

RC 146

Additional Information for Northern Cook Inlet Chinook Salmon Fisheries

Submitted by Northern District Set Netters Association

Prepared by Dan Billman

To help clarify the information the following figure is included. Location 39 is the Little Su and location 43 is Ship Creek.

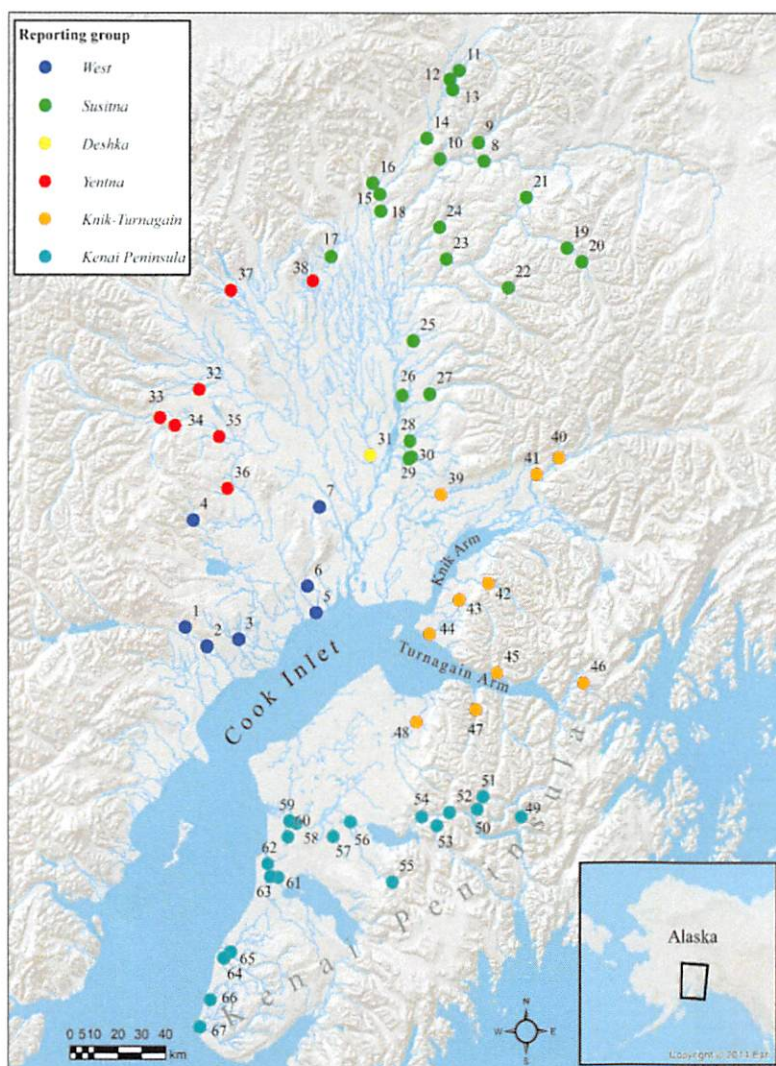


Figure 2.—Sampling locations for Chinook salmon populations from Cook Inlet included in the Cook Inlet genetic baseline.

Note: Numbers correspond to map numbers in Table 1. Location dot color matches reporting group assignment.

Deska River Chinook Catch

Marine catch data for 2016 and 2017 shows that the ND commercial exploitation rate for the Deska River is in the 1 to 2% range of the total return.

Considering the Deska River exploitation rate by the ND commercial fishery to be indicative of the ND exploitation rate for all ND Chinook stocks, the data supports ADF&G managers' assessment that the ND commercial Chinook fishery catches approximately 1% of the total ND Chinook return.

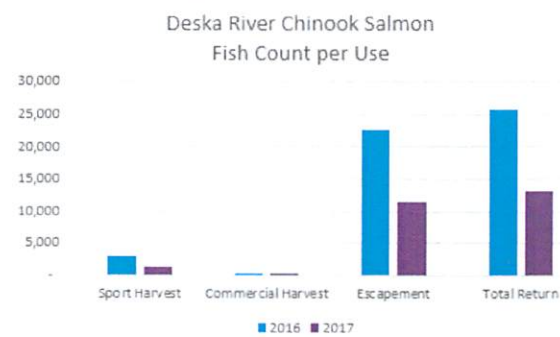
For comparison, the Deska River Chinook sport fishery harvests 10% of the total return.

An important item to note is that the data used in this analysis is for years of low stock abundance. In years of high stock abundance the sport harvest rises faster than the commercial harvest because the commercial harvest ability not allowed by management plan to increase.

Deska River Chinook Salmon

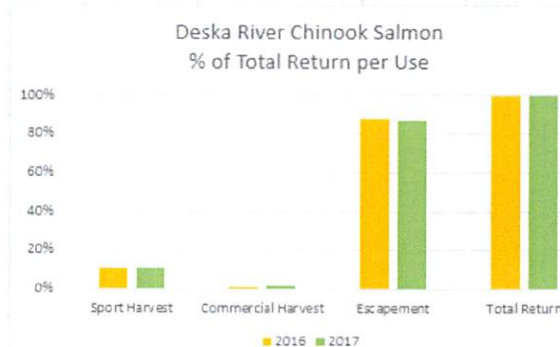
Fish Count

Year	Sport Harvest	Commercial Harvest	Escapement	Total Return
2016	2,899	232	22,774	25,905
2017	1,392	302	11,383	13,077



% of Total Return

Year	Sport Harvest	Commercial Harvest	Escapement	Total Return
2016	11%	1%	88%	100%
2017	11%	2%	87%	100%



Data Sources

Draft Report for UCI BOF: NCI Chinook Salmon Marine Harvest Stock Composition 2016-2017
Staff comments on proposals COW Groups 5-7

Northern District Chinook Harvest

The Chinook genetic data analysis for the ND 2016 and 2017 commercial fishery shows:

- The analysis was done during years of low chinook wild stock abundance.
- The catch of stocks originating in the Knik-Turnagain reporting area represented about 35% of the total catch.
- The catch of Knik-Turnagain stocks in are similar Eastern and General North areas used in the study areas.



Knik-Turnagain Chinook Stocks and Catch

The Knik-Turnagain reporting area in the genetic analysis data shows:

- Little Su chinook stocks are included in the Knik-Turnagain reporting group
- The analysis was done during low abundance of Chinook in the Little Su
- Ship Creek and Eklutna Tailrace (Hatchery) stocked Chinook are included in the Knik-Turnagain reporting area
- The Hatchery component of the total Chinook return in to the Knik-Turnagain reporting area is on the order of 8,000 fish in 2016 and 2017, this is 2 to 3 times larger than the Little Su chinook return in this years.
- ADF&G states on page 12, section below, that the Hatchery Chinook area a substantial component of this catch.

RELATIVE SIZE OF STOCKS AND UNKNOWN HATCHERY CONTRIBUTION

In this and the previous study (St. Saviour et al. 2019), there were some unexpected results in harvest by reporting group. The relative magnitude of stocks originating from Susitna River Basin including Susitna, Yentna, and Deshka rivers is thought to be considerably greater than those originating from Knik and Turnagain arms (Decovich et al. 2020, *In prep*; Oslund et al. 2017; Bosch 2010; Baumer and Blain-Roth 2020). Yet harvests of the *Knik-Turnagain* reporting group were similar to or greater than the *Susitna*, *Deshka*, or *Yentna* in 2016 and 2017 (Tables 5 and 6 and Figure 5).

Chinook salmon escapements to the Susitna, Deshka, and Yentna rivers have been monitored by relatively precise mark-recapture or weir projects in recent years (Decovich et al. *in prep*^{1,2}; Oslund et al. 2017). The Chinook salmon producing systems of the *Knik-Turnagain* reporting group are more numerous and much smaller in size. Escapements to most of these systems are monitored by relatively less-precise foot surveys or not at all (Baumer and Blain-Roth 2020). **Additionally, unknown numbers of adult Chinook salmon of hatchery origin return to Ship Creek and the Eklutna Tailrace. These fish would have allocated to the *Knik-Turnagain* reporting group and likely contributed a substantial but unknown proportion of harvest.**

- Inspection of the data indicates that the catch of Chinook from the Knik-Turnagain reporting area tracks the Hatchery return closer than the Little Su return in years of low abundance of Little Chinook. The same applies to the catch Knik-Turnagain reporting are stocks in General North study area.

Knik-Turnagain Reporting Area Chinook Catch and Stocks

Year	Knik-Turnagain Commercial Harvest	Little Su In-River Return	Hatchery Chinook Return Estimate
2016	749	3,405	7,832
2017	680	2,882	8,634

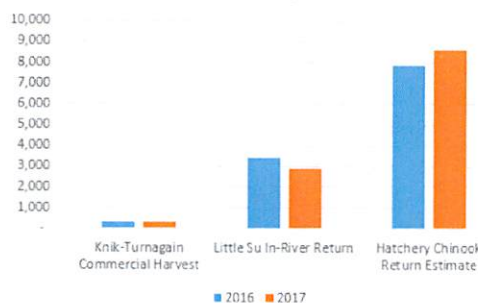
Knik-Turnagain Reporting Area Compared to Little Su and Hatchery Chinook Return



General North Knik-Turnagain Chinook Catch Count Data

Year	Knik-Turnagain Commercial Harvest	Little Su In-River Return	Hatchery Chinook Return Estimate
2016	332	3,405	7,832
2017	359	2,882	8,634

General North Chinook Harvest Compared to Little Su and Hatchery Chinook Return



Su of the