



2023 Southeast Alaska Pink Salmon Harvest Forecast



**NOAA
FISHERIES**

Alaska Fisheries
Science Center
Auke Bay
Laboratories



**Alaska
Department of
Fish and Game**

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2022 Purse Seine Task Force Meeting

November 30, 2022

Southeast Alaska Coastal Monitoring Research

- Surveys are being conducted on ADF&G Research Vessel Medeia.
- Cooperation between NOAA and ADF&G; continued efforts to increase the value of information for the fishing industry.



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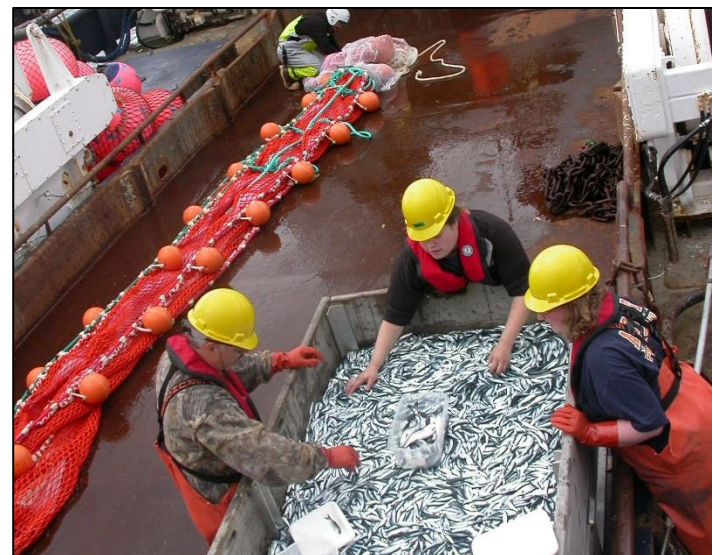
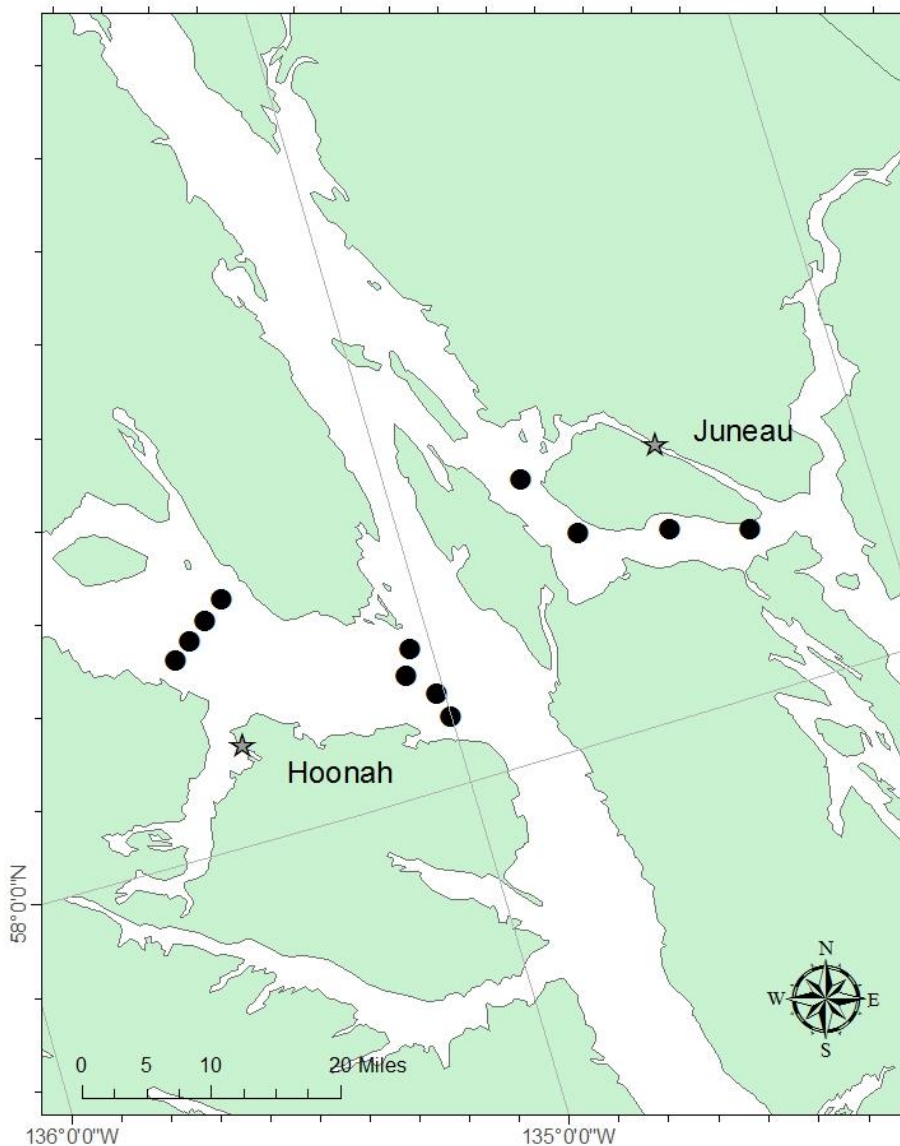
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Photo by master photographer Jim Murphy



Southeast Alaska Coastal Monitoring Research



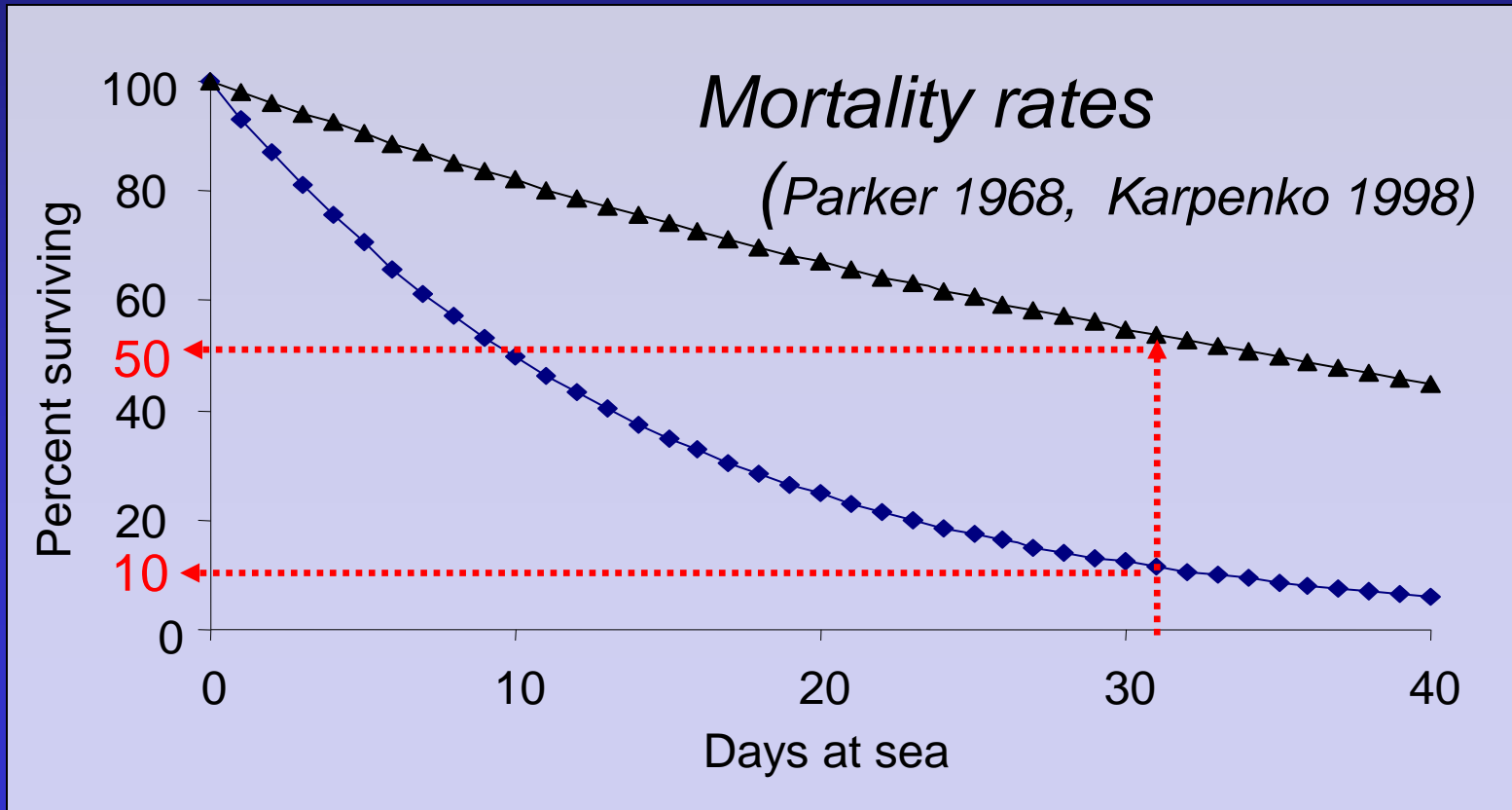
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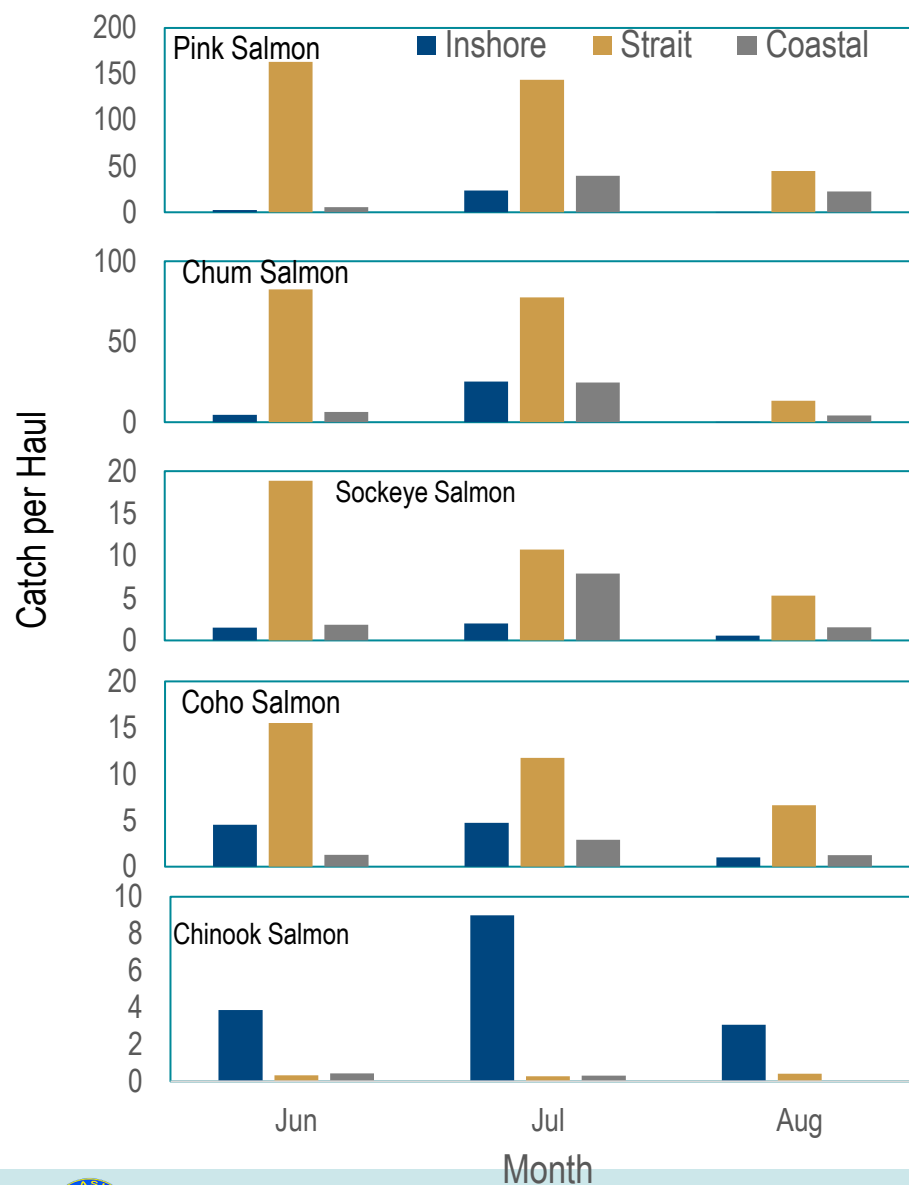
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Paradigm of pink salmon biology:

Mortality during early marine life is high, variable, and a major determinant of year class strength

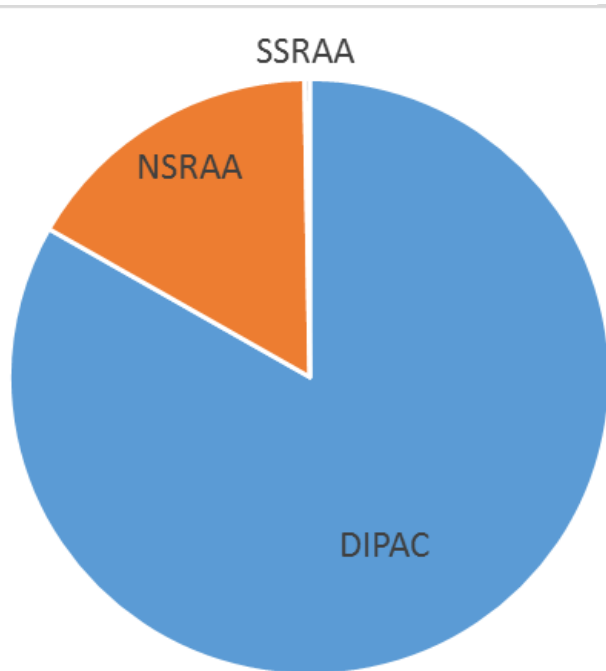


Surface Trawl Catch per Haul for Juvenile Salmon by Month

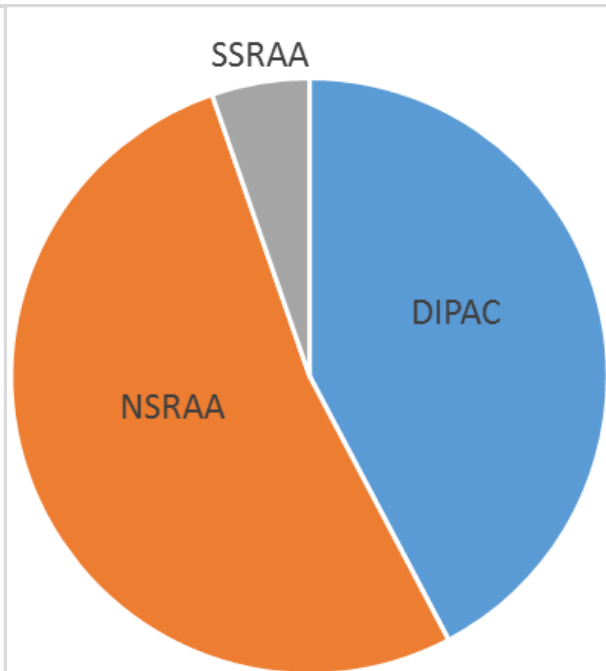


Icy Strait Hatchery Chum Salmon Origin (thermal mark recoveries 1997-2016)

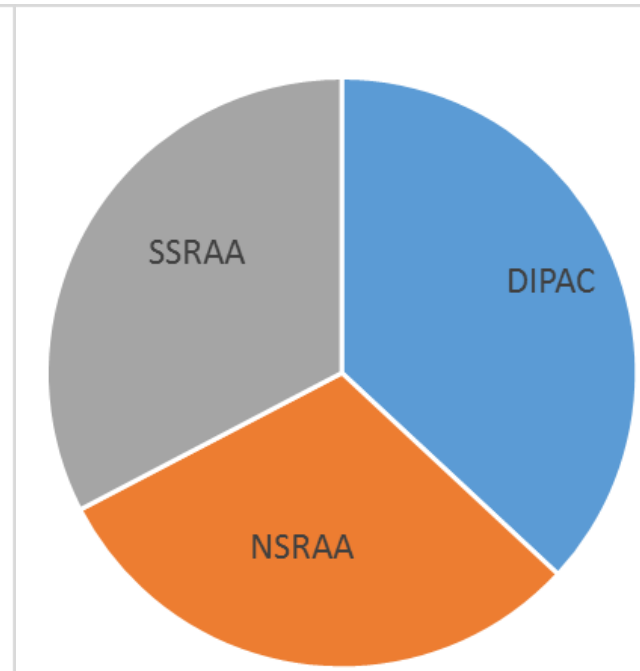
June



July



August



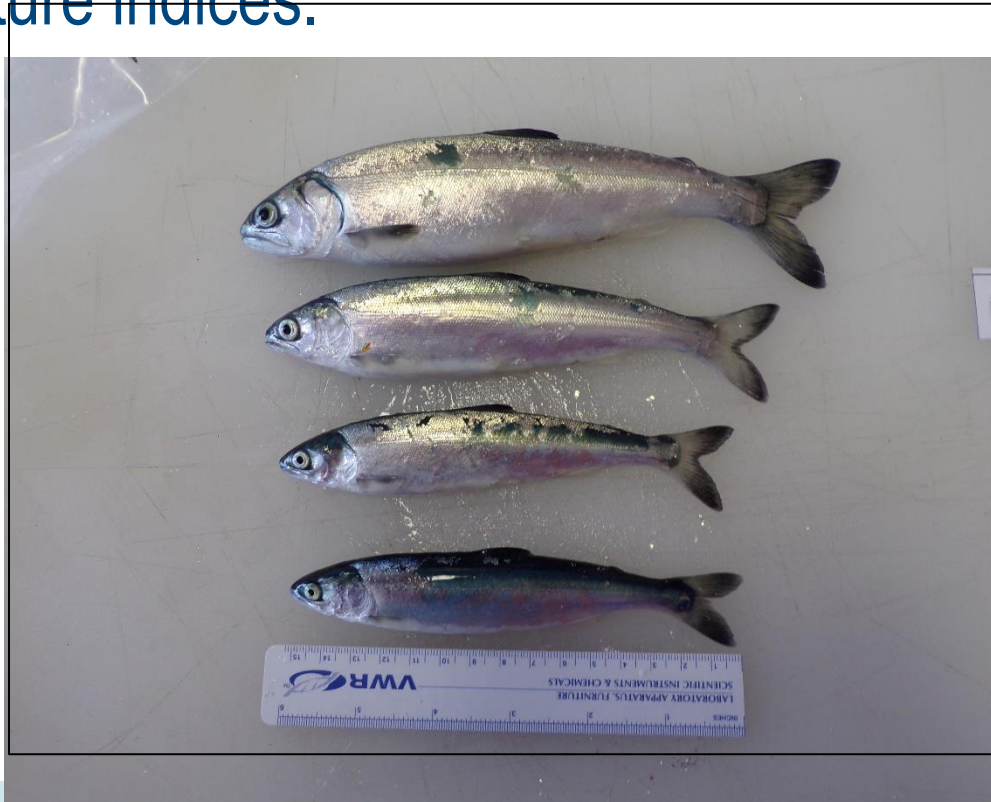
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Pink Salmon Harvest Forecast Model Structure

- Peak surface trawl catch rates (CPUE) in June or July.
- Temperature Variable (Icy Strait Temperature Index (ISTI)) or a variety of potential satellite sea surface temperature indices.

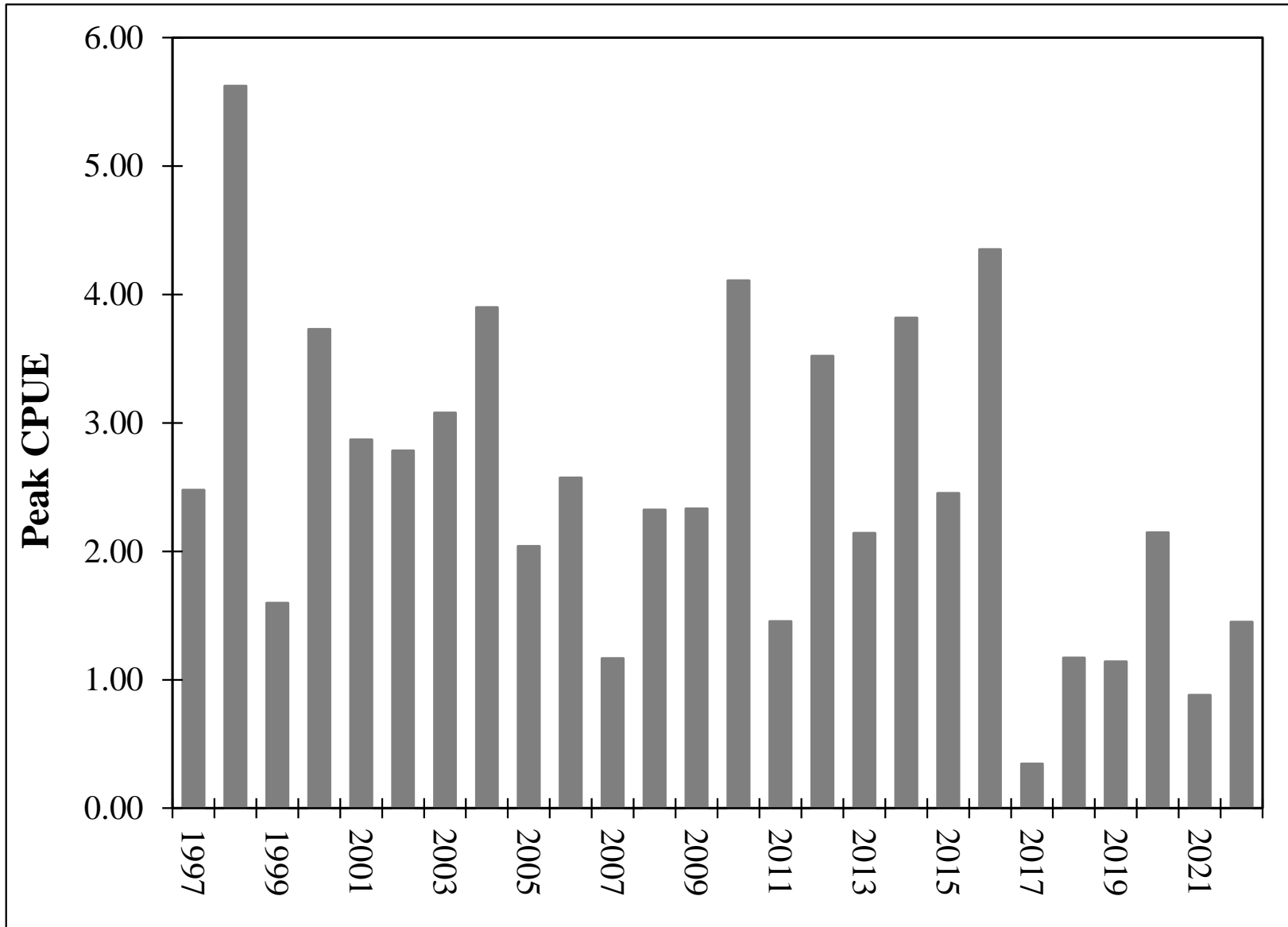


Forecast Model Considerations

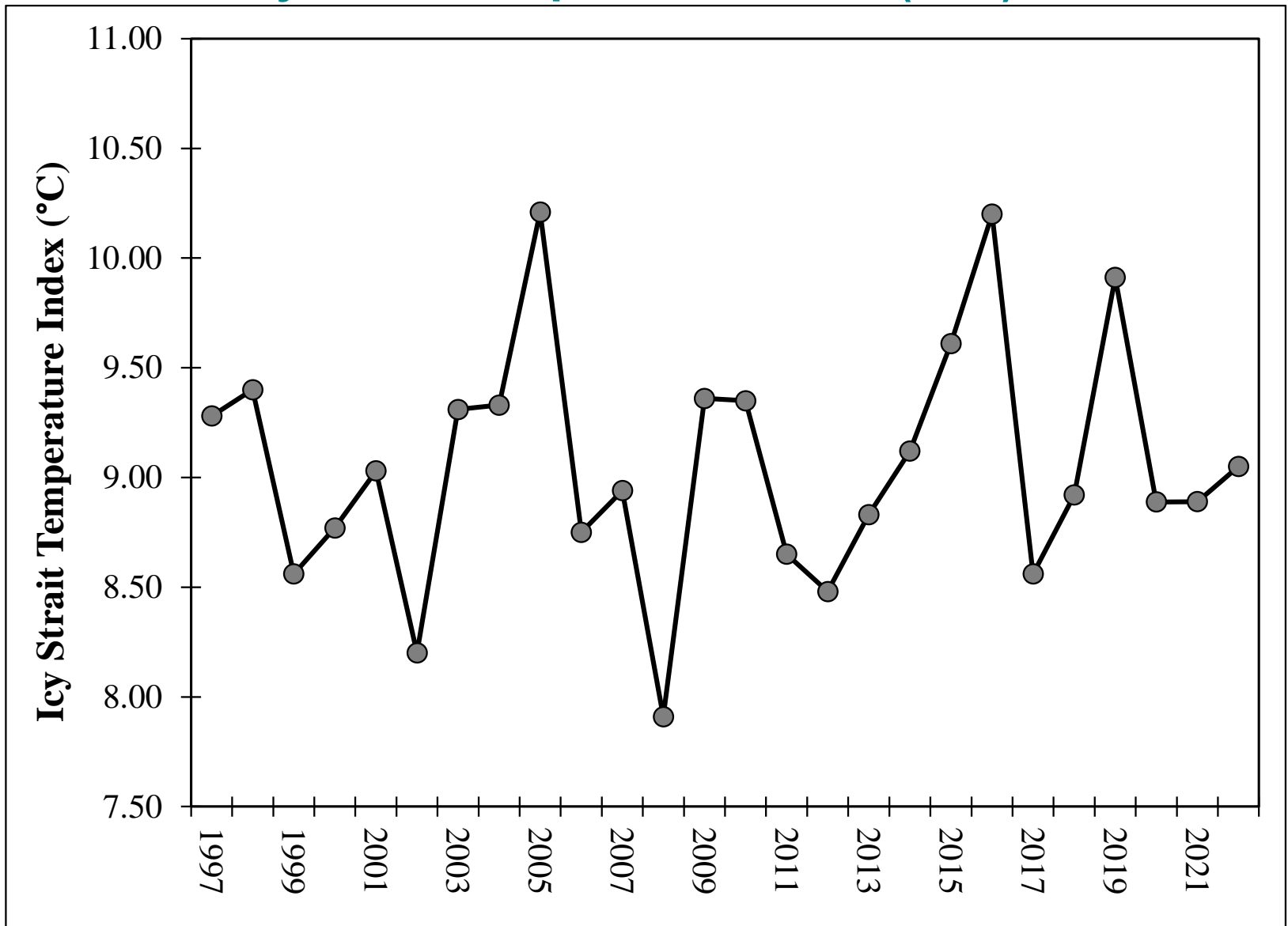
- There are several ways that temperature (ISTI or Satellite sea surface temperature indices) could be important to the forecast model.
 - Survival: reduced survival during warm years. Since growth is higher in warm years, this would imply that small fish have better survival.
 - Migration: Increased movement of SEAK stocks through Icy Strait during warm years.



Peak CPUE (calibrated) of juvenile Pink Salmon



Icy Strait Temperature Index (ISTI)



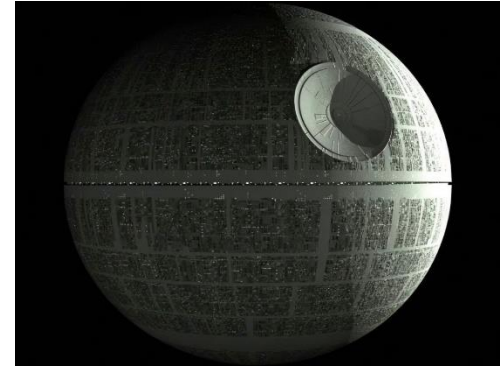
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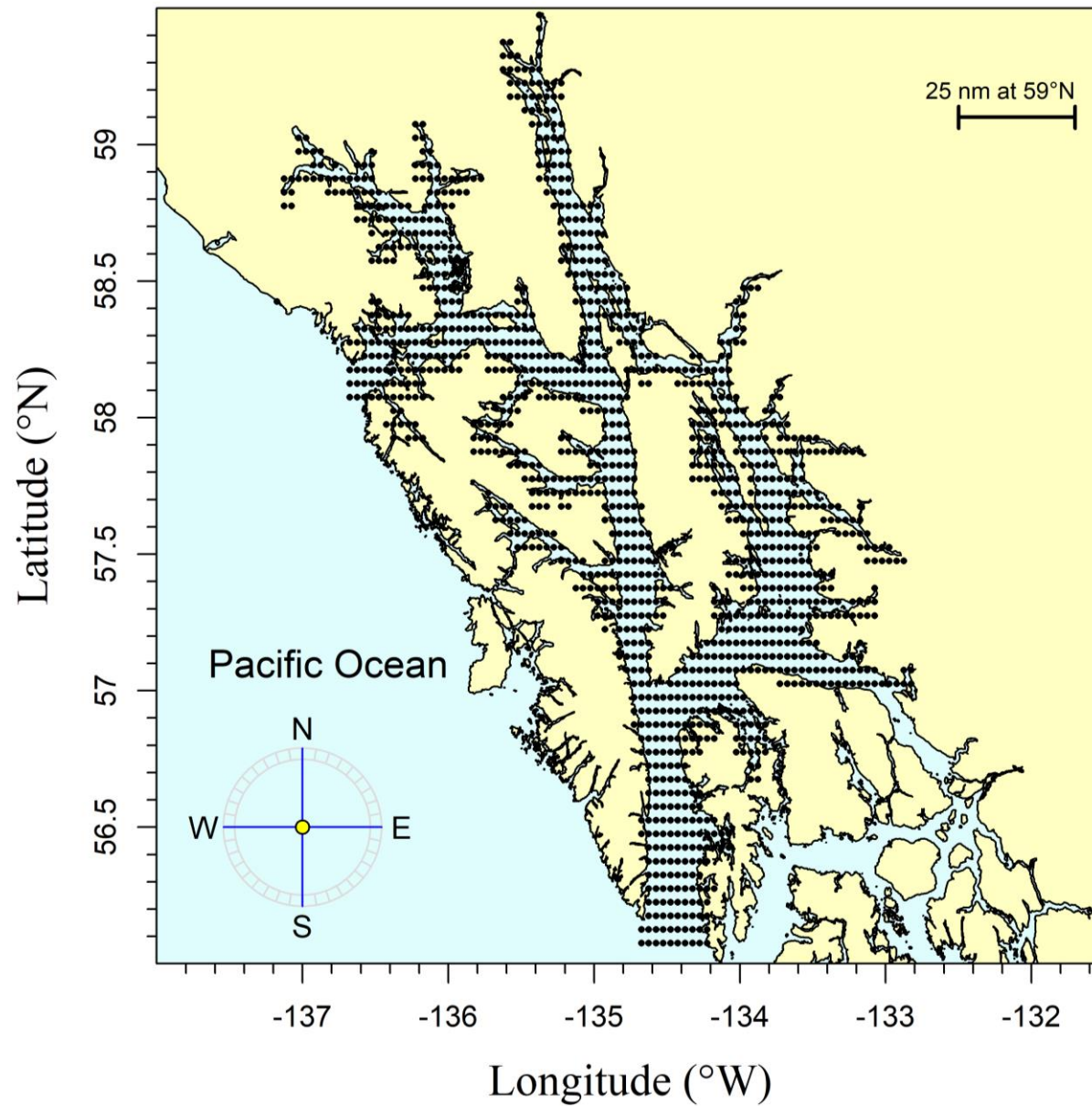


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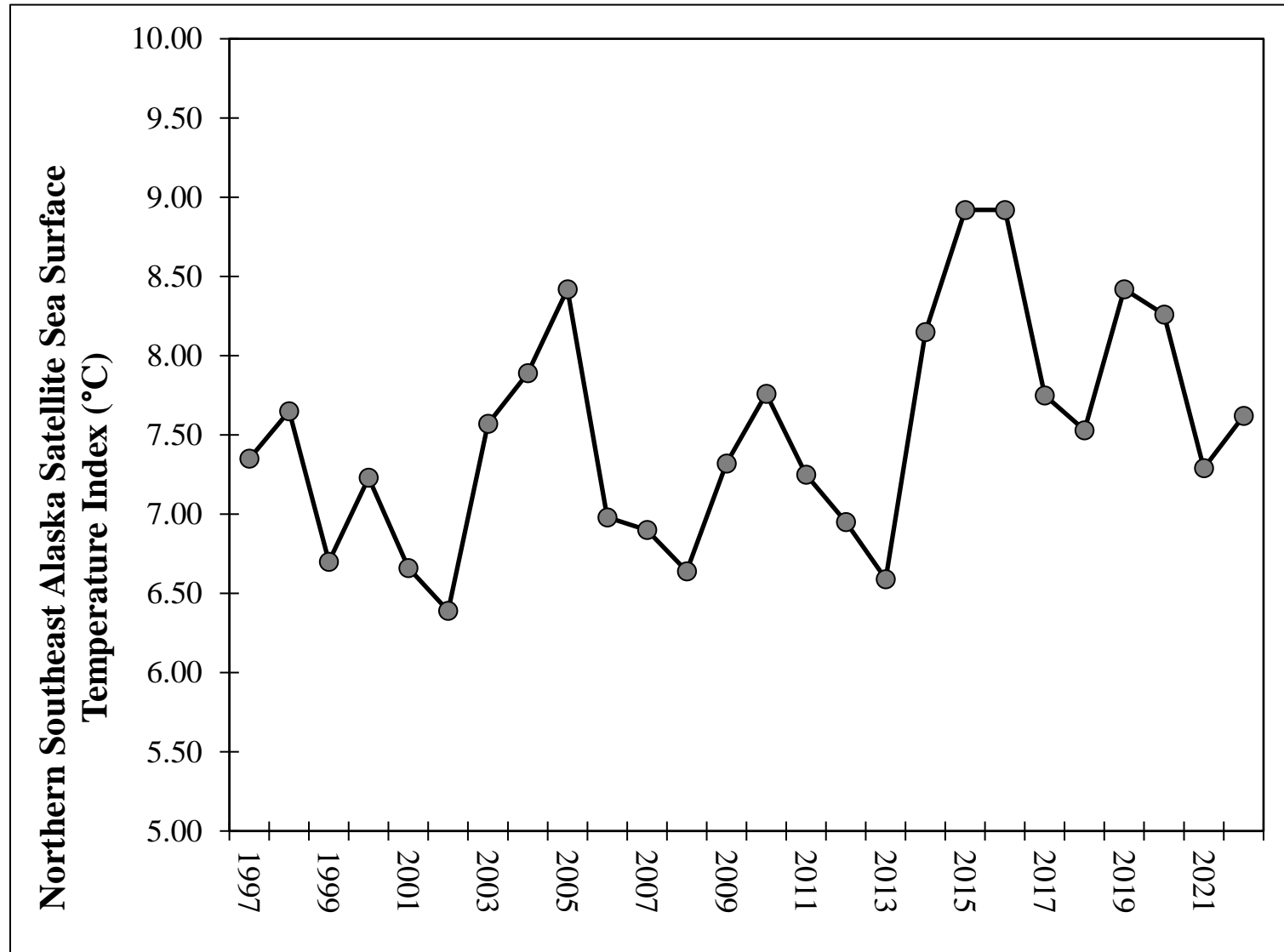
Satellite Sea Surface Temperature Data

- Looked at 17 models incorporating water temperature.
- Sixteen models incorporated satellite sea surface temperature data.
- Evaluated models using one step ahead mean absolute percent error for 5- and 10-year periods.
- Best performing models used May satellite derived sea surface temperatures.





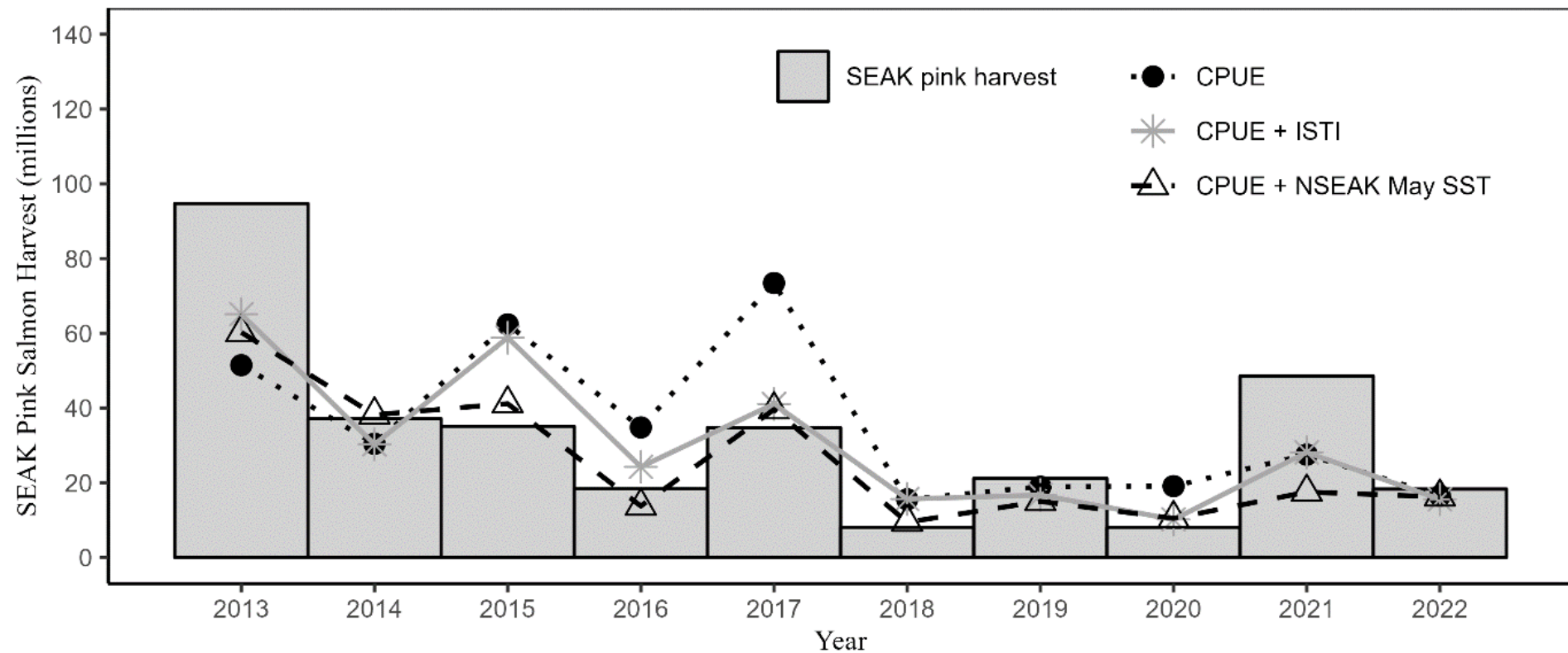
Northern SEAK Satellite Sea Surface Temperature Index



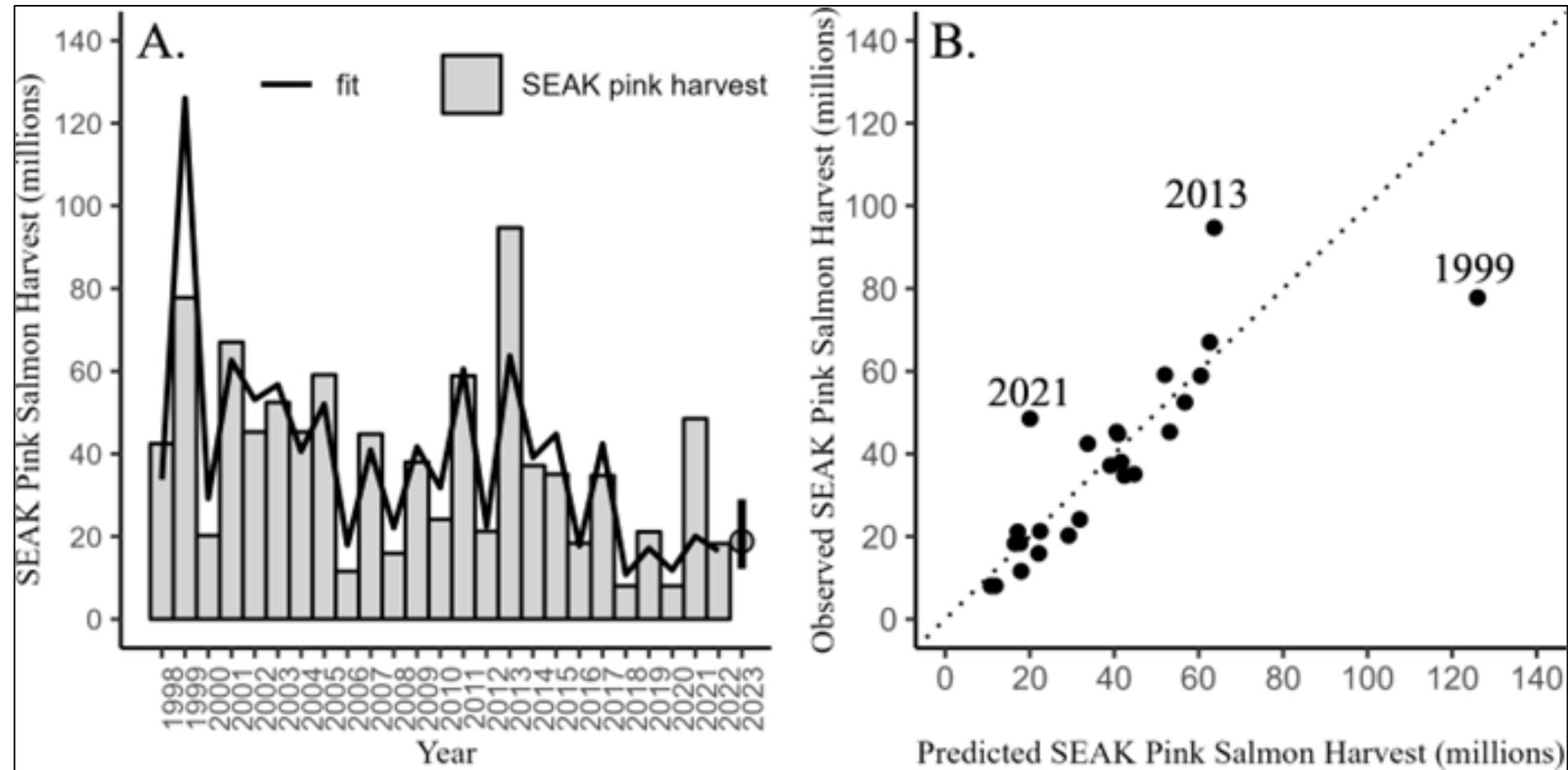
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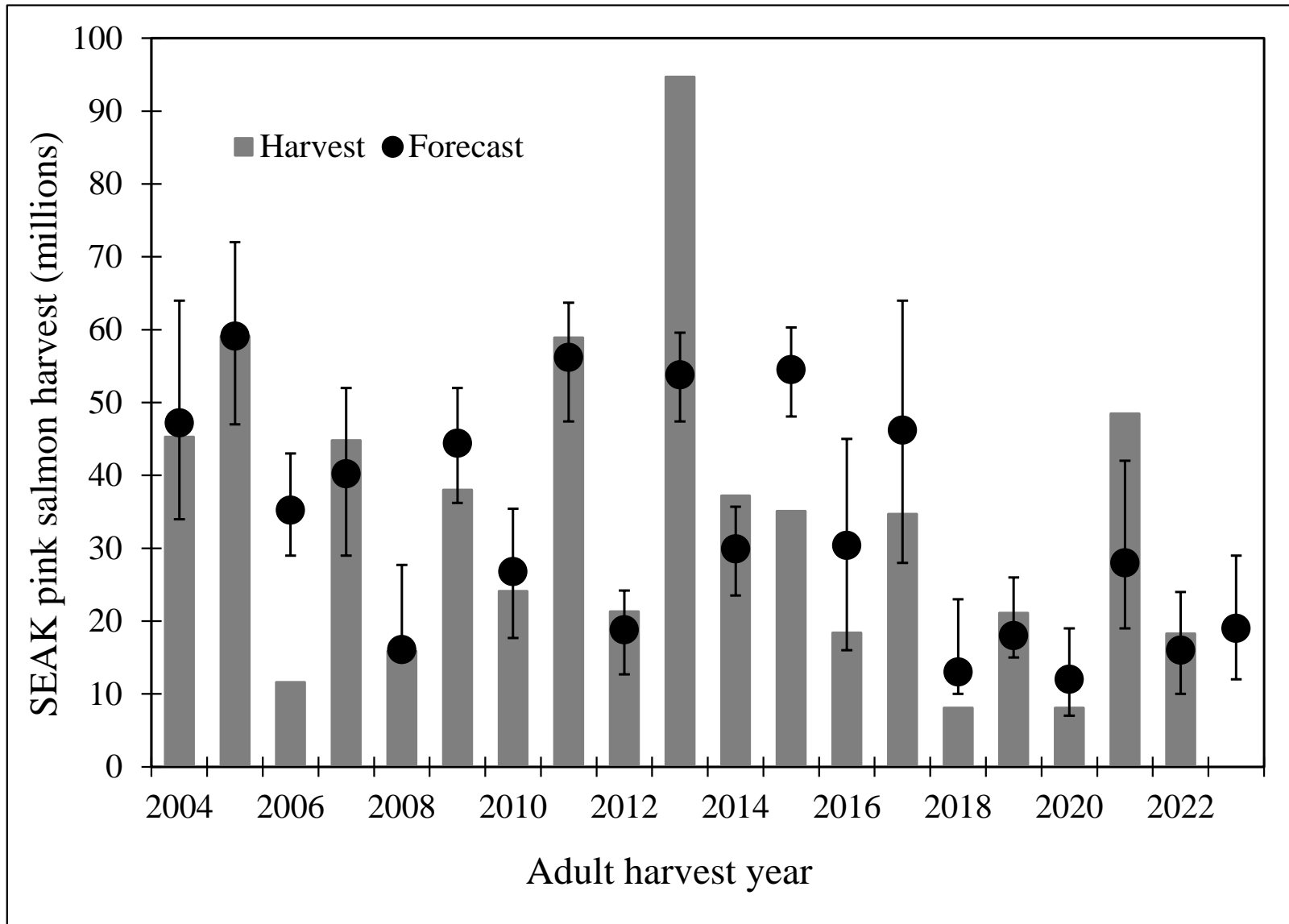
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Southeast Alaska Pink Salmon Harvest Forecast Model (Calibrated CPUE + NSE Inside Satellite Sea Surface Temperature)



Southeast Alaska Pink Salmon Harvest Forecast Model Performance

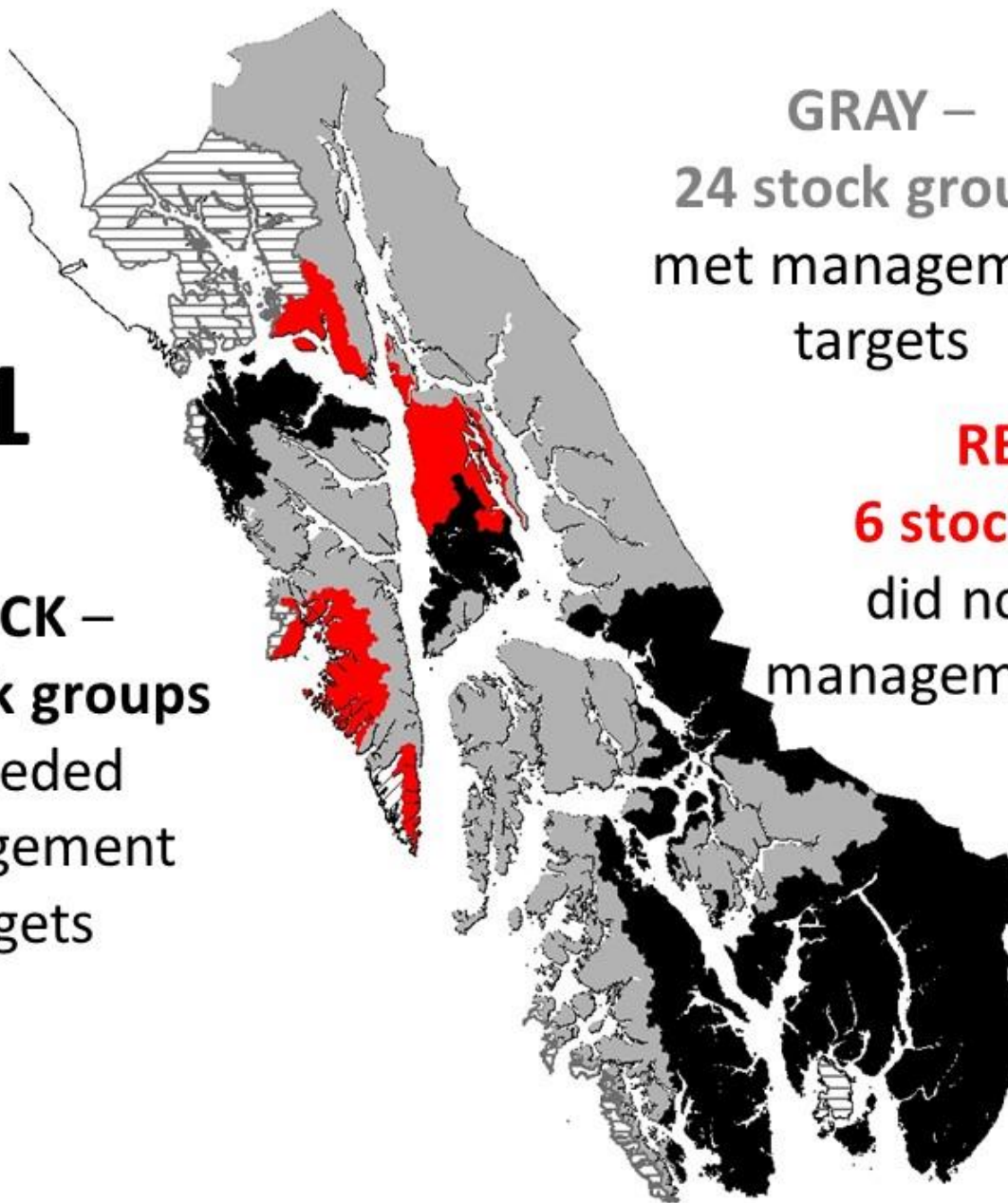


2021

BLACK –
16 stock groups
exceeded
management
targets

GRAY –
24 stock groups
met management
targets

RED –
6 stock group
did not meet
management targets



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Early winter major cold snap in Southeast Alaska a factor in low juvenile abundance?

- Low temperatures at Juneau were in the teens or single digits in all but one day from 12 December 2021 to 9 January 2022, including three days near the end of the cold snap that were more than 20°F below normal (minimum -8°F).
- At Ketchikan, low temperatures were below freezing from 2 December 2021 to 10 January 2022, and new record lows were set in December.
- Cold snap followed by record rainfall in some areas.

Yakutat declares disaster as hazardous winter weather hits Southeast Alaska

Near-record cold spills into Southeast Alaska

Juneau falls below zero for only the second time since 2009

**Weather service reports January 2022 as
wettest on record for Juneau**

Hazardous Weather Conditions

- [Winter Weather Advisory in effect from December 26, 09:00 PM AKST until December 27, 09:00 AM AKST](#)

Current conditions at Ketchikan, Ketchikan International Airport (PAKT)

Lat: 55.36° N Lon: 131.71° W Elev: 89 ft.



Fair
0°F
-18°C

Humidity 69%
Wind Speed Calm
Barometer 30.04 in (1017.4 mb)
Dewpoint -8°F (-22°C)
Visibility 10.00 mi
Last update 25 Dec 9:53 pm AKST

[More Local Wx](#) | [3 Day History](#) | [Hourly Weather Forecast](#)

Detailed forecast for Southern Inner Channels

Rest Of Tonight
Colder. Mostly clear. Lows 5 below to 10 above, except around 10 on Annette Island. Northeast winds around 10 mph.

Sunday
Mostly clear. Highs 14 to 20. Northeast winds around 10 mph.



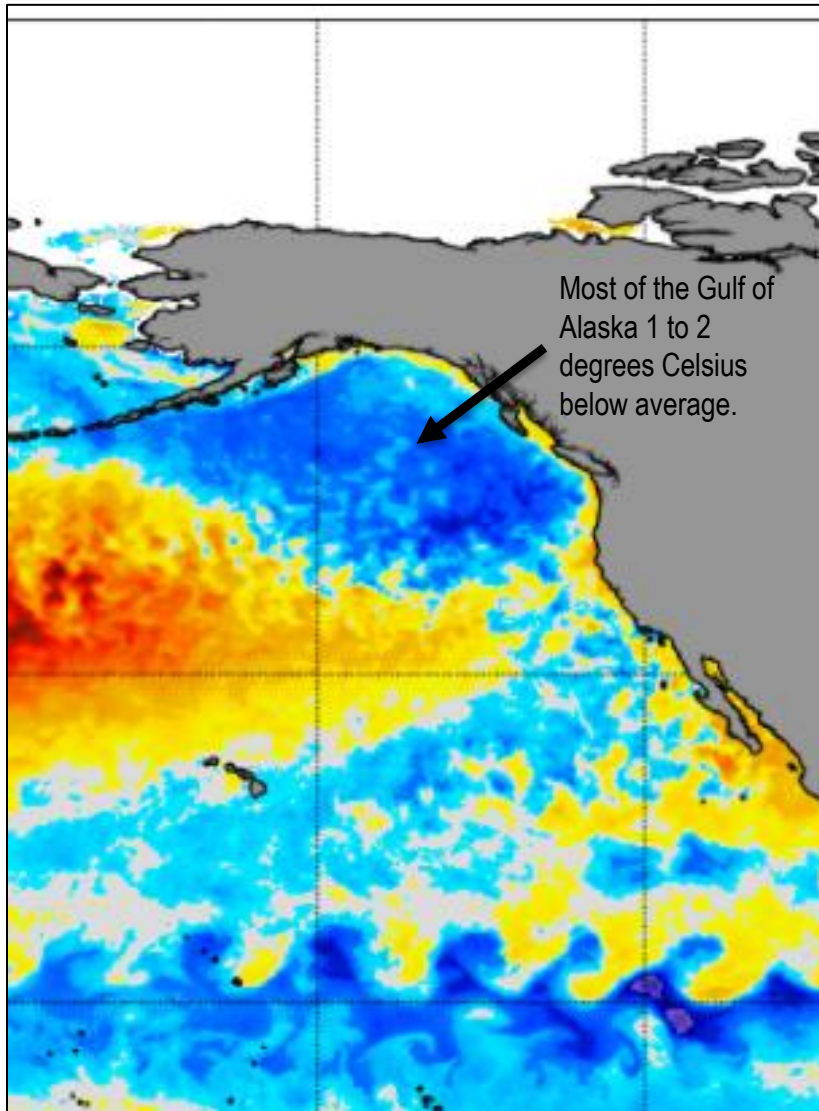
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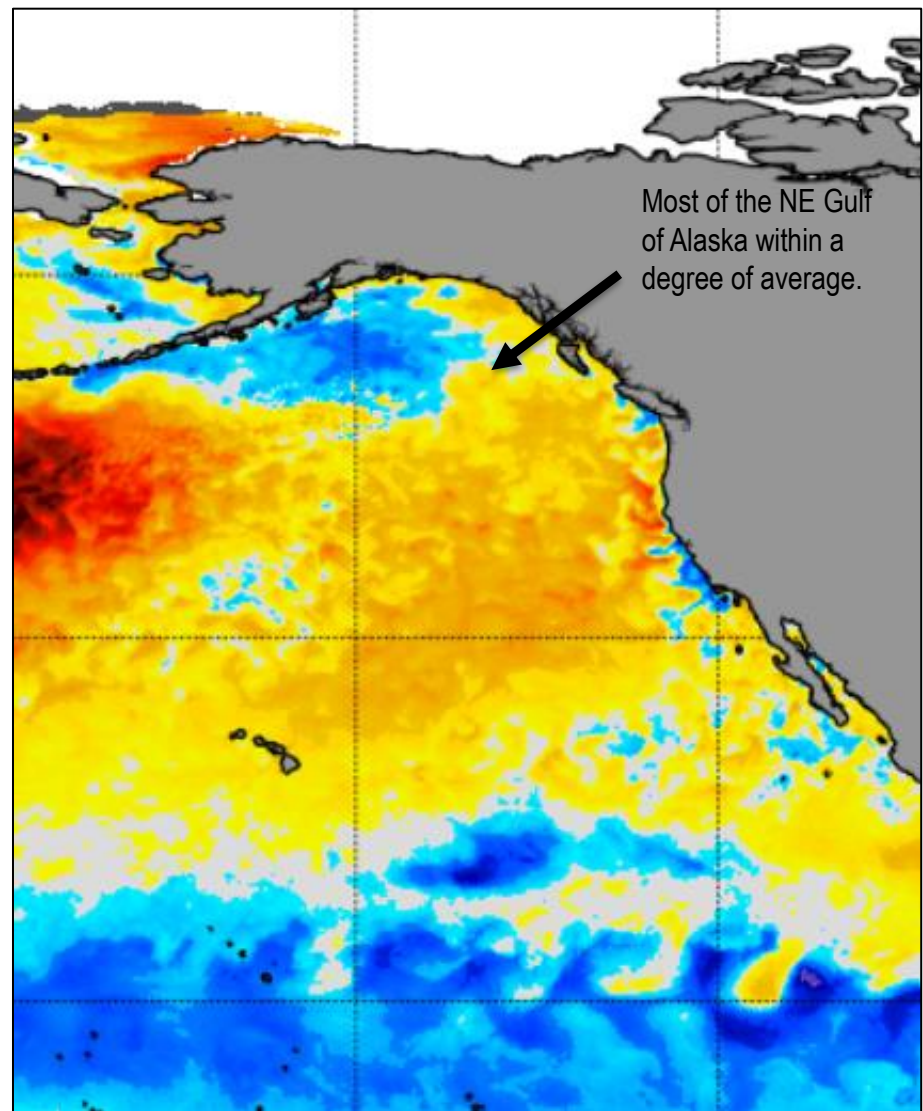
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North Pacific Sea Surface Temperature

November 2021



November 2022

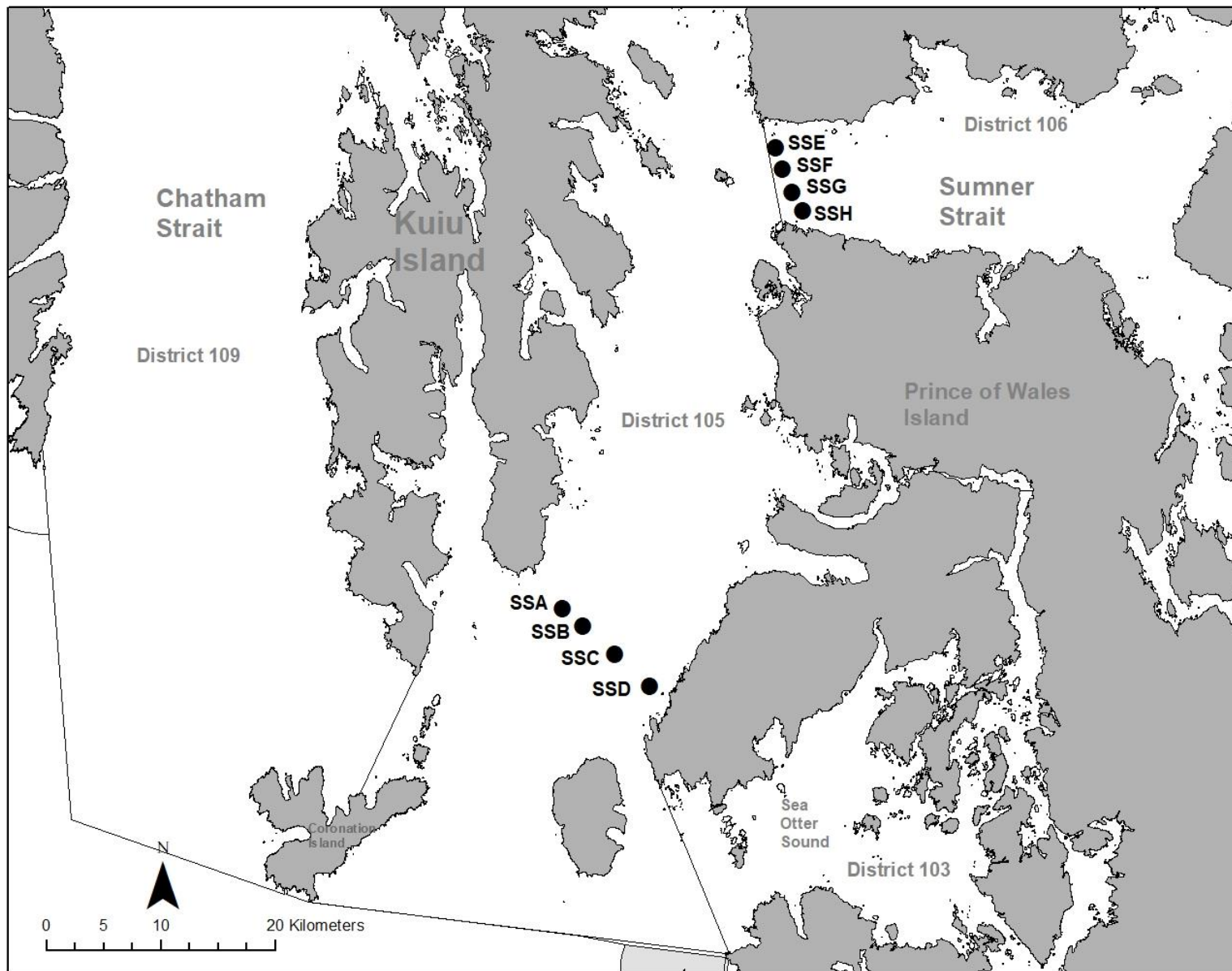


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Experimental Southern Transects June 2022

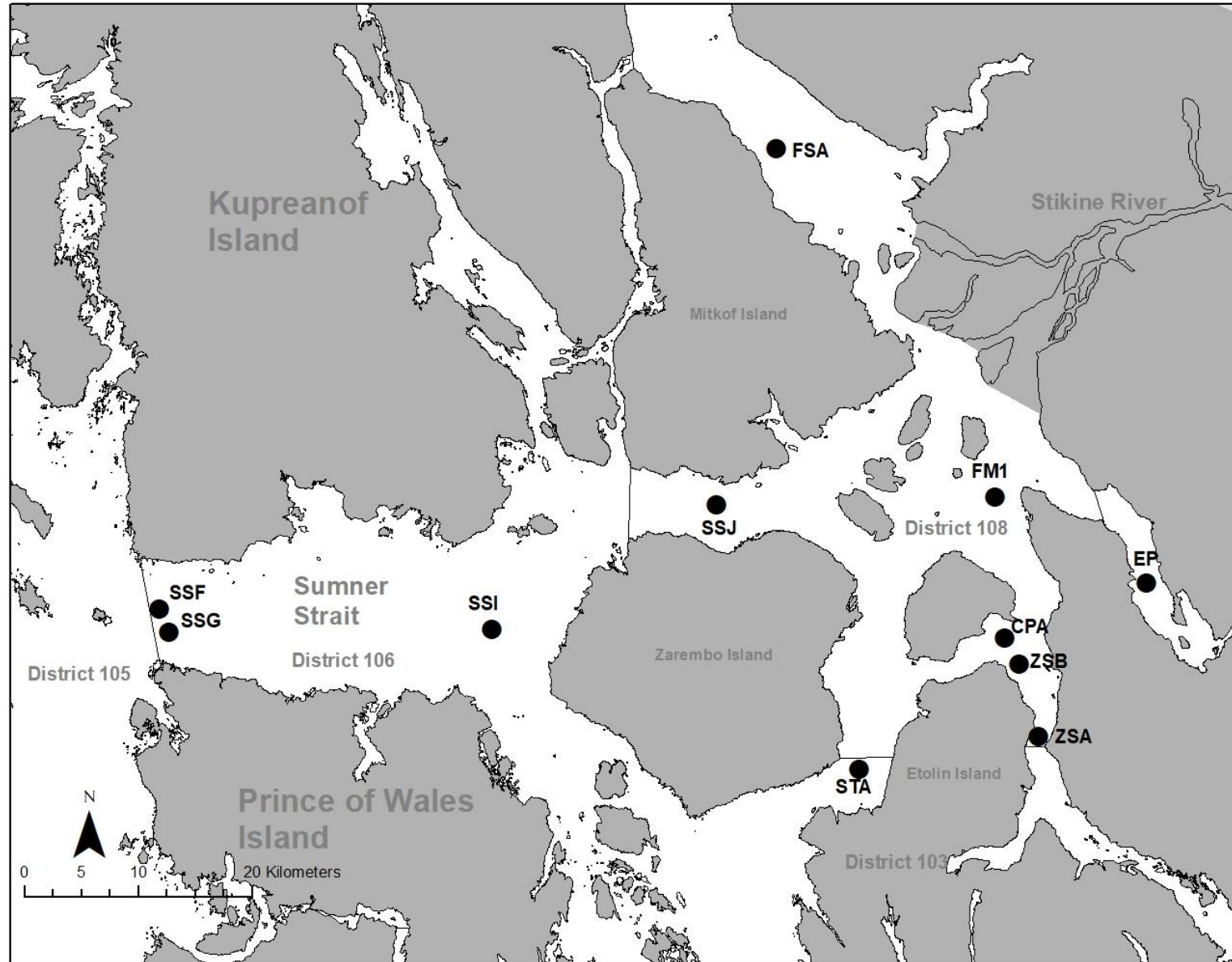


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Experimental Southern Transects July 2022



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2023 SECM Pink Salmon Forecast Summary

- The 2023 Southeast Alaska pink salmon harvest forecast is:
 - **19 million (80% PI = 12 – 29 million).**



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