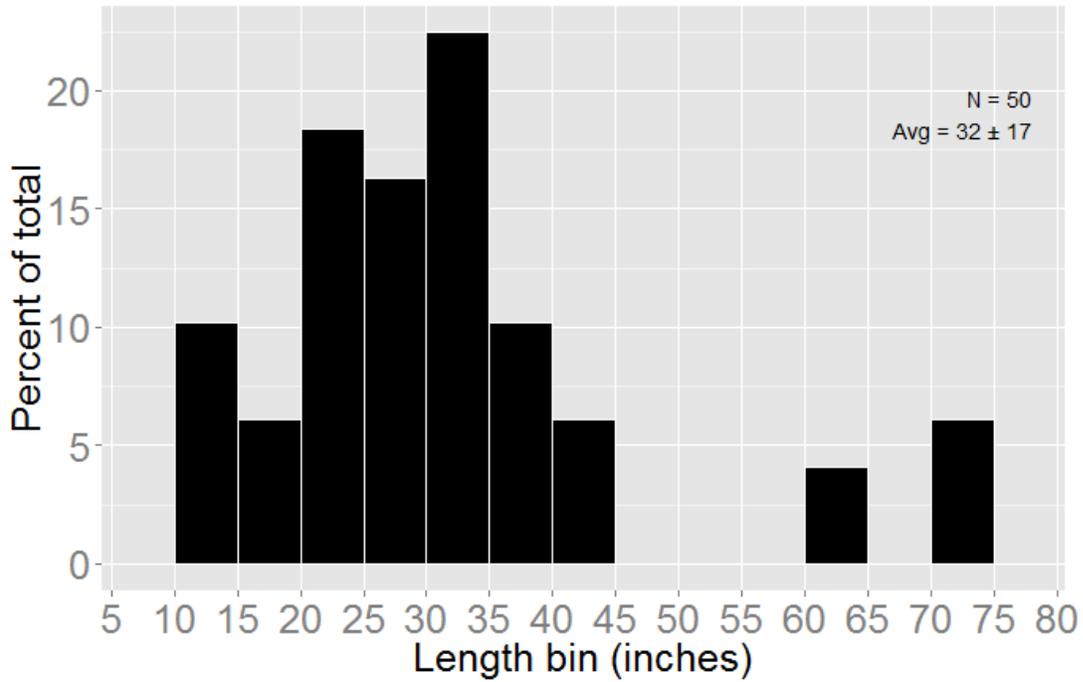


Figure 2. Length frequency distribution of Green Sturgeon released as reported on 2014 Cards; average (Avg) ± SD included in upper-right corner of plot

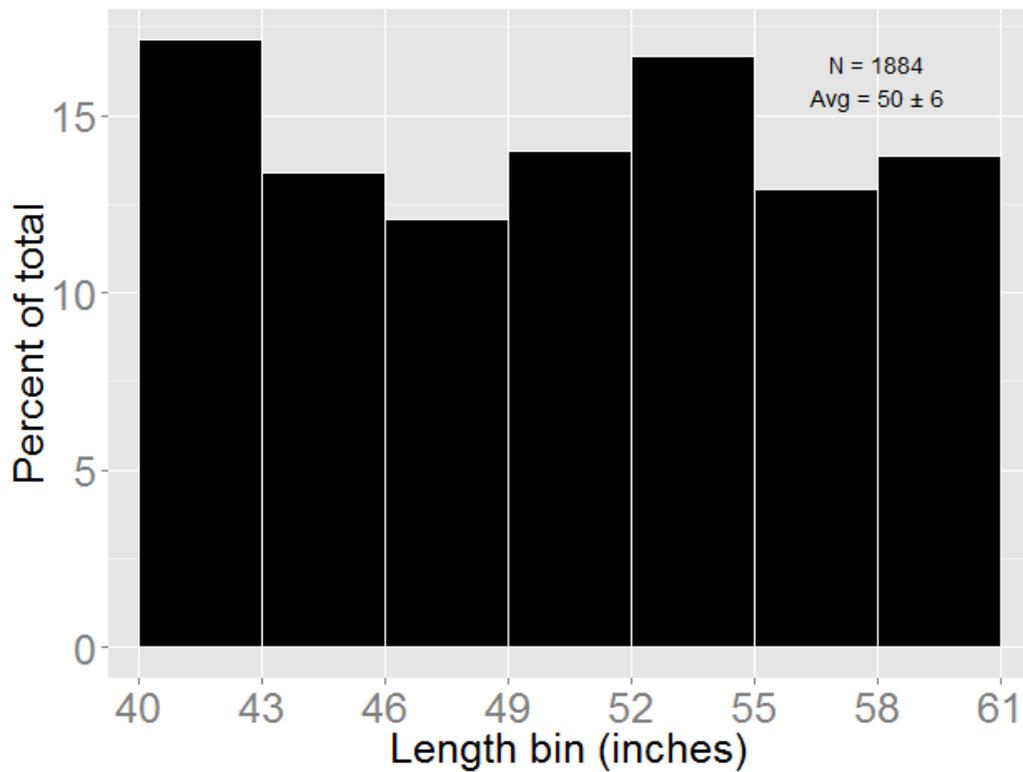


Figure 3. Length frequency distribution of White Sturgeon retained as reported on 2014 Cards; average (Avg) ± SD included in upper-right corner of plot



**Figure 4. Length frequency distribution of White Sturgeon released as reported on 2014 Cards (dark bars denote slot limit of 40–60 inches FL), average (Avg) ± SD included in upper-right corner of plot; not shown four fish recorded with length = 1. Because these data are not collected randomly or systematically (e.g., many slot-sized fish are not released) and it is illegal to remove certain oversized White Sturgeon from the water (e.g., for measurement), this is not the population’s actual distribution and is likely biased towards relatively small fish.**

*Seasonality* — Catch per month ranged from approximately 1-18%, with the smallest proportions during summer months (Table 4).

**Table 4. Green Sturgeon and White Sturgeon catch per month for 2014**

Month	White Sturgeon	Green Sturgeon	Unknown Sturgeon	Catch Total	Percent of Total
<i>Not given</i>	0	0	0	0	0.00%
January	641	21	2	664	11.3%
February	994	33	7	1,034	17.6%
March	1,042	30	10	1,082	18.4%
April	608	19	9	636	10.8%
May	274	5	3	282	4.8%
June	112	2	3	117	2.0%
July	82	5	1	88	1.5%
August	52	1	0	53	0.9%
September	88	4	0	92	1.6%
October	281	2	1	284	4.8%
November	597	11	4	612	10.4%
December	891	21	9	921	15.7%
Totals	5,662	154	49	5,865	

*Locations* — Sturgeon were reported caught in 24 of the 28 locations listed on the Card (Figure 5). For the present purposes, locations where 1-50 sturgeon were collected were grouped as ‘All Other Locations’ (N = 16). Location were either not specified or were illegible (grouped as ‘Unknown’) for 10 retained White Sturgeon, 29 released White Sturgeon, one Green Sturgeon, and three unidentified sturgeon.

Catch of Green Sturgeon was greatest in the Sacramento River from Rio Vista to Chipps Island and in Suisun Bay (Table 5). Catch of White Sturgeon was greatest in Suisun Bay and in the Sacramento River from Rio Vista to Chipps Island (Tables 6 and 7).

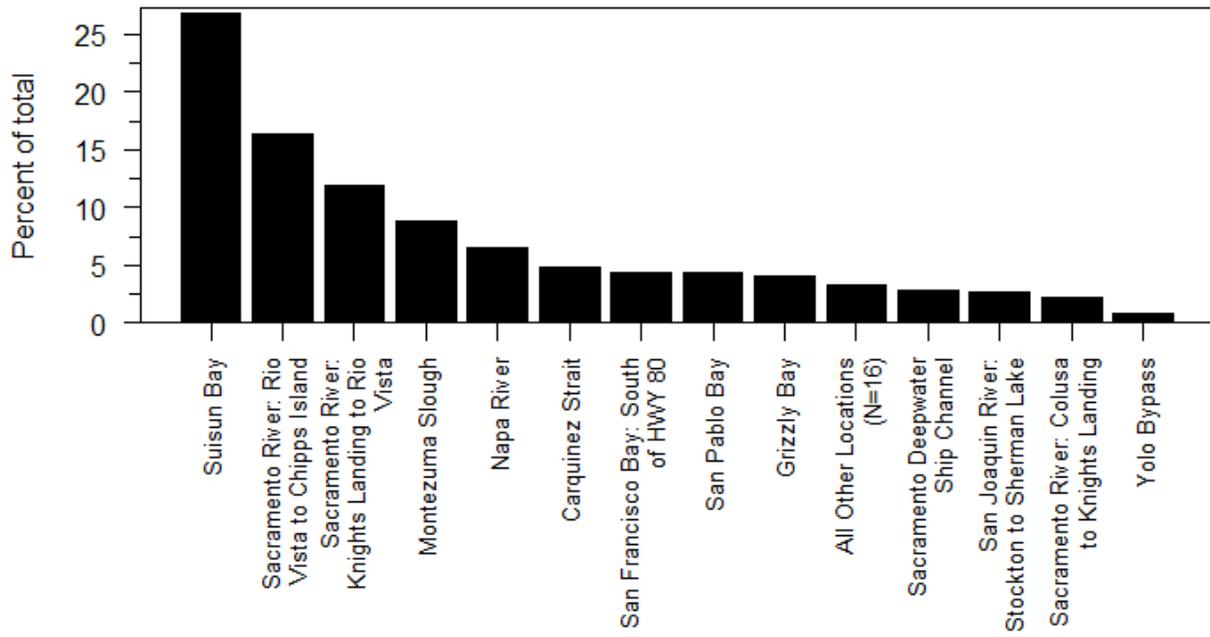


Figure 5. Percent of total catch of all sturgeon by location as reported on 2014 Cards

**Table 5. Green Sturgeon catch and length statistics by location and season as provided on 2014 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	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	-			
01A	Sacramento River: Upstream of Red Bluff		1	-	-	-	-	1	1	-			
01B	Sacramento River: Red Bluff to Hwy 32 bridge		-	-	-	-	-	-	-	-			
01C	Sacramento River: Hwy 32 bridge to Colusa		4	-	1	3	-	-	4	2	70	84	77.0
2	Sacramento River: Colusa to Knights Landing		1	-	-	1	-	-	1	1	72	72	72.0
3	Sacramento River: Knights Landing to Rio Vista	4	11	-	8	2	-	1	11	6	12	64	35.5
4	Sacramento River: Rio Vista to Chipps Island	1	29	-	17	24	-	3	44	10	12	40	28.4
5	Feather River		-	-	-	-	-	-	-	-			
6	American River		-	-	-	-	-	-	-	-			
7	Sacramento Deepwater Ship Channel		5	-	4	-	1	1	6	1	30	30	30.0
8	Yolo Bypass		-	-	-	-	-	-	-	-			
9	Montezuma Slough		6	-	2	4	1	-	7	2	10	14	12.0
10	Napa River		3	-	1	1	-	1	3	2	25	32	28.5
11	Petaluma River		-	-	-	-	-	-	-	-			
12	San Joaquin River: Upstream of HWY 140 bridge		-	-	-	-	-	-	-	-			
13	San Joaquin River: HWY 140 bridge to Stockton		2	-	1	-	-	1	2	-			
14	San Joaquin River: Stockton to Sherman Lake		7	-	6	2	-	1	9	2	27	74	50.5
15	Old River		1	-	1	-	-	-	1	-			
16	San Pablo Bay	3	15	-	15	3	-	-	18	6	17	40	29.0
17	Carquinez Strait	5	7	-	4	5	-	2	11	7	18	32	25.4
18	Suisun Bay	2	28	-	13	8	6	6	33	11	18	44	29.1
19	Grizzly Bay		2	-	2	-	-	-	2	-			
20	San Francisco Bay: North of HWY 80		-	-	-	-	-	-	-	-			
21	San Francisco Bay: South of HWY 80		-	-	-	-	-	-	-	-			
22	Pacific Ocean: North of Golden Gate Bridge		-	-	-	-	-	-	-	-			
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		-	-	-	-	-	-	-	-			
			<b>Totals</b>		<b>123*</b>	<b>75</b>	<b>54</b>	<b>8</b>	<b>17</b>	<b>154</b>			<b>50</b>

- = no reported angler catch

\* = 3 anglers fished and caught a Green Sturgeon at 2 different locations, and 117 anglers fished and caught a Green Sturgeon at 1 location

**Table 6. Retained White Sturgeon catch and length statistics by location and season as provided on 2014 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	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		10	-	3	5	-	2	10	8	42	58	48.0
01A	Sacramento River: Upstream of Red Bluff		26	-	15	14	-	-	29	28	41	60	52.2
01B	Sacramento River: Red Bluff to Hwy 32 bridge		-	-	-	-	-	-	-	-			
01C	Sacramento River: Hwy 32 bridge to Colusa		16	-	2	19	-	-	21	21	40	59	50.9
2	Sacramento River: Colusa to Knights Landing		66	-	36	40	-	1	77	77	41	60	52.5
3	Sacramento River: Knights Landing to Rio Vista	2	276	-	154	154	-	29	337	336	40	60	51.2
4	Sacramento River: Rio Vista to Chipps Island	3	231	-	100	71	10	101	282	282	40	60	48.1
5	Feather River		2	-	1	1	-	-	2	2	50	60	55.0
6	American River		1	-	-	1	-	-	1	1	54	54	54.0
7	Sacramento Deepwater Ship Channel		53	-	32	15	2	11	60	59	40	60	47.8
8	Yolo Bypass		4	-	3	1	-	-	4	4	41	57	51.2
9	Montezuma Slough	5	93	-	38	53	6	12	109	109	40	60	49.3
10	Napa River		63	-	32	38	4	4	78	77	40	60	47.9
11	Petaluma River		1	-	1	-	-	-	1	1	43	43	43.0
12	San Joaquin River: Upstream of HWY 140 bridge		8	-	6	2	-	1	9	8	42	59	52.4
13	San Joaquin River: HWY 140 bridge to Stockton		6	-	2	4	-	-	6	6	41	59	45.7
14	San Joaquin River: Stockton to Sherman Lake		35	-	17	12	3	12	44	43	40	59	46.6
15	Old River		4	-	5	1	-	-	6	6	40	58	48.2
16	San Pablo Bay		60	-	49	17	2	5	73	72	41	60	50.1
17	Carquinez Strait		60	-	21	28	10	9	68	68	40	60	51.0
18	Suisun Bay	1	365	-	196	173	24	54	447	446	40	60	49.3
19	Grizzly Bay		50	-	17	23	-	12	52	52	40	60	49.7
20	San Francisco Bay: North of HWY 80		3	-	2	1	-	-	3	3	50	58	54.0
21	San Francisco Bay: South of HWY 80	4	122	-	123	31	-	17	171	171	41	60	51.8
22	Pacific Ocean: North of Golden Gate Bridge		2	-	-	2	-	-	2	2	42	50	46.0
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		2	-	-	1	1	-	2	2	40	48	44.0
			<b>Totals</b>		<b>1,559*</b>		<b>855</b>	<b>707</b>	<b>62</b>	<b>270</b>	<b>1,894</b>	<b>1,884</b>	

- = no reported angler catch

\* = 3 anglers caught and retained a White Sturgeon at 8 different locations, 95 anglers caught and retained a White Sturgeon at 2 different locations, and 1,345 anglers caught and retained White Sturgeon at 1 location

**Table 7. Released White Sturgeon catch and length statistics by location and season as provided on 2014 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	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		9	-	15	3	3	8	29	8	22	48	32.6
01A	Sacramento River: Upstream of Red Bluff		4	-	4	-	-	-	4	-			
01B	Sacramento River: Red Bluff to Hwy 32 bridge		-	-	-	-	-	-	-	-			
01C	Sacramento River: Hwy 32 bridge to Colusa		9	-	7	16	-	-	23	8	46	82	67.1
2	Sacramento River: Colusa to Knights Landing		36	-	24	31	-	1	56	21	41	85	67.4
3	Sacramento River: Knights Landing to Rio Vista	4	175	-	166	109	2	71	348	142	24	96	50.8
4	Sacramento River: Rio Vista to Chipps Island	2	223	-	209	146	29	245	629	162	16	108	37.5
5	Feather River		-	-	-	-	-	-	-	-			
6	American River		-	-	-	-	-	-	-	-			
7	Sacramento Deepwater Ship Channel		49	-	44	28	1	23	96	28	nv	84	nv
8	Yolo Bypass		9	-	23	7	-	20	50	43	30	96	46.3
9	Montezuma Slough	3	141	-	147	193	30	26	396	188	10	90	50.5
10	Napa River	5	106	-	117	136	21	22	296	105	15	98	41.8
11	Petaluma River		2	-	3	-	-	-	3	1	38	38	38.0
12	San Joaquin River: Upstream of HWY 140 bridge		4	-	1	1	-	3	5	1	20	20	20.0
13	San Joaquin River: HWY 140 bridge to Stockton		3	-	-	10	-	1	11	-			
14	San Joaquin River: Stockton to Sherman Lake		30	-	21	53	3	26	103	21	21	57	32.2
15	Old River		1	-	-	1	-	-	1	1	65	65	65.0
16	San Pablo Bay		68	-	100	49	3	6	158	50	nv	80	nv
17	Carquinez Strait		79	-	79	88	18	20	205	86	14	96	38.9
18	Suisun Bay	1	356	-	552	291	68	168	1,079	477	nv	84	nv
19	Grizzly Bay		88	-	91	43	6	40	180	86	20	90	39.6
20	San Francisco Bay: North of HWY 80		2	-	5	-	-	3	8	2	32	36	34.0
21	San Francisco Bay: South of HWY 80		49	-	63	12	-	13	88	52	17	83	57.0
22	Pacific Ocean: North of Golden Gate Bridge		-	-	-	-	-	-	-	-			
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		-	-	-	-	-	-	-	-			
<b>Totals</b>			<b>1,178*</b>	-	<b>1,671</b>	<b>1,217</b>	<b>184</b>	<b>696</b>	<b>3,768</b>	<b>1,482</b>			

- = no reported angler catch; nv = no value

\* = 11 anglers caught and released a White Sturgeon at 4 different locations, 28 anglers caught and released a White Sturgeon at 3 different locations, 176 anglers caught and released White Sturgeon at 2 different locations, and 963 anglers caught and released White Sturgeon at 1 location

## Discussion

Information from and about 2014 Cards includes the following highlights:

- (1) Approximately 20% of sturgeon anglers submitted their Cards or data, which is about the same rate for the 2013 Card but substantially greater than for 2007-2012 Cards.
- (2) Anglers who caught no sturgeon were more likely to report by way of the Internet than by mail. Given the often-substantial amount of catch data many anglers developed, reporting by mail probably saved successful anglers a meaningful amount of time.
- (3) Some anglers reported single-digit White Sturgeon lengths and some anglers reported harvesting White Sturgeon in a closed reach of the Sacramento River (Location 01A). For those data submitted to us by way of mail, we verified that we entered the data accurately. We may attempt to clarify these reports by contacting the anglers.
- (4) As has been the case since 2007, about 50% of 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) Information on the reported capture of 19 disk-tagged White Sturgeon will augment the Department's sturgeon population study, and thus is important for the precision and/or accuracy of estimated abundance, harvest rate, and survival rate.
- (6) The White Sturgeon length frequency distributions — particularly the strong mode in released fish, but also the left limb of the kept-fish distribution — appears to show that the relatively-strong 2006 cohort continues what should be a several-year recruitment to the slot limit. The left limb of the kept-fish distribution shows a small mode that is most obvious when contrasted with the 2007-2012 time series (see DFW 2014b).
- (7) The length frequency distribution of White Sturgeon smaller than 40 inches suggests that annual production of White Sturgeon was very low during the period 2007-2013. Low levels of White Sturgeon production during those years was also suggested from indices of young-of-the-year White Sturgeon abundance (DFW 2014a) and was expected from the positive relationship between White Sturgeon production and Delta outflow (Fish 2010).

### **Literature Cited and Relevant References**

DFW. 2014a. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentId=69133>

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For more, click on [additional bibliography](#).

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