

# Review of Susitna River Sockeye Salmon Stock Status

By

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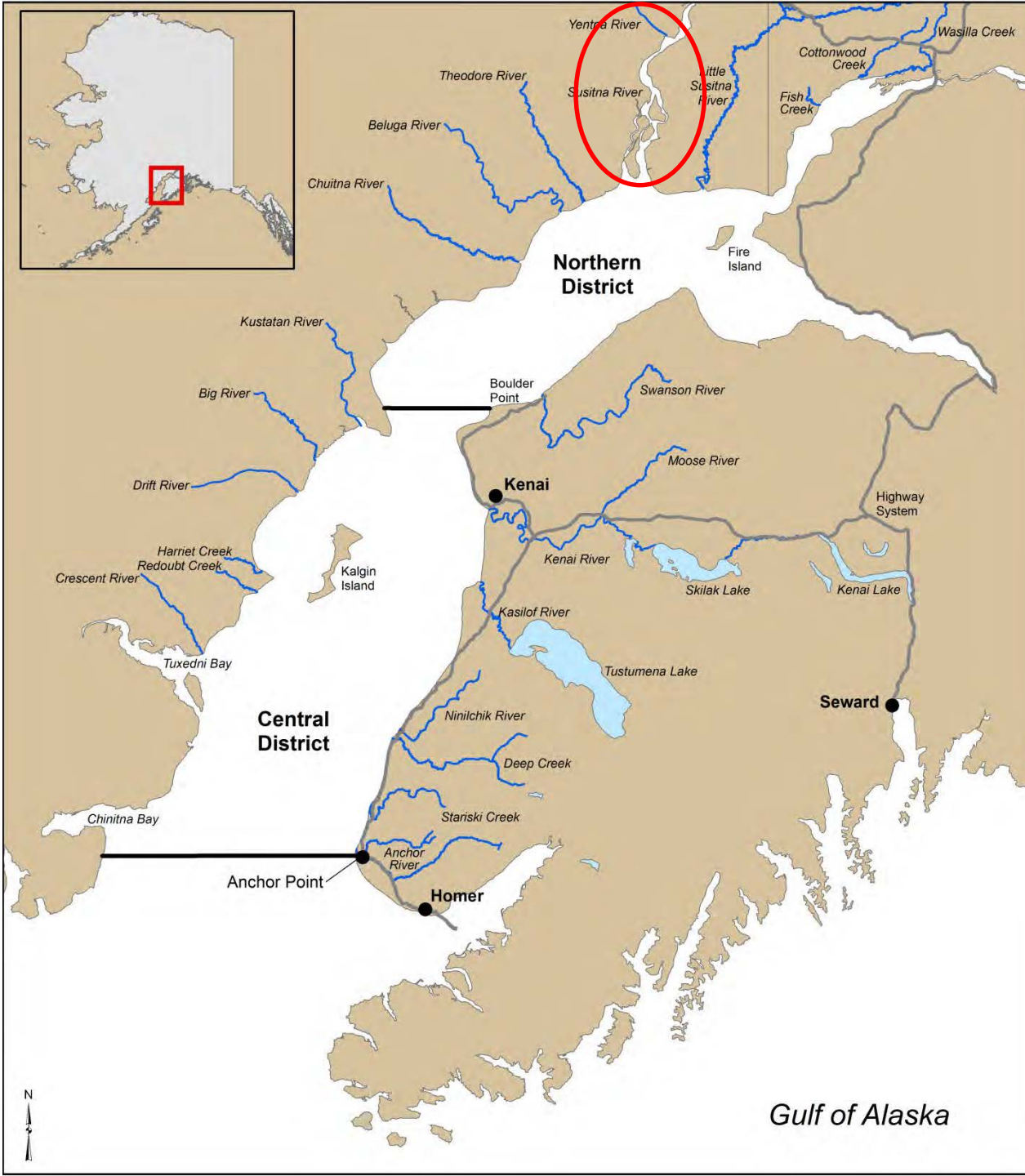
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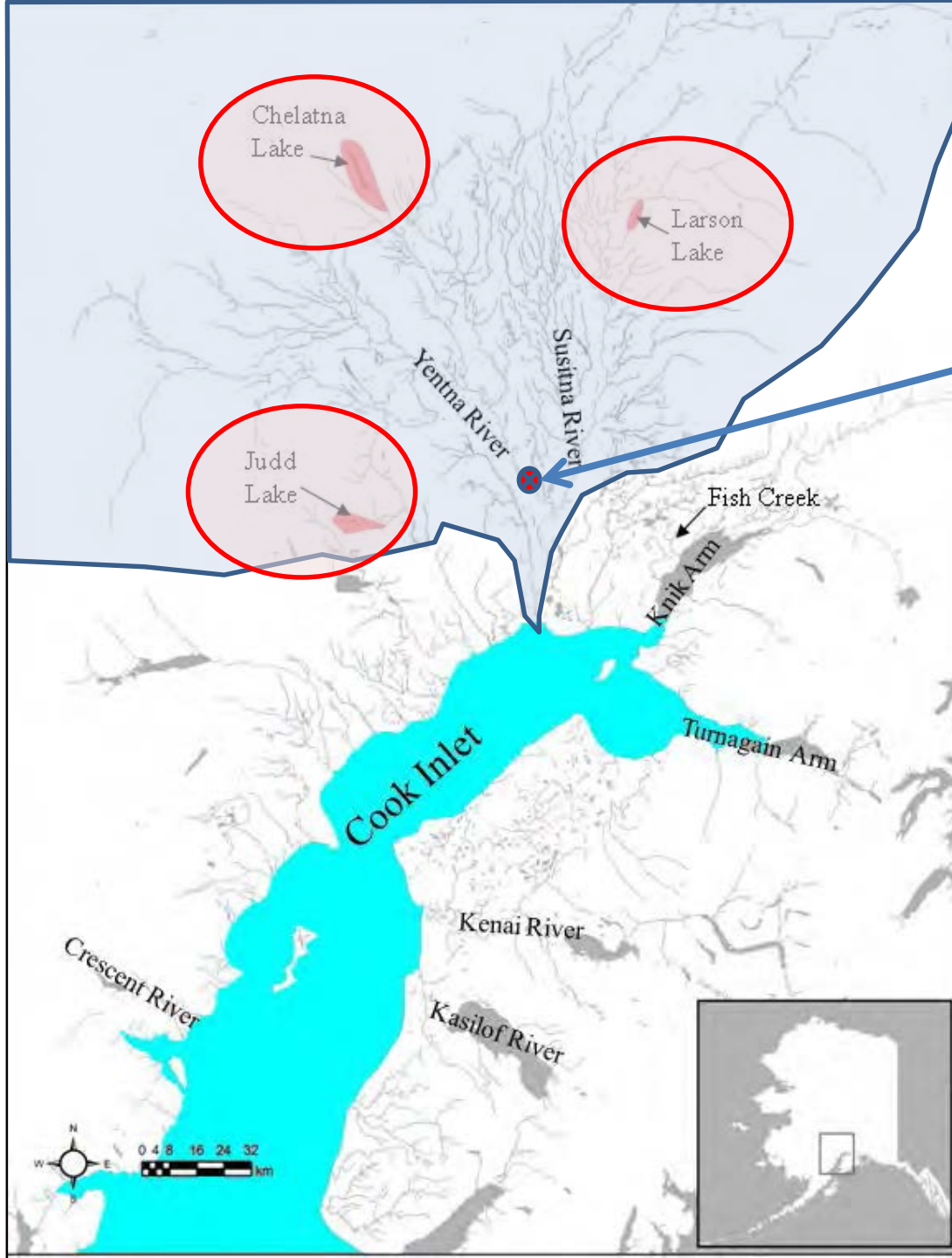


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# Outline

- Description of the area
- Historical overview of stock assessments and escapement goals
- Stock of Concern
- Current stock status
- Factors contributing to reduced yield
- Management actions taken
- Summary





Yentna  
sonar  
camp

# Historical Timeline

- 1979** BEG of 200,000 established for Susitna River sockeye salmon
- 1981** Bendix Sonar installed on the Yentna River
- 2002** SEG of 90,000-160,000 for Yentna River
- 4-tier percentile approach
  - Assumed 50% of Susitna total production was non-Yentna.
- 2005** Initiated genetic sampling of commercial catch
- 2006-2008** Bendix-DIDSON-mark/recapture estimates
- Bendix estimates ~ 50-70% of DIDSON-based estimates
  - Bendix estimates ~ 30% of mark-recapture estimates
  - Species apportionment was problematic for both sonars
  - Bendix estimates were not good indices of sockeye abundance
- 2008** Susitna sockeye salmon declared a stock of yield concern

# -timeline continued-

- 2009** SEG for Yentna River sockeye discontinued
- 2009** Established SEGs for Judd, Chelatna, and Larson Lakes sockeye salmon stocks
- weir-based assessments
  - post season assessments
- 2009-2015** Continued to estimate run size for Yentna River via fish wheels and genetics
- 2016** Yentna River “sonar camp” discontinued
- No longer able to estimate abundance via genetic mark-recapture
- 2016** Judd Lake weir not operated
- 1 weir on Yentna River (Chelatna Lake) and 1 weir on mainstem Susitna River (Larson Lake)

# Stock of Concern

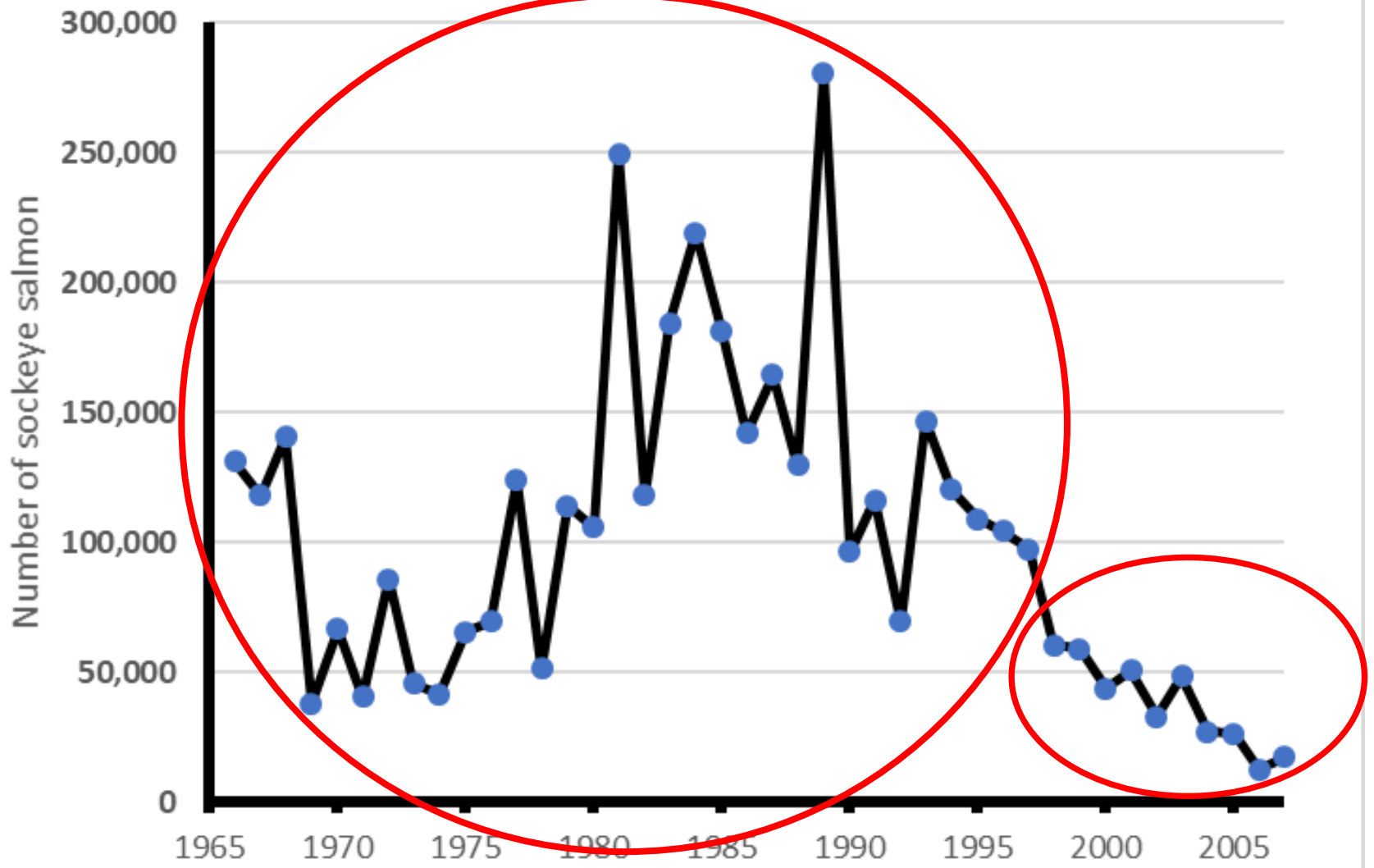
- In 2008, Susitna River sockeye salmon were designated a **stock of yield concern** by the board of fish.
- “Yield Concern” means a concern arising from chronic inability, despite the use of specific management measures, to maintain expected yields, or harvestable surpluses, above a stock’s escapement needs.

# **Why were Susitna sockeye designated a stock of yield concern by the Board of Fish in 2008?**

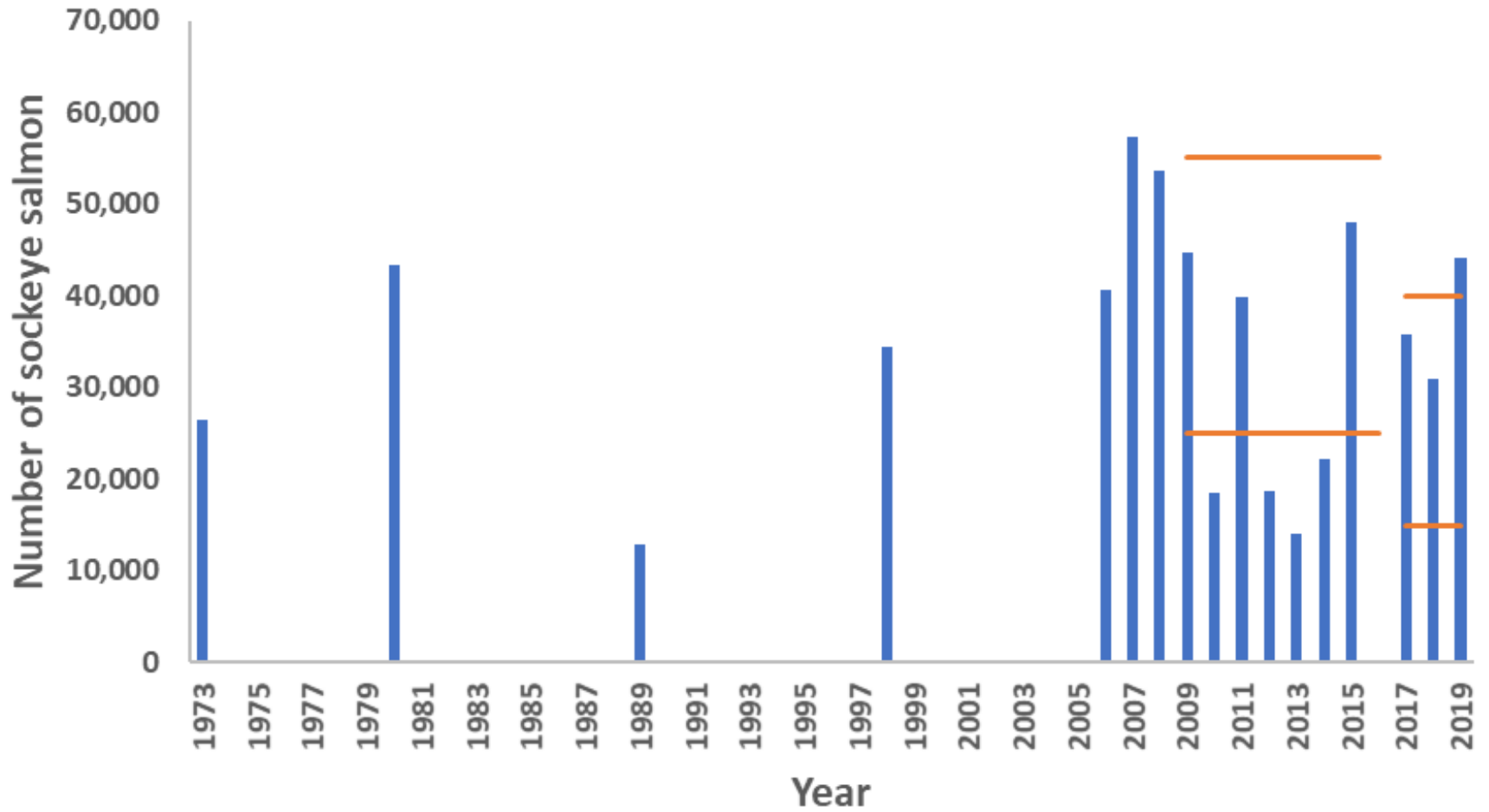
- Missed SEG (90,000-160,000 for Yentna River) 5 years 2000-2007
- Reduced harvest in the Northern District set gillnet fishery



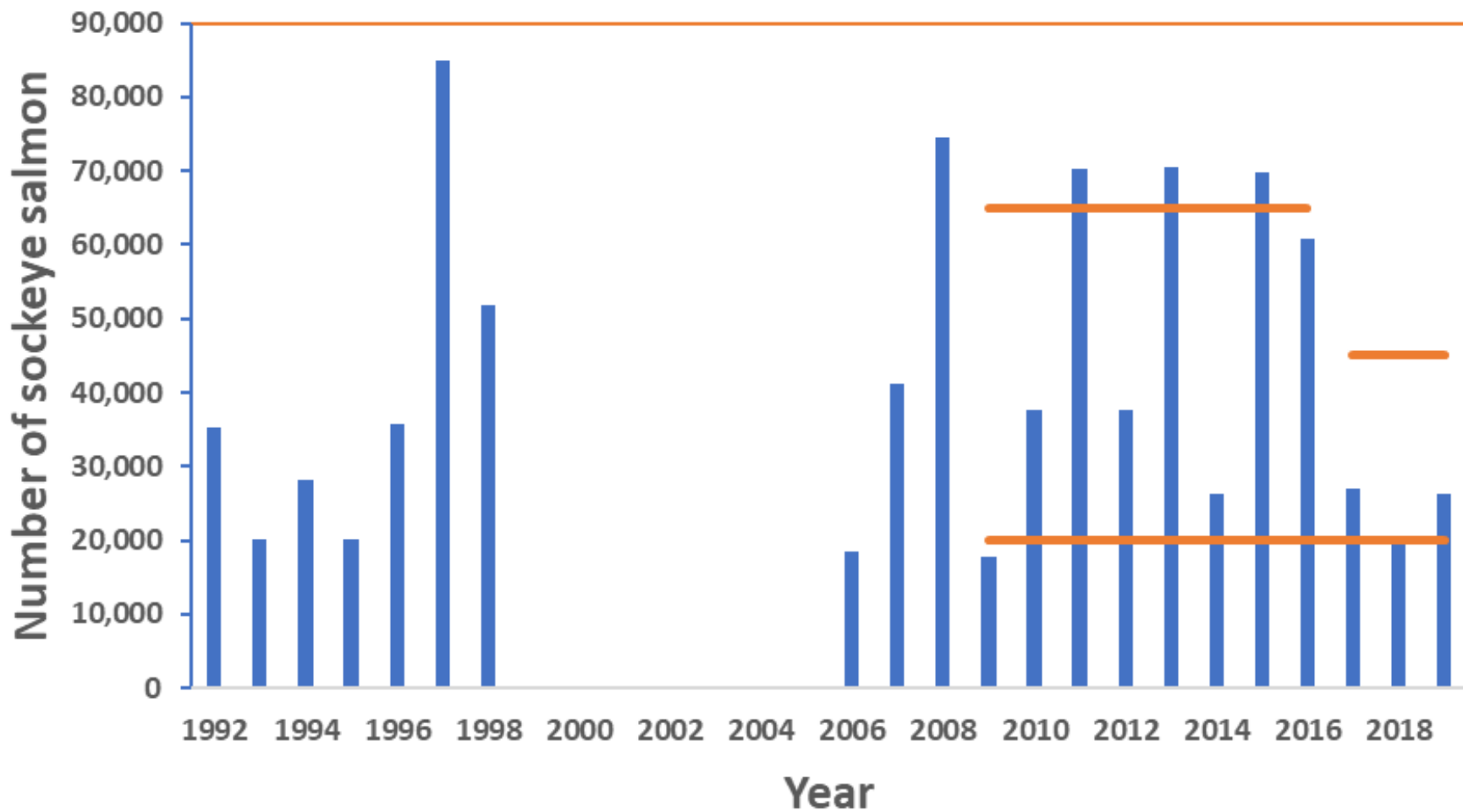
# Northern District Harvest (1966-2007)



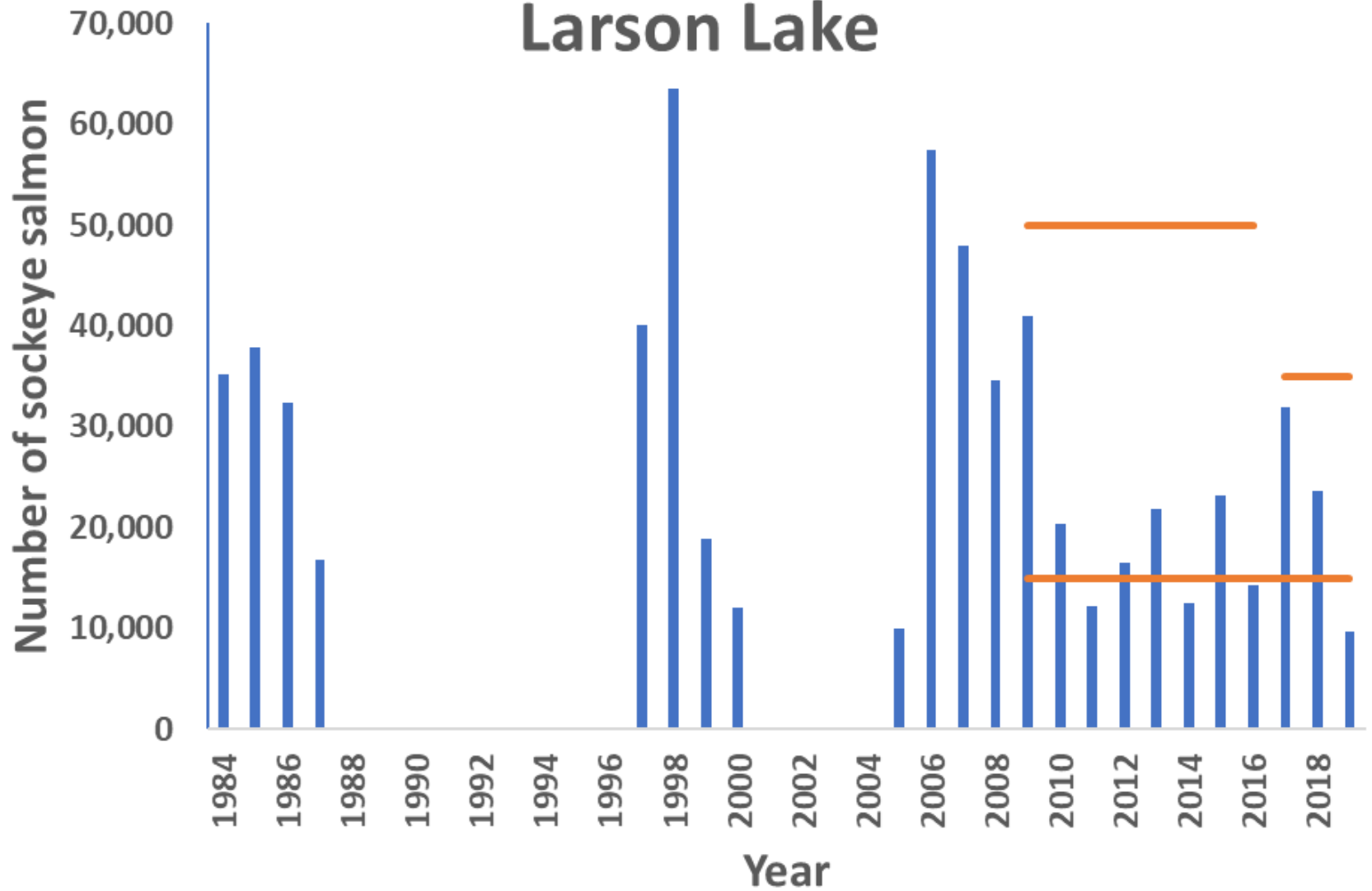
# Judd Lake



# Chelatna Lake



# Larson Lake



# How well do these 3 weirs represent production for the Susitna watershed?

- Judd and Chelatna (~44% of total Yentna escapement)
- Larson Lake (~53% of total mainstem Susitna escapement)

# Potential Factors Contributing to Reduced Yield

- Reduced marine survival
  - Natural mortality
  - Harvest in fisheries (commercial, subsistence)
- Reduced freshwater survival
  - Harvest in fisheries (sport, subsistence)
  - Loss or alteration of habitat (natural and anthropogenic)
  - Introduction of invasive species (Northern pike)
  - Changes in water quality and quantity
  - Pathogens

# Management and Regulatory Actions

## **2008 – present (Northern District set gillnet)**

- Reduced gear from 3 to 1 or 2 set gillnets per permit in the Northern District from July 20 through August 6

## **2014 – present (Central District drift gillnet)**

- From July 9–15 both regular periods are currently restricted to Drift Gillnet Area 1 (waters south of Kalgin Island)
- From July 16–31 there are drift gillnet restrictions for sockeye and coho salmon that are dependent on the run tier for Kenai sockeye salmon

# Management and Regulatory Actions taken

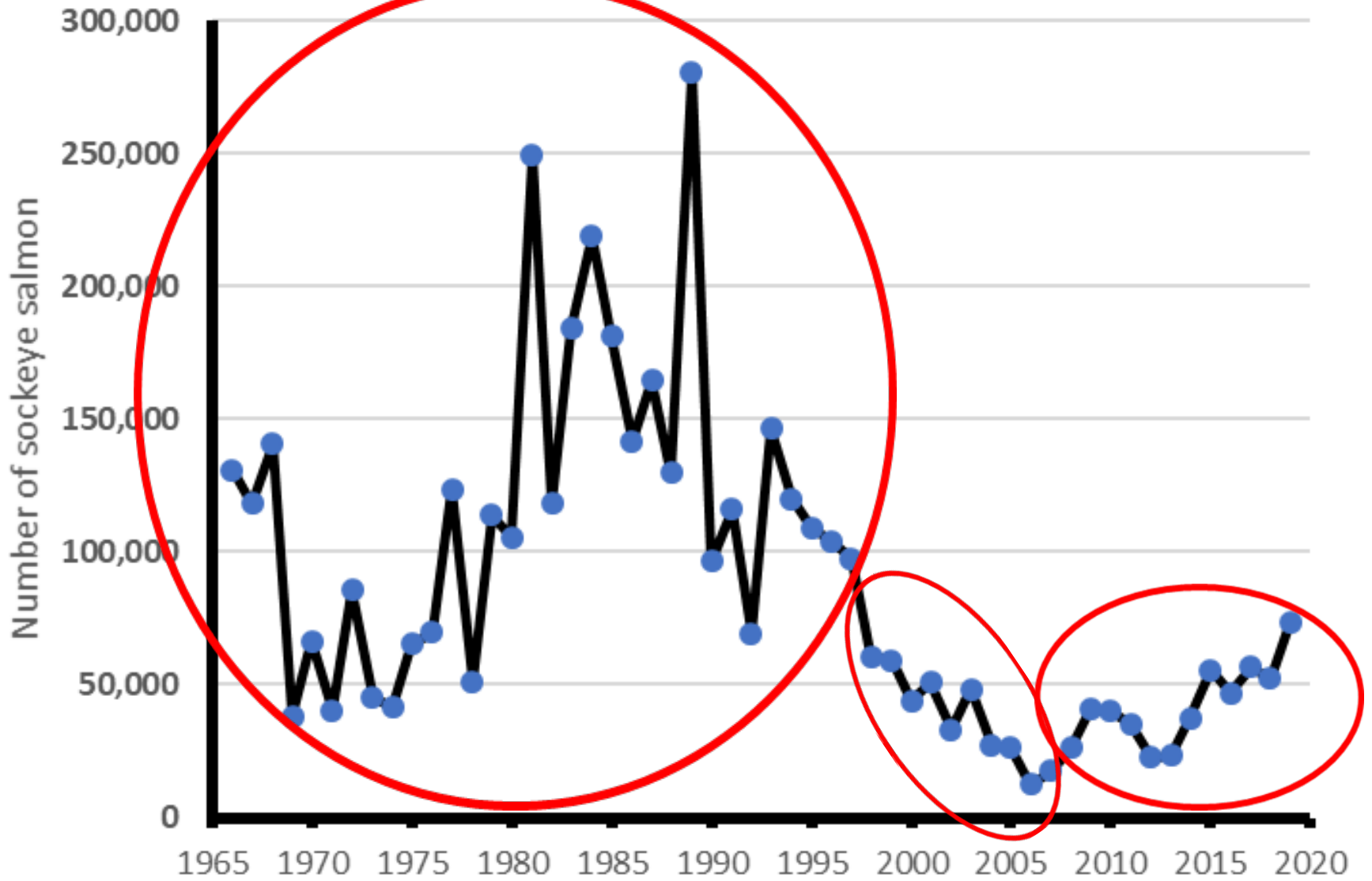
## **2014 – 2019 (Larson Creek)**

EO authority for sport fisheries utilized inseason to make the escapement goal.

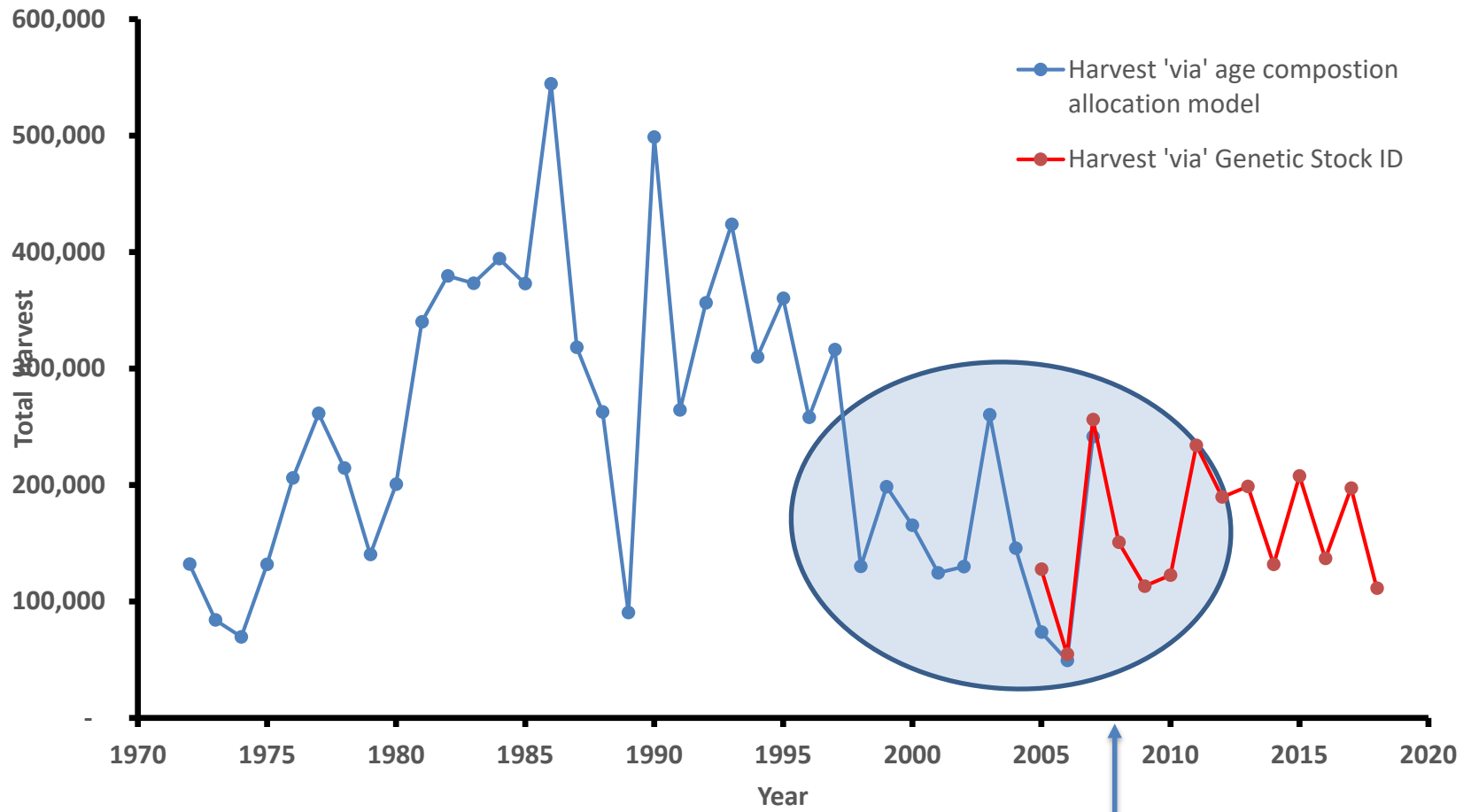
2014 – 2016	EO closed sport fishing
2017	No inseason action taken
2018	Liberalized to 6 fish per day
2019	EO closed sport fishing



# Northern District Harvest (1966-2019)



# Estimated harvest of Susitna sockeye salmon in Cook Inlet commercial and sport fisheries



Designated  
SOC in 2008

## ADF&G recommendation:

### Discontinue Stock of Yield Concern designation

- Escapement goals for Susitna sockeye salmon (Judd, Chelatna, and Larson lakes) are generally being met
- Harvest (yield) of sockeye salmon in the Northern District set gillnet fishery has increased since the lows reported in 2005-2006
- Harvest (yield) of Susitna River sockeye salmon in Upper Cook Inlet has increased or remained stable since being designated a Stock of Yield Concern
- Since being declared a Stock of Concern in 2008, regulatory changes designed to move sockeye salmon into the Susitna River drainage have been imbedded into existing management plans
- Management of this stock will continue to be accomplished through implementation of regulations by the board

# Questions?

