

**Lower Columbia River Sturgeon Population Status and  
Management Annual Review - (Briefing)**

**TABLE OF CONTENTS**

	<b>Page</b>
Summary Sheet .....	1 of 18
Lower Columbia River White Sturgeon Stock Assessment and Fishery Management 2014 Update.....	3 of 18



## Summary

---

<b>Meeting dates:</b>	December 13, 2014
<b>Agenda item:</b>	Lower Columbia River Sturgeon Population Status and Management Annual Review (Briefing)
<b>Presenter(s):</b>	Ron Roler, Columbia River Policy Coordinator (Director's Office) Brad James, Region 5 Sturgeon Manager (Fish Program)

---

### **Background summary:**

The 2014-2018 Lower Columbia Sturgeon Management Policy (C-3001) states that given the degree of uncertainty about the current state of the Columbia River white sturgeon, including the impact of population stress factors such as increased predation and decreased food base, the Commission is adopting a precautionary approach to management. Additionally, the policy requires an annual review for the Commission, as an essential component of this precautionary approach, to include updated information on:

- stock status;
- predation rates;
- review of in-season management actions;
- accounting of fish left unharvested;
- review of sturgeon harvest in areas outside of the lower Columbia River;
- by-catch in all fisheries;
- recommended management changes; and
- other pertinent information

Detailed information regarding stock status, predation, harvest, and by-catch is summarized in Attachment 1: "Lower Columbia River White Sturgeon – Stock Assessment and Fishery Management – 2014 Update".

### Stock Status

The downward trend in abundance of the legal-size (38-54 inch fork length) segment of the population observed in recent years ended in 2012 and began to increase in 2013. The increase continued with the 2014 estimate and projection for 2015. . There is still uncertainty as to the status of annual production and long-range recruitment of fish to the population.

### Predation Rates

The number of Steller sea lions present in the area just below Bonneville Dam increased steadily through 2011, peaking at 89 animals before dropping to 65 animals in 2014. Observed consumption of white sturgeon at Bonneville Dam during the past three years has decreased annually, to just 5% of the peak level reached 2011.

### In-season Management/Harvest

The Joint State Accord on Sturgeon Management for 2011-2013 was amended for 2012, reducing the harvest rate guideline from 22.5% to 16%. For 2013, the 16% rate was further reduced by 15%, resulting in a 13.6% rate. For 2014, retention fisheries for lower Columbia River white sturgeon were eliminated.

### Sturgeon harvest in areas outside of the lower Columbia River

Effective January 1, 2014, retention of white sturgeon was prohibited in recreational and non-Indian commercial fisheries on the Oregon and Washington coasts, Puget Sound, and their tributaries.

---

By-Catch

Commercial fisheries were monitored during the fall of 2012 and documented in a final WDFW report titled “2012 Fall Columbia River Commercial Fisheries Observation Study”. Information on handle of sublegal, legal-size, and over-legal size white sturgeon and green sturgeon is summarized in Attachment 1. Results were consistent with past observations.

Recommended Management Changes

Retention of lower Columbia River white sturgeon was prohibited in 2014. . The downward trend in legal-size white sturgeon population estimates that led to prohibiting harvest in 2014 has shown recent year positive growth, increasing from 72,700 in 2012 to 130,900 in 2104. This upward trend is predicted to continue in 2015. Staff believes this recent status information may warrant discussion with the Commission, Oregon, and the public with regard to harvest management in 2015, including consideration for limited harvest. Any consideration for harvest opportunity in the near-term should be approached with long-term population status as the management focus.

---

**Policy issue(s) you are bringing to the Commission for consideration:**

The current policy, C-3001 (Attachment 2), was adopted for a 5-year time period and will expire December 31, 2018. There are no issues identified for consideration related to this policy.

Staff is requesting time to meet with the Commission at the January 9-10, 2015 meeting to discuss fishery management options for 2015..

---

**Public involvement process used and what you learned:**

Once finalized, staff will distribute copies of the “Lower Columbia River White Sturgeon – Stock Assessment and Fishery Management – 2014 Update” to the Columbia River Recreational and Commercial advisor groups.

---

**Action requested:**

Briefing only.

---

**Draft motion language:**

N/A

---

**Justification for Commission action:**

N/A

---

**Communications plan:**

N/A

---

*Form revised 12/5/12*

Attachment 1

# **Lower Columbia River White Sturgeon Stock Assessment and Fishery Management 2014 Update**

**Summary Prepared by**

**Joint Columbia River Management Staff  
*Washington Department of Fish and Wildlife*  
*Oregon Department of Fish and Wildlife***

**December 1, 2014**

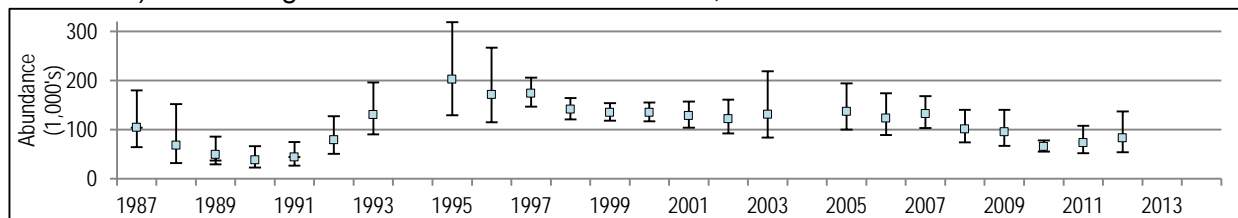
Table 1. Estimated and projected abundance of 38-54 inch FL white sturgeon in the lower Columbia River, 2008-2015.

Year	Historic method estimate <sup>1</sup>	Setline method <sup>1</sup>		Harvest guideline
		Estimate	Projection	
2008	101,200	N/A	N/A	40,000
2009	95,000	N/A	N/A	40,000
2010	65,300	100,200	N/A	24,000
2011	72,800	80,500	77,000	17,000
2012	83,400	72,700	65,000	10,400
2013	--	114,200	74,300	10,105
2014	--	130,990 <sup>2</sup>	131,700	--
2015	--	--	138,200 <sup>2</sup>	--

<sup>1</sup> Historic method is the number of fish present at the start of July (2008-09) or May (2010-2012), while the setline method is the number of fish present at the start of the year.

<sup>2</sup> Preliminary.

Figure 1 and Table 2. Estimated abundance, using the historic method, of 38-54 inch FL (42-60 inch TL) white sturgeon in the lower Columbia River, 1987-2012.



Tag year <sup>1</sup>	Abundance by length interval				
	38-43 FL (42-48 TL)	43-54 FL (48-60 TL)	38-54 FL (42-60 TL)	Lower CI	Upper CI
1987	75,900	28,100	104,000	63,900	179,500
1988	34,400	33,700	68,100	32,600	152,000
1989	31,900	16,800	48,700	29,000	86,100
1990	25,800	12,000	37,800	22,900	65,700
1991	32,500	11,700	44,200	27,400	75,500
1992	70,400	8,700	79,100	51,500	127,400
1993	115,500	14,200	129,700	89,300	195,200
1994	N/A	N/A		N/A	N/A
1995	143,200	59,000	202,200	129,000	319,400
1996	137,100	33,500	170,600	114,600	266,100
1997	146,600	27,700	174,300	147,200	205,800
1998	116,800	23,900	140,700	120,500	163,700
1999	116,800	17,700	134,500	117,800	153,100
2000	117,300	17,400	134,700	117,100	154,500
2001	102,200	25,300	127,500	103,500	156,000
2002	87,400	34,200	121,600	91,800	160,600
2003	85,000	46,200	131,200	84,400	219,600
2004	N/A	N/A		N/A	N/A
2005	106,900	30,000	136,900	99,600	194,200
2006	88,100	35,300	123,400	89,500	174,300
2007	101,800	29,900	131,700	103,100	168,000
2008	69,800	31,400	101,200	74,100	140,100
2009	65,000	30,000	95,000	67,000	140,200
2010	39,100	26,200	65,300	55,000	77,900
2011	46,300	26,500	72,800	51,900	107,300
2012	52,600	30,800	83,400	54,700	137,000
2013	N/A	N/A	N/A	N/A	N/A
2014	N/A	N/A	N/A	N/A	N/A

<sup>1</sup> Tagging is conducted from May-June and/or July each year. Tag recover information is collected through fishery sampling well into the following year, consequently, 2012 is the most recent "tag year" with enough information to estimate abundance using the historic method.

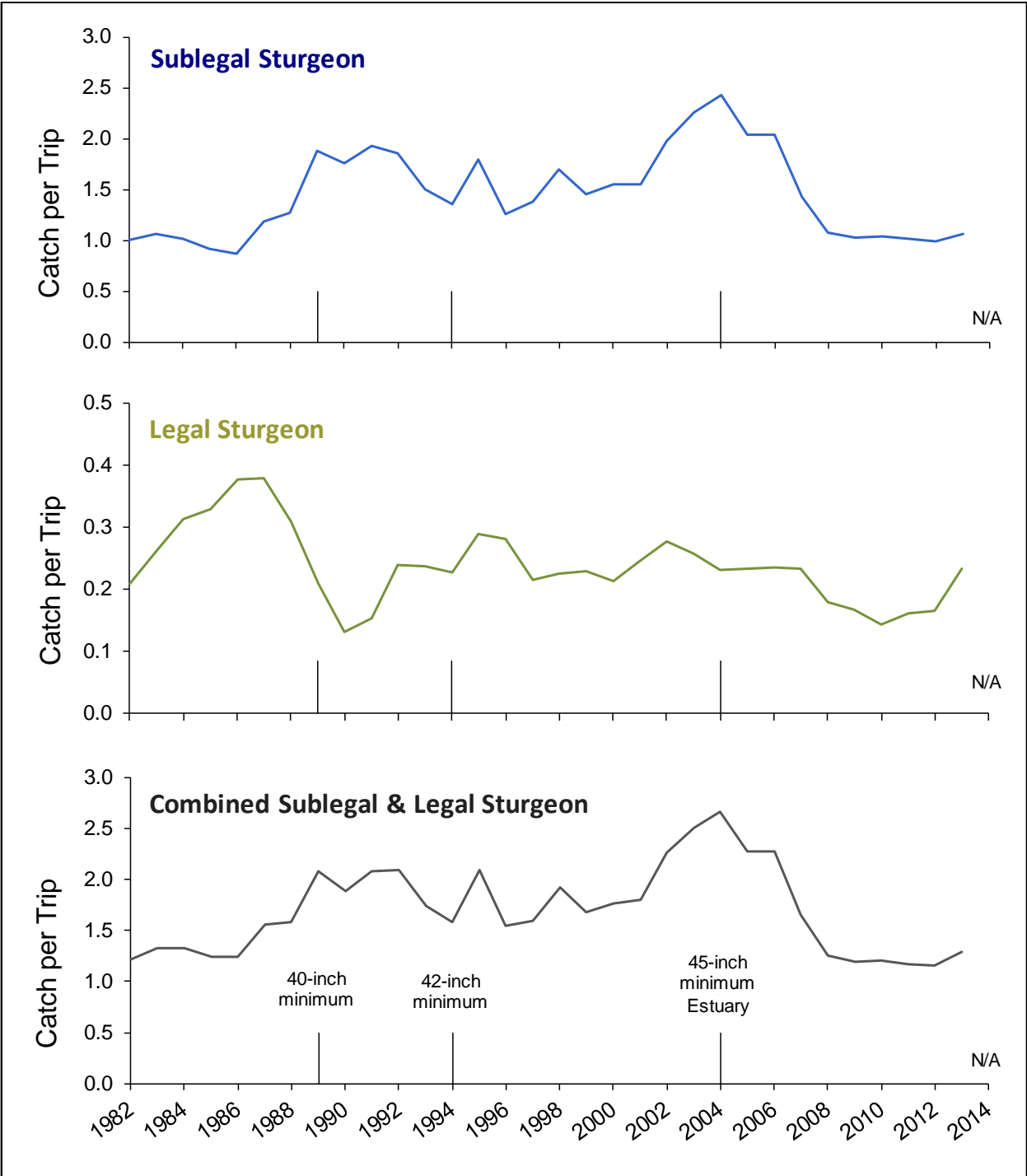
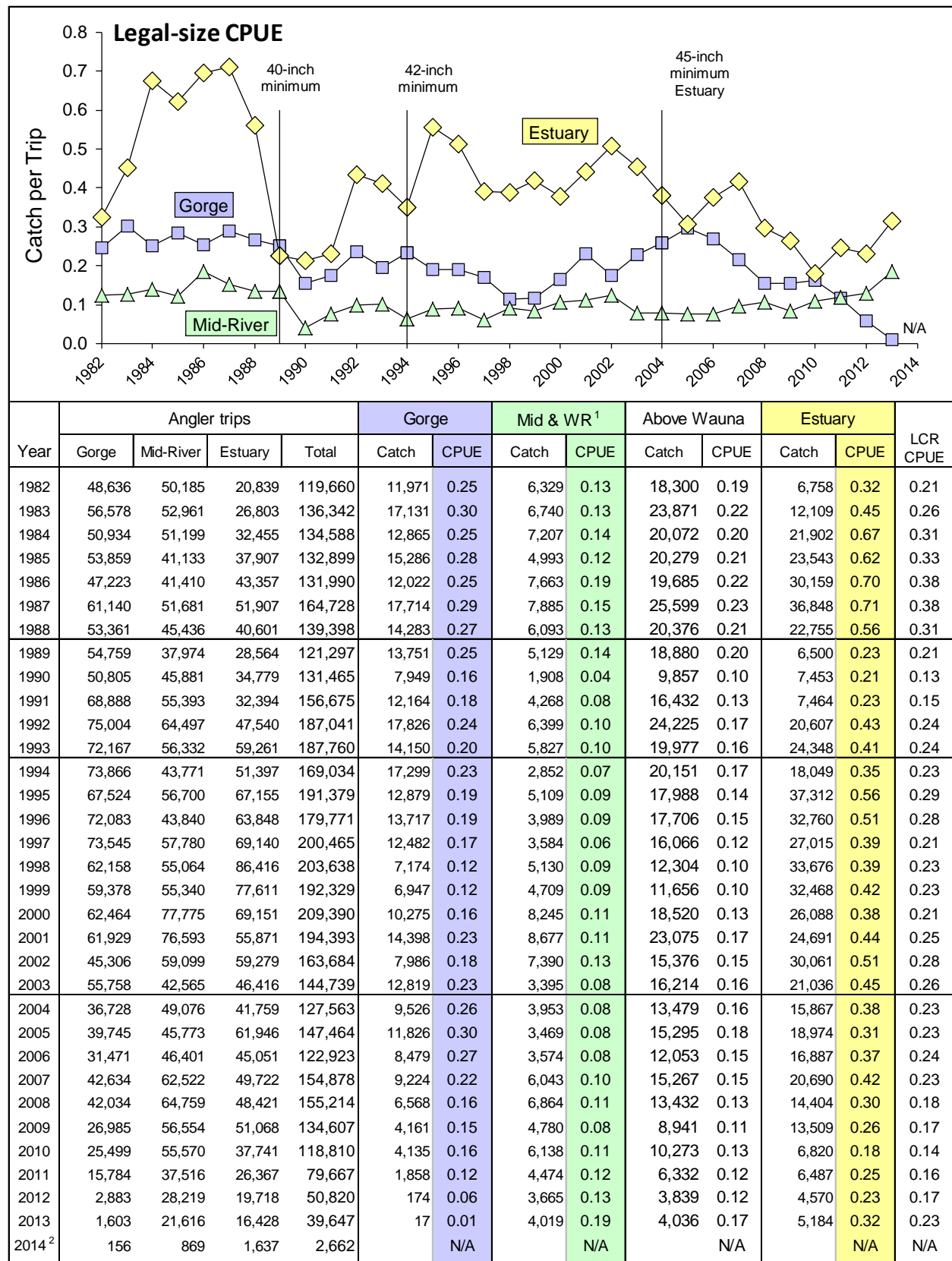


Figure 2. Catch rates of sublegal, legal-size, and combined sublegal and legal-size white sturgeon in lower Columbia River recreational fisheries, 1982-2013. Includes data from sampling the lower Willamette River recreational fishery for 2000-2013. No retention fishery in 2014.

Figure 3 and Table 3. Catch rates by area of legal-size white sturgeon in lower Columbia River recreational fisheries, 1982-2014. No retention fishery in 2014.

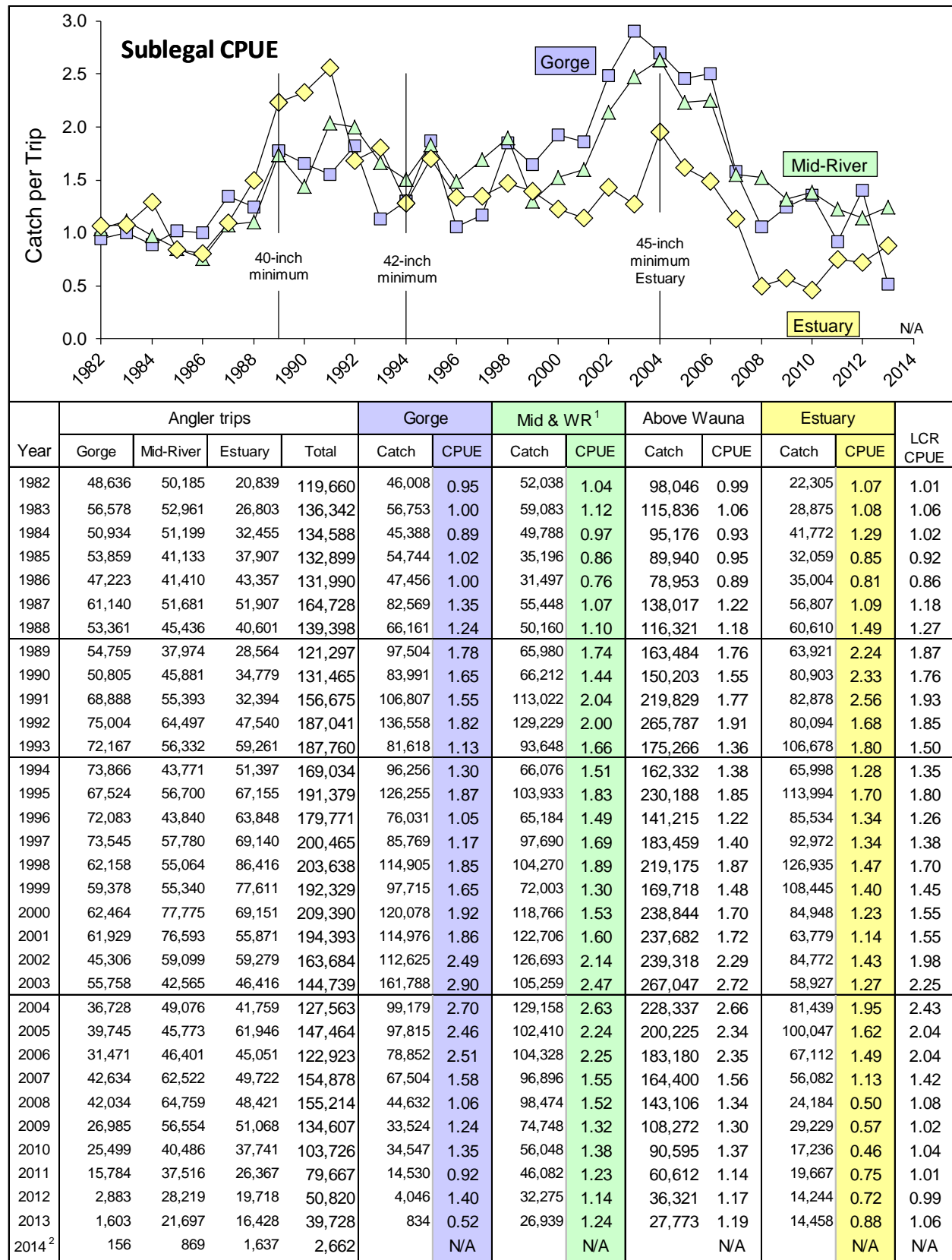


<sup>1</sup> Includes Willamette River sampling for 2000-2013.

<sup>2</sup> Preliminary.



Figure 4 and Table 4. Catch rates by area of sublegal white sturgeon in lower Columbia River recreational fisheries, 1982-2014. Comparable data unavailable in 2014 due to very low angling effort.



<sup>1</sup> Includes Willamette River sampling for 2000-2013.

<sup>2</sup> Preliminary.

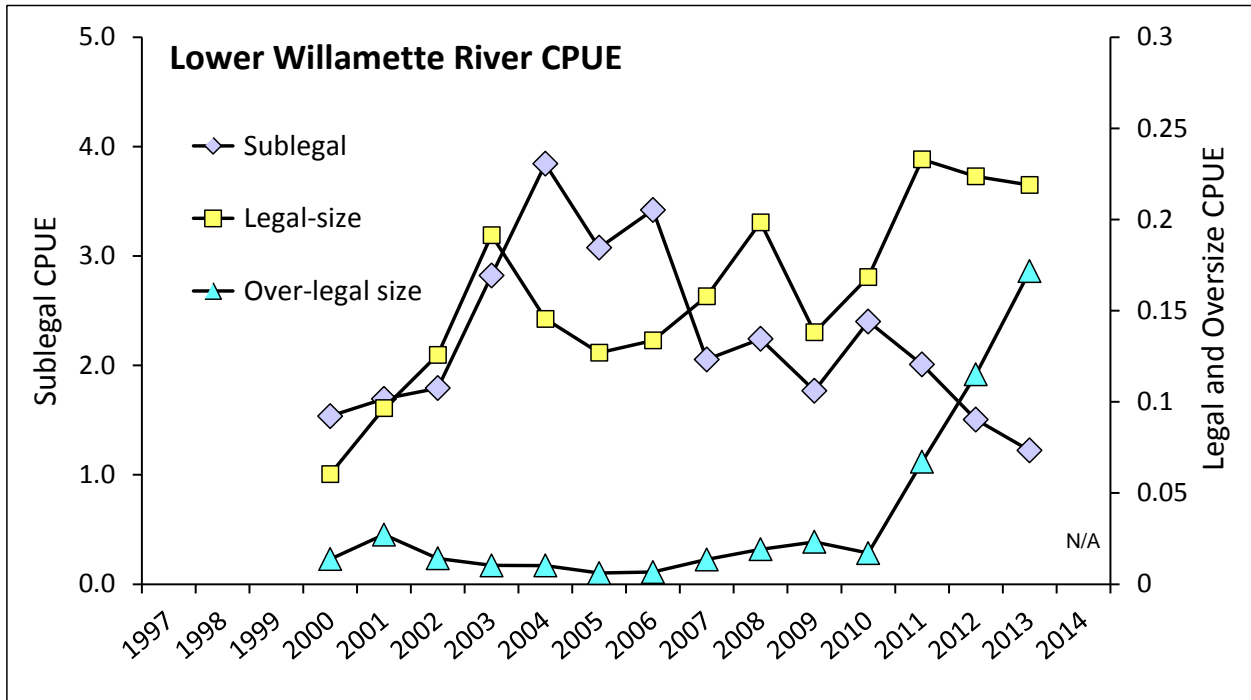


Figure 5. Catch rates of white sturgeon in the lower Willamette River recreational fishery, March-June 2000-2009, January-June and November 2010, February-March 2011, February 2012, and July and October 2013. No retention fishery in 2014.

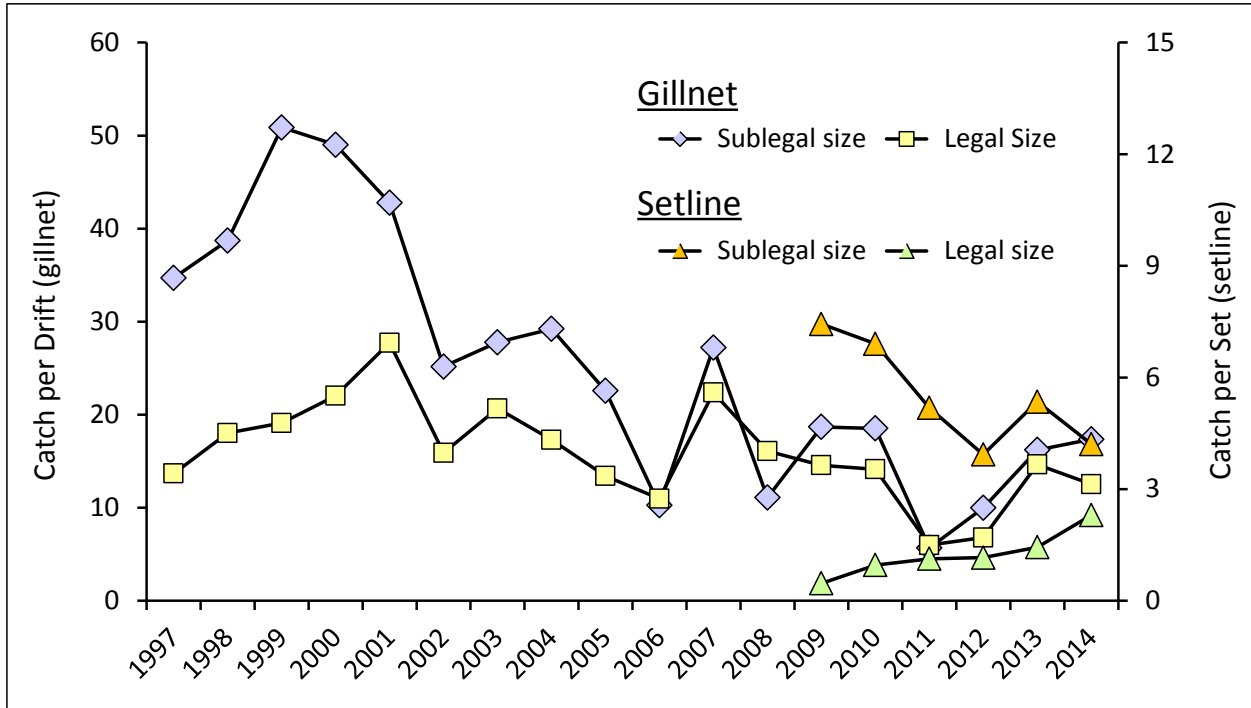


Figure 6. Catch per drift (gillnet) and catch per set (setline) of sublegal and legal-size white sturgeon during lower Columbia River sturgeon tagging and stock assessment projects, 1997-2014.

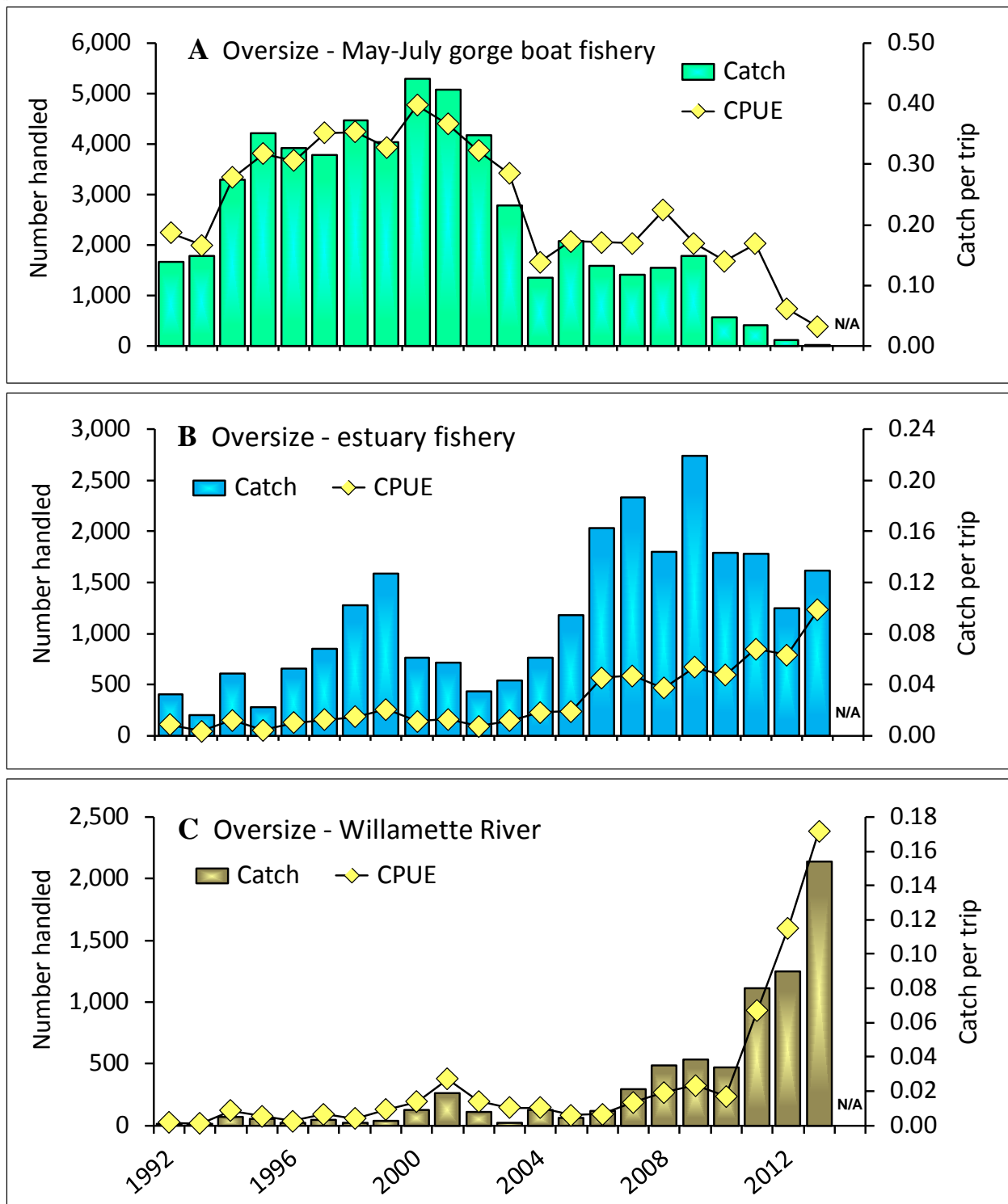


Figure 7. Catch and catch rates of oversize (>66" TL 1995-1996; >60" TL 1992-2008; >54" FL 2009-2013) white sturgeon in: (A) gorge boat fishery; (B) estuary fishery; and (C) Willamette River, 1992-2013. Comparable data is not available for 2014 due to very low angling effort. Note the difference in scale between the three charts.

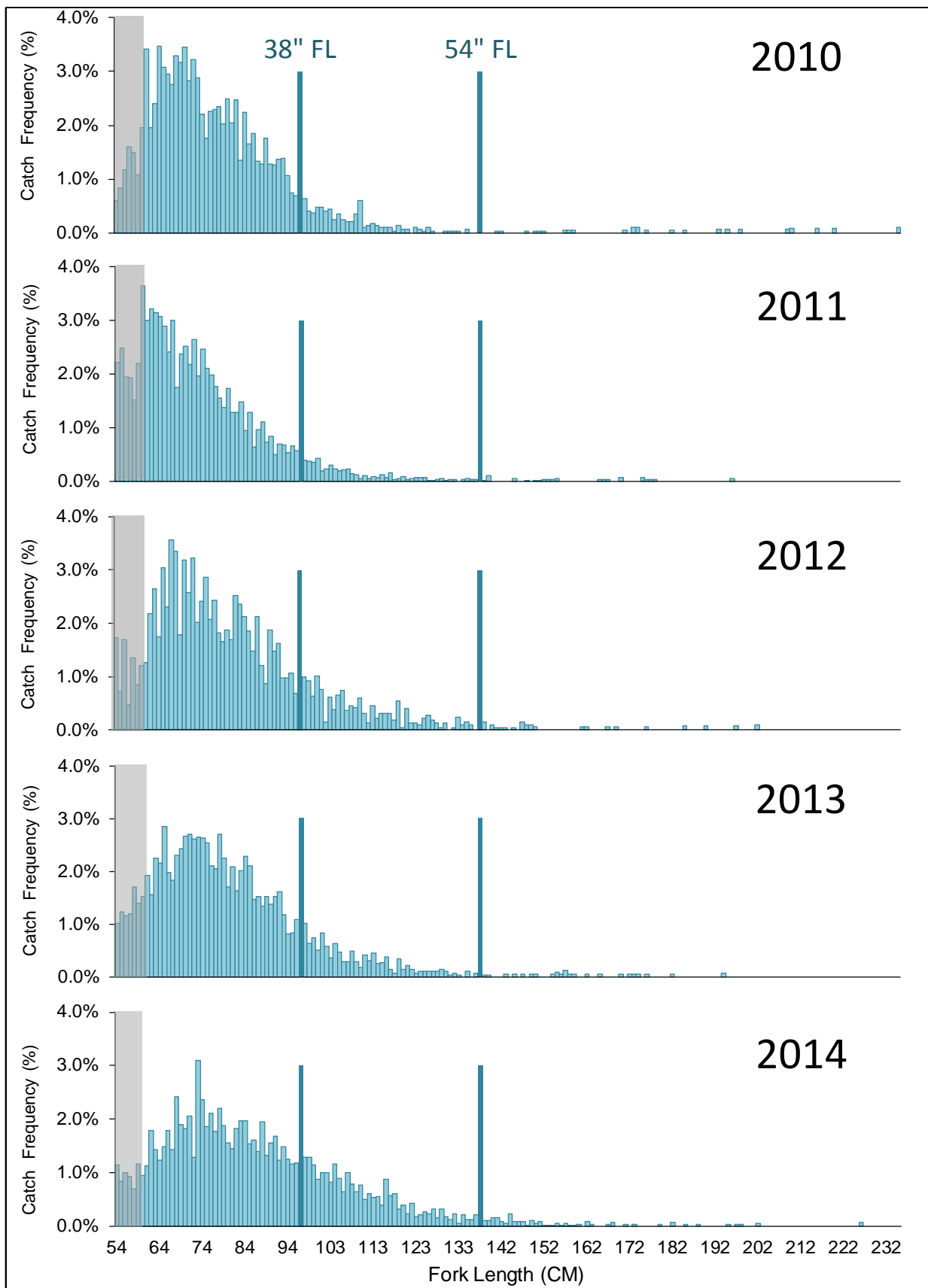
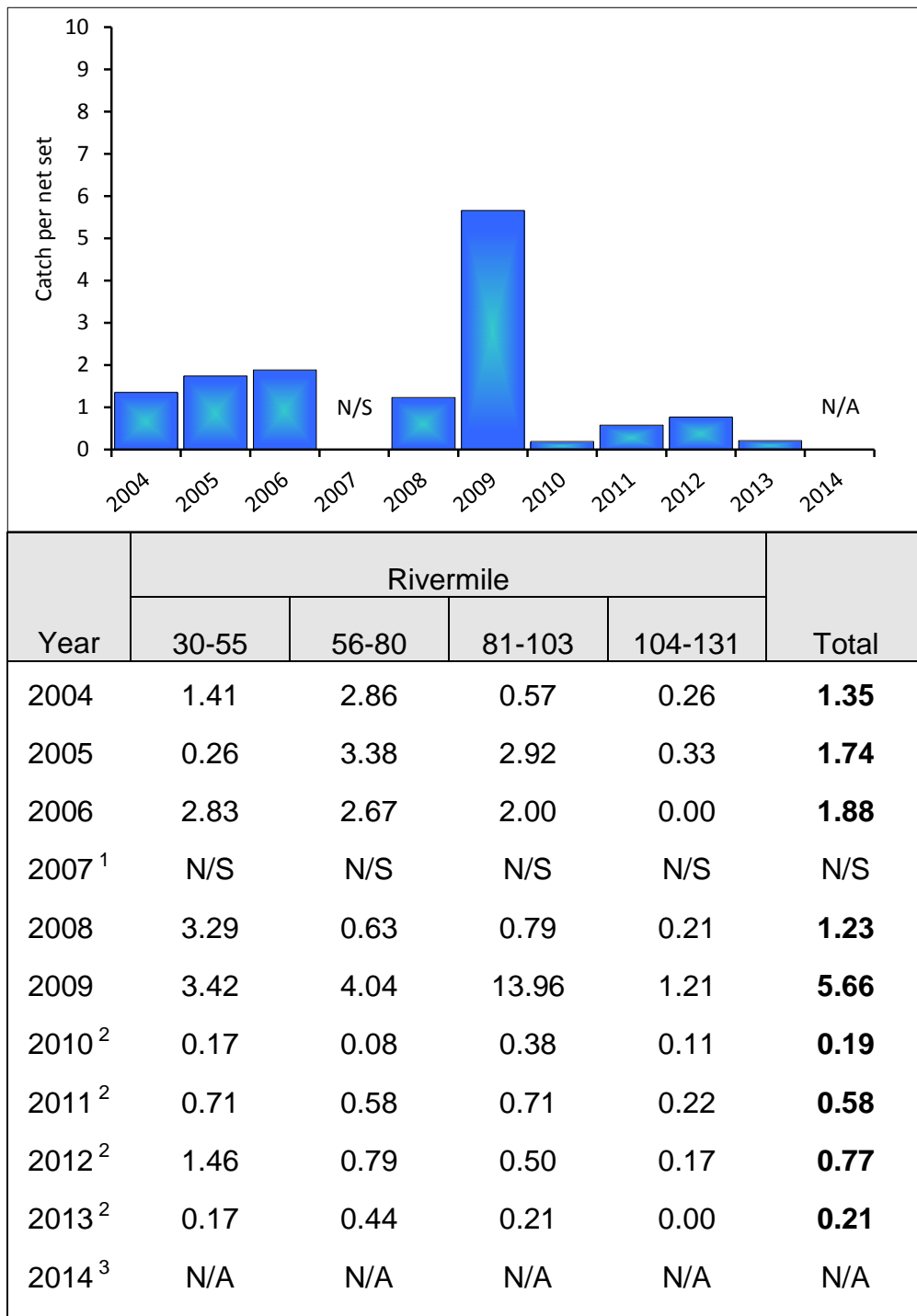


Figure 8. Frequency (percent) by 1 cm size intervals of white sturgeon captured in the lower Columbia River using research setlines, 2009-2014. Preliminary data for 2014. Fish smaller than about 60cm (shaded area) may be under-represented due to the gear.

Figure 9 and Table 5. Catch per set of Age-0 white sturgeon in the lower Columbia River, 2004-2014.



<sup>1</sup> Sampling for Age-0 white sturgeon was not conducted in 2007.

<sup>2</sup> Preliminary assessments based on length frequency examinations.

<sup>3</sup> The 2014 survey is ongoing. Results should be available in late December.

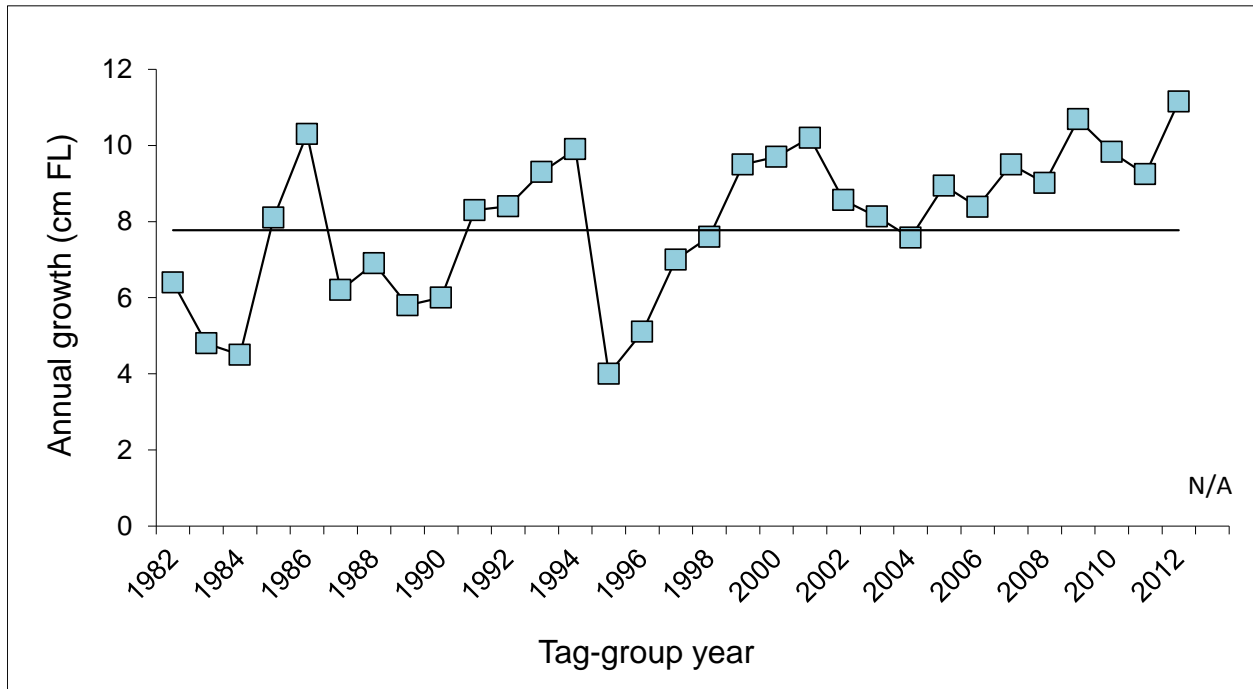


Figure 10. Annual growth rates of lower Columbia River white sturgeon tag groups at large at least one year, 1982-2012 (example: the 1982 data point is of fish tagged in May-June 1982 and re-measured from May-June 1983 through May-June 1984). Data has not been analyzed for the 2013 data point. The solid line is the average (mean) 1982-2012 growth rate.

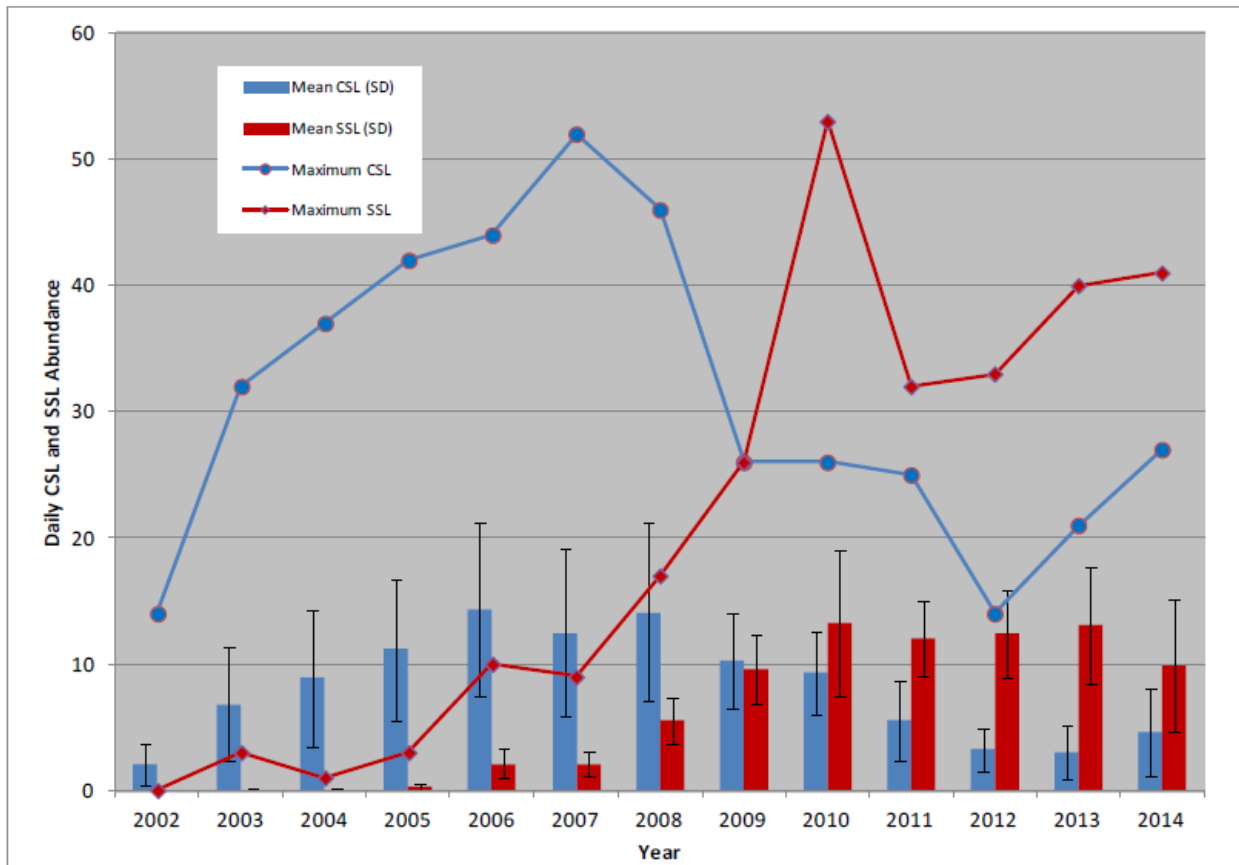


Figure 11. Mean (and SD) and maximum daily estimated number of California sea lions (CSL) and Steller sea lions (SSL) present at Bonneville Dam between January 1 and May 31, 2002 to 2014. U.S. Army Corps of Engineers (USACE) data.

Table 6. Consumption of white sturgeon by CSL and SSL observed during USACE monitoring of the Bonneville Dam tailrace, 2005-2014. Adjusted estimates include a proportion of the total unidentified catch.

Year	Total hours observed	Observed sturgeon catch	Sturgeon catch per hour observed	Expanded sturgeon catch estimate	Adjusted sturgeon catch estimate
2005	1,108	1	0.001	--	--
2006	3,647	265	0.073	315	413
2007	4,433	360	0.081	467	664
2008	5,131	606	0.118	792	1,139
2009	3,455	758	0.219	1,241	1,710
2010	3,609	1,100	0.305	1,879	2,172
2011	3,315	1,353	0.408	2,178	3,003
2012	3,404	1,342	0.394	2,227	2,498
2013	3,247	314	0.097	552	635
2014	2,947	79	0.027	127	147

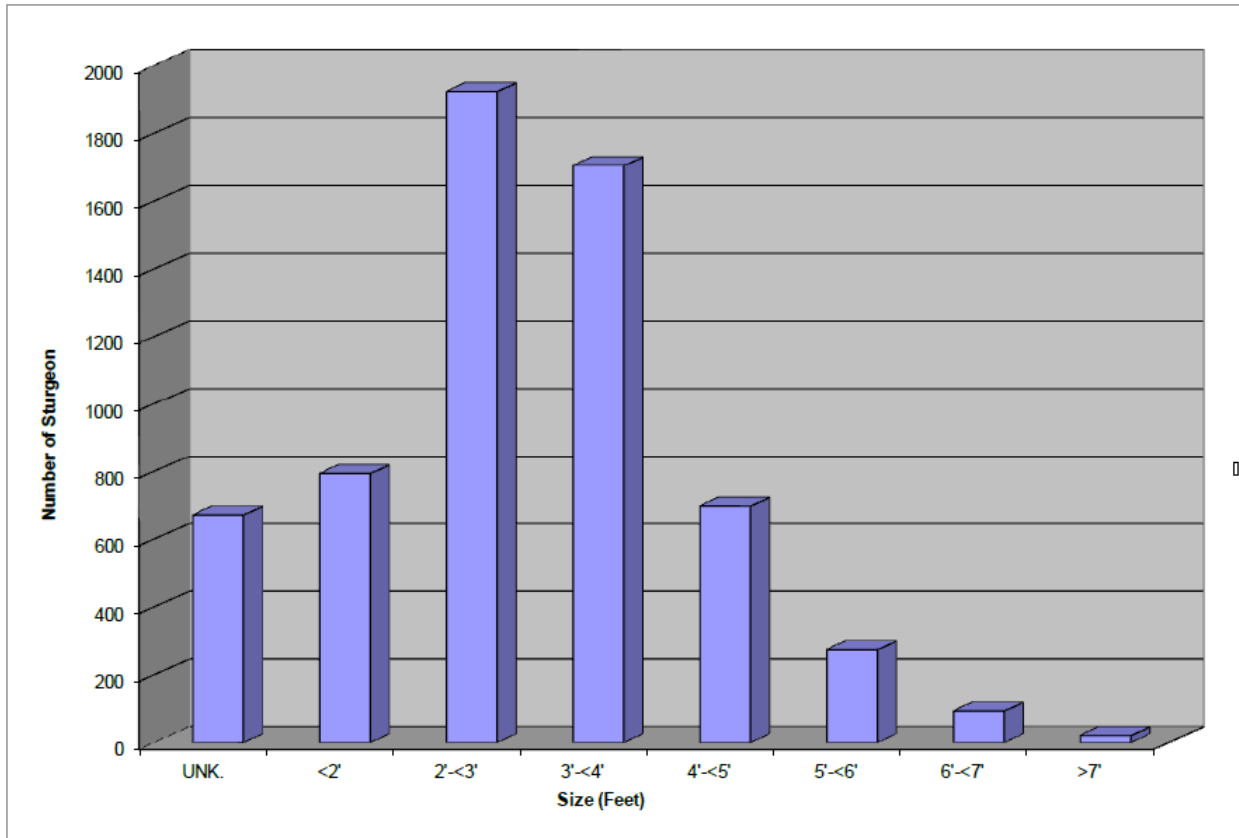


Figure 12. Estimated total lengths of white sturgeon consumed by Steller and California sea lions at Bonneville Dam from January 1 through May 31, 2006-2014. USACE data.



# Appendix

## Harvest and Monitoring Data

Appendix Table 1. Annual recreational catch of white sturgeon in the lower Columbia River and comparisons to catch guidelines, 1993-2014<sup>1</sup>.

Year	Below Wauna <sup>1</sup>		Above Wauna <sup>1</sup>		Combined		
	Catch	Guideline <sup>2</sup>	Catch	Guideline <sup>3</sup>	Catch	Guideline	Percent
1993	20,107	N/A	17,780	N/A	37,900	N/A	
1994	15,578	N/A	17,893	N/A	33,500	N/A	
1995	29,714	N/A	15,423	N/A	45,100	N/A	
1996	27,694	N/A	15,068	N/A	42,800	N/A	
1997	24,511	N/A	13,646	N/A	38,200	53,840	71%
1998	30,303	N/A	11,293	N/A	41,600	53,840	77%
1999	29,238	N/A	10,561	N/A	39,800	40,000	100%
2000	24,267	N/A	16,238	N/A	40,500	40,000	101%
2001	21,619	N/A	19,597	N/A	41,200	39,500	104%
2002	26,234	N/A	12,045	N/A	38,300	38,300	100%
2003	18,367	19,200	13,565	12,800	31,932	32,000	100%
2004	15,050	16,000	10,519	12,800	25,569	28,800	89%
2005	17,911	17,783	11,891	11,560	29,802	29,343	102%
2006	15,726	16,000	8,545	12,800	24,271	28,800	84%
2007	19,131	16,274	10,675	13,852	29,806	30,126	99%
2008	13,614	13,143	7,959	12,387	21,573	25,530	85%
2009	13,109	15,529	4,599	11,430	17,708	26,959	66%
2010	6,491	9,600	4,831	4,835	11,322	14,435	78%
2011	6,117	6,800	2,908	3,410	9,025	10,210	88%
2012	4,466	4,160	1,859	2,080	6,325	6,240	101%
2013	4,559	4,042	1,942	2,021	6,501	6,240	107%
2014	0	0	0	0	0	0	N/A

<sup>1</sup> Recreational catch estimates for 1993-2002 are above and below the western tip of Puget Island (RM 38).

<sup>2</sup> The switch to a 45-inch min. (TL) size limit in 2004 required a 17% reduction in the base guideline.

<sup>3</sup> Actual in-season guidelines were different than represented here. Beginning in 2010, the guideline for the area above Wauna excludes the separate Willamette guideline.

Appendix Table 2. Annual recreational catch of white sturgeon in the lower Willamette River and comparisons to catch guidelines, 2003-2014.

Year	Estimated annual catch <sup>1</sup>	Baseline <sup>2</sup>	Catch in excess of baseline <sup>3</sup>	Guideline <sup>3</sup>	Percent of Guideline
2003	1,142	1,225	0	Na	
2004	4,099	1,225	2,874	Na	
2005	2,327	1,225	1,102	Na	
2006	3,348	1,225	2,123	Na	
2007	6,555	1,225	5,330	Na	
2008	9,148	1,225	7,923	Na	
2009	7,346	1,225	6,121	Na	
2010	3,529	735	2,794	2,865	98%
2011	2,690	520	2,170	2,030	107%
2012	1,535	520	1,015	1,248	81%
2013	1,410	520	890	1,213	73%
2014	0	0	0	0	N/A

<sup>1</sup> Harvest estimates revised November 2011 based on updated punch card and existing creel information.

<sup>2</sup> Baseline harvest levels for the lower Willamette River were based on average harvest during 1986-1996 (1,225 fish). The lower Willamette River baseline was decreased to 735 fish in 2010 and 520 fish in 2011 consistent with reductions in the overall harvest guideline.

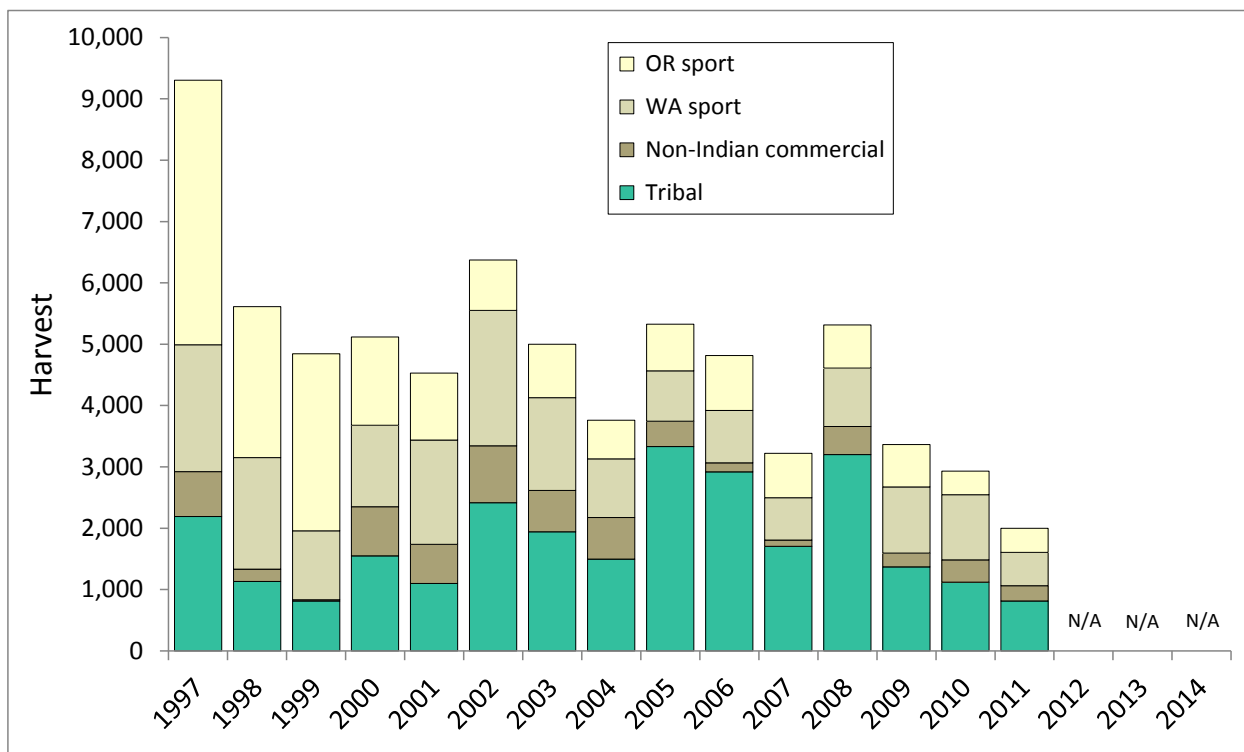
<sup>3</sup> During 2003-2009, harvest in excess of the baseline was applied to the above Wauna recreational harvest guideline. Beginning in 2010, a separate harvest guideline was established for the lower Willamette River.

Appendix Table 3. Commercial catch of white sturgeon in the lower Columbia River by season, annual commercial catch, and comparisons to catch guidelines, 1993-2014.

Year <sup>1</sup>	Mainstem							Select Area			Grand Total	Guide-line	%
	Winter Sturgeon <sup>2</sup>	Winter Salmon	Summer	Early August	Late August	Late Fall	Total	Spring/Summer	Fall	Total			
1993	990			0	0	7,010	8,000	30	20	50	8,050	6,000	134%
1994	2,990			0	0	3,380	6,370	30	0	30	6,400	6,000	107%
1995	0			0	0	5,980	5,980	110	70	180	6,160	8,000	77%
1996	800			0	330	6,580	7,710	580	110	690	8,400	8,000	105%
1997	2,710			1,740	140	7,790	12,380	350	100	450	12,830	13,460	95%
1998	2,680			2,540	90	8,060	13,370	360	170	530	13,900	13,460	103%
1999	1,780			2,770	60	4,180	8,790	520	190	710	9,500	10,000	95%
2000	2,260			2,490	300	5,130	10,180	540	160	690	10,870	10,000	109%
2001	3,060			4,720	1,020	0	8,800	490	20	510	9,310	9,100	102%
2002	2,720			1,340	380	4,200	8,640	650	330	980	9,620	9,800	98%
2003	1,490	27		2,170	410	3,430	7,527	250	170	420	7,947	8,000	99%
2004	1,696	174	9	1,550	917	3,219	7,565	184	117	301	7,866	8,000	98%
2005	473	70	1,369	1,129	965	3,793	7,799	279	74	353	8,152	8,200	99%
2006	288	1,651	544	1,548	363	3,492	7,886	317	109	426	8,312	8,000	104%
2007	1,424	47	414	2,646	91	2,734	7,356	257	148	405	7,761	7,850	99%
2008	869	17	523	2,706	103	3,170	7,388	337	134	471	7,859	7,927	99%
2009	1,697	21	624	2,213	756	2,001	7,312	311	114	425	7,737	8,000	97%
2010	518	28	289	1,578	297	1,348	4,058	211	116	327	4,385	4,800	91%
2011	50	125	504	967	353	1,187	3,186	201	0	201	3,387	3,400	100%
2012	40	14	281	592	410	344	1,681	225	0	225	1,906	2,080	92%
2013	15	274	326	0	719	324	1,658	254	100	354	2,102	2,021	100%
2014	0	0	0	0	0	0	0	0	0	0	0	0	N/A

<sup>1</sup> Data since 2003 preliminary.

<sup>2</sup> Prior to 2003, values reflect all winter fisheries.



Appendix Figure 1. Estimated annual harvest of white sturgeon from Oregon coastal estuary and river recreational fisheries, Washington coastal estuary and river recreational and commercial fisheries, and from Puget Sound recreational fisheries, 1997-2011. Comparable data is unavailable or has not been analyzed for certain fisheries in 2012, 2013, and 2014.