

## 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 tenant 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, a gear that allows us to monitor the abundance, growth and survival of many size classes of sturgeon (including adults and juveniles), in order to better monitor the lower Columbia River white sturgeon population. Prior to these stock assessments abundance estimates relied on a fishery-dependent tag and recapture methodology, that while fairly robust, only allowed the estimation of the legal-size class (38 – 54-inch fork length) white sturgeon.

Through these regular stock assessments an apparent decline of legal-sized white sturgeon was observed, and exercising a precautionary approach, in 2014 both states placed a moratorium on recreational and commercial white sturgeon harvest downstream of Bonneville Dam, including the lower Willamette River and both coasts and associated bays and estuaries. Catch-and-release sturgeon fishing continues 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.

### Public Involvement

- 2 December 2015 - Meeting with the Columbia River Recreational Fisheries Advisory Group in Clackamas, OR
- 3 December 2015 - Meeting with the Columbia River Commercial Fisheries Advisory Group in Rainier, OR.
- 14 December 2015- Meeting with Salmon for All in Astoria, OR.
- 15 December 2015 - Meeting with the Northwest Sportfishing Industry Association in Clackamas, OR.

## 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 2015 are mixed. Positive indicators are increasing abundance of legal-sized fish and escaping another year of pre-adult, over-legal sized fish. Cautionary signs include continued predation by pinnipeds, continued low abundance of adult fish, continued low young-of-year recruitment, and reduced relative abundance of juvenile and sub-legal sized fish. Taken together these signs point to low productivity over the last several years.

### Abundance Trends

The actual abundance of legal-sized white sturgeon in 2015 was 143,890, representing a 10% increase from the 2014 estimate of 130,990, and 26% increase from the 2013 estimate of 114,200. This continues an expected and generally positive trend in legal abundance since 2010, when the legal population declined to an estimated 65,300 fish. The projected abundance of legal-sized fish for 2016 is 147,100.

Based on current estimates, the abundance of spawner-size adult (>165-cm fork length) white sturgeon remains depressed. The abundance estimate for 2015 is about 3,000 fish with a 2013-2015 running average of about 3,300 fish. This three-year running average is below the conservation status threshold of 3,900 adult fish identified in the Lower Columbia River and Oregon Coast White Sturgeon Conservation Plan (hereafter, the Plan) previously adopted by the Commission.

Table 1. Estimated and projected abundance of 38 – 54-inch fork length white sturgeon in the lower Columbia River, 2008-2016.

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	131,700	--
2015	--	143,840	138,200	--
2016	--	--	147,100 <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.

### Recruitment

We have indexed the recruitment of young-of-the-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, and to minimize 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. The catch per set (CPUE) of YOY sturgeon and

proportion of sets capturing at least one young-of-year sturgeon (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 identified in the Plan, and based on a population viability analysis is five years without measureable recruitment. The level measured in 2015, though still above the conservation level, was the poorest year for system-wide young-of-year recruitment that we have observed since we began sampling in the lower Columbia River.

Table 2. Catch per set (CPUE) and proportion of positive sets (Ep) for young-of-year white sturgeon in the lower Columbia and Willamette rivers, 2004-2015.

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 <sup>1</sup>	0.21	0.12	--	--
2014	0.56	0.31	1.38	0.38
2015 <sup>2</sup>	0.06	0.05	0.58	0.26

<sup>1</sup> Incomplete sampling year in both LCR and Willamette R

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

### Relative Abundance

The lower Columbia River white sturgeon population cannot truly be considered healthy unless abundance targets are met *and* are structured across life history stages. A stock structure dominated by juveniles indicates successful recruitment is occurring regularly, and assures replacements for sub-adult and adult mortality. The percentage of the population made up of juvenile fish in 2015 was ~69% (Figure 1), this is above the conservation status of 60% identified in the Plan, but well below the desired status level. The reduced relative abundance of juvenile and sub-legal sized fish over time indicates ongoing productivity issues.

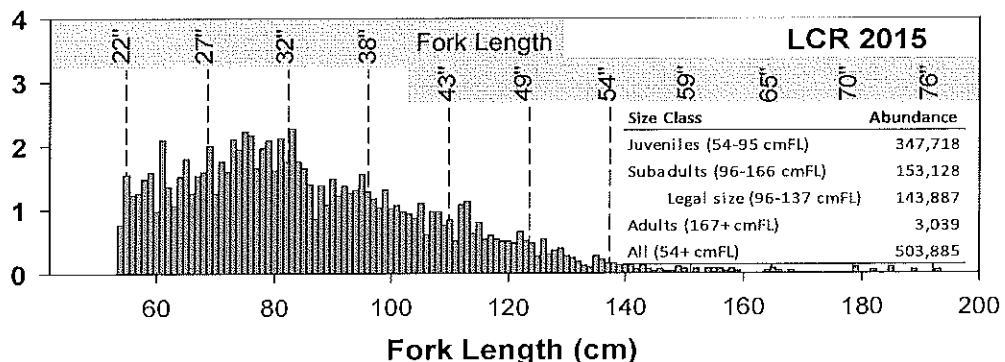


Figure 1. Frequency (percent) by 1 cm size intervals and abundance by life-stage of

white sturgeon captured in the lower Columbia River using research setlines in 2015.

**Fisheries**

Although sturgeon retention fisheries were closed in 2015, catch-and-release was still allowed and fisheries were monitored. Angler participation in 2015 was similar to 2014 and down by 91% river-wide and 95% in the estuary when compared to the last year of allowed retention (2013). Despite the reduced effort, participating anglers reported very high catch rates, and staff received many reports of high total catches during the season.

Table 3. Number of angler trips for the lower Columbia River, 2013 - 2015. 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	
	N Trips	% Change	N Trips	% Change
2013	33,094		16,569	
2014	3,120	-91%	1,620	-90%
2015 <sup>1</sup>	3,004	-91%	954	-94%

<sup>1</sup> Preliminary.

**OPTIONS**

1. NA

**STAFF**

1. NA

**RECOMMENDATION**

<b>DRAFT MOTION</b>	NA
<b>EFFECTIVE DATE</b>	NA