

Lower Columbia River Sturgeon Population Status and Management Annual Review – (Briefing/Public Input)

TABLE OF CONTENTS

	Page
Summary Sheet.....	1 of 26
Lower Columbia River White Sturgeon Stock Assessment and Fishery Management 2016 Update	4 of 26
Policy C-3001	24 of 26

Summary

Meeting dates:	January 13, 2017
Agenda item:	Lower Columbia River Sturgeon Population Status and Management Annual Review - (Briefing)
Presenter(s):	Pat Frazier, Region 5 Policy Coordinator (Fish Program) Brad James, Region 5 Sturgeon Program (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 – 2016 Update”.

Stock Status

Abundance of the legal-size (38-54 inch fork length) segment of the population declined from 2006 through 2012, but has since increased annually from a low of 72,200 fish in 2012 to 143,900 fish last year. The mark-recapture estimate for 2016 is 223,960 legal-size fish. Based on modeling results using data through 2015 the projected abundance for 2016 was 147,100 legal-size fish. An alternative analysis conducted using catch rates from the research fishery would project an abundance estimate of 155,850 legal-size fish.

The mark-recapture approach used to produce the 223,960 legal-size abundance estimate for 2016 is subject to biased results when mixing of marked fish within the population is skewed to locations not sampled for recaptures, which may have been violated in 2016. An alternative approach to estimating abundance is using a regression analysis that correlated past research fishery CPUE with legal-size abundance in that same year, and that methodology produces the 155,850 legal-size fish estimate.

Based on the mark-recapture approach the estimated number of adult white sturgeon also increased from 3,040 fish in 2015 to 5,950 fish in 2016. This estimate moves the adult status above the conservation threshold specified in Oregon’s Lower Columbia River and Oregon Coast White Sturgeon Conservation Plan for the first time. As with the legal-size estimate, an alternate adult estimate can be produced based the regression results described earlier. Applying the adult-to-legal size ratio from the 2016 research fish to the legal-size abundance produced using the previously described regression analysis results in an estimate of 4,140 adult fish. This estimated abundance remains below the conservation threshold in Oregon’s Conservation Plan.

These positive trends are countered by apparent poor annual natural production and a relatively low proportion of juvenile fish smaller than legal size. The annual sub-yearling production index in the mainstem Columbia River remained low for the seventh consecutive year, but was up slightly in the Willamette River. The current population size structure indicates that growth in the legal-size segment will be stagnant for the next several years as has been the case for several years.

Predation Rates

Steller sea lion predation of white sturgeon began around the mid-2000's in the gorge below Bonneville Dam. Numbers of Steller sea lions present in the tailrace immediately below the dam remain at high levels. Observed consumption of white sturgeon at Bonneville Dam during the past five years has decreased annually, to less than 5% of the peak level reached 2011, indicating few sturgeon remain in the area when sea lions are present. The predation rates are based on observations by the Corps of Engineers in the mile long stretch of river below Bonneville Dam. Predation rates throughout the remaining 145 miles of the lower Columbia River and in tributaries of the river are unknown at this time.

In-season Management/Harvest

Retention of lower Columbia River white sturgeon has been prohibited since 2014.

Sturgeon harvest in areas outside of the lower Columbia River

Since 2014, retention of white sturgeon has been 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. Results were consistent with past observations. Handle of sturgeon in the recreational catch-and-release sturgeon fishery increased slightly in 2016 with an estimated 45,600 sturgeon handled which represents 6% of the estimated 730,800 fish greater than 53cm FL.

Recommended Management Changes

Staff is not recommending any management change at this time. Retention of lower Columbia River white sturgeon has been prohibited since 2014. The downward trend in legal-size white sturgeon abundance that led to prohibiting harvest in 2014 has shown positive growth, doubling in size from 2012 to 2015. Abundance increased again in 2016, but there are questions as to just how large this increase is. The current status of the overall population, which includes both the adult and juvenile segments, is not as robust as in the early 2000's. The sub-yearling production index for the lower Columbia River remains low. Uncertainty exists regarding future trends in legal and adult abundance, production of juvenile fish, and recruitment of juvenile fish to the legal-size segment (see Table 1 in Attachment 1).

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.

Public involvement process used and what you learned:

Staff met with the Columbia River Recreational and Commercial advisor groups on January 9 and 11, 2017, and provided updates on the status of the LCR white sturgeon population. Staff received a mix of responses from Recreational advisors that included both support and opposition to retention fisheries in 2017.

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
2016 Update**

Summary Prepared by

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

December 30, 2016

Table 1. Summary of key lower Columbia River white sturgeon population status metrics based on preliminary results of the 2016 stock assessment and sub-yearling indexing.

Metric	N	Interpretation	Brief Summary
Legal Abundance Mark-Recapture	223,960		Substantial 80,070 fish (56%) increase from 2015. Doesn't match modeled projections and is not supported by CPUE trend in gillnet & setline tagging fisheries.
CPUE Regression	155,850		Based on CPUE in research setline fishery. Modest increase matches modeled projections.
Length Frequency Distribution	~65% juvenile		Continued low relative abundance of juvenile and sub-legal sized fish indicates productivity issues. Supported by CPUE trend in gillnet & setline tagging fisheries.
Projected 4-year Trend in Legal Abundance	Flat		Modeled recruitment to legal size results in slight net growth in legal abundance by 2020 under a no-harvest scenario and a decrease with harvest.
Adult abundance Based on Mark – Recapture Estimate	5,950 3-yr avg. = 4,230		Adult abundance metric is above Oregon Conservation Plan conservation status threshold (3-year average of 3,900 adults).
Based on Legal CPUE Regression	4,140 3-yr avg. = 3,620		Increase in adult abundance, but remains below conservation status threshold in Oregon Conservation Plan.
Sub-yearling Production Index	LCR = 0.13 WR = 0.48		Mixed – For the 7 th consecutive year LCR white sturgeon production remains low for the mainstem, but is up in the Willamette River. This continues the recent trend.
Sea Lion Abundance	High		High levels of sea lion abundance in the LCR are problematic for white sturgeon population growth.

Abundance and CPUE Trends

Table 2. Estimated and projected abundance of 38-54 inch FL white sturgeon in the lower Columbia River, 2008-2017 based on mark-recapture surveys.

Year	Historic method estimate ¹	Setline method ¹		Harvest guideline
		Estimate (95% C.I.)	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 (75,500 – 186,480)	131,700	--
2015	--	143,890 (85,700 – 202,100)	138,200	--
2016	--	223,960 ² (118,300 – 329,600)	147,100	--
2017	--	-- --	237,900 ²	--

¹ 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.

² Preliminary.

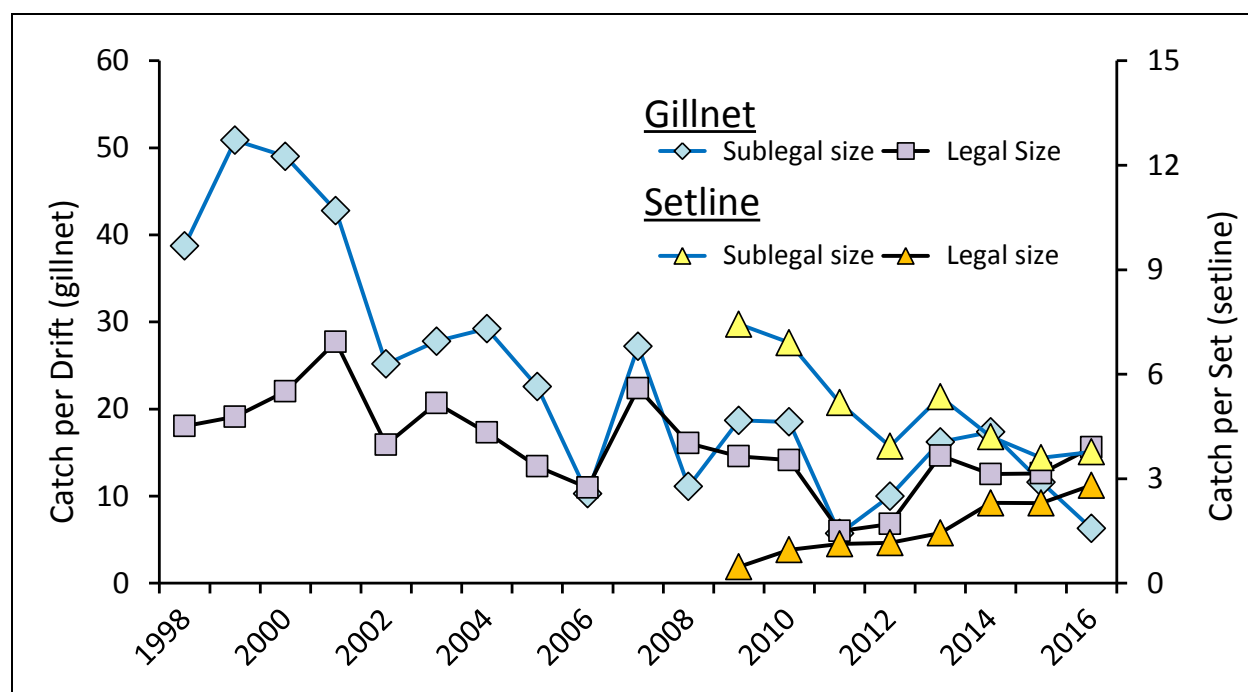


Figure 1. Catch per drift (research gillnet) and catch per set (research setline) of sublegal and legal-size white sturgeon during lower Columbia River sturgeon tagging and stock assessment projects, 1998-2016.

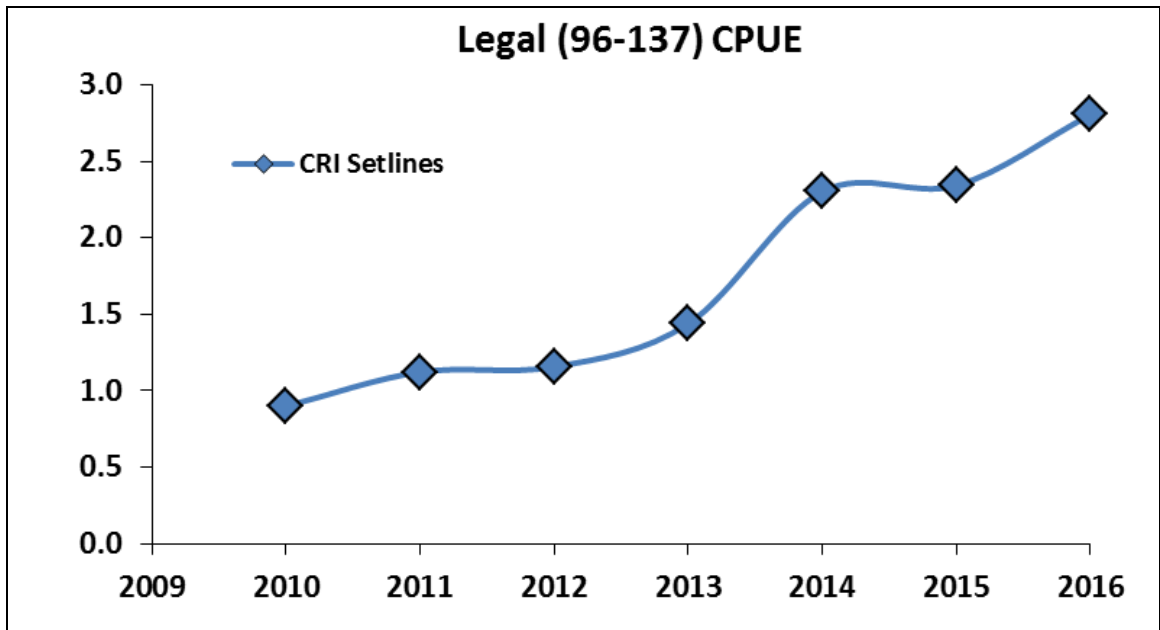


Figure 2. Research setline legal-size white sturgeon catch per set, 2010-2016.

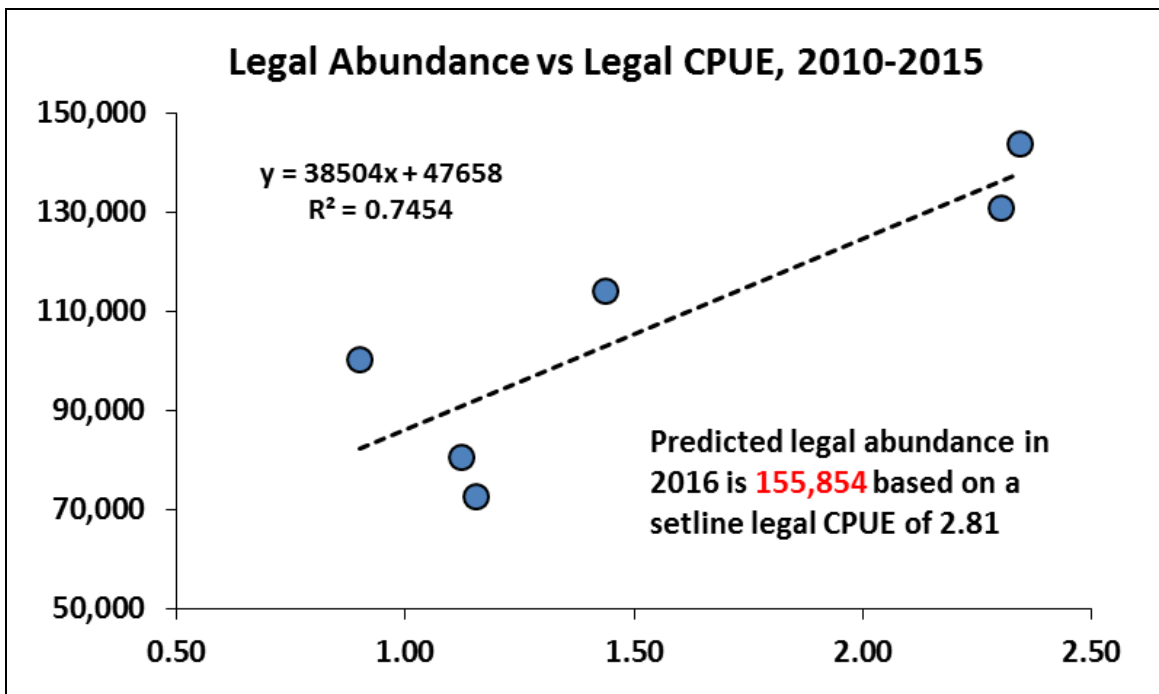


Figure 3. Predicted legal-size white sturgeon abundance in 2016 based on the 2010-2015 relationship between research setline legal-size white sturgeon CPUE and mark-recapture abundance estimates.

Adult Abundance and CPUE Trends

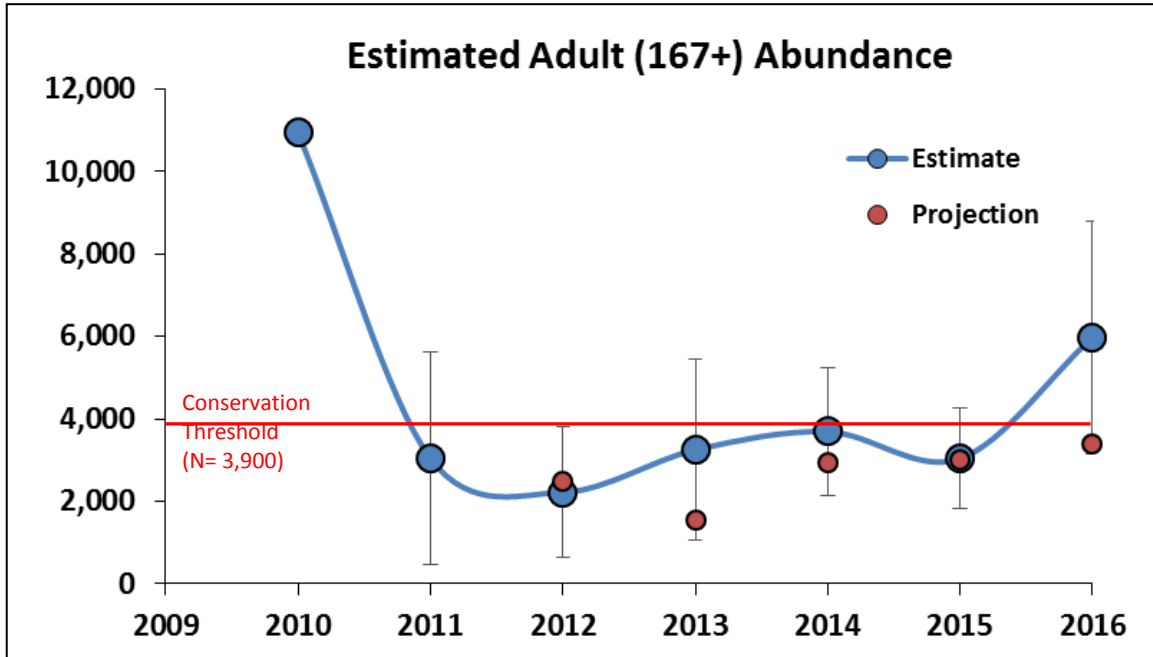


Figure 3. Estimated adult white sturgeon abundance (fish 167cm FL and greater) in the lower Columbia River, 2010-2016.

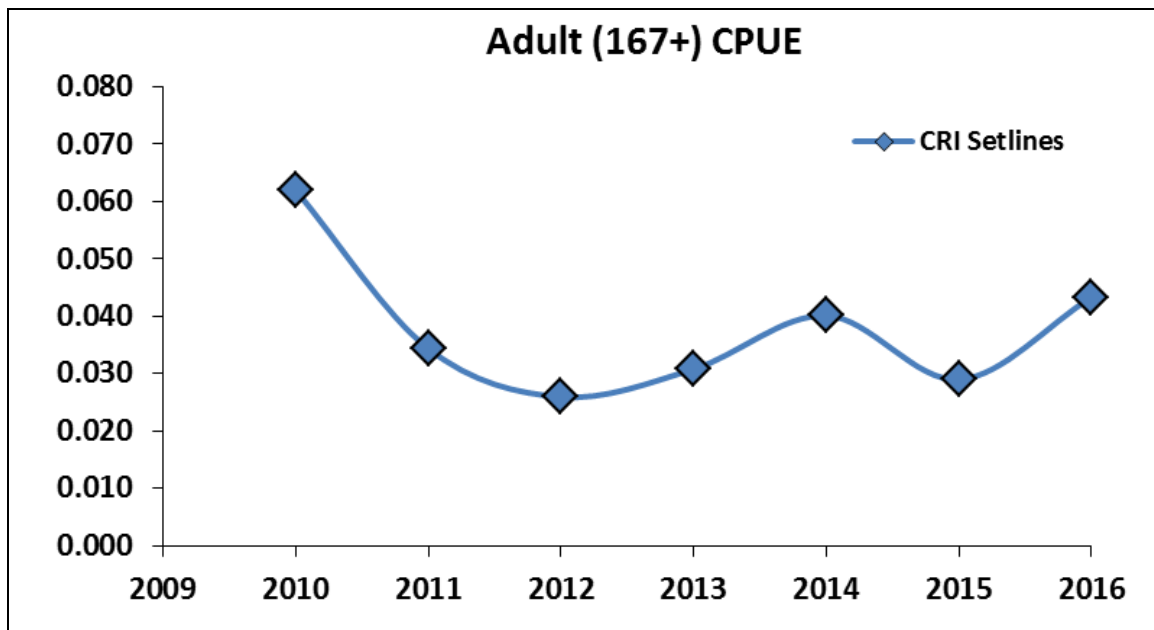


Figure 4. Catch per set (research setline) of adult white sturgeon (fish 167cm FL and greater) during lower Columbia River sturgeon stock assessments, 2010-2016.

Length Frequency Trend

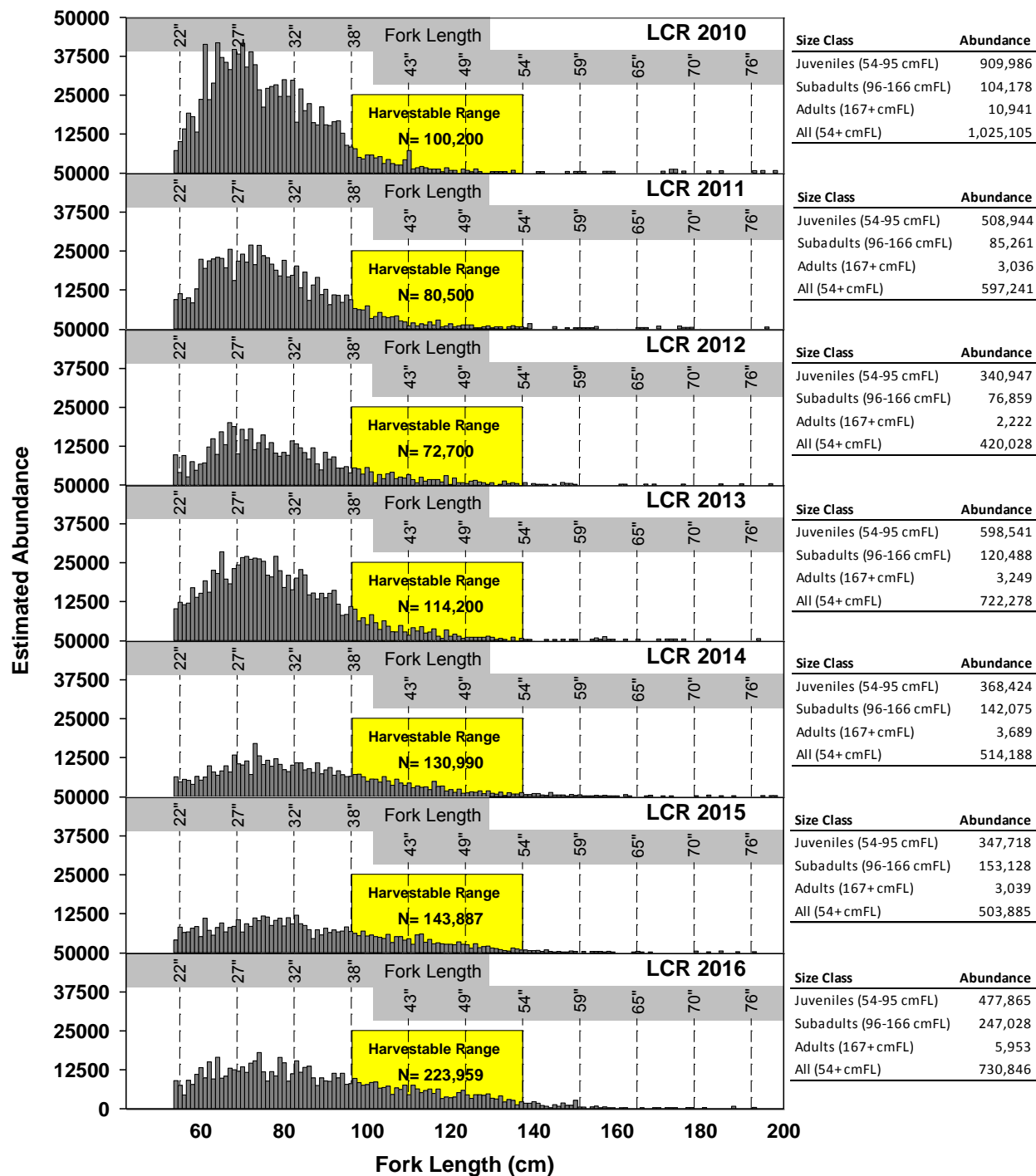


Figure 5. Frequency (percent) by 1 cm size intervals of white sturgeon captured in the lower Columbia River using research setlines, 2010-2016. Preliminary data for 2016.

Annual Fish Growth Rates

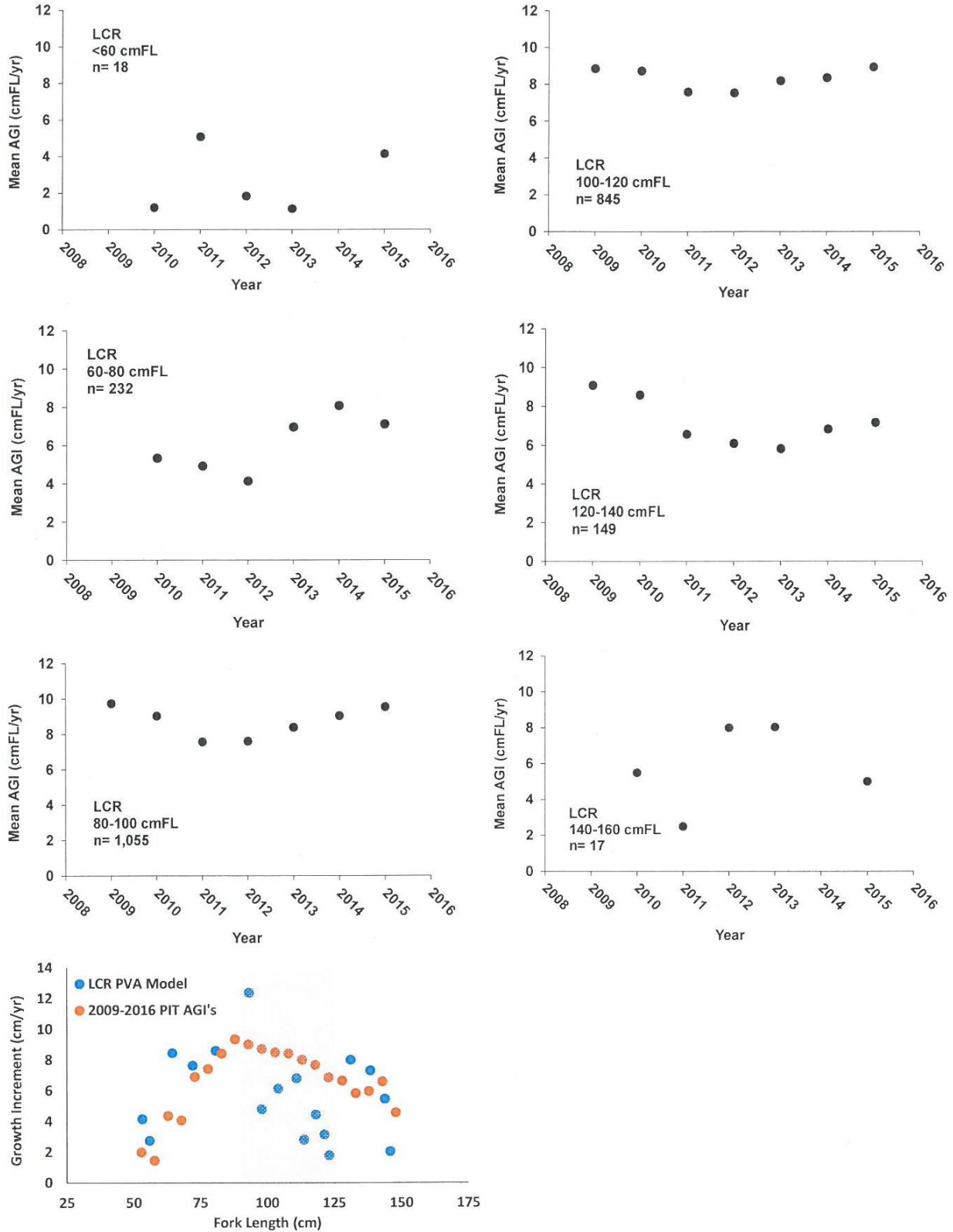


Figure 6. Median annual growth rates of juvenile and subadult white sturgeon from the lower Columbia River.

Abundance Forecasts

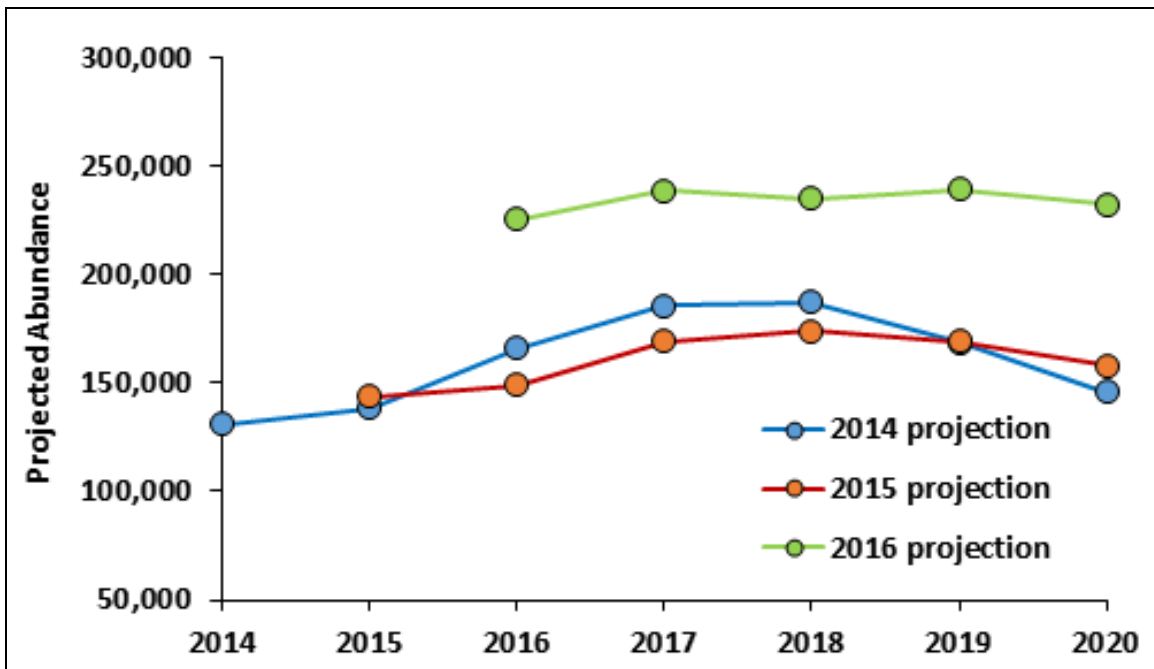


Figure 7. Forecasted legal-size abundance through 2020 based on the 2014, 2015, and 2016 size structure of the lower Columbia River white sturgeon population assuming no harvest.

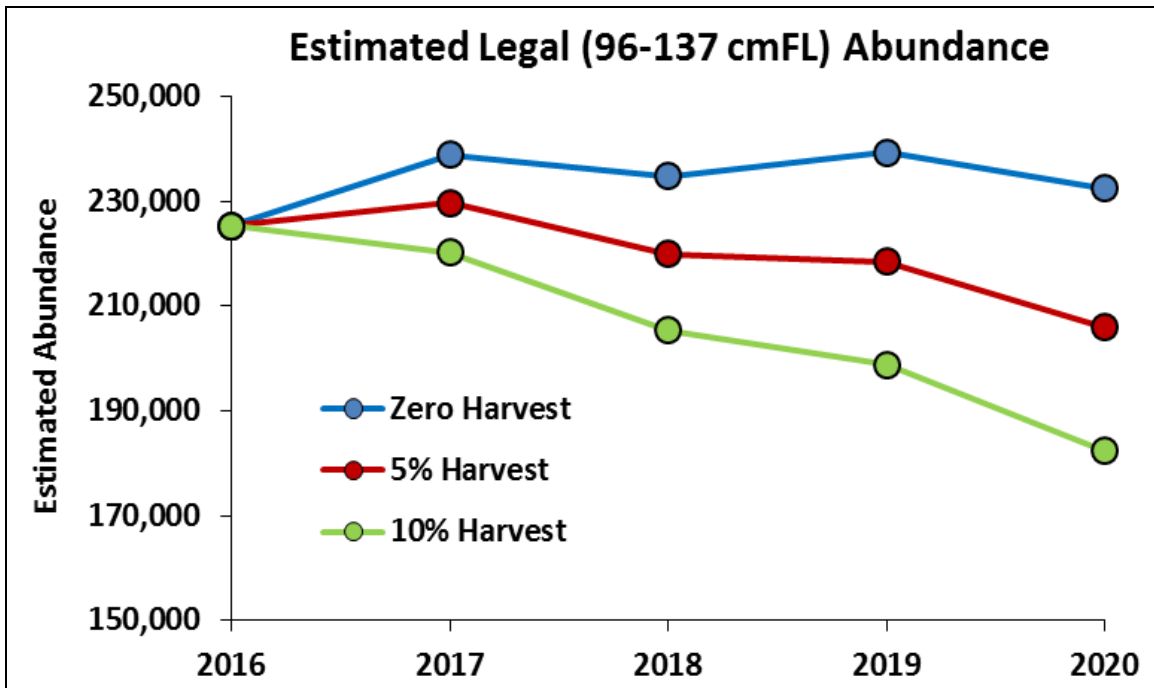
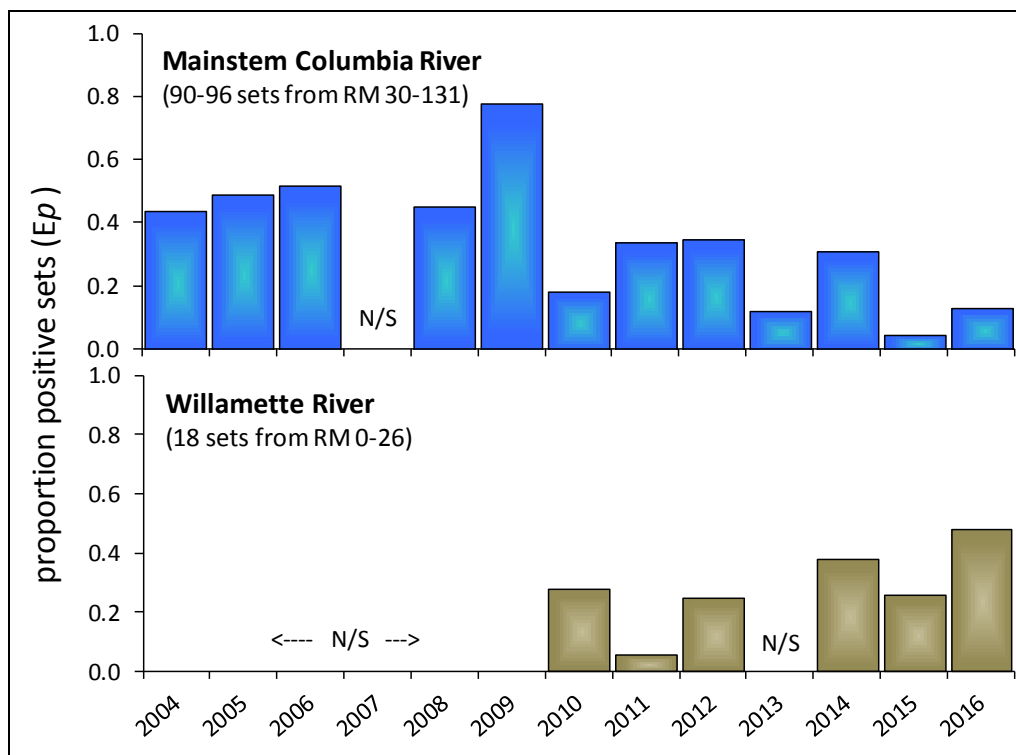


Figure 8. Legal-size (96-137cm FL) population projection under various harvest scenarios.

Sub-yearling (Age-0) Production

Figure 9 and Table 3. Proportion positive net sets (E_p) of age-0 white sturgeon in the lower Columbia River, 2004-2016 and in the lower Willamette River, 2010-2016.



Year	Proportion positive net sets (E_p)	
	Mainstem Columbia River	Willamette River
2004	0.44	--
2005	0.49	--
2006	0.52	--
2007 ¹	N/S	--
2008	0.45	--
2009	0.78	--
2010 ²	0.18	0.28
2011 ²	0.34	0.06
2012 ²	0.35	0.25
2013 ²	0.12	N/S ¹
2014 ²	0.31	0.38
2015 ²	0.05	0.26
2016 ²	0.13	0.48

¹ Sampling for Age-0 white sturgeon was not conducted.

² Preliminary assessments based on length frequency examinations.

Sea Lion Abundance and Predation

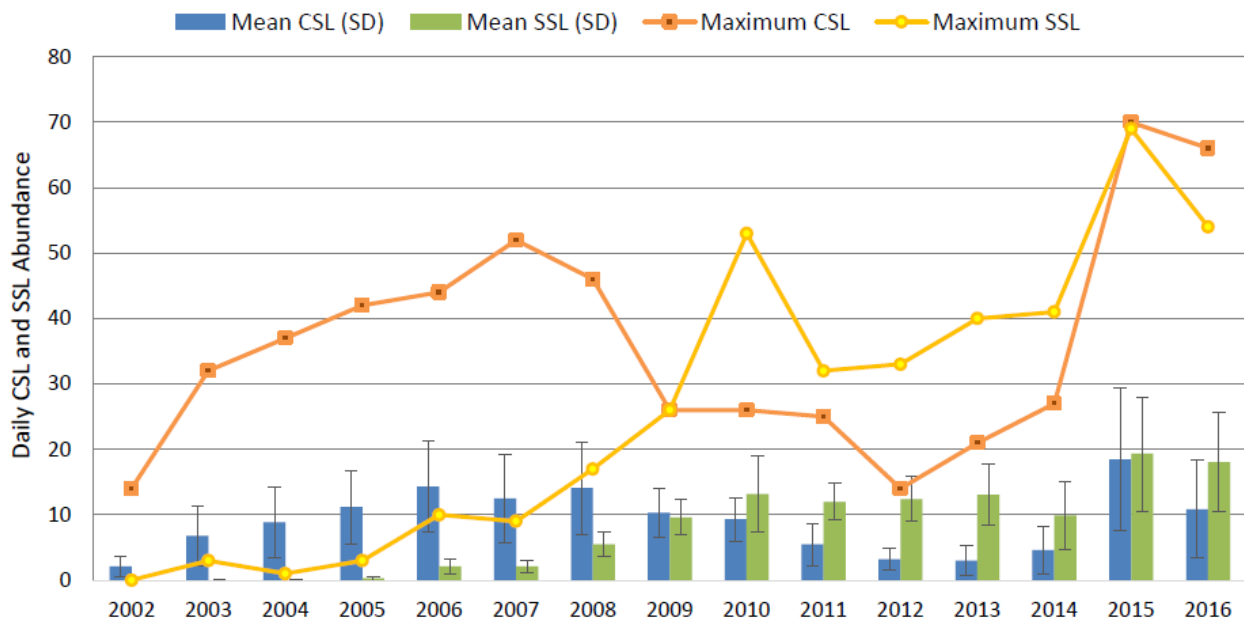


Figure 10. Abundance of California sea lions (CSL) and Steller sea lions (SSL) present at Bonneville Dam between January and the end of May, 2002 to 2016. U.S. Army Corps of Engineers (USACE) data.

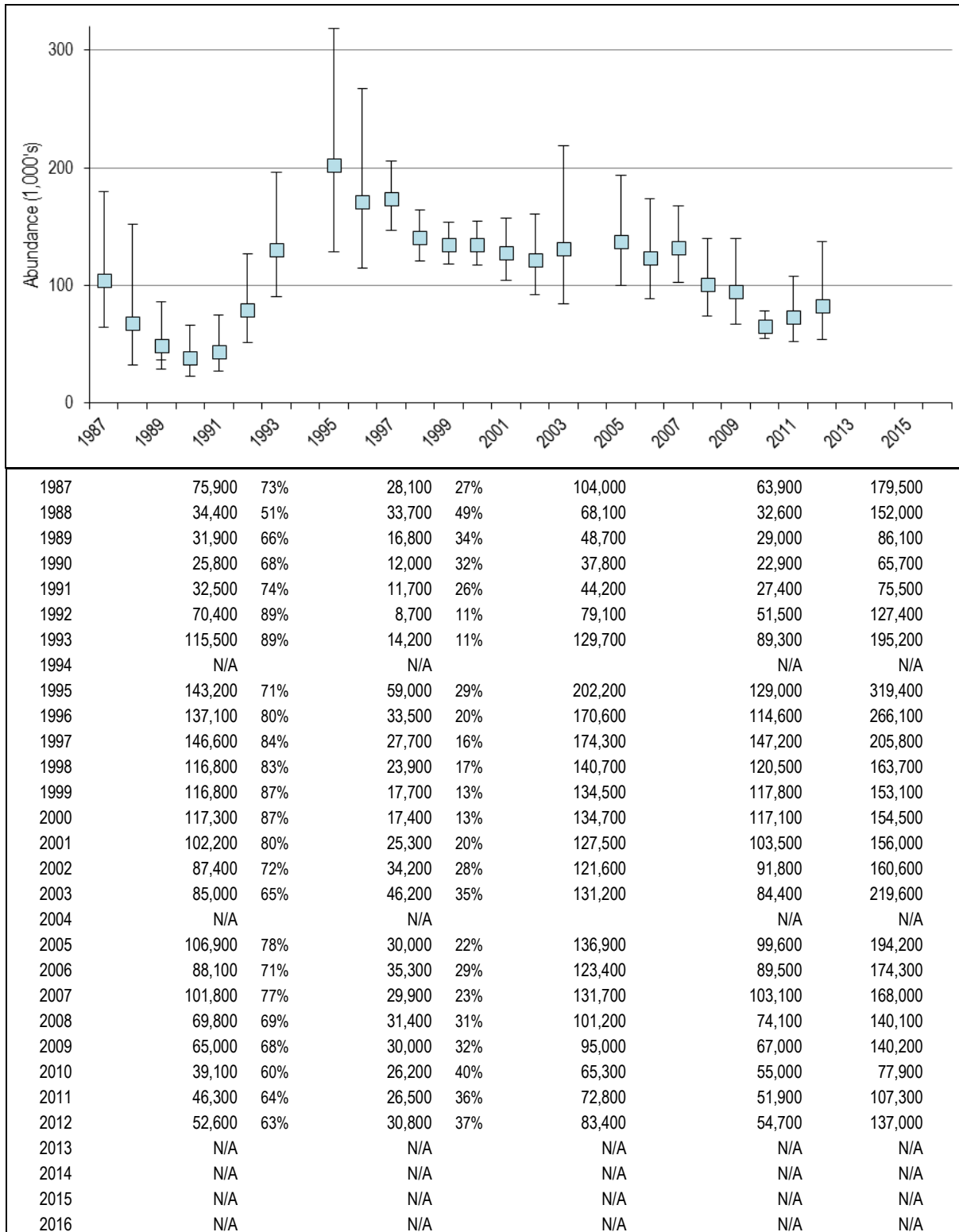
Table 4. Consumption of white sturgeon by CSL and SSL observed during USACE monitoring of the Bonneville Dam tailrace, 2005-2016. Adjusted estimates include a proportion of the total unidentified catch.

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
2015	2,995	24	0.008	39	44
2016	1,974	30	0.015	82	90

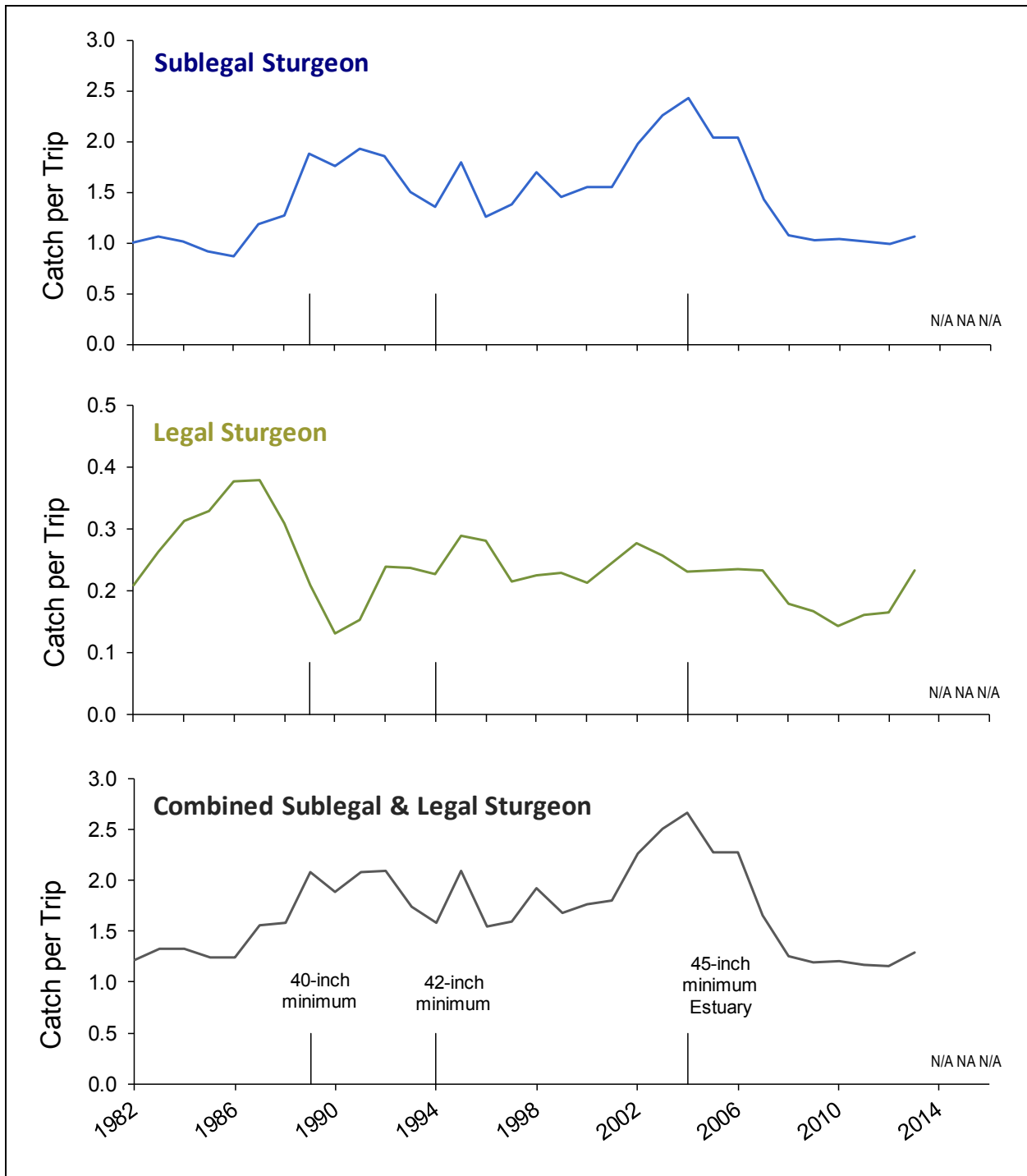
Appendix

Historic Abundance, Harvest and Monitoring Data

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

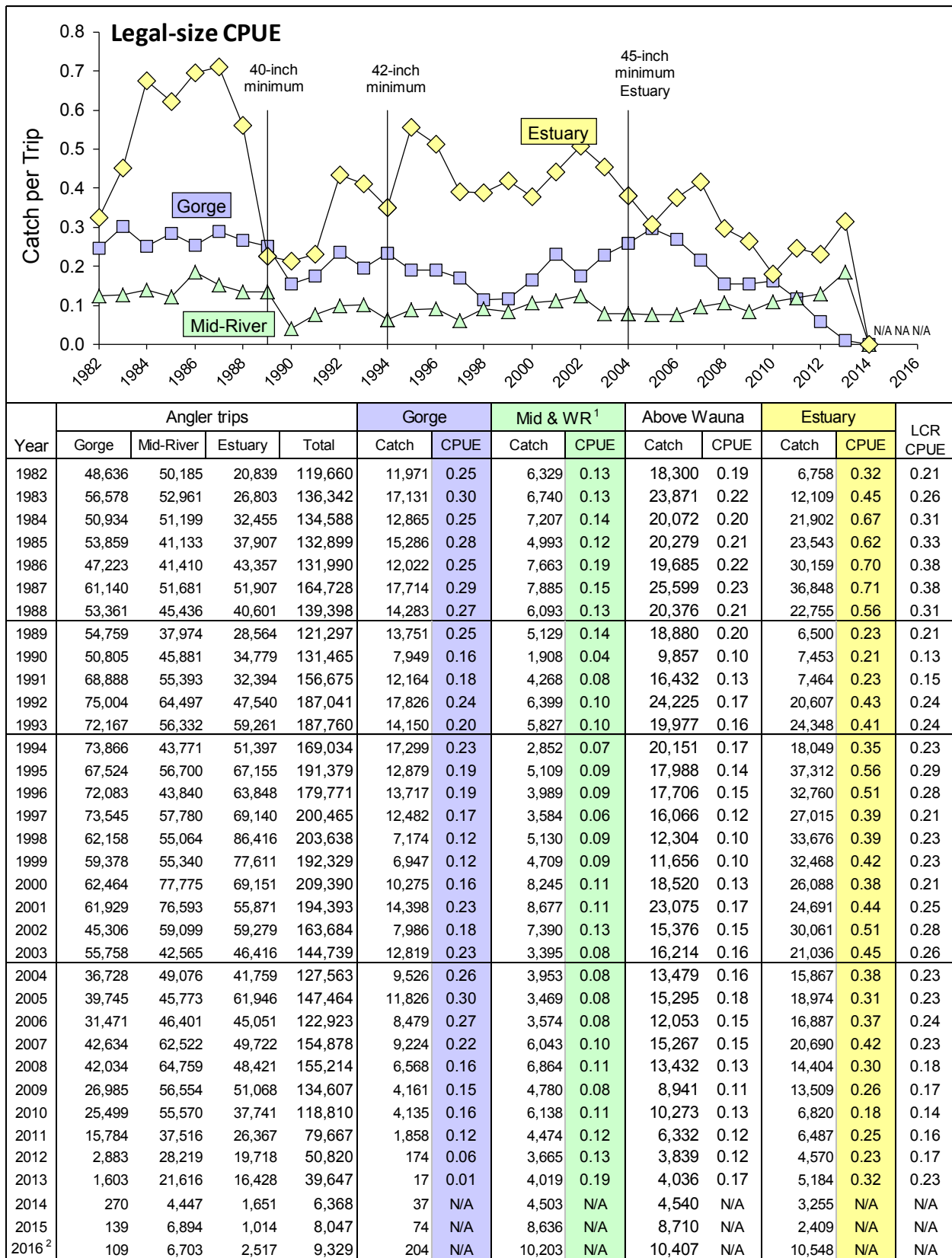


¹ Tagging is conducted from May-June and/or July each year. Tag recover information is collected through fishery sampling well into the following year, consequently, 2012 is the most recent "tag year" with enough information to estimate abundance using the historic method.



Appendix 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, 2015, or 2016.

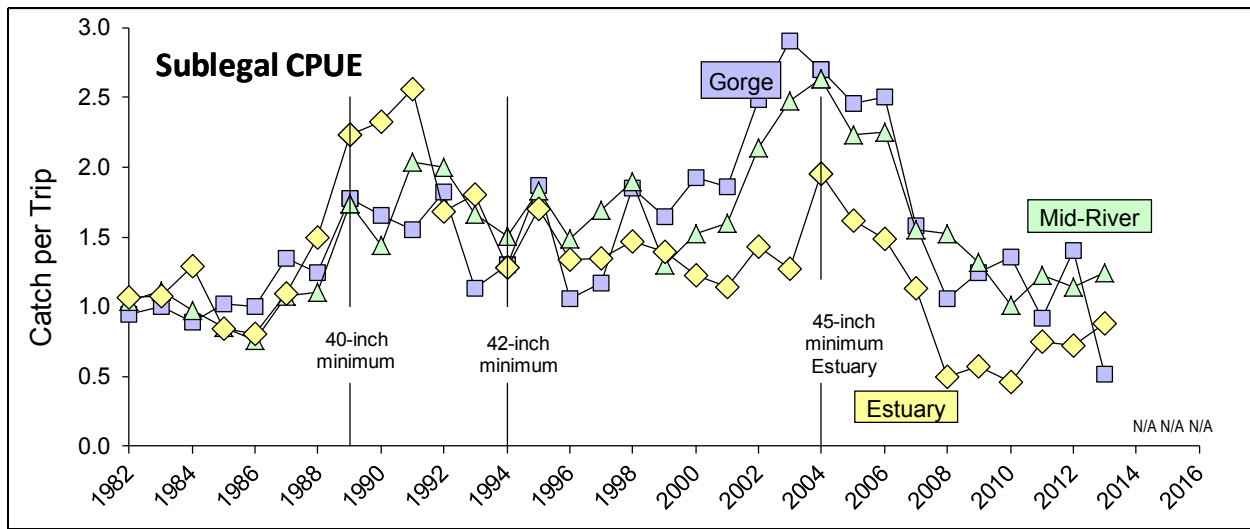
Appendix Figure 3 and Table 2. Catch rates by area of released and kept legal-size white sturgeon in lower Columbia River recreational fisheries, 1982-2013. Comparable catch rate data unavailable in 2014, 2015 or 2016 due to very low angling effort.



¹ Includes Willamette River sampling for 2000-2016.

² Preliminary.

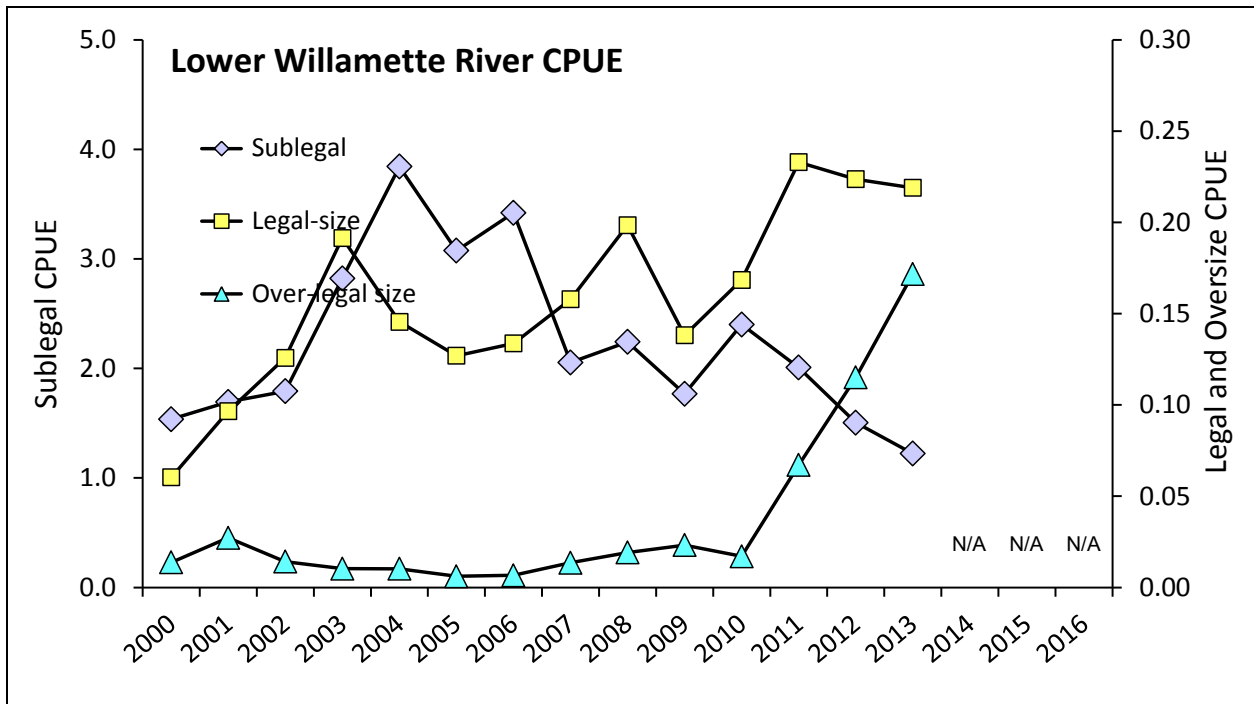
Appendix Figure 4 and Table 3. Catch rates by area of sublegal white sturgeon in lower Columbia River recreational fisheries, 1982-2013. Comparable catch rate data unavailable in 2014, 2015 or 2016 due to very low angling effort following retention prohibition.



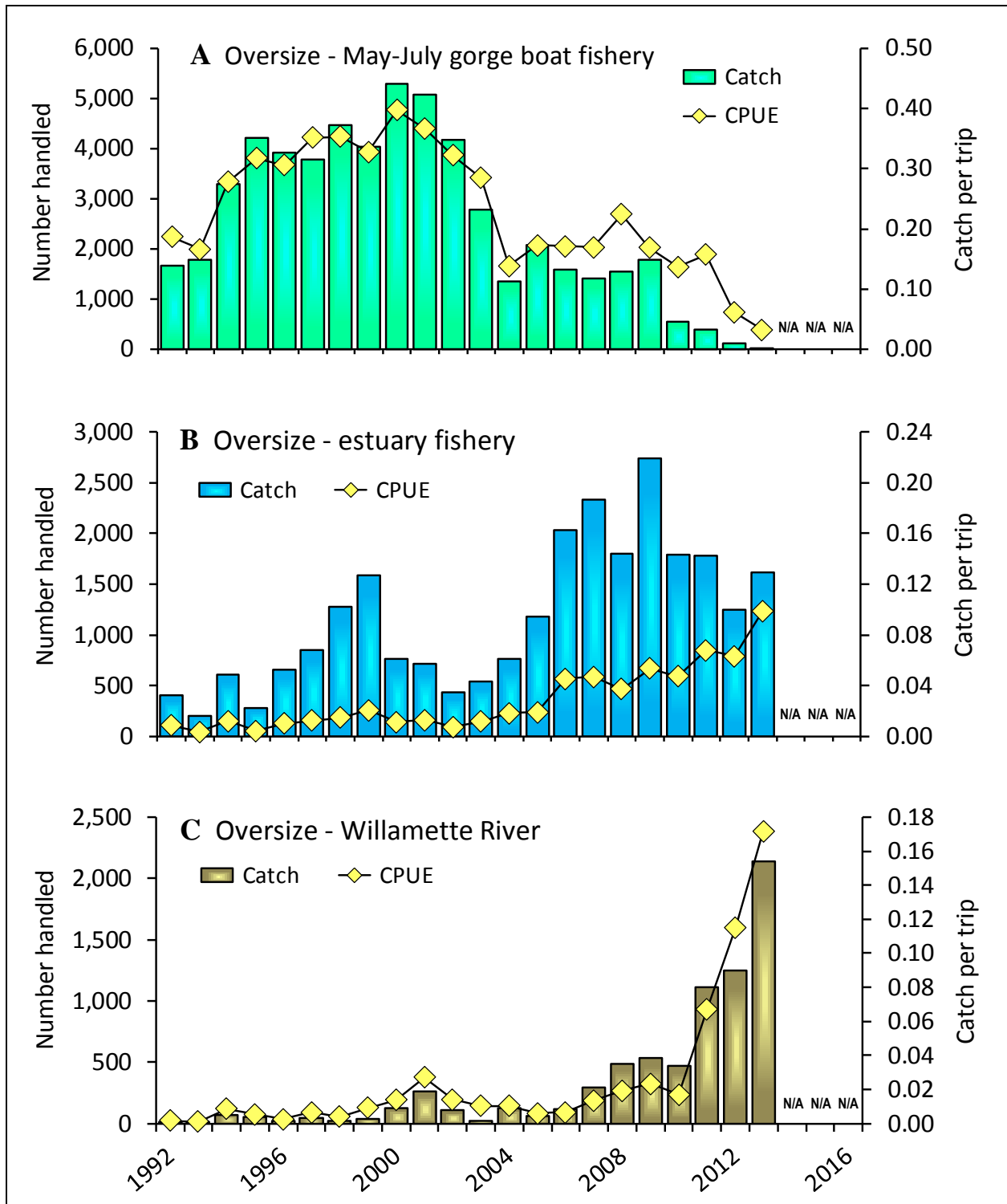
Year	Angler trips				Gorge		Mid & WR ¹		Above Wauna		Estuary		LCR CPUE
	Gorge	Mid-River	Estuary	Total	Catch	CPUE	Catch	CPUE	Catch	CPUE	Catch	CPUE	
1982	48,636	50,185	20,839	119,660	46,008	0.95	52,038	1.04	98,046	0.99	22,305	1.07	1.01
1983	56,578	52,961	26,803	136,342	56,753	1.00	59,083	1.12	115,836	1.06	28,875	1.08	1.06
1984	50,934	51,199	32,455	134,588	45,388	0.89	49,788	0.97	95,176	0.93	41,772	1.29	1.02
1985	53,859	41,133	37,907	132,899	54,744	1.02	35,196	0.86	89,940	0.95	32,059	0.85	0.92
1986	47,223	41,410	43,357	131,990	47,456	1.00	31,497	0.76	78,953	0.89	35,004	0.81	0.86
1987	61,140	51,681	51,907	164,728	82,569	1.35	55,448	1.07	138,017	1.22	56,807	1.09	1.18
1988	53,361	45,436	40,601	139,398	66,161	1.24	50,160	1.10	116,321	1.18	60,610	1.49	1.27
1989	54,759	37,974	28,564	121,297	97,504	1.78	65,980	1.74	163,484	1.76	63,921	2.24	1.87
1990	50,805	45,881	34,779	131,465	83,991	1.65	66,212	1.44	150,203	1.55	80,903	2.33	1.76
1991	68,888	55,393	32,394	156,675	106,807	1.55	113,022	2.04	219,829	1.77	82,878	2.56	1.93
1992	75,004	64,497	47,540	187,041	136,558	1.82	129,229	2.00	265,787	1.91	80,094	1.68	1.85
1993	72,167	56,332	59,261	187,760	81,618	1.13	93,648	1.66	175,266	1.36	106,678	1.80	1.50
1994	73,866	43,771	51,397	169,034	96,256	1.30	66,076	1.51	162,332	1.38	65,998	1.28	1.35
1995	67,524	56,700	67,155	191,379	126,255	1.87	103,933	1.83	230,188	1.85	113,994	1.70	1.80
1996	72,083	43,840	63,848	179,771	76,031	1.05	65,184	1.49	141,215	1.22	85,534	1.34	1.26
1997	73,545	57,780	69,140	200,465	85,769	1.17	97,690	1.69	183,459	1.40	92,972	1.34	1.38
1998	62,158	55,064	86,416	203,638	114,905	1.85	104,270	1.89	219,175	1.87	126,935	1.47	1.70
1999	59,378	55,340	77,611	192,329	97,715	1.65	72,003	1.30	169,718	1.48	108,445	1.40	1.45
2000	62,464	77,775	69,151	209,390	120,078	1.92	118,766	1.53	238,844	1.70	84,948	1.23	1.55
2001	61,929	76,593	55,871	194,393	114,976	1.86	122,706	1.60	237,682	1.72	63,779	1.14	1.55
2002	45,306	59,099	59,279	163,684	112,625	2.49	126,693	2.14	239,318	2.29	84,772	1.43	1.98
2003	55,758	42,565	46,416	144,739	161,788	2.90	105,259	2.47	267,047	2.72	58,927	1.27	2.25
2004	36,728	49,076	41,759	127,563	99,179	2.70	129,158	2.63	228,337	2.66	81,439	1.95	2.43
2005	39,745	45,773	61,946	147,464	97,815	2.46	102,410	2.24	200,225	2.34	100,047	1.62	2.04
2006	31,471	46,401	45,051	122,923	78,852	2.51	104,328	2.25	183,180	2.35	67,112	1.49	2.04
2007	42,634	62,522	49,722	154,878	67,504	1.58	96,896	1.55	164,400	1.56	56,082	1.13	1.42
2008	42,034	64,759	48,421	155,214	44,632	1.06	98,474	1.52	143,106	1.34	24,184	0.50	1.08
2009	26,985	56,554	51,068	134,607	33,524	1.24	74,748	1.32	108,272	1.30	29,229	0.57	1.02
2010	25,499	55,570	37,741	118,810	34,547	1.35	56,048	1.01	90,595	1.12	17,236	0.46	0.91
2011	15,784	37,516	26,367	79,667	14,530	0.92	46,082	1.23	60,612	1.14	19,667	0.75	1.01
2012	2,883	28,219	19,718	50,820	4,046	1.40	32,275	1.14	36,321	1.17	14,244	0.72	0.99
2013	1,603	21,616	16,428	39,647	834	0.52	26,939	1.25	27,773	1.20	14,458	0.88	1.07
2014	270	4,447	1,651	6,368	249	N/A	10,926	N/A	11,175	N/A	2,573	N/A	N/A
2015	139	6,894	1,014	8,047	176	N/A	16,067	N/A	16,243	N/A	992	N/A	N/A
2016 ²	109	6,703	2,517	9,329	99	N/A	16,971	N/A	17,070	N/A	3,570	N/A	N/A

¹ Includes Willamette River sampling for 2000-2016.

² Preliminary.



Appendix 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. Comparable catch rate data unavailable in 2014, 2015 or 2016 due to very low angling effort following retention prohibition.



Appendix Figure 6. 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, 2015, or 2016 due to very low angling effort. Note the difference in scale between the three charts.

Appendix Table 4. Annual recreational catch of white sturgeon in the lower Columbia River and comparisons to catch guidelines, 1994-2016¹.

Year	Below Wauna ¹		Above Wauna ¹		Combined		
	Catch	Guideline ²	Catch	Guideline ³	Catch	Guideline	Percent
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
2015	0	0	0	0	0	0	N/A
2016	0	0	0	0	0	0	N/A

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

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

³ 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 5. Annual recreational catch of white sturgeon in the lower Willamette River and comparisons to catch guidelines, 2003-2016.

Year	Estimated annual catch ¹	Baseline ²	Catch in excess of baseline ³	Guideline ³	Percent of Guideline
2003	1,142	1,225	0	N/A	
2004	4,099	1,225	2,874	N/A	
2005	2,327	1,225	1,102	N/A	
2006	3,348	1,225	2,123	N/A	
2007	6,555	1,225	5,330	N/A	
2008	9,148	1,225	7,923	N/A	
2009	7,346	1,225	6,121	N/A	
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
2015	0	0	0	0	N/A
2016	0	0	0	0	N/A

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

² 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.

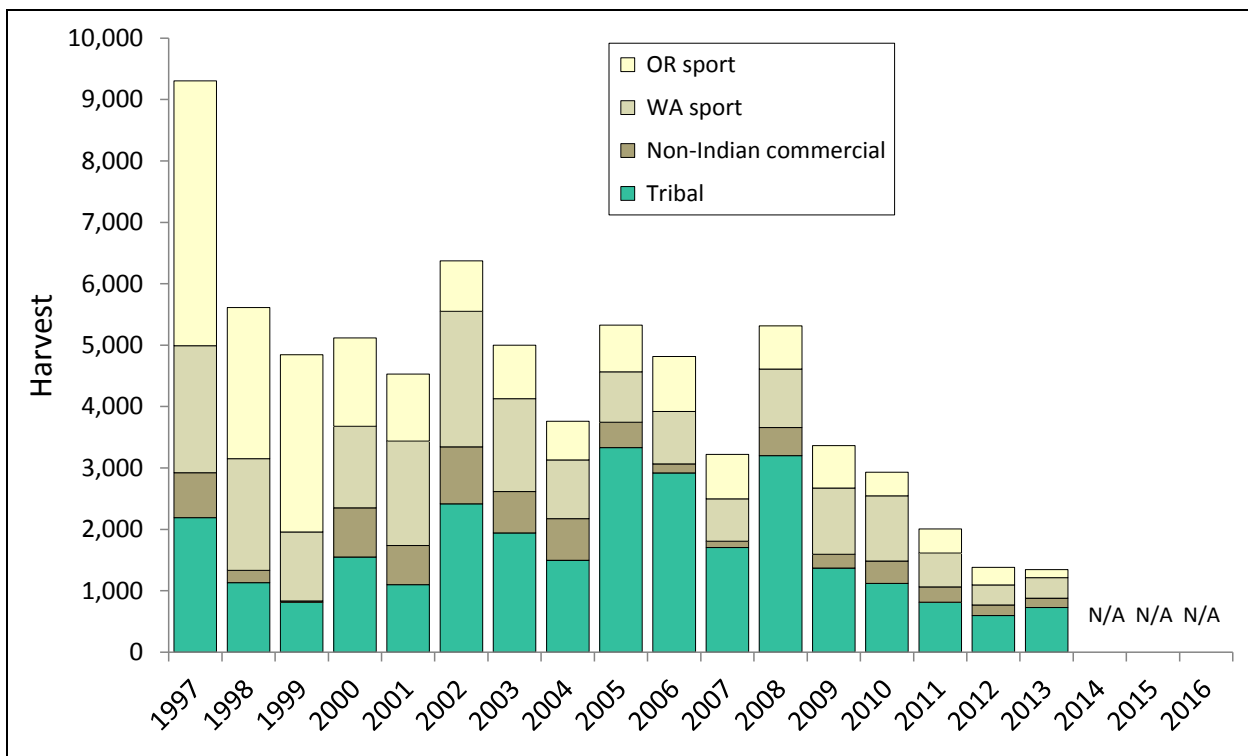
³ During 2003-2009, harvest in excess of the baseline was applied to the above Wauna recreational harvest guideline. Beginning in 2010, a separate harvest guideline was established for the lower Willamette River.

Appendix Table 6. Commercial catch of white sturgeon in the lower Columbia River by season, annual commercial catch, and comparisons to catch guidelines, 1993-2016.

Year ¹	Mainstem							Select Area			Grand Total	Guide-line	%
	Winter Sturgeon ²	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
2015	0	0	0	0	0	0	0	0	0	0	0	0	N/A
2016	0	0	0	0	0	0	0	0	0	0	0	0	N/A

¹ Data since 2003 preliminary.

² Prior to 2003, values reflect all winter fisheries.



Appendix Figure 7. 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, 1997-2013. Retention of white sturgeon was disallowed in coastal non-Indian fisheries beginning in 2014.

FISH AND WILDLIFE COMMISSION

POLICY DECISION

POLICY TITLE: Lower Columbia
Sturgeon Management

POLICY NUMBER: C-3001

Supercedes: 2011-2013 Lower Columbia
Sturgeon Management C-3001

Effective Date: March 1, 2014
Termination Date: December 31, 2018

See Also: Policy C-3608

Approved February 7, 2014 by:

Miranda Wecker, Chair

Washington Fish and Wildlife Commission

Purpose

The purpose of this policy is to provide guidelines for management of the Lower Columbia River white sturgeon population and fisheries.

Definition and Intent

The Lower Columbia River white sturgeon population inhabits the waters of the Columbia River and tributaries downstream of Bonneville Dam and migrates into ocean and coastal estuaries. The intent of the policy is to provide consistent management guidelines that promote a healthy population.

General Policy Statement

Manage the Lower Columbia River white sturgeon population with conservation and fishery management objectives that are consistent with a healthy population.

Policy Guidelines

Lower Columbia Sturgeon Conservation Objectives:

- Provide recruitment and regulatory protection to increase the abundance of the spawning population.
- Manage with a precautionary approach due to uncertainties in population parameters.
- Manage for an annual combined sport and commercial harvest of white sturgeon to provide measurable population growth to achieve the goals of: (1) fully seeded habitats and (2) full representation of each age class within the population.
- Population Monitoring (within available resources):
 - Continue young-of-the-year (YOY) sampling to track spawning success.
 - Evaluate legal-size abundance methodology to improve accuracy of estimates.
 - Continue to monitor sea lion predation for incorporation into stock status

evaluations.

Fishery Management Objectives:

- Provide sufficient sturgeon spawning sanctuaries or other protection measures where and when appropriate.
- Conduct research, within available resources, to assess spawner and sublegal abundance and to quantify impacts of commercial and recreational fisheries on these abundances.
- Provide appropriate added protective measures to prevent further decline of green sturgeon.
- Limit incidental impacts on other species.

When Retention Fisheries are Allowed:

- Manage Lower Columbia River sturgeon fisheries through an agreement with Oregon.
- Maintain concurrent Washington and Oregon regulations in the Columbia River.
- Manage fisheries in a manner that takes into consideration projected recruitment, with the objective of increasing abundance of the legal size segment, and increasing escapement into the spawning segment of the population. Management should be based on consideration of all mortality factors, including sea lion predation and both recreational and commercial fishery related mortalities.
- Maintain the 80/20 sport/commercial harvest allocation.
- Maintain viable and diverse recreational and commercial fishing opportunities.
- Develop sport fishery regulations consistent with the following objectives:
 - Minimize emergency in-season action.
 - Balance catch between estuary and non-estuary fisheries and maintain a diverse array of sturgeon fishing opportunity.
 - Maintain fishery monitoring and management capabilities.
- Develop commercial fishery regulations consistent with the following objectives:
 - Optimize economic value (adjust to market needs).
 - Spread harvest opportunity throughout the year.
 - Minimize impacts to green sturgeon listed under the Endangered Species Act.
- Manage sturgeon harvests outside the mainstem lower Columbia River consistent with Lower Columbia River sturgeon conservation and management needs.

Annual Review

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. The Director will provide 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 the mainstem lower Columbia River;
- by-catch in all fisheries;
- recommended management changes; and
- other pertinent information.

Delegation of Authority

The Commission delegates the authority to the Director to develop and negotiate Lower Columbia Sturgeon Management Accords with Oregon Department of Fish and Wildlife that are consistent with these policies and objectives. Additionally, the Commission delegates the authority to the Director, through the Columbia River Compact, to set seasons for recreational and commercial fisheries in the Columbia River, and to adopt permanent and emergency regulations to implement these fisheries. The Director shall work with the Oregon Department of Fish and Wildlife to achieve implementation of this Commission action in a manner that results in concurrent regulations between the two states. The Director shall consult with the Commission Chair if it becomes necessary to deviate from the Commission's policy to achieve concurrent regulations with Oregon.