



**NOAA**  
**FISHERIES**

**AFSC**

**Auke Bay  
Laboratories**

# eDNA at AFSC

## Environmental DNA at the Alaska Fisheries Science Center

Chris Kondzela, Genetics Program  
Alaska eDNA Workshop  
April 1, 2019, Juneau, Alaska



**NOAA FISHERIES**

# Auke Bay Laboratories, Genetics Lab

- Well-equipped lab – tour after workshop
- Project focus on NOAA Fisheries mission:
  - *Research that supports monitoring and assessing fish, crab, and marine mammal populations, fisheries, marine ecosystems, and the associated communities that rely on these resources.*
  - *Understand and forecast effects of climate change on marine ecosystems.*
- Species identification, population structure, population size, stock identification
- eDNA – new approach, non-lethal sampling



# Auke Creek

- Auke Bay Lab operates the weir and research hatchery.
- eDNA study on salmon



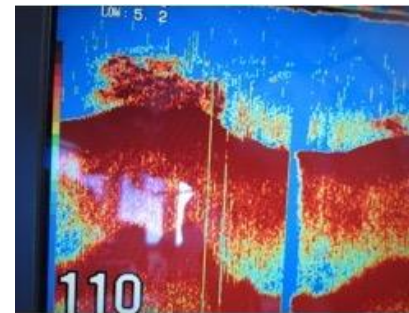
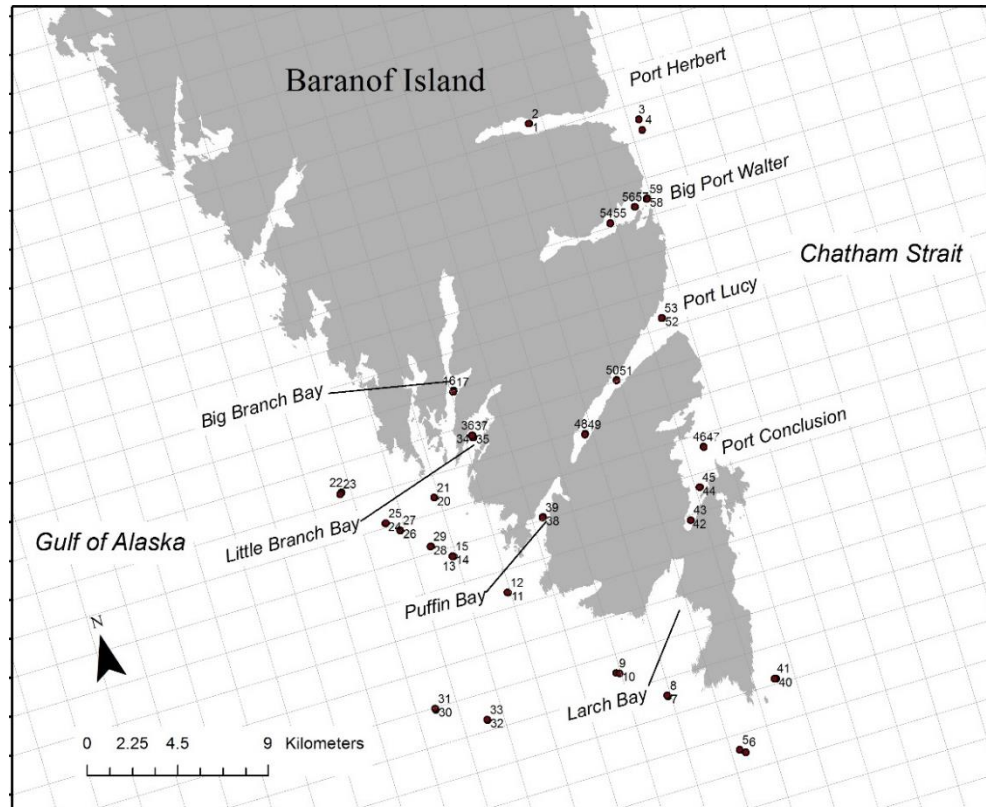
# Harbor porpoise



- Kim Parsons, Marine Mammal Lab, Seattle
- Elusive, highly mobile, nearshore, small marine mammal
- Collect seawater where animals dived
  - Icy Strait, near Sumner Strait
- Detected harbor porpoise mtDNA
- Found population structure within SE Alaska
- Next - identify individuals and estimate abundance

# Habitat preference

- Rockfish stock assessments



Identification of fish by sonar



Niskin sampler retrieval



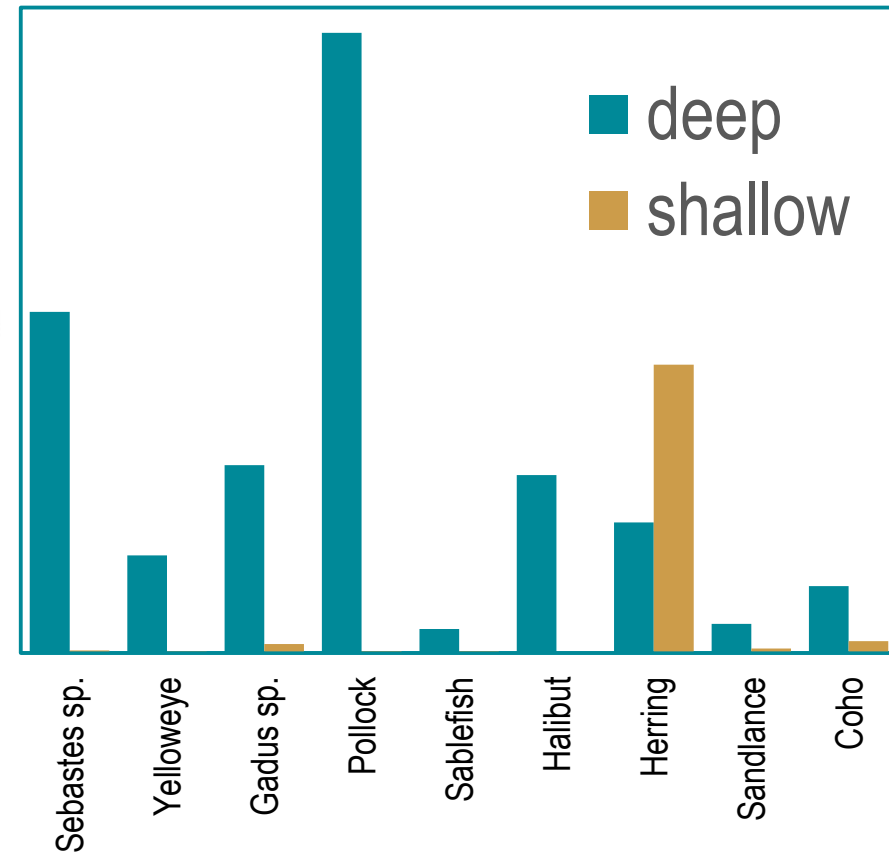
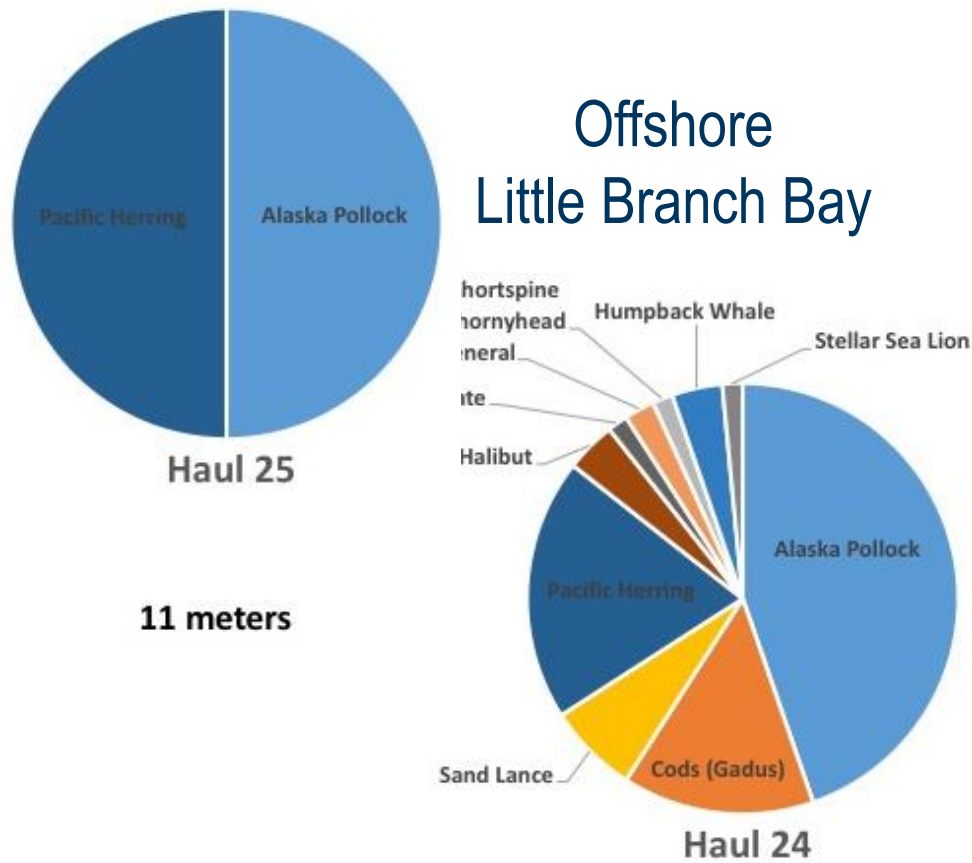
Filtering of water sample



Preservation of Filter Paper

# Habitat preference

- Rockfish stock assessments





# Habitat preference

- Sablefish (black cod) stock assessment
- Juveniles – where do they live?



# Southeast Coastal Monitoring (SECM) survey

- Water samples collected in same location as surface trawl.
- Presence/absence and possibly abundance of salmon species.



Photo: Joe Orsi



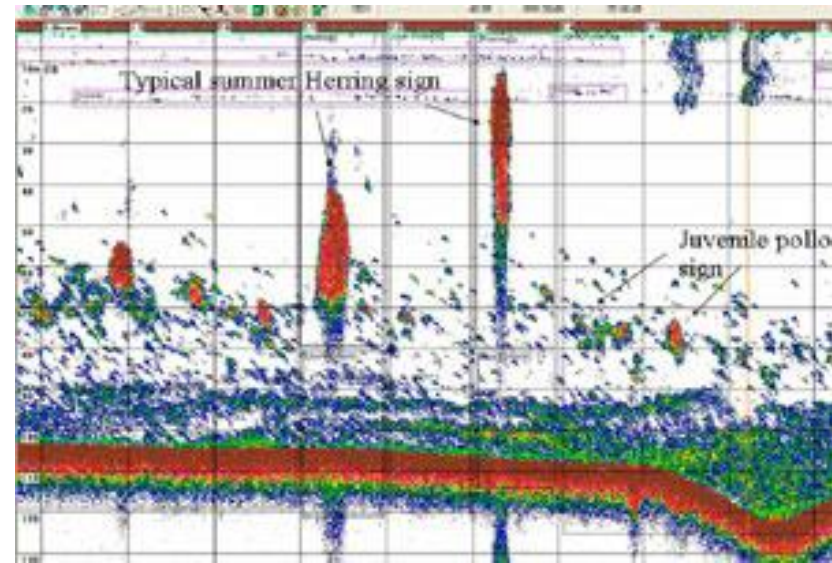
Photo: Cara Rodgveller





# Bering Sea surveys

- Proof-of-concept pilot study
- Target an acoustic signal
- Collect seawater sample
- Trawl through fish school
- Compare species in trawl catches and seawater
- Replace or supplement trawling with seawater sampling to ID species?



# Marine diatoms, fungi



# Acknowledgements

- AFSC Genetics Working Group
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- Chris Lunsford
- Pat Malecha
- Jim Murphy
- Scott Vulstek

Questions??

