

# **2015 Sturgeon Fishing Report Card: Preliminary Data Report**

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## **Summary**

Approximately 48,338 2015 Sturgeon Fishing Report Cards (Cards) were issued. This report was written 11-Mar-2016 using information from the 13,633 Cards that had been received from anglers (8,698 via the Internet and 4,935 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 192 Green Sturgeon, retention of 2,327 White Sturgeon, and release of 6,041 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 74 Green Sturgeon (range 2-72 inches, average 30 inches). Of the White Sturgeon retained, anglers reported fork length measurements for 2,319 fish (range 40-60 inches, average 49 inches). Of the White Sturgeon released, anglers reported a length measurement for 2,827 fish (range 7-120 inches, average 43 inches).

## **Introduction**

This report summarizes data from the 2015 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 2015 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 2015 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 48,338 2015 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 11-Mar-2016, early PM).

Thirteen thousand six hundred thirty-three (13,633) Cards were returned. Of the Cards returned, 6,665 had no data (effort but no catch; 4,212 via the Internet and 2,453 via mail), 4,170 indicated no fishing effort (did not fish; 2,949 via the Internet and 1,221 via mail), and 2,798 (1,537 via the Internet and 1,261 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-eight (28) 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 2015 Cards with corresponding CDFW tagging data; table sorted by date tagged**

Angler-reported Tag Recaptures						CDFW Tagging Data			Days at large
Date (2015)	Location	Species	Fate	Fork Length (inches)	Tag Number	Date Tagged	Species	Fork Length (inches)	
15-Mar	Montezuma Slough	Unk	released	NA	FF1627	26-Aug-08	White	59	2,392
3-Feb	Sacramento River: Rio Vista to Chipps Island	White	kept	58	HH1659	3-Sep-08	White	46	2,344
11-Feb	Sacramento River: Knights Landing to Rio Vista	White	kept	58	HH1465	16-Oct-08	White	41	2,309
5-Feb	Sacramento River: Rio Vista to Chipps Island	White	kept	55	ST12817	12-Apr-11	White	53	1,395
10-Jun	Suisun Bay	White	kept	45	FF2062	26-Sep-11	White	38	1,353
22-Nov	Sacramento River: Rio Vista to Chipps Island	White	kept	42	HH2157	27-Sep-11	White	44	1,517
4-May	Sacramento River: Rio Vista to Chipps Island	Unk	released	NA	HH2170	11-Oct-11	White	35	1,301
22-May	Suisun Bay	White	kept	44	FF2191	21-Aug-12	White	38	1,004
10-Jan	San Joaquin River: Stockton to Sherman Lake	White	kept	59	HH1971	13-Aug-13	White	58	515
24-Jan	Suisun Bay	Unk	released	NA	HH1961	3-Oct-13	White	43	478
15-Apr	Sacramento River: Rio Vista to Chipps Island	White	kept	43	ST13234	10-Sep-14	White	40	217
12-Feb	Sacramento River: Knights Landing to Rio Vista	White	kept	48	HH1985	16-Sep-14	White	47	149
10-Jan	Sacramento River: Knights Landing to Rio Vista	White	kept	57	HH2242	24-Sep-14	White	54	108
22-Feb	Suisun Bay	Unk	released	NA	HH2259	25-Sep-14	White	35	150
11-Mar	Sacramento River: Knights Landing to Rio Vista	White	kept	46	HH2257	7-Oct-14	White	41	155
24-Oct	Sacramento River: Rio Vista to Chipps Island	White	kept	41	FF2268	8-Oct-14	White	39	381
6-Mar	Carquinez Strait	White	kept	40	FF2276	22-Oct-14	White	39	135
8-Dec	Sacramento River: Rio Vista to Chipps Island	White	kept	56	HF2185	8-Oct-15	White	56	61
18-Apr	Sacramento River: Colusa to Knights Landing	Unk	released	66	.2231	-	-	-	-
15-Feb	Sacramento River: Knights Landing to Rio Vista	White	kept	59	\$50.00	-	-	-	-
12-Jan	Sacramento River: Knights Landing to Rio Vista	White	kept	54	2071	-	-	-	-
15-Feb	Sacramento Deepwater Ship Channel	Unk	released	44	2120	-	-	-	-
14-Mar	Montezuma Slough	White	kept	54	FO-2335	-	-	-	-
23-May	Montezuma Slough	White	kept	43	2335	-	-	-	-
17-Sep	Suisun Bay	White	kept	41	1991	-	-	-	-
20-Feb	Suisun Bay	White	kept	56	1859	-	-	-	-
24-Dec	Suisun Bay	Unk	released	NA	1428	-	-	-	-
4-Jan	Grizzly Bay	White	kept	58	50.00	-	-	-	-

- = Cannot determine with information supplied

NA = not available; Unk = unknown

*Catch* — Anglers reported releasing 192 Green Sturgeon, releasing 6,041 White Sturgeon, and retaining 2,327 White Sturgeon (Table 2). Fifty-five (55) released sturgeon were not identified to species.

**Table 2. White Sturgeon and Green Sturgeon catch reported on 2015 Cards**

		White Sturgeon	Green Sturgeon	Unidentified Sturgeon	Overall Total
<b>Retained</b>	Measured	2,319	NA	0	2,319
	Not Measured	8	NA	0	8
	Total	2,327	NA	0	2,327
<b>Released</b>	Measured	2,827	74	7	2,908
	Not Measured	3,214	118	48	3,380
	Total	6,041	192	55	6,288
<b>Overall Total</b>		8,368	192	55	8,615

One thousand seven hundred ninety-three (1,793) anglers reported retaining White Sturgeon (Table 3; average of 1.3 sturgeon). Eighty-three (83) anglers retained the limit of three White Sturgeon.

One thousand six hundred sixteen (1,616) anglers reported releasing White Sturgeon (Table 3). Of those anglers, 127 each released 10-30 fish and five each released > 30 fish.

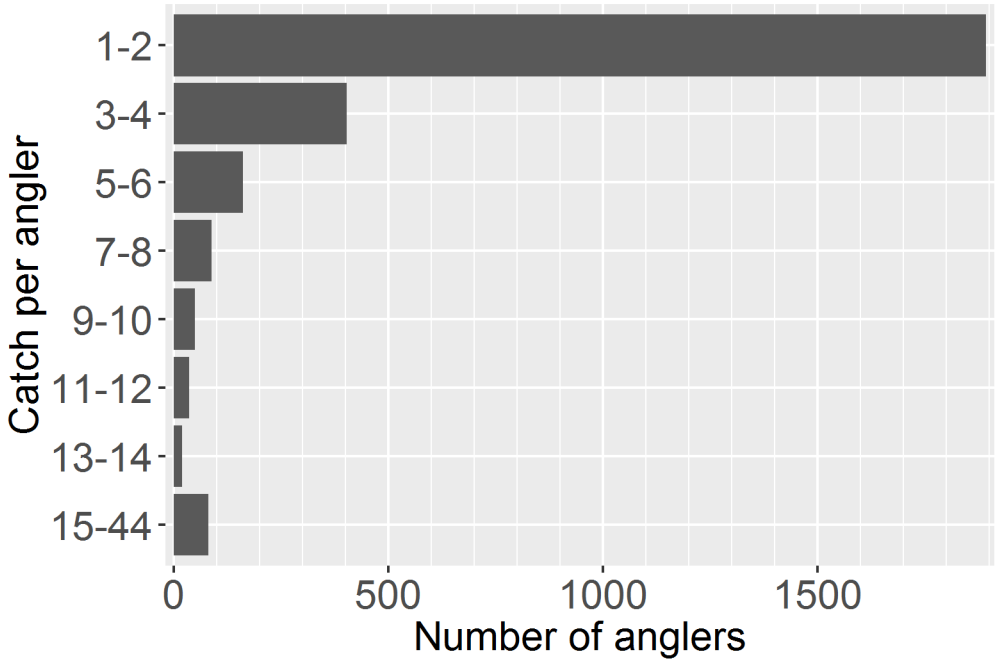
One hundred fifty (150) anglers reported releasing Green Sturgeon (Table 3; average of 1.3 sturgeon). Of those anglers, 28 each released 2-5.

**Table 3. Summary statistics for per-angler catch from 2015 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	1,793	2,327	3	1.3
Released White Sturgeon	1,616	6,041	43	3.7
Green Sturgeon	150	192	5	1.3
Unidentified Sturgeon	33	55	10	1.7

Far and away most of the successful White Sturgeon anglers caught 1-2 fish (Figure 1). Three hundred twenty-five (325<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 325 anglers, seven retained and released White Sturgeon on three separate days, 43 retained and released White Sturgeon on two separate days, and 275 retained and released White Sturgeon on one day.

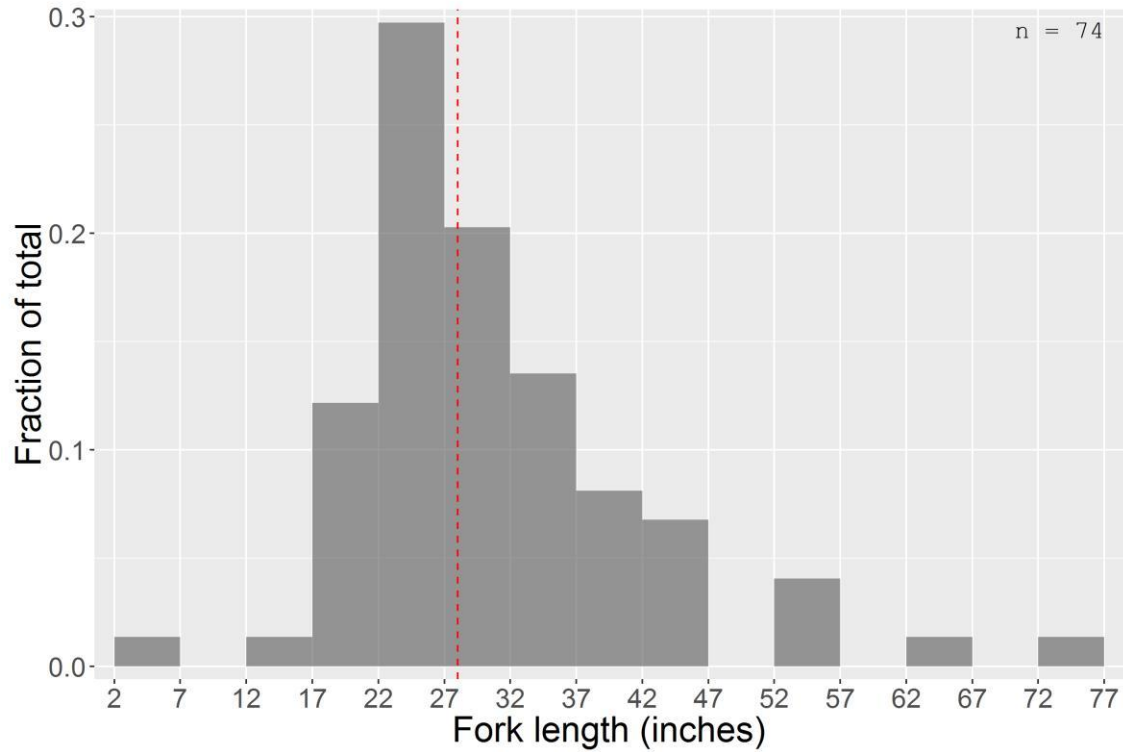


**Figure 1. Frequency distribution of White Sturgeon catch per angler as reported on 2015 Cards**

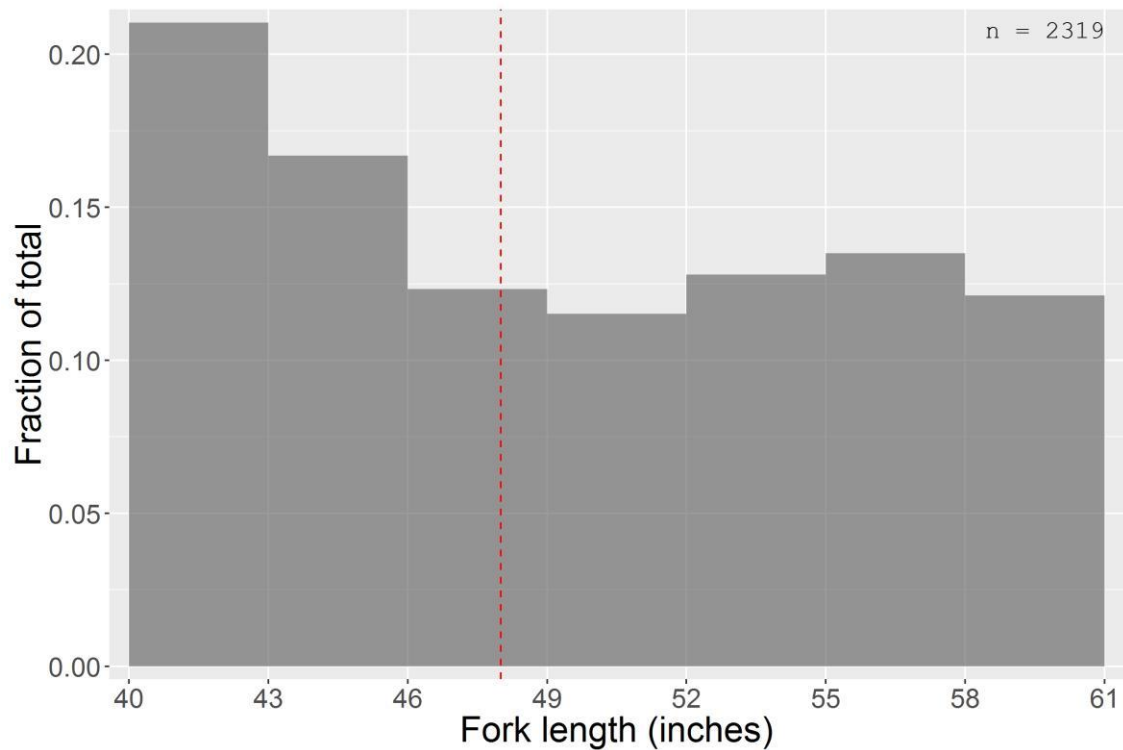
*Lengths* — Green Sturgeon length ranged 2-72 inches and averaged 30 inches (Figure 2). Retained White Sturgeon length ranged 40-60 inches<sup>2</sup> and averaged 49 inches (Figure 3). For the released White Sturgeon for which a length measurement was reported<sup>3</sup> (Figure 4), length ranged 7-120 inches and averaged 43 inches, 594 were within the slot limit, 1,729 were below the slot limit, and 504 were above the slot limit.

<sup>2</sup> For eight retained White Sturgeon, length was not recorded, illegible, or reported above or below the legal limit (40-60 inches FL).

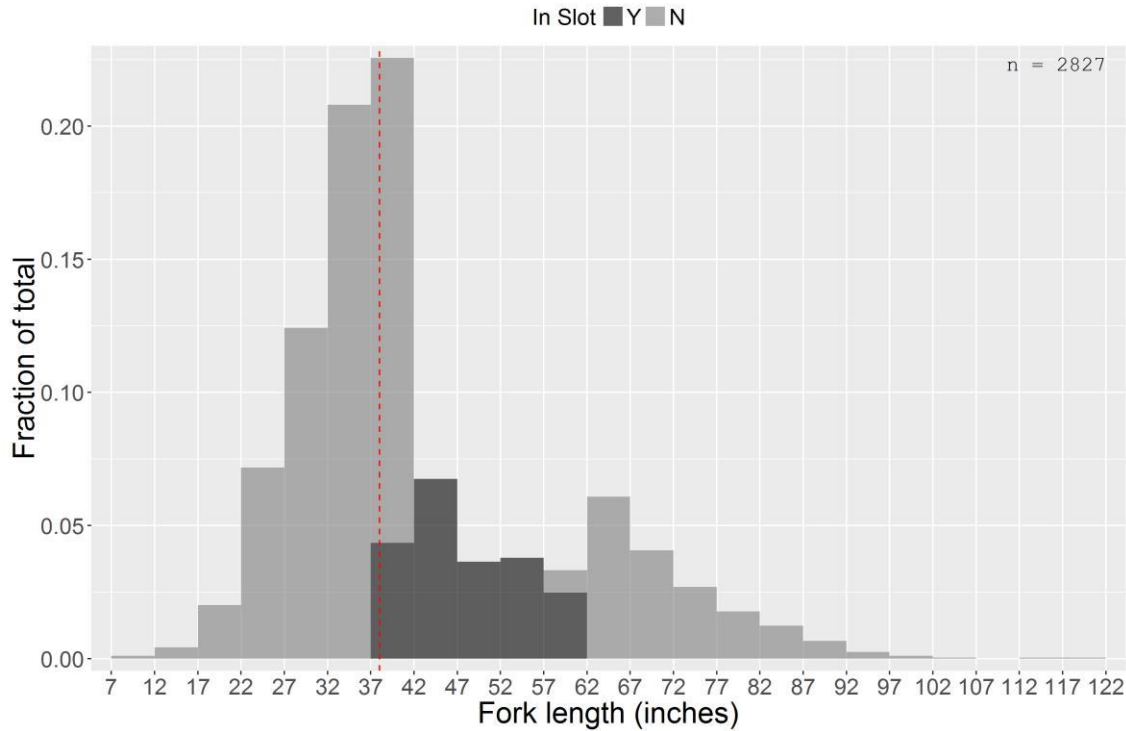
<sup>3</sup> Length of released fish is not a required field, but many anglers volunteered the information.



**Figure 2. Length frequency distribution of Green Sturgeon released as reported on 2015 Cards; number measured included upper-right; dashed red line indicates median; bins by 5 inches**



**Figure 3. Length frequency distribution of White Sturgeon retained as reported on 2015 Cards; number measured included upper-right; dashed red line indicates median; bins by 3 inches**



**Figure 4. Length frequency distribution of White Sturgeon released as reported on 2015 Cards (dark bars denote slot limit of 40–60 inches FL); number measured included upper-right; dashed red line indicates median; bins by 5 inches. 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.**

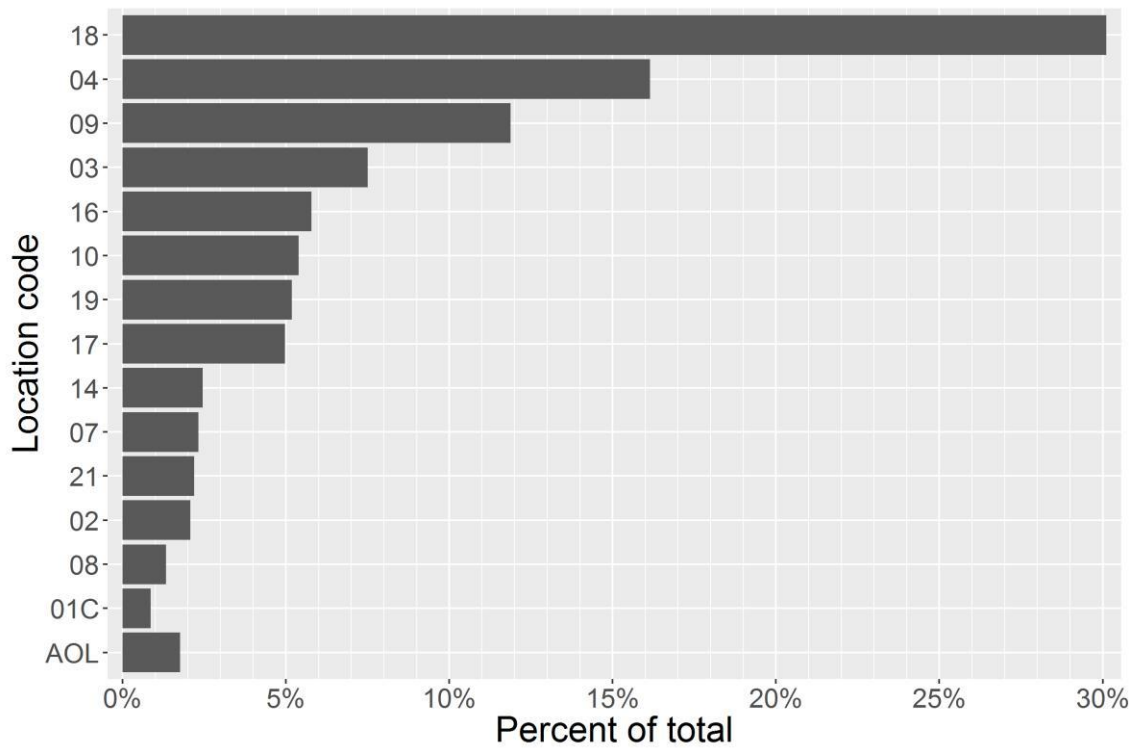
*Seasonality* — Catch per month ranged from approximately 1-19%, with the smallest proportions during summer months and early fall (Table 4).

**Table 4. White Sturgeon and Green Sturgeon catch per month for 2015**

Month	White Sturgeon	Green Sturgeon	Unknown Sturgeon	Catch Total	Percent of Total
<i>Not given</i>	3	1	0	4	0.05
Jan	1,505	28	7	1,540	17.88
Feb	1,589	33	7	1,629	18.91
Mar	1,602	39	6	1,647	19.12
Apr	624	17	6	647	7.51
May	323	12	4	339	3.93
Jun	167	5	0	172	2.00
Jul	65	1	3	69	0.80
Aug	113	3	2	118	1.37
Sep	114	5	0	119	1.38
Oct	403	12	4	419	4.86
Nov	796	16	9	821	9.53
Dec	1,064	20	7	1,091	12.66
Totals	8,368	192	55	8,615	

*Locations* — Sturgeon were reported caught in 27 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' (AOL, N = 14). Location were either not specified or were illegible (grouped as 'Unknown') for 12 retained White Sturgeon, six released White Sturgeon, no Green Sturgeon, and two 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 2015 Cards; to conserve space location codes — rather than names — are given, see any of tables 5-7 for location names**



**Table 5. Green Sturgeon catch and length statistics by location and season as provided on 2015 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)
01A	Sacramento River: Upstream of Red Bluff		-	-	-	-	-	-	-	-	-	-	-
01B	Sacramento River: Red Bluff to Hwy 32 bridge		-	-	-	-	-	-	-	-	-	-	-
01C	Sacramento River: Hwy 32 bridge to Colusa		1	-	1	-	-	-	1	-	-	-	-
2	Sacramento River: Colusa to Knights Landing		3	-	2	1	-	-	3	1	64	64	64.0
3	Sacramento River: Knights Landing to Rio Vista		6	-	4	-	-	2	6	4	25	54	42.5
4	Sacramento River: Rio Vista to Chipps Island	1	41	1	23	27	-	8	59	16	18	44	26.6
5	Feather River		-	-	-	-	-	-	-	-	-	-	-
6	American River		-	-	-	-	-	-	-	-	-	-	-
7	Sacramento Deepwater Ship Channel	4	7	-	6	2	-	3	11	7	20	72	35.1
8	Yolo Bypass		-	-	-	-	-	-	-	-	-	-	-
9	Montezuma Slough	5	9	-	2	6	1	2	11	5	20	39	30.6
10	Napa River		9	-	3	5	-	1	9	-	-	-	-
11	Petaluma River		-	-	-	-	-	-	-	-	-	-	-
12	San Joaquin River: Upstream of HWY 140 bridge		-	-	-	-	-	-	-	-	-	-	-
13	San Joaquin River:HWY 140 bridge to Stockton		-	-	-	-	-	-	-	-	-	-	-
14	San Joaquin River: Stockton to Sherman Lake		3	-	3	3	-	1	7	4	24	45	34.5
15	Old River		1	-	-	-	-	1	1	1	27	27	27.0
16	San Pablo Bay	3	18	-	14	6	1	1	22	8	22	37	28.9
17	Carquinez Strait		10	1	3	3	-	4	10	5	14	35	27.6
18	Suisun Bay	2	40	-	18	14	6	9	47	20	19	45	27.7
19	Grizzly Bay		3	-	1	-	1	1	3	2	nv	42	nv
20	San Francisco Bay: North of HWY 80		-	-	-	-	-	-	-	-	-	-	-
21	San Francisco Bay: South of HWY 80		1	-	-	1	-	-	1	1	52	52	52.0
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		1	-	1	-	-	-	1	-	-	-	-
26	Klamath River		-	-	-	-	-	-	-	-	-	-	-
unk			-	-	-	-	-	-	-	-	-	-	-
	<b>Totals</b>		<b>153</b>	<b>2</b>	<b>81</b>	<b>68</b>	<b>9</b>	<b>33</b>	<b>192</b>	<b>74</b>			

- = no reported angler catch

**Table 6. Retained White Sturgeon catch and length statistics by location and season as provided on 2015 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)
01A	Sacramento River: Upstream of Red Bluff		5	-	3	2	-	-	5	5	43	58	50.8
01B	Sacramento River: Red Bluff to Hwy 32 bridge		1	-	1	-	-	-	1	1	41	41	41.0
01C	Sacramento River: Hwy 32 bridge to Colusa		24	-	6	21	-	-	27	27	40	60	53.7
2	Sacramento River: Colusa to Knights Landing		81	-	36	52	2	-	90	89	41	60	53.5
3	Sacramento River: Knights Landing to Rio Vista	3	280	-	211	112	1	30	354	354	40	60	51.2
4	Sacramento River: Rio Vista to Chipps Island	2	294	1	167	99	6	96	368	368	40	60	47.2
5	Feather River		-	-	-	-	-	-	-	-	-	-	-
6	American River		1	-	1	-	-	-	1	1	44	44	44.0
7	Sacramento Deepwater Ship Channel		58	-	35	17	-	14	66	65	40	59	45.7
8	Yolo Bypass		10	-	14	-	-	1	15	14	41	59	50.6
9	Montezuma Slough	4	155	-	62	82	8	33	185	185	40	60	48.5
10	Napa River		79	-	41	42	1	11	95	95	40	60	48.4
11	Petaluma River		3	-	1	1	-	1	3	3	41	59	49.3
12	San Joaquin River: Upstream of HWY 140 bridge		9	-	4	4	2	3	13	13	41	59	46.8
13	San Joaquin River:HWY 140 bridge to Stockton		5	-	1	1	-	3	5	5	43	54	47.8
14	San Joaquin River: Stockton to Sherman Lake		63	-	27	19	3	24	73	73	40	60	46.7
15	Old River		1	-	-	-	-	2	2	2	44	47	45.5
16	San Pablo Bay	5	112	-	96	30	3	6	135	135	40	60	49.1
17	Carquinez Strait		71	-	33	35	7	11	86	86	40	59	48.4
18	Suisun Bay	1	472	1	272	203	17	97	589	585	40	60	48.7
19	Grizzly Bay		75	-	39	30	3	14	86	86	41	60	47.7
20	San Francisco Bay: North of HWY 80		7	-	6	2	1	1	10	10	40	60	49.2
21	San Francisco Bay: South of HWY 80		74	-	74	19	-	6	99	98	40	60	52.0
22	Pacific Ocean: North of Golden Gate Bridge		2	-	2	-	-	1	3	3	46	55	51.7
23	Pacific Ocean: Golden Gate Bridge to Point Sur		1	-	1	-	-	-	1	1	58	58	58.0
24	Pacific Ocean: Point Sur to San Diego		1	-	1	-	-	-	1	1	57	57	57.0
25	Any reservoir or lake		1	-	-	1	-	-	1	1	59	59	59.0
26	Klamath River		1	-	1	-	-	-	1	1	52	52	52.0
unk			11	-	5	6	-	1	12	12	44	60	53.0
-			Totals	1,897	2	1,140	778	54	355	2,327	2,319		

**Table 7. Released White Sturgeon catch and length statistics by location and season as provided on 2015 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)
01A	Sacramento River: Upstream of Red Bluff		3	-	3	-	-	-	3	-	-	-	-
01B	Sacramento River: Red Bluff to Hwy 32 bridge		-	-	-	-	-	-	-	-	-	-	-
01C	Sacramento River: Hwy 32 bridge to Colusa		19	-	19	25	-	1	45	7	66	90	79.9
2	Sacramento River: Colusa to Knights Landing		39	1	47	31	-	6	84	30	35	85	65.3
3	Sacramento River: Knights Landing to Rio Vista		148	1	167	75	1	35	278	116	20	90	50.6
4	Sacramento River: Rio Vista to Chipps Island	2	310	-	409	250	30	267	956	361	17	112	39.5
5	Feather River		-	-	-	-	-	-	-	-	-	-	-
6	American River		2	-	3	1	-	-	4	-	-	-	-
7	Sacramento Deepwater Ship Channel		69	-	70	25	4	21	120	54	16	84	42.0
8	Yolo Bypass		8	-	70	17	-	13	100	99	15	80	45.6
9	Montezuma Slough	3	273	1	353	331	47	90	821	475	nv	120	nv
10	Napa River	4	138	1	188	130	13	28	359	143	18	102	44.4
11	Petaluma River		14	-	14	6	-	-	20	8	24	77	50.1
12	San Joaquin River: Upstream of HWY 140 bridge		9	-	2	7	8	1	18	8	28	72	40.2
13	San Joaquin River:HWY 140 bridge to Stockton		9	-	6	6	1	-	13	5	14	44	32.6
14	San Joaquin River: Stockton to Sherman Lake		51	1	42	50	17	22	131	50	22	84	35.7
15	Old River		3	-	2	-	1	-	3	1	39	39	39.0
16	San Pablo Bay		137	-	244	69	9	19	341	138	20	96	41.7
17	Carquinez Strait		128	3	149	101	29	54	333	198	12	97	39.0
18	Suisun Bay	1	552	6	1,000	515	92	334	1,944	928	nv	98	nv
19	Grizzly Bay	5	127	-	153	111	31	59	354	136	14	94	41.9
20	San Francisco Bay: North of HWY 80		6	-	7	5	2	2	16	12	34	90	62.2
21	San Francisco Bay: South of HWY 80		43	-	64	15	5	5	89	55	24	90	53.8
22	Pacific Ocean: North of Golden Gate Bridge		1	-	-	-	1	-	1	1	52	52	52.0
23	Pacific Ocean: Golden Gate Bridge to Point Sur		-	-	-	-	-	-	-	-	-	-	-
24	Pacific Ocean: Point Sur to San Diego		-	-	-	-	-	-	-	-	-	-	-
25	Any reservoir or lake		1	-	2	-	-	-	2	-	-	-	-
26	Klamath River		-	-	-	-	-	-	-	-	-	-	-
unk			5	-	4	1	-	1	6	2	66	71	68.5
-			Totals	2,095	14	3,018	1,771	291	958	6,041	2,827		

- = no reported angler catch

## Discussion

Information from and about 2015 Cards includes the following highlights:

- (1) Approximately 28% of sturgeon anglers submitted their Cards or data, which is slightly greater than for 2013-2014 Cards 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 (n = 5) reported single-digit White Sturgeon lengths and some anglers (n = 7) 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 18 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 mode that is most obvious when contrasted with the 2007-2014 time series (see DFW 2016).
- (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 2007-2014. Low levels of White Sturgeon production during those years was also suggested from indices of young-of-the-year White Sturgeon abundance (DFW 2015) and was expected from the positive relationship between White Sturgeon production and Delta outflow (Fish 2010).

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

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

For figures, tables, data behind figures, and some code created to generate this report, click [additional information](#).

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