

Agenda Item Summary

BACKGROUND Between 1996 and 2013 white sturgeon fisheries in the Columbia River downstream from Bonneville Dam were managed under a series of “management accords” between the Oregon Department of Fish and Wildlife (ODFW) and Washington Department of Fish and Wildlife (WDFW). A central tenet of these accords was the management of fisheries for optimum sustainable yield (OSY), a philosophy that required that fisheries be managed to allow sufficient recruitment of fish to the adult (brood-stock) population on a sustained basis while optimizing societal benefits from the fisheries.

In August 2011, the Commission provided additional policy guidance for white sturgeon management by adopting the Lower Columbia River and Oregon Coast White Sturgeon Conservation Plan. The plan sets long-term management goals for white sturgeon, including abundance levels for adults and sub-adults (which include legal-sized fish) that constitute a “healthy and harvestable population.” In order to rebuild the current population to a healthy and harvestable state, the plan capped the long-term exploitation rate for legal-sized white sturgeon at 16%, a rate both states adopted beginning in 2012.

In 2010, ODFW began regular fisheries-independent stock assessments using set-lines. This gear allows us to monitor the abundance, growth and survival of many size classes of sturgeon (including adults and juveniles), improving monitoring of the lower Columbia River white sturgeon population. Prior to these stock assessments, abundance estimates relied on a fishery-dependent tag and recapture methodology. While past assessments were fairly robust, they only allowed the estimation of the legal-size class (38 – 54-inch fork length) white sturgeon, and were not available until a year after the fishery to which they applied.

These regular stock assessments showed a decline in 38 – 54 inch FL and juvenile (< 38 inch FL) sized white sturgeon. Exercising a precautionary approach, both states placed a moratorium on recreational and commercial white sturgeon harvest in 2014. The moratorium was applied in the Columbia River downstream of Bonneville Dam, in the lower Willamette River, along both coasts, and in associated bays and estuaries. Catch and release sturgeon fishing continued to be allowed.

This closure had the immediate effect of escaping a substantial number of white sturgeon into the over-legal (though not yet adult) size class of fish, protecting them from future harvest. At the same time a dramatic (~90%) decrease in the number of angler trips was noted as recreational sturgeon fisheries shifted to catch-and-release only.

In 2017, following an increase in sub-adult and adult white sturgeon abundance in 2016 limited retention fisheries, using an 80/20 recreational/commercial allocation split as per commission policy, were opened in the lower Columbia River. Retention fisheries were not opened in other previously open locations, e.g., coastal estuaries and bays.

Public Involvement

- 10 February 2017—Informational briefing to the Oregon Fish and Wildlife Commission on 2016 Lower Columbia River white sturgeon status; public testimony to the commission following the presentation brought up the concept of small-scale retention fisheries.
- 19 May 2017—Directors report to the Oregon Fish and Wildlife Commission on potential for 2017 white sturgeon retention seasons.

- 30 May 2017—Public meeting on potential sturgeon retention season held in Vancouver, Washington
- 10 January 2018—Meeting with the Columbia River Commercial Fisheries Advisory Group in Rainier, OR
- 11 January 2018— Meeting with the Columbia River Recreational Fisheries Advisory Group in Ridgefield, Washington.

ISSUE

UPDATE ON POPULATION STATUS OF WHITE STURGEON IN THE COLUMBIA RIVER DOWNSTREAM OF BONNEVILLE DAM

ANALYSIS

Indications of the status of white sturgeon in 2017 are mixed (Table 1). Positive indicators are increasing abundance of legal-sized fish and increased abundance of adult (broodstock) fish. Cautionary signs include reduced relative abundance of juvenile and sub-legal sized fish and an extended period of low young-of-year (YOY) recruitment. Taken together these signs point to ongoing low productivity over the last several years.

TABLE 1—Dashboard of key status indicators for lower Columbia River White Sturgeon in 2017. Arrow color indicates status relative to Conservation Plan metrics; direction indicates current trend.

Metric	N	Interpretation	Brief Summary
Abundance Trends			
38" – 54" FL	199,830		Decrease of 11% from 2016, but 39% greater than 2015. Also, increasing trend in CPUE setline tagging fisheries continues.
Adult (>65" FL)	2017: 10,400 3-yr avg.: 6,450		2017 adult abundance point estimate is above desired status level, but 3-year average is not (threshold = 9,250 adults).
Population Structure	~62% juvenile		Continued decline and low relative abundance of juvenile and sub-legal sized fish indicates productivity issues.
Recruitment Index (CPN)	LCR: 1.64 WR: 1.75		Significant improvement, 2017 highest YOY CPN since 2009 in LCR and ever (since 2010) for LWR.
Fisheries	Estuary: 15,586 angler trips Total: 27,550 angler trips		Participation still down from pre-closure levels, but increased by more than 6-fold from 2016.

Abundance Trends

The estimated abundance of white sturgeon 38 – 54-inches fork length in 2017 was ~200,000 fish, representing 77% of the desired status. This estimated abundance represents an 11% decrease from the 2016 estimate, but is still a 39% increase from 2015, (Figure 1). Given the variability associated with the data the precise increase in abundance (from 2015) is hard to measure, but the increase is supported by multiple indicators, including catch per set (CPUE) in our setline stock assessments (Figure 2).

While the increasing trend through 2016 appears to be corroborated by the 2017 assessment, the absolute magnitude of the increase should be viewed cautiously. This continues an expected and generally positive trend in sub-adult abundance since 2012, when the legal population declined to a near 30-year low.

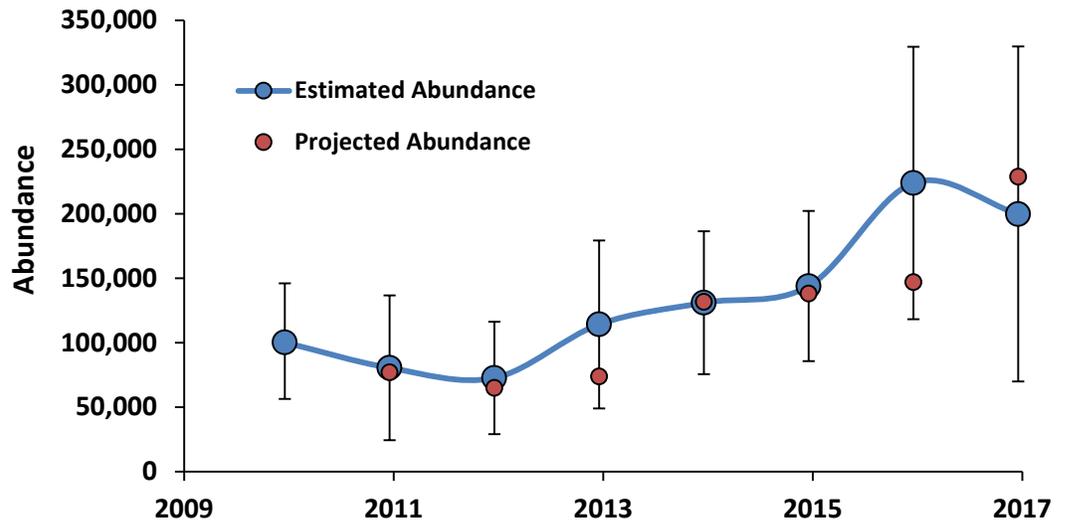


FIGURE 1—Estimated and projected abundance for 38''-54'' FL white sturgeon from the LCR, 2010-2017. Error bars represent 95% CI's for the estimated abundance.

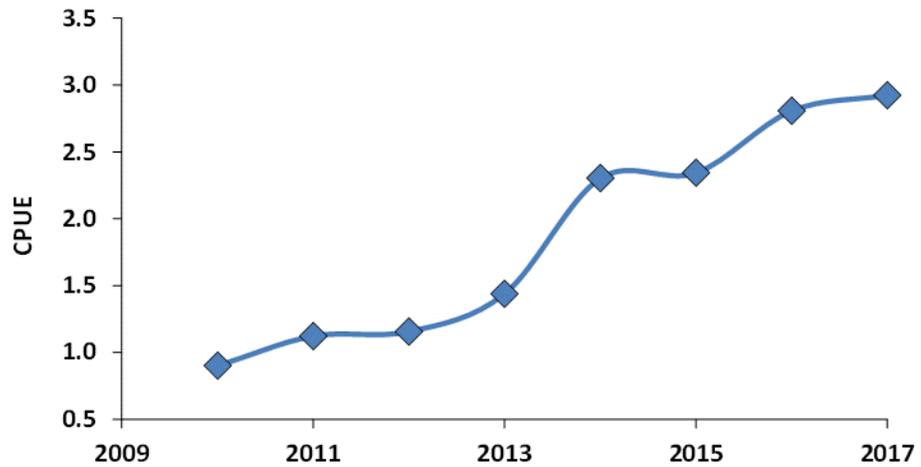


FIGURE 2—CPUE of 38''-54'' FL white sturgeon caught with setlines in the LCR, 2010-2017.

Based on current estimates, the abundance of adult white sturgeon remains below desired status of a three-year running average of 9,250 adult fish identified in the Lower Columbia River and Oregon Coast White Sturgeon Conservation Plan previously adopted by the Commission (hereafter, the Plan). While the point estimate for 2017, about 10,400 fish, is above it, the 2015 - 2017 running average of 6,450 fish is still below the desired status level (Figure 3); this increase in estimated abundance is also supported by catch effort information from our stock assessments with 2017 having the highest CPUE yet witnessed since the onset of our set-line stock assessment in 2010

(Figure 4). It should also be noted that both the point estimate and the three-year average are above the conservation status threshold of 3,900.

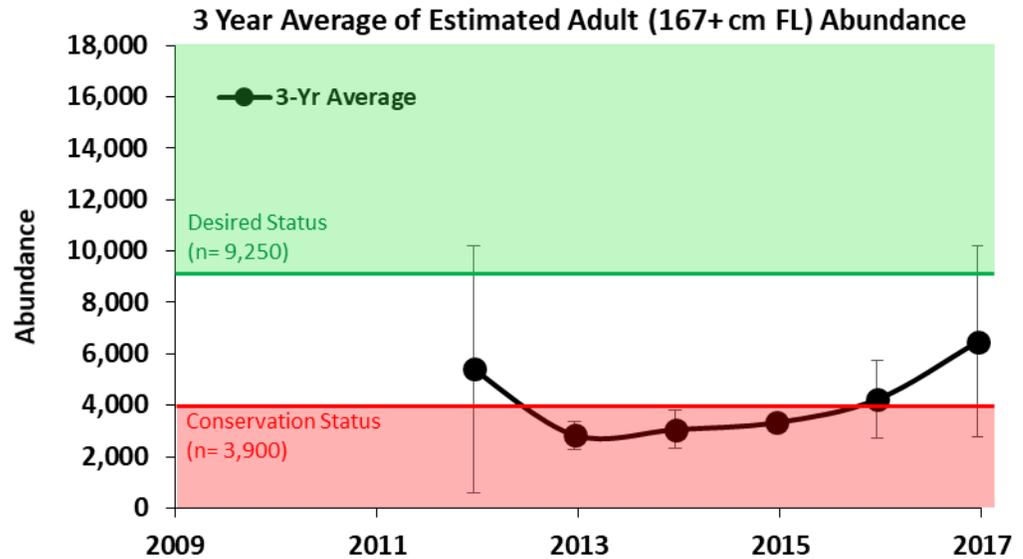


FIGURE 3—Three-year running average of estimated abundance for adult (≥ 65 " FL) white sturgeon from the LCR, 2012-2017. Fewer than 3 years of data were available for 2010 and 2011 so no averages were calculated. Error bars are ± 1 standard deviation from the mean abundance estimate.

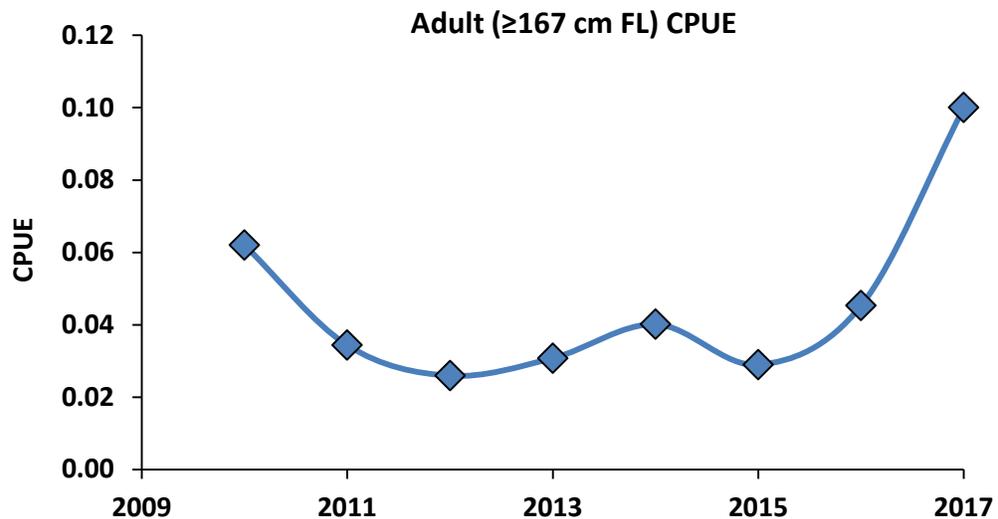


FIGURE 4—CPUE of adult (≥ 167 cm FL) white sturgeon caught with setlines in the CR, 2010-2017.

Recruitment

We have indexed the recruitment of young-of-year (YOY) white sturgeon in the lower Columbia River to assess annual spawning success and productivity since 2004. Sampling is conducted in the late fall and is designed to target juvenile sturgeon that were spawned earlier the same year; late fall sampling also minimizes interactions with

other fish and fisheries. A similar methodology has been employed jointly by ODFW, WDFW, and CRITFC upstream of Bonneville Dam since 1997.

Staff deploy small-mesh gillnets at standard index sites throughout the lower Columbia and Willamette rivers to capture YOY white sturgeon. The catch per net (CPN) and proportion of sets capturing at least one YOY (Ep) are used as indices to monitor trends in recruitment (Table 2). However, until enough paired years of recruitment index data and detailed stock assessment data are available, it is problematic to infer absolute levels of recruitment from these data. The conservation status threshold, based on a population viability analysis, is five years without measureable recruitment. In the Columbia River both CPN and Ep levels measured in 2017 were similar to years prior to 2009 and substantially higher than 2010 – 2016. Observations of YOY recruitment in the Willamette River continued the recent upward trend posting its strongest recruitment year on record, when considering CPN and Ep together. It should be noted that while these indices are useful to compare between years, values should not be compared between river systems, i.e., a higher CPN in the Willamette – as witnessed in 2017 – does not imply that higher absolute numbers sturgeon were produced in the Willamette than the Columbia overall.

Table 2—CPUE and proportion of positive sets (Ep) for YOY white sturgeon in the lower Columbia and Willamette rivers from 2004-2017.

Year	Lower Columbia R		Willamette R	
	CPUE	Ep	CPUE	Ep
2004	1.29	0.44		
2005	1.74	0.49		
2006	1.88	0.52		
2007	--	--		
2008	1.23	0.45		
2009	5.66	0.78		
2010	0.19	0.18	0.50	0.28
2011	0.58	0.34	0.06	0.06
2012	0.77	0.35	0.75	0.25
2013 ¹	0.21	0.12	--	--
2014	0.56	0.31	1.38	0.38
2015	0.06	0.05	0.58	0.26
2016 ²	0.20	0.13	0.75	0.48
2017 ²	1.64	0.58	1.75	0.46

¹ *Incomplete sampling year in both LCR and Willamette R.*

² *Preliminary assessments based on length frequency examinations.*

Population Structure

The lower Columbia River white sturgeon population cannot be considered truly healthy unless abundance targets are met *and* it has a balanced, sustainable stock structure across life history stages. Large abundance estimates with a stock structure dominated by juveniles indicates successful recruitment is occurring regularly, assuring replacements for mortality at later life stages. The percentage of the population made up of juvenile fish in 2017 was ~62%. This is above the conservation status identified in the Plan (60%), but well below the desired status level (95%) and continues the recent trend (Figure 5). The reduced relative abundance of juvenile and sub-legal sized fish over time indicates ongoing productivity issues. Given past several years of reduced age-0 recruitment we do not anticipate this trend changing in the

immediate future; however, if recruitment witnessed in 2017 continues, this trend may eventually reverse itself.

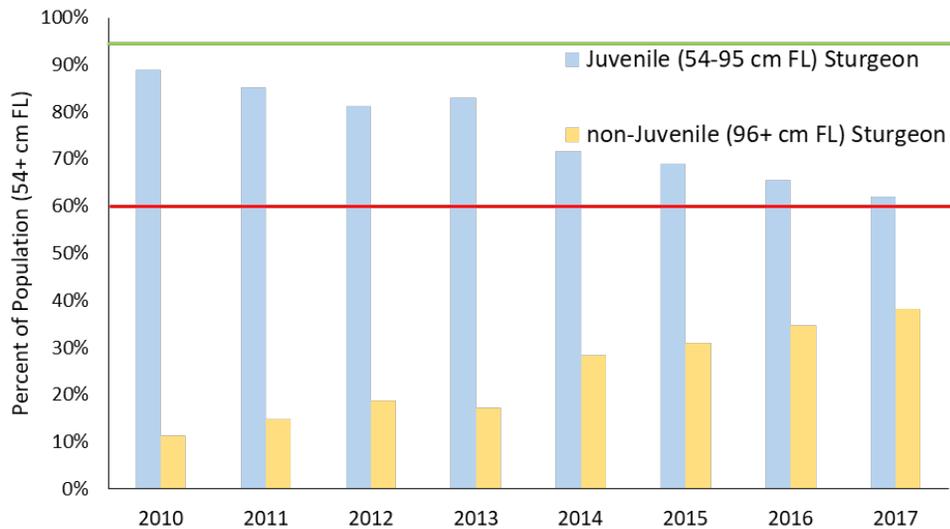


FIGURE 5—Annual proportion of juvenile and non-juvenile (sub-adults + adults) white sturgeon in the lower Columbia River, 2010-2017. Red horizontal line represents conservation status green horizontal line represents desired status.

Fisheries

Although sturgeon retention fisheries were closed in 2016, catch-and-release was still allowed and fisheries were monitored (Table 3). Angler participation in 2016 was similar to 2014-2015 and down by 94% river-wide and 92% in the estuary when compared to the five-year average pre-retention closure (2009 – 2013). Despite the reduced effort, participating anglers reported very high catch rates, and staff received many reports of high total catches during the season.

The states reinitiated limited retention fisheries for white sturgeon on the lower Columbia River in 2017. Separate catch guidelines of 3,000 white sturgeon, 1,245 white sturgeon and 745 white sturgeon were adopted for the Columbia River Estuary, Columbia River main-stem above Wauna Powerlines (~RM 40), and lower Willamette River, respectively. Although no season was ultimately adopted for the lower Willamette River, angler participation was high in the Columbia River main-stem and estuary fisheries. A narrower slot, 44 – 50-inches FL, than has traditionally been used was adopted in an attempt increase opportunity. The estuary fishery was scheduled for six days during June, but was shut down after five days with an estimated catch of 3,235 white sturgeon from 14,844 angler trips (Table 4). The main-stem fishery was scheduled for two days during late October, but extended for a third day and produced a catch of 430 white sturgeon from 10,164 trips.

TABLE 3—Number of angler trips for the lower Columbia River, 2013 - 2016. Estuary trips are tallied for only the May-July timeframe when the vast majority of estuary sturgeon fishing trips occur.

Year	Total		May - July Estuary	
	Trips(N)	% Change	Trips(N)	% Change
2009-2013 AVG	69,553		29,955	

2014	3,120	-95%	1,620	-95%
2015	3,004	-96%	954	-97%
2016	4,372	-94%	2,380	-92%
2017 ¹	27,550	-60%	15,546	-48%

¹ More than 6-fold increase between 2016 and 2017 with addition of 8 retention fishing days

TABLE 4— White sturgeon recreational catch and catch guidelines by area, 2009-2013 average and 2014-2017.

Year	Below Wauna		Above Wauna		Combined	
	Catch	Guideline	Catch	Guideline	Catch	Guideline
Avg: 2009-2013	6,948	8,026	3,228	4,755	10,176	12,781
2014	0	0	0	0	0	0
2015	0	0	0	0	0	0
2016	0	0	0	0	0	0
2017	3,235	3,000	430	1,245	3,665	4,245

Along with recreational retention, commercial harvest was also reinstated in 2017 with a guideline of 1,245 44 – 54-inch FL white sturgeon available. In off-channel and fall mainstem Zone 4/5 commercial fisheries a combined 1,227 of the 1,245 commercial guideline was harvested.

Plans for 2018

Stock assessments in the lower Columbia River are scheduled to commence in mid-May 2018 and to be completed by the end of September 2018. Age-0 (i.e., YOY) recruitment surveys are scheduled to commence in late-October and to be completed by the first week of December.

Fisheries may occur in all three sub-areas (estuary, mainstem above Wauna, and the Willamette River), and if implemented, would include both recreational and commercial fishing, per policy from the commissions of both states.

OPTIONS

1. NA

STAFF

1. NA

RECOMMENDATION

DRAFT MOTION	NA
EFFECTIVE DATE	NA