Submitted by the Alaska Department of Fish and Game at the request of Board Member Ruffner
February 21, 2019

Swanson Lagoon Sockeye Salmon Stock of Management Concern Designation Recommendation

Background

Swanson Lagoon is located on the northeast portion of Unimak Island within the Northwestern District of Area M (Figure 1). The system is low gradient, and in 2009 and 2014 was completely blocked off from the ocean by shifting beach substrate. Aerial surveys of the system in 2009 indicated that the berm limited sockeye salmon escapement. In 2014 and 2016, aerial surveys in the lagoon indicated that while the system had been blocked in June and July, the blockage had opened by August and some salmon escapement did occur. Surveys in 2015 were difficult due to heavy algal blooms, though the channel remained open throughout the survey season (June to August). In 2017, the lagoon was open in June and July and then became blocked at the mouth by sand in August. The lagoon was again open in 2018 throughout the survey season. The department has noted that the system has shown some cyclical changes in production and is vulnerable to natural habitat degradation; however, stock abundance has been difficult to assess due to the visibility constraints with frequent algae blooms during aerial surveys. Effects of these blockages on downstream migrating smolt is unknown.

The department has conducted aerial surveys of Swanson Lagoon to estimate escapement since 1970. Swanson Lagoon aerial survey effort usually coincides with that of Christianson Lagoon which at times precluded surveys during the peak of the Swanson Lagoon run, and there have been years when algal blooms in the lagoon impede survey counting conditions (Schaberg et al. 2015) (Table 3). Peak aerial survey (PAS) counts of Swanson Lagoon sockeye salmon since 1970 ranged from 50 to 32,900 fish. The average PAS from 2005–2017 was 2,895 fish. With the exception of 2007, escapements have failed to meet the current SEG since it was adopted (Figure 2).

A sustainable escapement goal (SEG) of 8,000–16,000 fish was established for Swanson Lagoon sockeye salmon in 1990 (Nelson and Lloyd 2001). During the 2005–2006 board meeting cycle, the escapement goal was changed to an SEG of 6,000 to 16,000 sockeye salmon (Honnold et al. 2007). Subsequent reviews of this SEG have corroborated this goal (Witteveen et al. 2009; Sagalkin and Erickson 2013; Schaberg et al. 2015).

No biological samples of the escapement or harvest have been collected. Reported commercial harvest from the Swanson Lagoon Section is assumed to be from Swanson Lagoon, but there are no data to corroborate the stock of origin. Harvest has been low in the last 13 years, and has been restricted by regulation since 2012, with complete closures and no harvest (Table 3). Even with these restrictions, escapement has remained below the current SEG (Figure 2).

Management Measures

Since 2002 there has been little effort and minimal harvest in the Swanson Lagoon Section and effort outside of this section is localized such that harvest of Swanson Lagoon sockeye salmon is believed unlikely. As a result of this fishing behavior, no management actions were taken prior to 2012 in the Swanson Lagoon Section to address low escapement of sockeye salmon. During

2012, the section was closed starting on July 10 for the entire fishing season to protect the Swanson Lagoon stock. During the 2012-2013 board cycle, Swanson Lagoon sockeye salmon were designated as a stock of management concern (Sagalkin and Erickson 2013), and a specific management strategy was developed and adopted into regulation that established commercial fishing periods through emergency order authority. This management strategy was maintained with the continuation of the designation in 2015. The fishery has not been opened for sockeye salmon fishing since this regulation was adopted.

Stock of Concern Recommendation

Escapements were below the lower bound of the SEG four out of five years during the 2009 escapement goal review. Swanson Lagoon was not considered a stock of concern at that time because one of those years (2008) was very close to the lower goal, and one year the system was blocked from the ocean (2009). As of the current review, sockeye salmon escapement into Swanson Lagoon has not reached the lower end of the escapement goal range during 12 of the last 13 years (since the current goal was adopted), despite little to no effort and harvest (no harvest since 2011). The lagoon has been observed to be blocked to fish passage in several years.

The SSFP states that "management concern means a concern arising from a chronic inability, despite use of specific management measures, to maintain escapements for a salmon stock within the bounds of the SEG, BEG, OEG, or other specific management objectives for the fishery…". Specific management actions resulted in no openings in the Swanson Lagoon Section in 2012 through 2017, and escapement remained below the current SEG. The department recommends that the board *discontinue Swanson Lagoon sockeye salmon as a stock of management concern.* The primary reason for this recommendation is because we are unable to predict or manage the sand berm that obstructs salmon passage into the lagoon. In this cycle, the department is also recommending discontinuing the escapement goal for Swanson Lagoon sockeye salmon, as recent escapements are reflective of a natural phenomenon, and not fishery management, system productivity or anthropomorphic effects to the habitat.

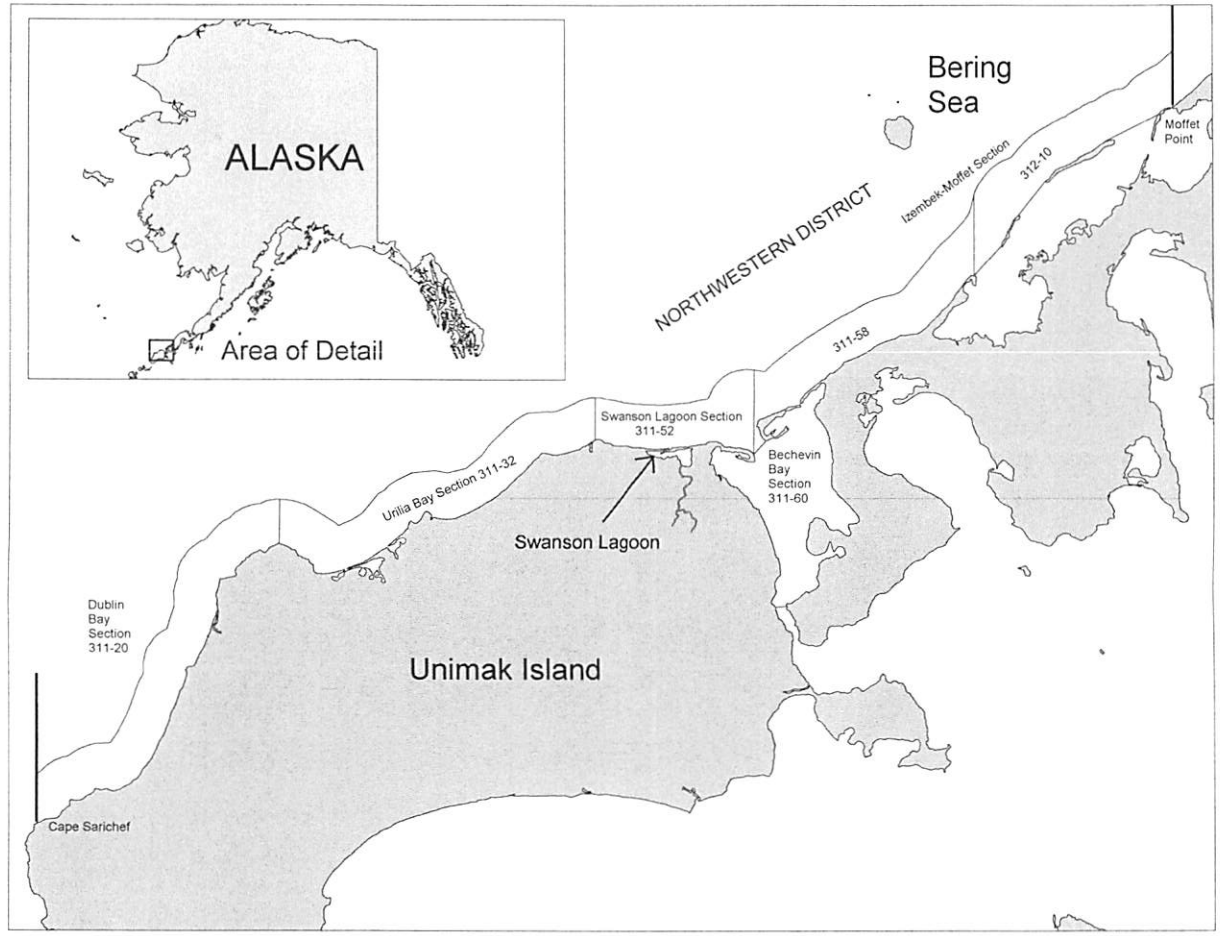

Figure 1.-Map of Swanson Lagoon, the Northwestern District, and commercial fishery sections.

Table 3.–Swanson Lagoon sockeye salmon escapement and harvest in Swanson Lagoon Section (311-52), 1970–2017.

Year	Escapement goal	Escapement	Harvest
1970		700	306
1971		300	2,167
1972		200	135
1973		100	0
1974		50	735
1975		1,400	1,451
1976		2,600	1,020
1977		12,000	31,509
1978		8,100	24,168
1979		8,400	48,970
1980		9,700	3,852
1981		600	2,067
1982		1,800	586
1983		300	746
1984		5,500	27,734
1985		3,400	22,310
1986		7,400	9,517
1987		9,600	31,957
1988		5,700	24,766
1989		5,500	13,324
1990	8,000 – 16,000	32,900	13,518
1991	8,000 – 16,000	11,200	9,549
1992	8,000 – 16,000	15,400	16,274
1993	8,000 – 16,000	7,600	13,870
1994	8,000 – 16,000	9,700	6,521
1995	8,000 – 16,000	10,300	5,134
1996	8,000 – 16,000	9,300	2,109
1997	8,000 – 16,000	7,800	33,636
1998	8,000 – 16,000	5,000	8,663
1999	8,000 – 16,000	7,900	22,111
2000	8,000 – 16,000	5,700	2,197
2001	8,000 – 16,000	10,600	5,113
2002	8,000 – 16,000	10,000	207
2003	8,000 – 16,000	16,100	3,881
2004	8,000 – 16,000	24,300	2,980
2005	8,000 – 16,000	3,500	929
2006	6,000 – 16,000	376	270
2007	6,000 – 16,000	9,200	4,795
2008	6,000 – 16,000	5,500	565
2009	6,000 – 16,000	1,000	622
2010	6,000 – 16,000	1,700	327
2011	6,000 – 16,000	1,000	324
2012	6,000 – 16,000	3,500	0
2013	6,000 – 16,000	3,000	0
2014	6,000 – 16,000	1,500	0
2015	6,000 – 16,000	3,500	0
2016	6,000 – 16,000	3,000	0
2017	6,000 – 16,000	860	0

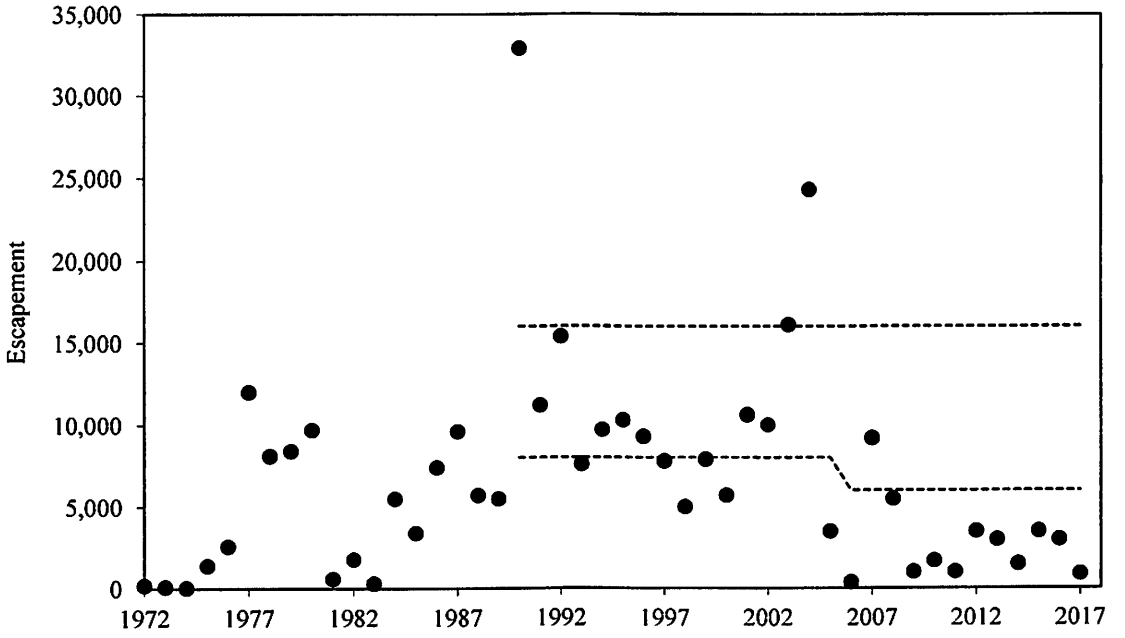

Figure 2.–Swanson Lagoon sockeye salmon escapement and escapement goal ranges, 1972–2017.

Reg SF Reg Subs Reg CF Regs Enforcement Law (if appropriate)
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