

Adapted from *Summary and Analysis of Columbia River Harvest Reform Activities 2009-2017* (ODFW 2019).

### Assessment of Youngs Bay Closure Zone

The Youngs Bay Closure Zone (YBCZ), also known as Control Zone, is an area at the mouth of Youngs Bay that is closed to recreational fishing during August 1 to September 15. It was established in 2014 by the Oregon Fish and Wildlife Commission as a result of Harvest Reform-related legislation (Senate Bill 830) passed by the 2013 Oregon Legislature. The closure is intended to increase the number of hatchery salmon (Select Area Bright (SAB) fall Chinook and Coho) returning to the Youngs Bay Select Area by reducing the number of fish intercepted by recreational anglers.

The YBCZ includes waters north of the Hwy 101 Bridge to a line projected from the east end of the seawall at the Warrenton Fiber log yard, northeasterly through four green navigational buoys, to the Astoria-Megler Bridge abutment adjacent to, and north, of the ship channel. The control zone is bordered on the upstream end (heading up the Columbia) by the center of the Astoria-Megler Bridge (Figure 1).



Figure 1. Detailed view of the Youngs Bay Closure (Control) Zone.

The YBCZ encompasses approximately 4.7 mi<sup>2</sup>, which constitutes about 4% of the fishable area available to the popular Buoy 10 recreational fishery (Figure 2). The Buoy 10 fishery extends

from August 1 into the month of October, although most of the angling effort occurs in August and early September.



Figure 2. Buoy 10 recreational fishery area and Youngs Bay Closure Zone.

We attempted to assess the effectiveness of the YBCZ in meeting its objective of reducing recreational harvest of SAB fall Chinook by analyzing recreational and commercial harvest, as well as harvest shares for this stock. SAB harvest was based on analysis of CWT data from the respective fisheries.

Harvest shares of adult SAB fall Chinook for the Buoy 10 sport and Youngs Bay commercial fisheries have fluctuated over the last 18 years, but the Buoy 10 share of the SAB harvest has trended upward since 2009 (Figure 3). This increase in the Buoy 10 harvest share does not appear to be positively associated with the strength of the SAB return, and in recent years, the Buoy share of SAB harvest has been high at relatively low returns. Average harvest of SABs in the Buoy 10 fishery increased between the 4-year period just before implementation of the YBCZ (2010-2013) and the 4-year period after implementation (2014-2017), while the average SAB harvest in the Youngs Bay commercial fishery decreased (Table 1). The average Buoy 10 share of SAB harvest also doubled from 21% to 42% between the pre- and post-implementation years. During this time, the average SAB return decreased, but average angler effort in the Buoy 10 fishery increased substantially. Figure 4 shows a moderately strong positive relationship ( $R^2 = 0.44$ ) between Buoy 10 angler effort and the Buoy 10 share of SAB harvest during 2000-2017.

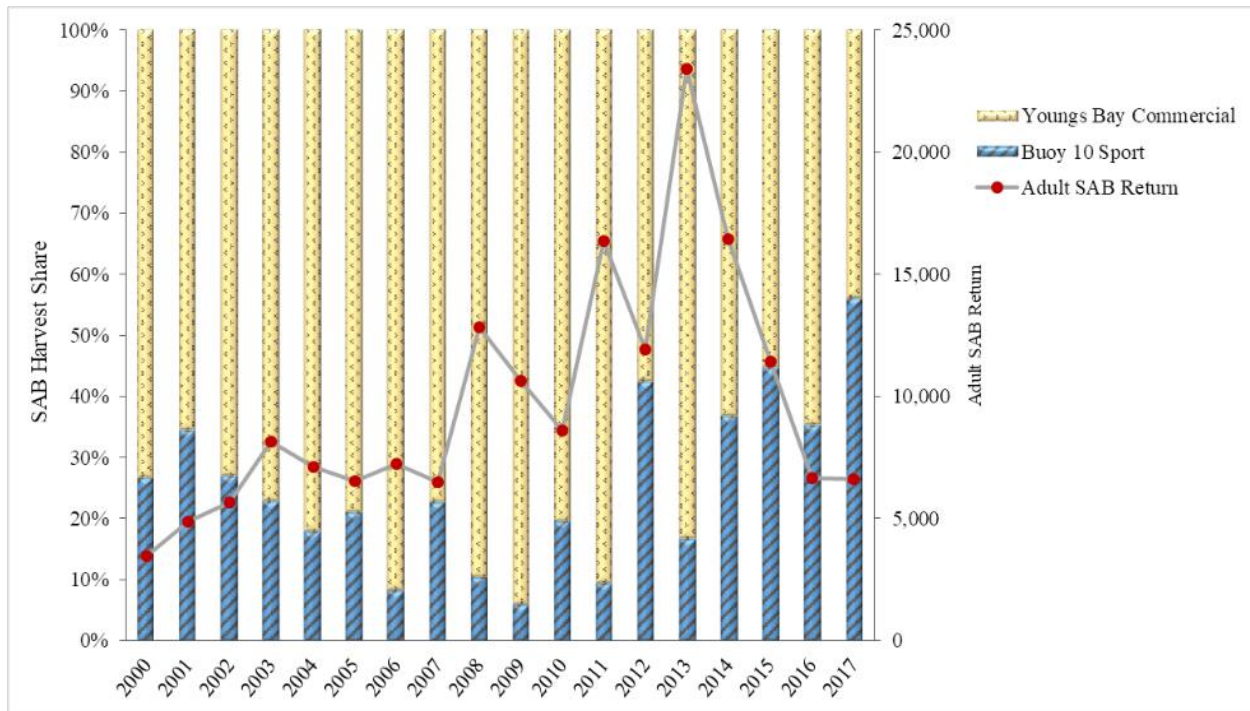


Figure 3. Harvest shares of adult SAB fall Chinook for the Youngs Bay Select Area commercial fishery and the Buoy 10 sport fishery compared to SAB returns, 2000-2017.

Table 1. Harvest and harvest shares of adult SAB fall Chinook for the Buoy 10 sport fishery and Youngs Bay Select Area commercial fishery, 2000-2017.

Year	Adult SAB Return	Buoy 10 Angler Trips	SAB Harvest		SAB Harvest Share	
			Buoy 10 Sport	Youngs Bay Commercial	Buoy 10 Sport	Youngs Bay Commercial
2000	3,472	72,518	428	1,181	27%	73%
2001	4,862	125,829	850	1,624	34%	66%
2002	5,681	84,434	694	1,873	27%	73%
2003	8,134	88,827	1,004	3,391	23%	77%
2004	7,097	68,818	465	2,137	18%	82%
2005	6,551	55,183	769	2,884	21%	79%
2006	7,232	40,608	238	2,638	8%	92%
2007	6,493	36,064	932	3,180	23%	77%
2008	12,854	32,467	836	7,192	10%	90%
2009	10,629	72,803	334	5,399	6%	94%
2010	8,617	52,300	901	3,730	19%	81%
2011	16,358	49,409	996	9,623	9%	91%
2012	11,935	65,070	3,728	5,085	42%	58%
2013	23,393	65,767	2,320	11,591	17%	83%
2014	16,462	107,522	3,893	6,697	37%	63%
2015	11,440	108,213	3,527	4,376	45%	55%
2016	6,676	94,950	1,498	2,758	35%	65%
2017	6,617	93,547	2,957	2,328	56%	44%
2010-2013 Avg	15,076	58,137	1,986	7,507	21%	79%
2014-2017 Avg	10,299	101,058	2,969	4,040	42%	58%

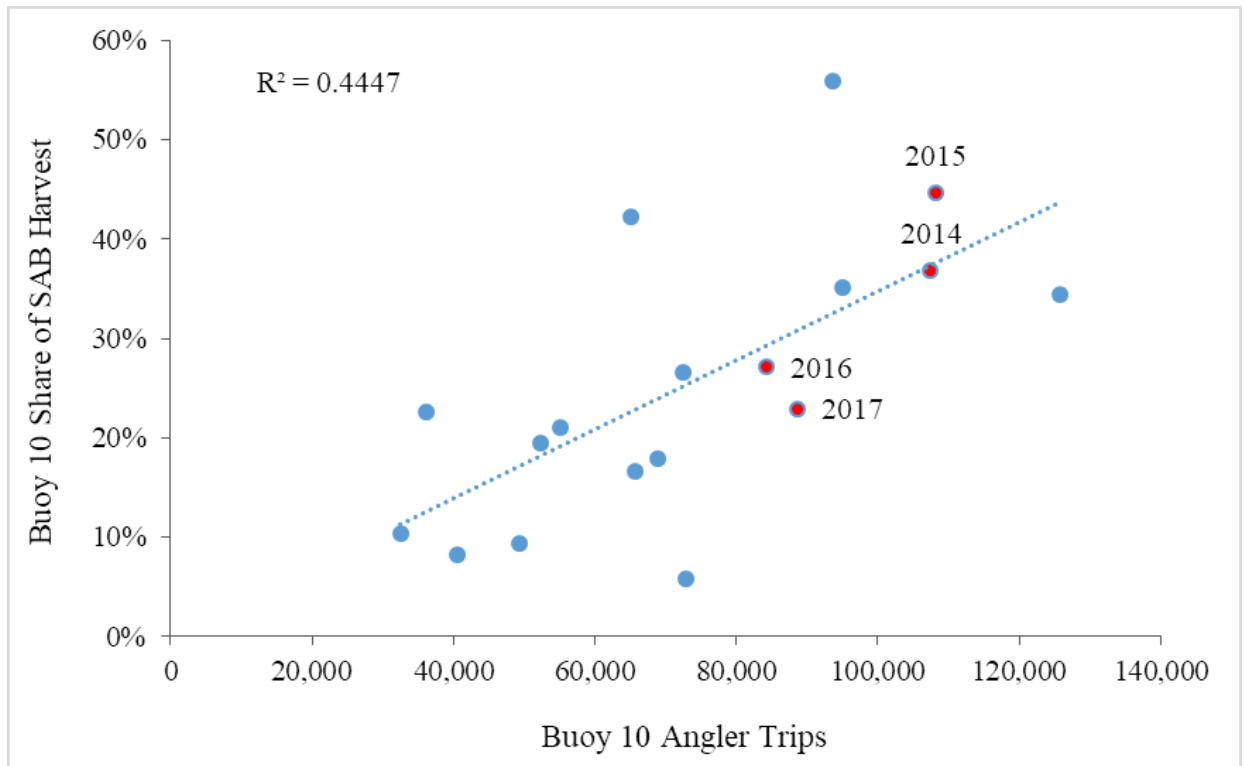


Figure 4. Relationship between angler effort in the Buoy 10 fishery and the Buoy 10 share of the adult SAB fall Chinook harvest, 2000-2017 (2014-2017 data points highlighted to indicate years when YBCZ was in effect).

Overall, it is difficult to accurately assess the effectiveness of the YBCZ. Although the Buoy 10 SAB harvest and harvest share actually increased after implementation of the closure area in 2014, this may have been due to other confounding factors. During 2014-2017, there was a significant increase in angler effort in the Buoy 10 fishery, and in recent years, anglers accustomed to the large Chinook returns in 2014 and 2015 have been fishing in greater numbers during the first half of August, when SABs are more abundant in the fishery area. These changes in the dynamics of the Buoy 10 fishery may have overwhelmed any reduction in SAB harvest that might have been attributed to the YBCZ. It is also possible that the YBCZ may have tempered what could have been an even greater increase in the Buoy 10 share of the SAB harvest had the closure area not existed.