

## Memorandum

Date: November 3, 2016

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Subject: Age-0 Sturgeon Catch in the 20-mm Survey

This is a brief report on catch of sturgeon in the 20-mm Survey, and is prompted by record-high catch of White Sturgeon during the 2016 season (Figure 1) and because we've never summarized sturgeon catch.

The 20-mm Survey was initiated in 1995 and uses a 10-minute oblique tow to sample the water column at 47 stations throughout the upper San Francisco Estuary (Figure 2)<sup>1</sup>. The Survey samples March-July and uses a 1600 $\mu$ m mesh net that was designed to retain post-larval and juvenile Delta Smelt.

We have observed sturgeon sporadically in the 20-mm Survey. To date we have collected a total of 347 sturgeon ranging in size from 7-760 mm, which were measured in fork length if the tail was forked or total length if the tail was not forked. The majority of those fish were White Sturgeon (n=287) and the remainder were not identified to species (n=60, Figure 1)<sup>2</sup>. We have observed no known Green Sturgeon. By using a classification scheme described by Fish (2010), nearly all the White Sturgeon were age-0 (n=275), some were age-1 (n = 5), and some were age-2+ (n= 7).

We typically observed age-0 sturgeon during water years that were classified as "above normal" or "wet" (CDEC), we collected them in 11 of the 22 years on record, and about 90% were collected in March and April. We almost always saw highest catch in the lower Sacramento River with the next highest catches downstream of the confluence (Table 1). We occasionally caught age-0 sturgeon throughout the delta, but they haven't been collected in the South and Central Delta since 2008.

Sturgeon caught in 2016 ranged in size from 9-15 mm total length. The majority of those fish were caught in the lower Sacramento River, while others were caught in the North Delta and downstream of the confluence.

More information on the 20-mm Survey methods, protocols, and data can be found on our webpage:

<https://www.wildlife.ca.gov/Conservation/Delta/20mm-Survey>

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<sup>1</sup> Six stations in the North Delta were added to our routine sampling regime in 2008. No 20-mm Survey sampling occurred at those stations prior to that year.

<sup>2</sup> Over 90% of our "unidentified" sturgeon catch occurred in 2006 and was processed by a single processor. It is likely these fish are White Sturgeon, but this cannot be confirmed.

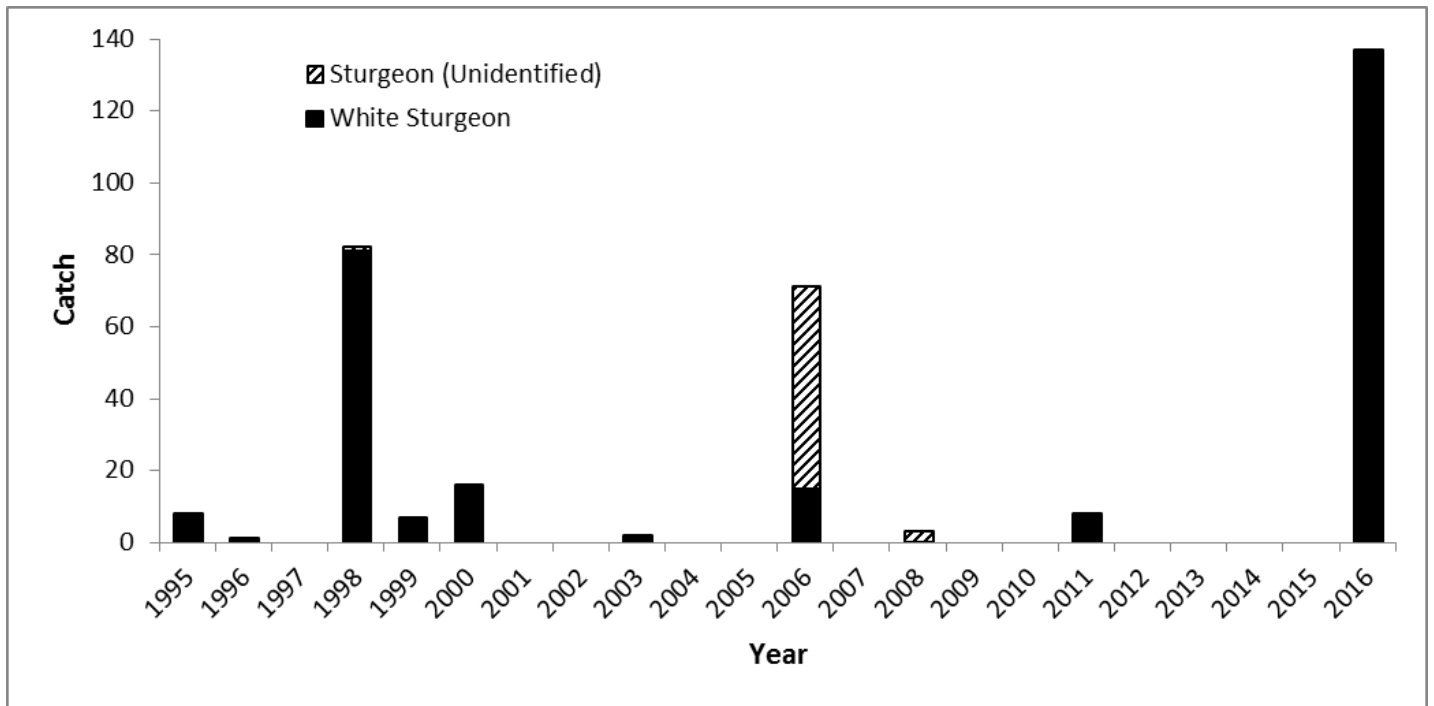


Figure 1. Annual catch of age-0 White Sturgeon and unidentified sturgeon during the 20-mm Survey

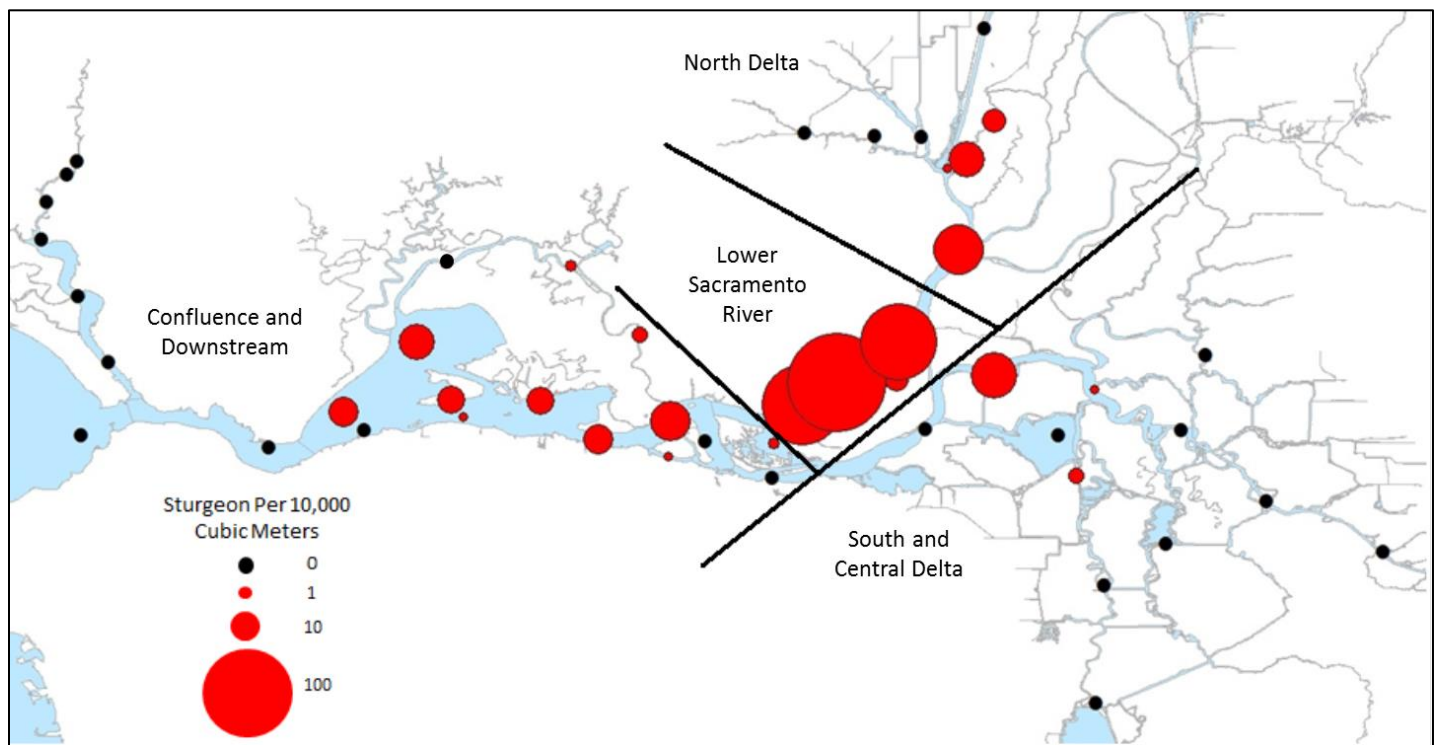


Figure 2. Map of the upper San Francisco Estuary showing the 20-mm Survey stations by region and associated cumulative age-0 White Sturgeon and unidentified sturgeon catch per unit effort for all years

**Table 1. Annual catch of age-0 White Sturgeon and unidentified sturgeon in the 20-mm Survey by region**

Year	Confluence and Downstream	Lower Sacramento River	North Delta	South and Central Delta	Total Catch
1995	0	8	0	0	<b>8</b>
1996	1	0	0	0	<b>1</b>
1997	0	0	0	0	<b>0</b>
1998	14	60	7	1	<b>82</b>
1999	1	0	0	6	<b>7</b>
2000	2	8	6	0	<b>16</b>
2001	0	0	0	0	<b>0</b>
2002	0	0	0	0	<b>0</b>
2003	1	1	0	0	<b>2</b>
2004	0	0	0	0	<b>0</b>
2005	0	0	0	0	<b>0</b>
2006	26	34	4	7	<b>71</b>
2007	0	0	0	0	<b>0</b>
2008	0	0	0	3	<b>3</b>
2009	0	0	0	0	<b>0</b>
2010	0	0	0	0	<b>0</b>
2011	4	1	3	0	<b>8</b>
2012	0	0	0	0	<b>0</b>
2013	0	0	0	0	<b>0</b>
2014	0	0	0	0	<b>0</b>
2015	0	0	0	0	<b>0</b>
2016	17	97	23	0	<b>137</b>
<b>Total Catch</b>	<b>66</b>	<b>209</b>	<b>43</b>	<b>17</b>	<b>335</b>

**References**

CDEC. 2016 Water Year Classifications from <http://cdec.water.ca.gov/cgi-progs/iodir/WSIHIST>

Fish, M. 2010. A White Sturgeon Year-Class Index for the San Francisco Estuary and Its Relation to Delta Outflow. IEP Newsletter. 23(2): 80-84.