

# What's Happening with Pike in the Valley



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Alaska Department of Fish and Game  
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# Northern Pike Range

Pleistocene Glaciation

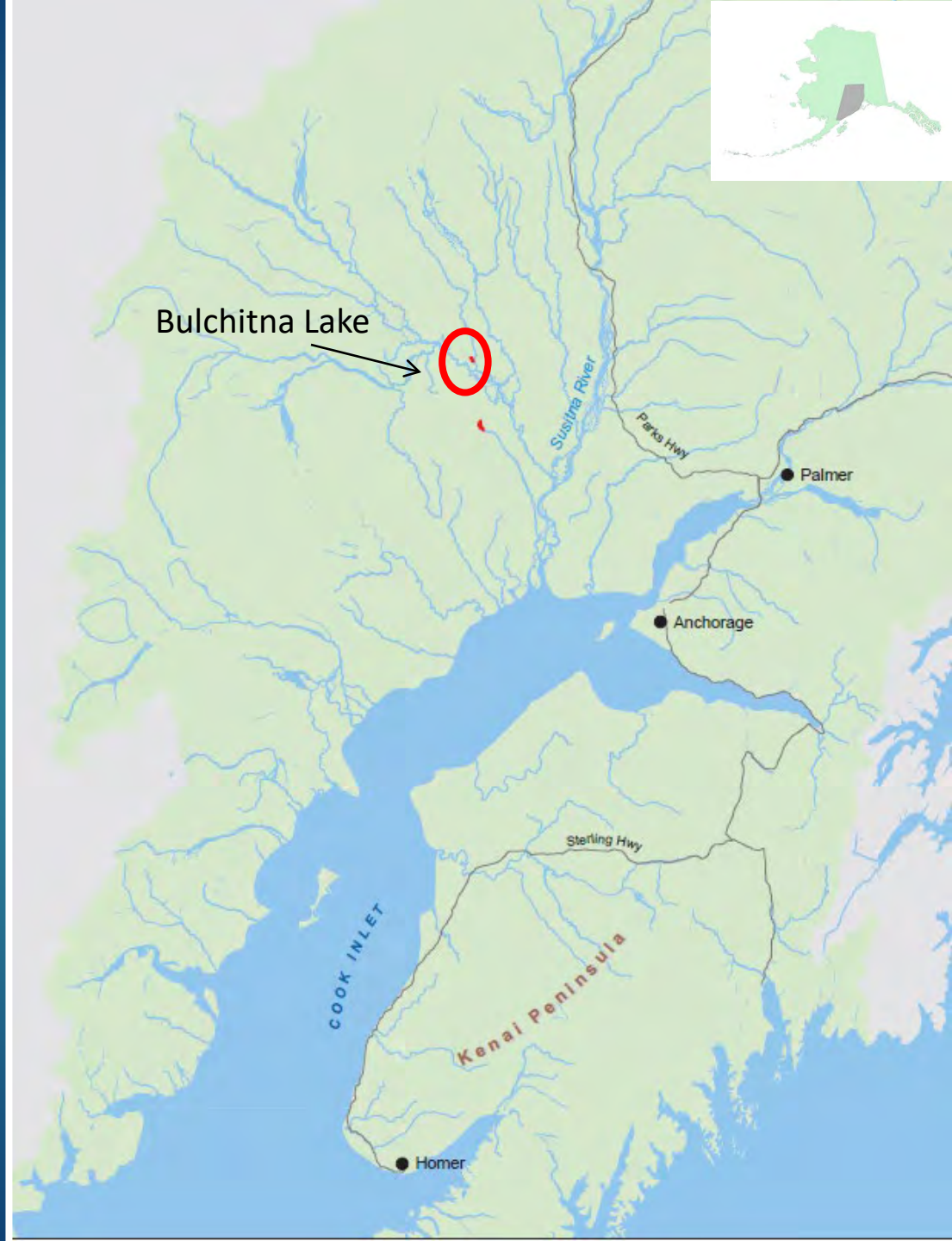


 Native Range

 Introduced Range

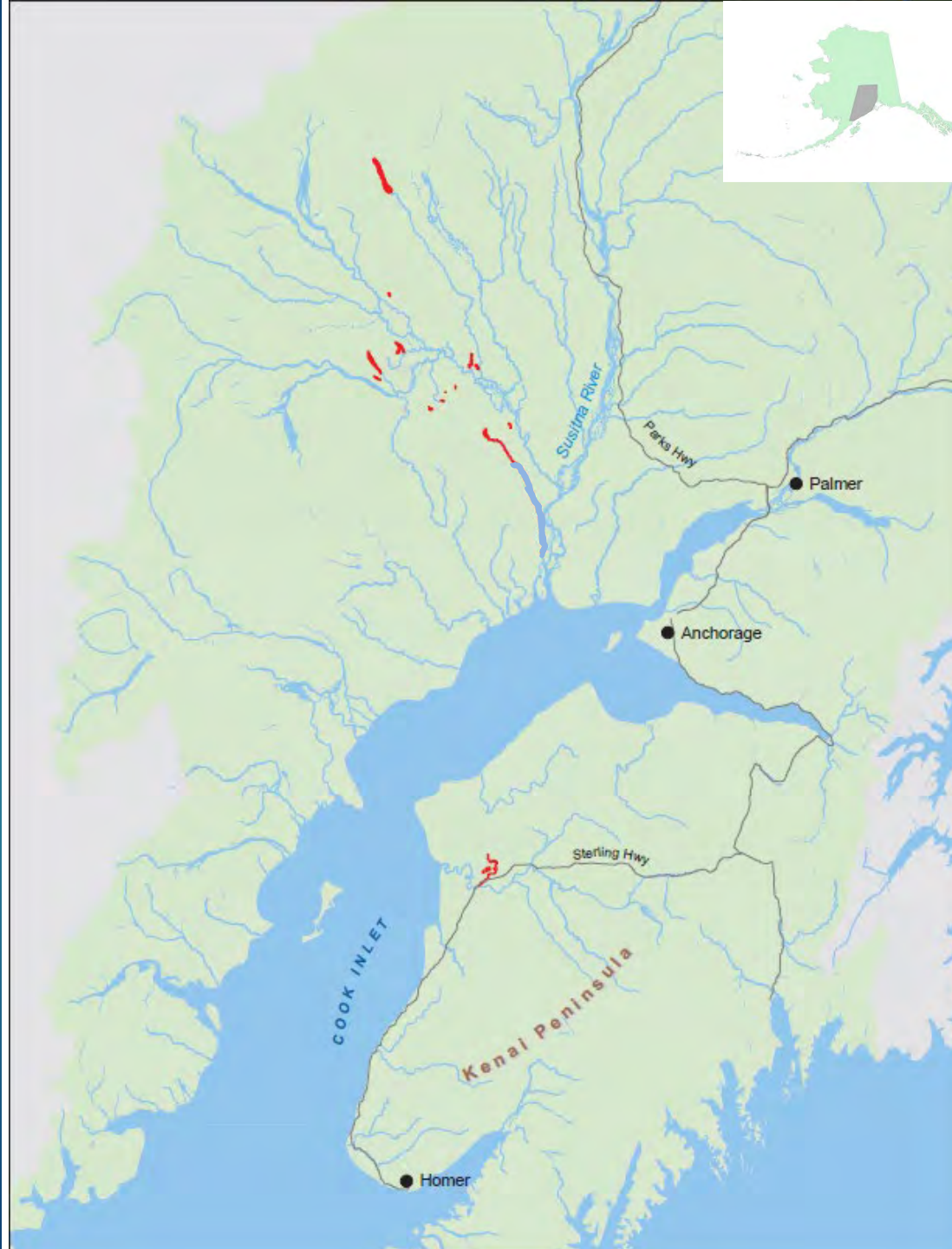
# Northern Pike Dispersal in Southcentral Alaska

1950s – 1960s



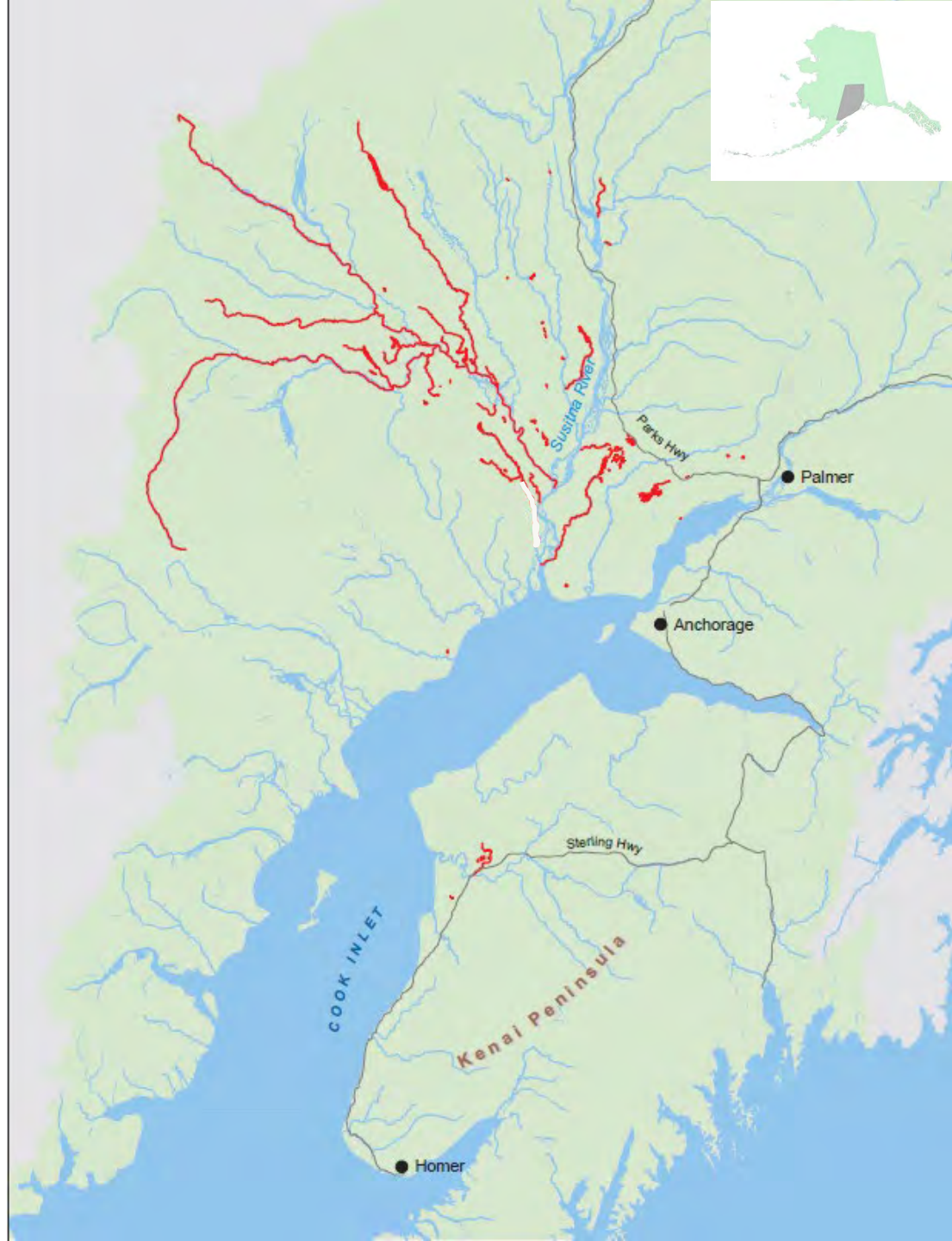
# Northern Pike Dispersal in Southcentral Alaska

1970s



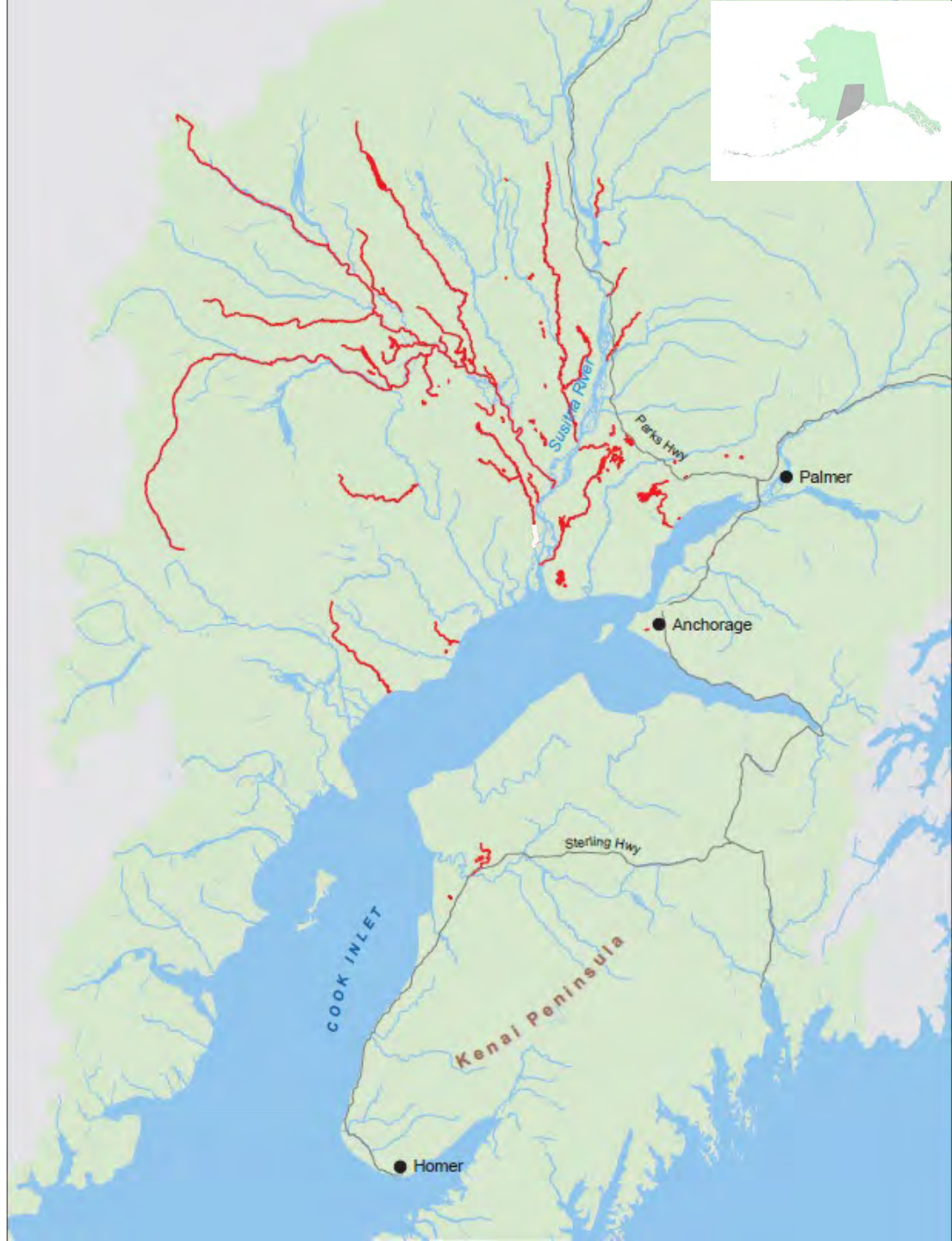
# Northern Pike Dispersal in Southcentral Alaska

1980s



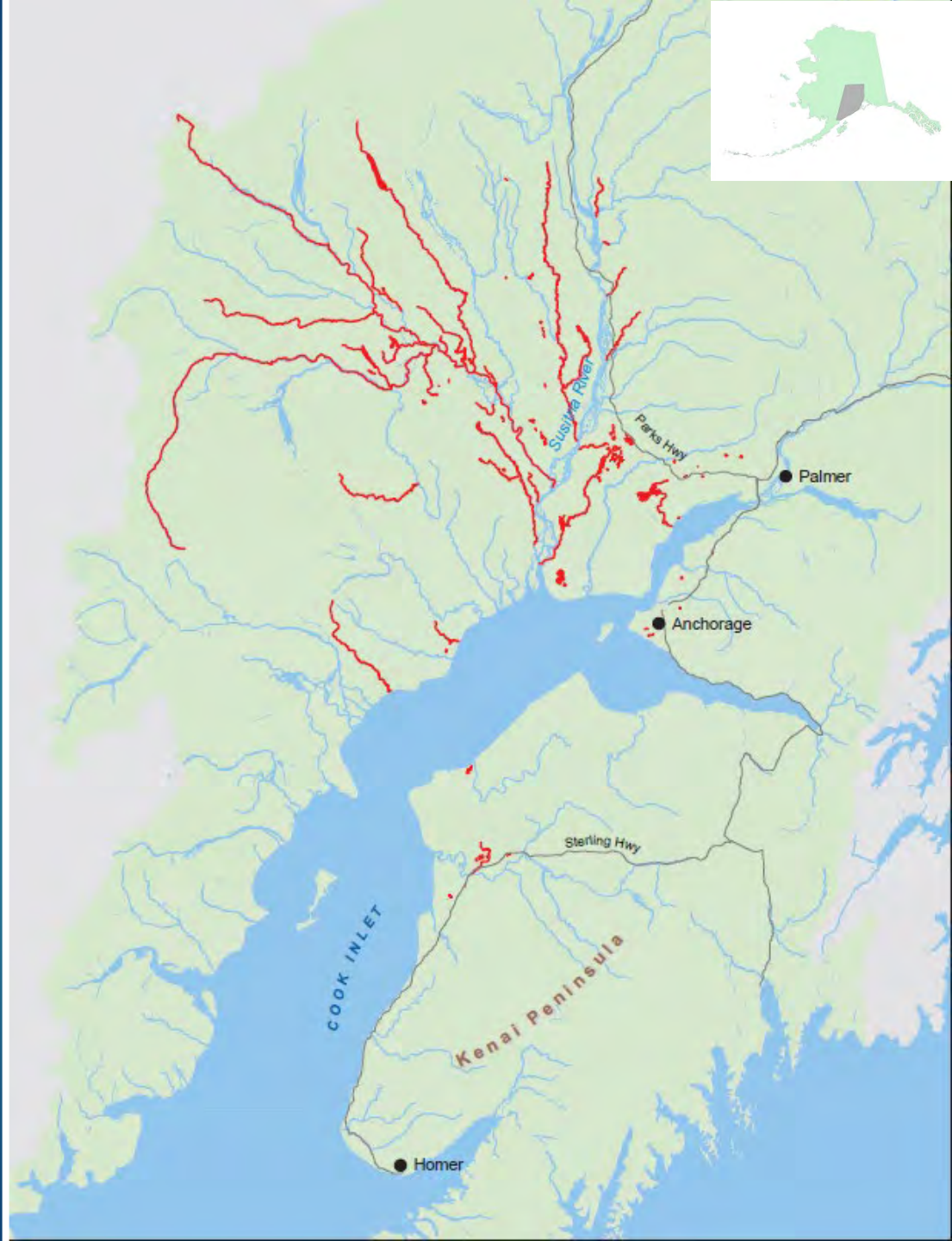
# Northern Pike Dispersal in Southcentral Alaska

1990s



# Northern Pike Dispersal in Southcentral Alaska

2000s

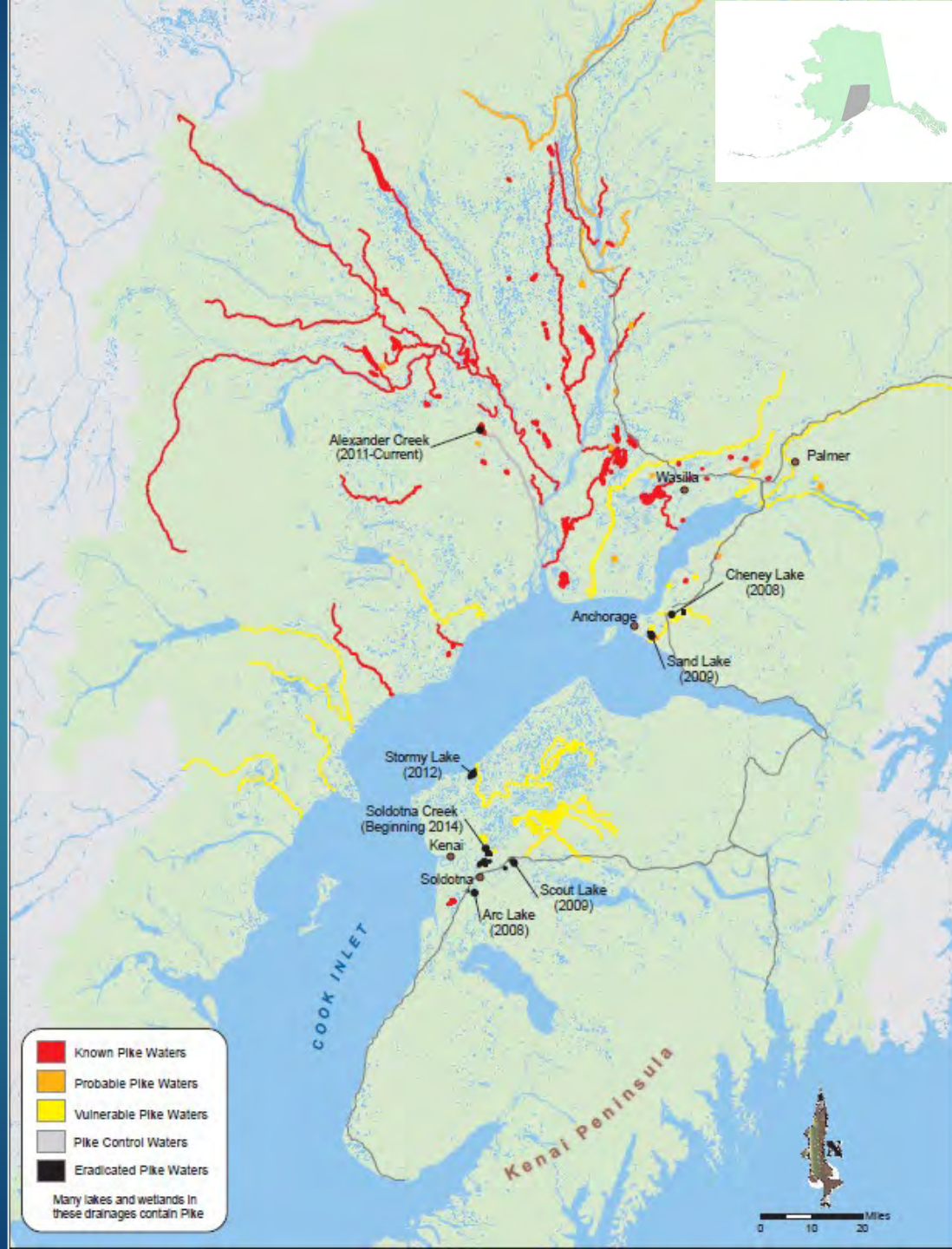


# Northern Pike Dispersal in Southcentral Alaska

## Today

> 100 water bodies  
with invasive pike

Pike are an invasive  
species in these waters





# Pike are Predators in their Native Range

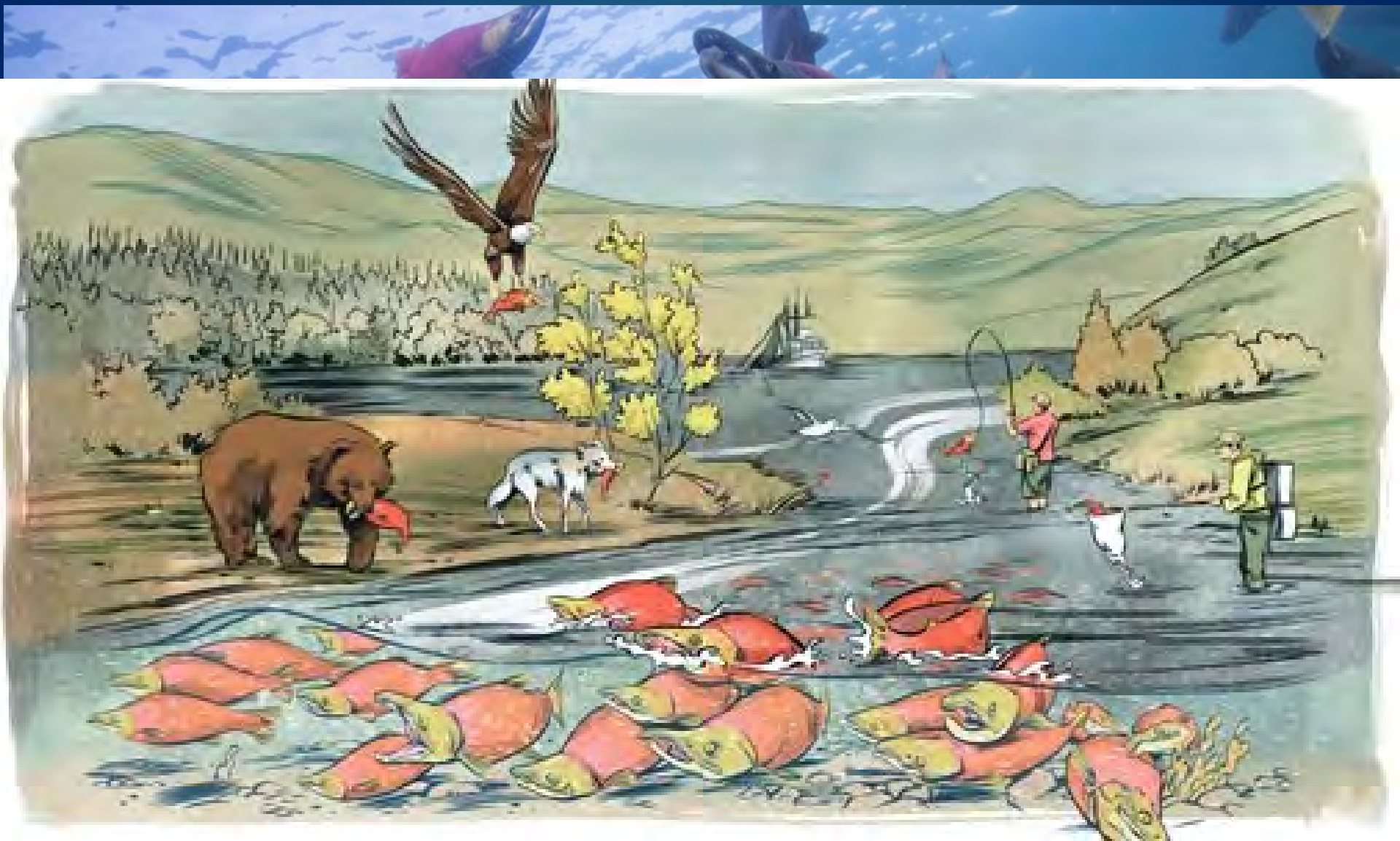


Photo Credit: Jason Ching

# Role of Habitat in Pike Predation

- What is good pike habitat?
  - Weedy areas
  - Shallow water
  - Slow moving water





Native Range:

- Huge drainages with complex habitats

Wood Tick-chick State Park  
Photo Credit: Michael Melford



Photo Credit: Eiko Jones  
Photography



- Where pike have been introduced, juvenile salmonids often rear in the same habitats.
- Impacts tend to be greatest when there is a high degree of habitat overlap with northern pike.
- Habitat variability may mitigate the degree of predation risk.

# Ecological Effects

- Heavy predation on juvenile salmon and trout
  - Extirpated in some areas
- Evidence that pike target salmon



Pike →

~~Salmonids~~ → ~~Sticklebacks~~ / ~~Sculpins, etc.~~ → Invertebrates →

**Pike Population Stunts**

# Three Mat-Su Pike Project Types

Suppression



Eradication



Surveying/Monitoring  
Research



# Alexander Creek Case Study

- Pike should be considered a significant threat
- Under the right conditions, fisheries are destroyed

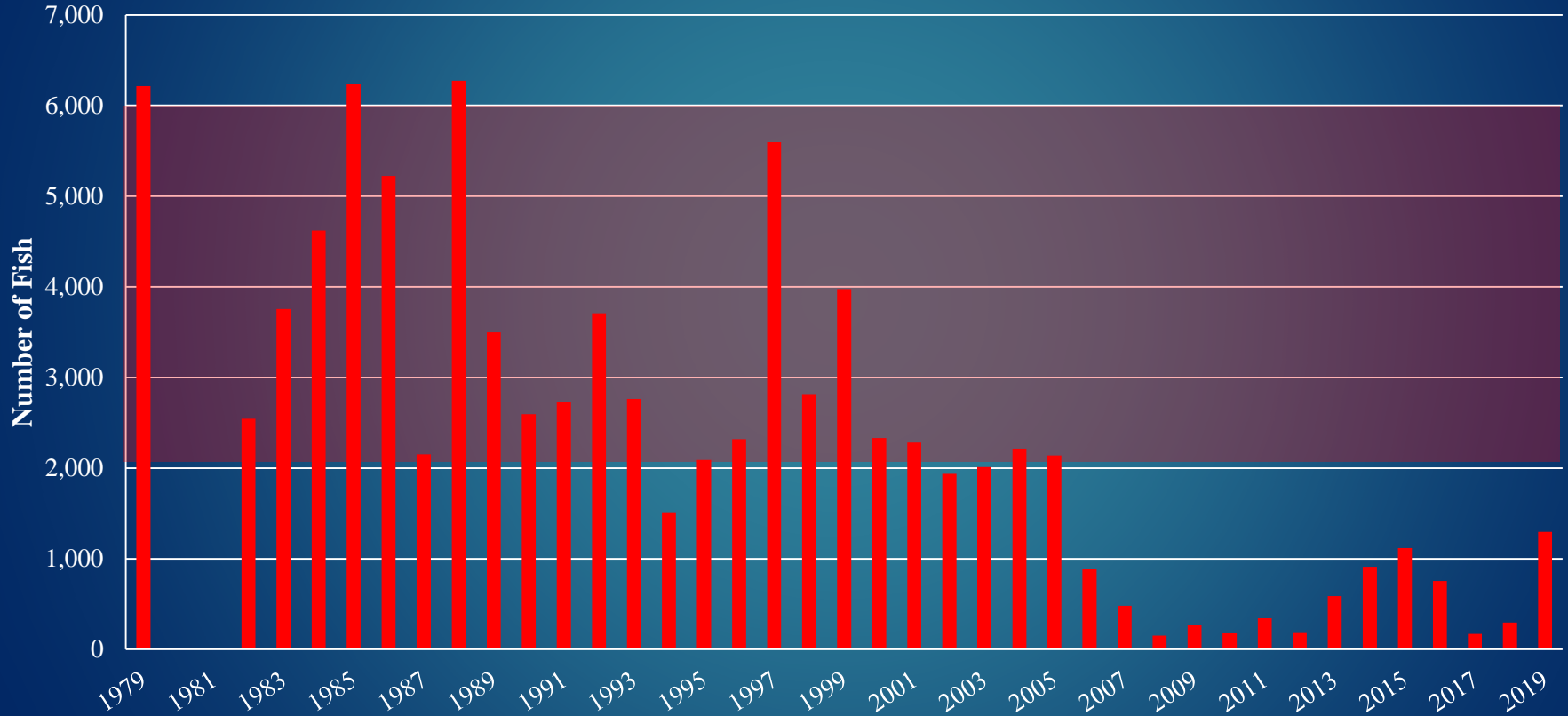


## Historic Alexander Creek Chinook Fishery:

- 13 Fishing lodges
- 6 Charter companies
- Air charters
- Boat rental facilities
- Multi-million \$ industry

**In 2008, when the declining Chinook fishery closed to harvest, the industry collapsed**

## Alexander Creek Chinook Salmon Escapement Index Counts





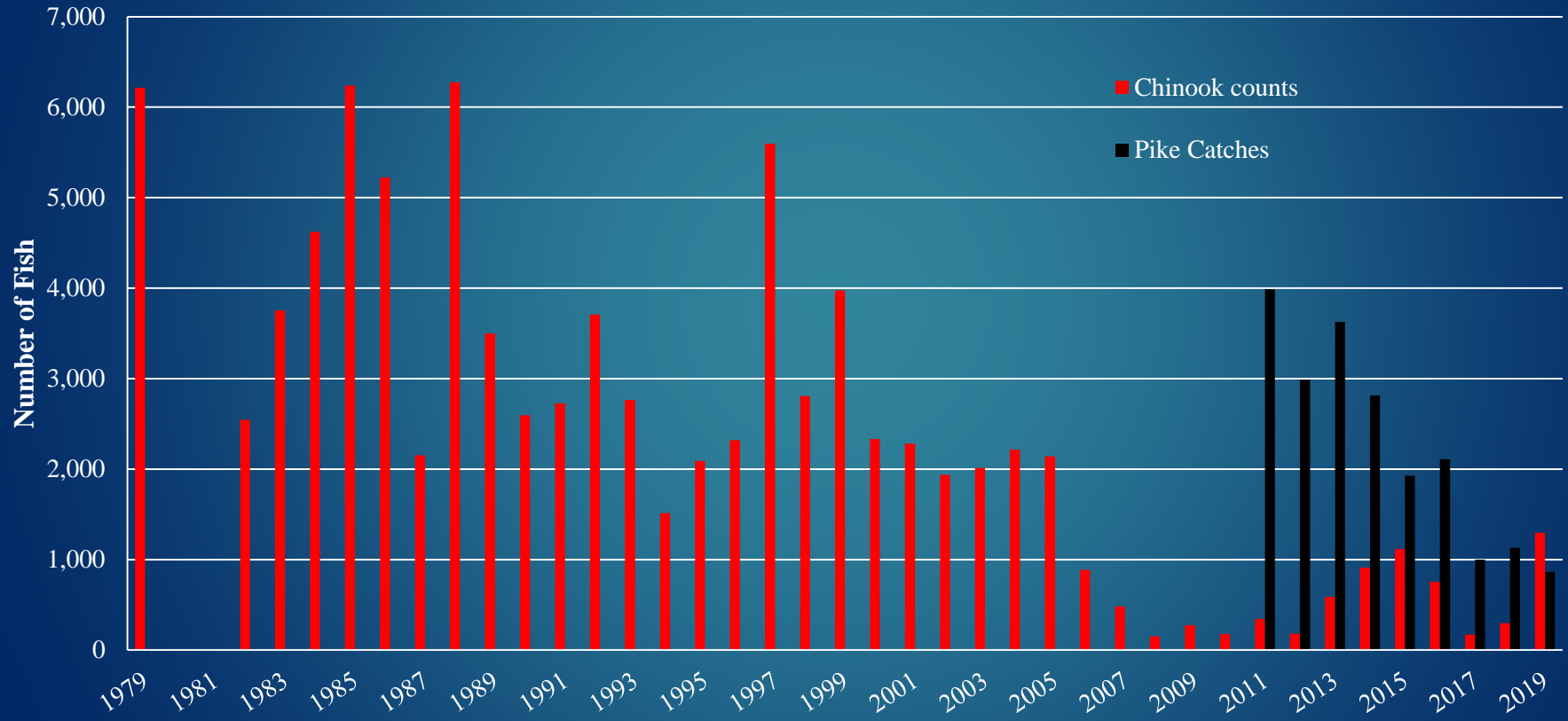
# Alexander Creek Pike Suppression



Goal: Drive down pike abundance to allow increased survival of juvenile salmonids

- Reduce pike in side-channel sloughs with gillnets
  - Began in 2011
  - During pike spawning
  - Field crews target ~60 sloughs
  - Annual effort (~21,000 pike removed since 2011)
- Surveys to evaluate juvenile salmonid abundance
  - Minnow trap surveys
  - Pike stomach content analysis

## Alexander Creek Chinook Salmon Escapement Index Counts + Pike Catches

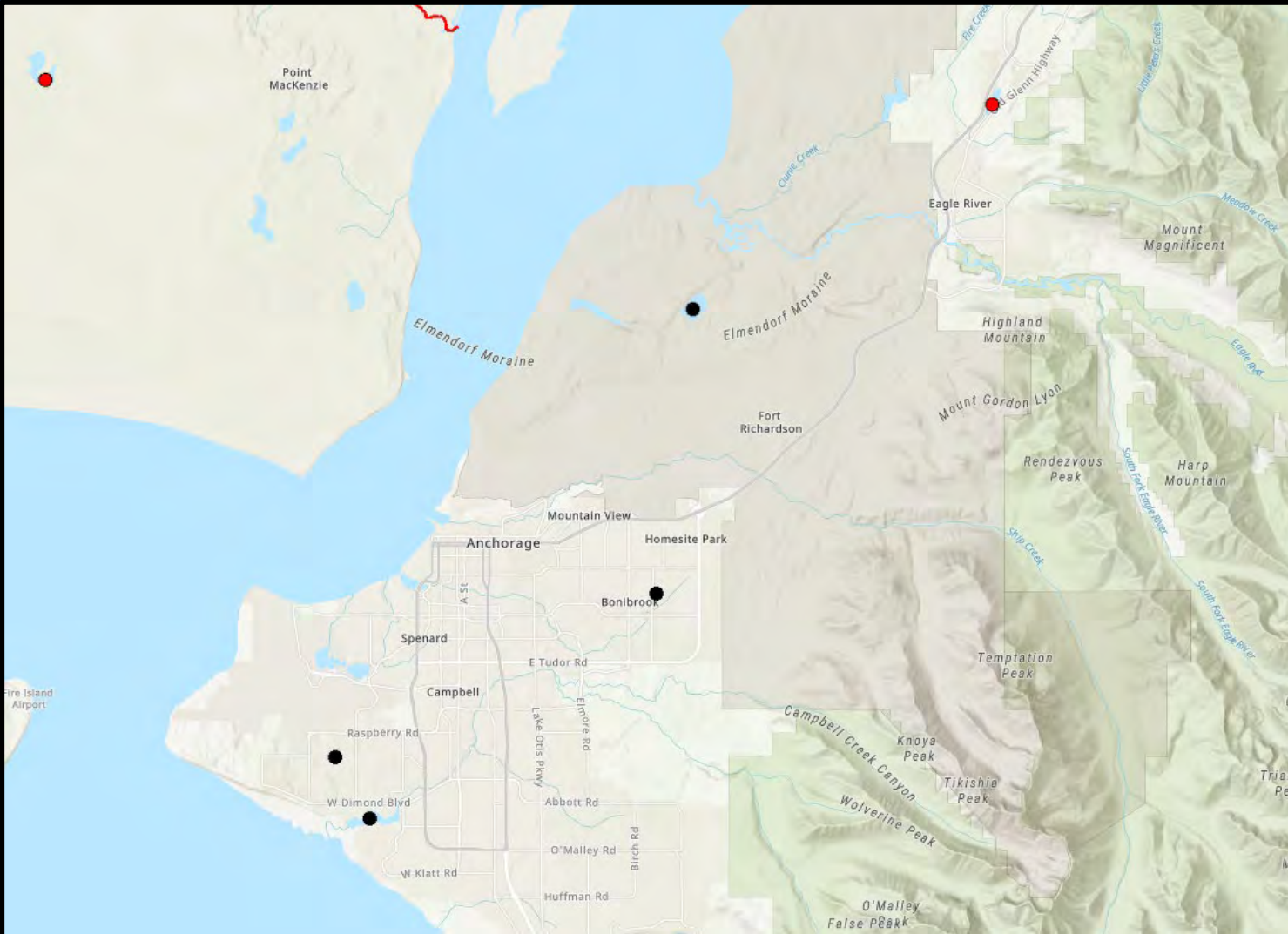


# Other Suppression Projects

- Deshka River (ADF&G Sport Fish)
- Shell Lake (CIAA)
- Chelatna Lake (ADFG Com. Fish)
- Whiskey Lake (ADFG Com. Fish)
- Hewitt Lake (ADFG Com. Fish)
- Threemile Lake (ADFG Sport Fish/TTCD)



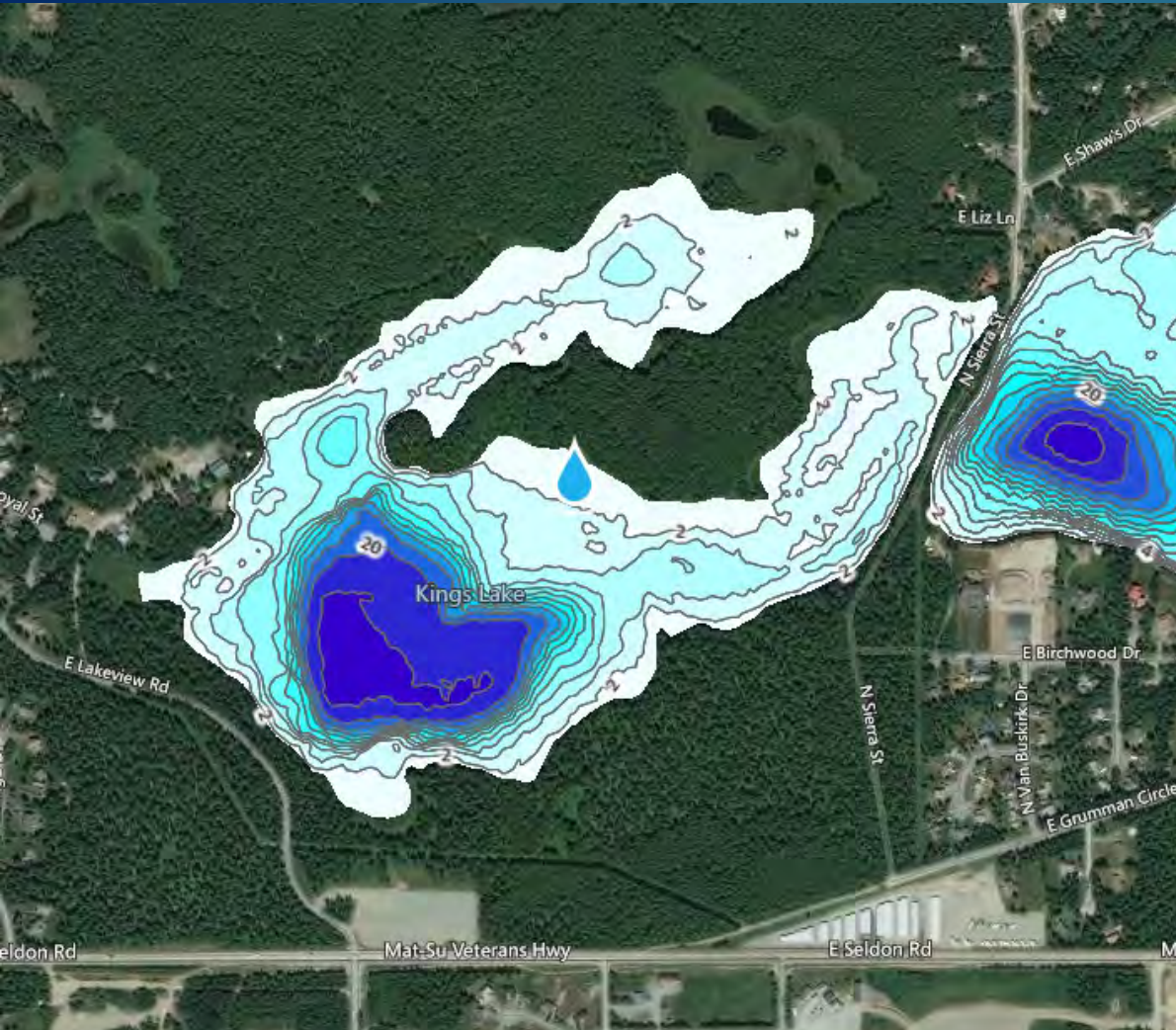
# Eradication the Goal in Some Areas



# Kings and Anderson Lake Pike Eradication



- Historically good Rainbow Trout Fishery and Coho Salmon Rearing
- Pike introduced roughly in the 1990's
- Outlet dry many years, barrier installed to prevent escape
- Eradication will occur October 2020
- Restocking with Rainbow Trout and other native fish 2021



# Surveying/Monitoring/Research

- Surveying/Monitoring
  - Presence/Absence
  - Angler reports
  - Catch rates
- Research
  - Population estimates
  - Otolith microchemistry
  - Genetics



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## RAPID COMMUNICATION

### Using forensic geochemistry via fish otoliths to investigate an illegal fish introduction

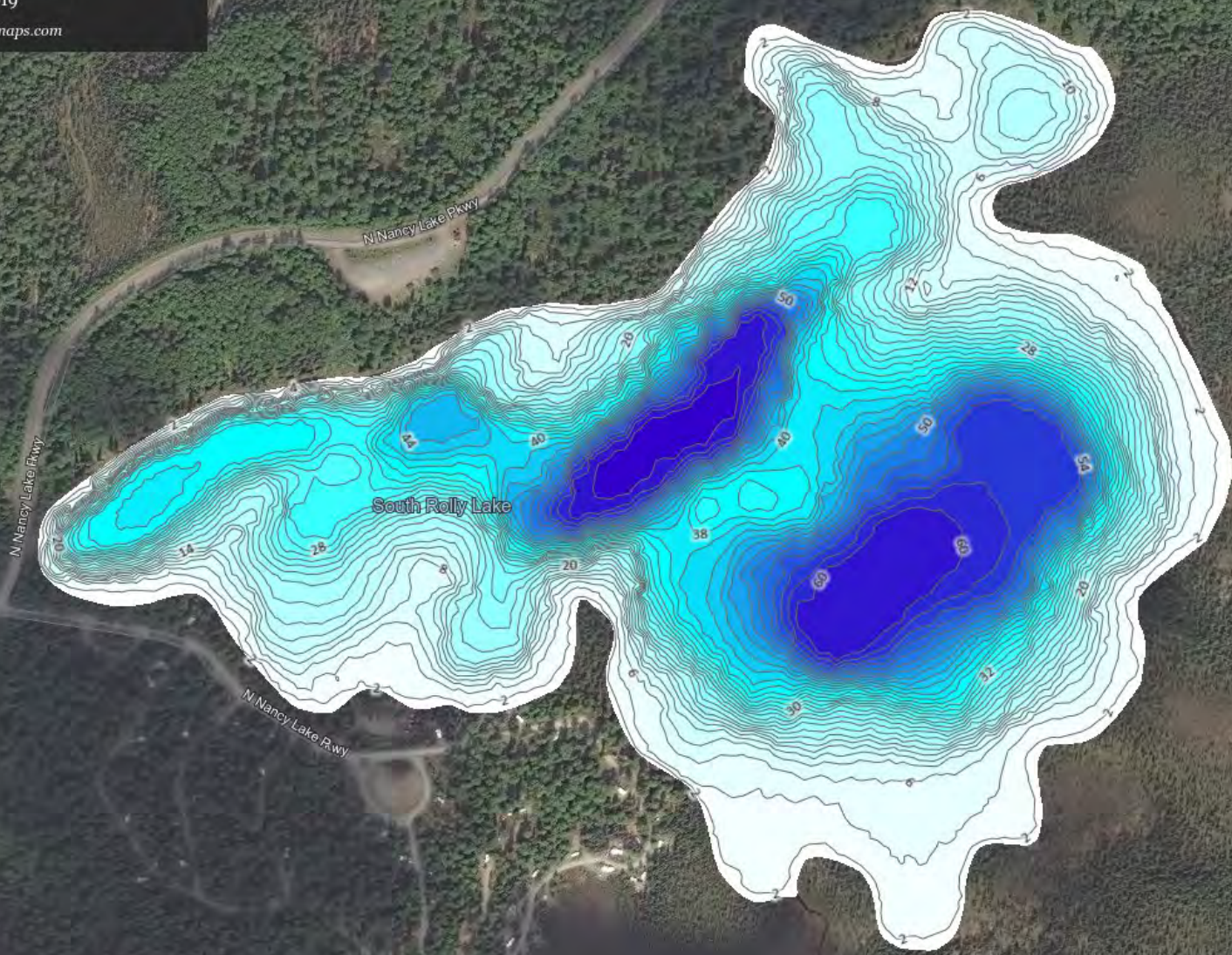
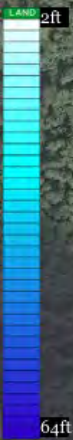
Samuel L. Bourret and Niall G. Clancy

**Abstract:** Illegal fish introductions create some of the most challenging problems for resource managers because of their potential to harm existing recreational fisheries and their impact on species of conservation concern. Determining the origin of a suspected illegal fish introduction can aid managers in preventing the colonization and subsequent ecosystem impacts of introduced species. In this study, we used forensic geochemistry via fish otoliths to investigate an illegal walleye (*Sander vitreus*) introduction in Swan Lake, Montana, which provides critical habitat for threatened bull trout (*Salvelinus confluentus*) and native westslope cutthroat trout (*Oncorhynchus darkii*). Core to edge geochemical profiles of  $^{87}\text{Sr}/^{86}\text{Sr}$  and  $\text{Sr}/\text{Ca}$  ratios in the walleye otoliths revealed that these fish had been introduced to Swan Lake within the past growing season, and their geochemical signature matched that of walleye sampled from Lake Helena, Montana, located 309 road kilometres away. This research highlights application of a tool fisheries managers can use to identify the natal waterbody source of illegally introduced fish.

# South Rolly Lake

7/11/2019

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Thank You  
Any Questions?

