UAF College of Fisheries and Ocean Sciences: Building Alaska's Blue Economy

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University of Alaska
Senate Resources Committee

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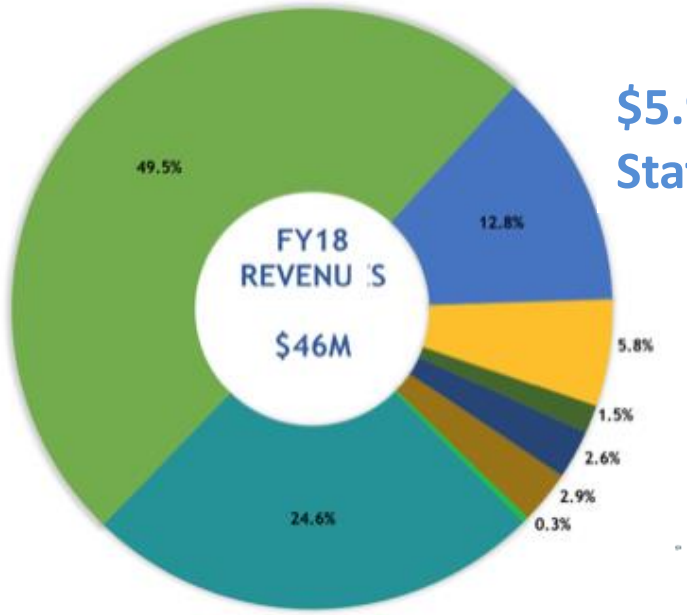
Statewide Presence

Over 300 faculty, staff and students in 12 locations across Alaska

CFOS is the largest combined research and academic unit in Alaska

$22.8M Research



$5.9M State

$11.3M R/V *Sikuliaq*

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Research & Economic Drivers

- Alaska Sea Grant Program
- Coastal Marine Institute
- Institute of Marine Science
- Kasitsna Bay Laboratory
- Kodiak Seafood & Marine Science Center
- Lena Point Fisheries Facility
- Ocean Acidification Research Center
- Pollock Conservation Cooperative Research Center
- Rasmuson Fisheries Research Center
- R/V *Sikuliaq* & Seward Marine Center

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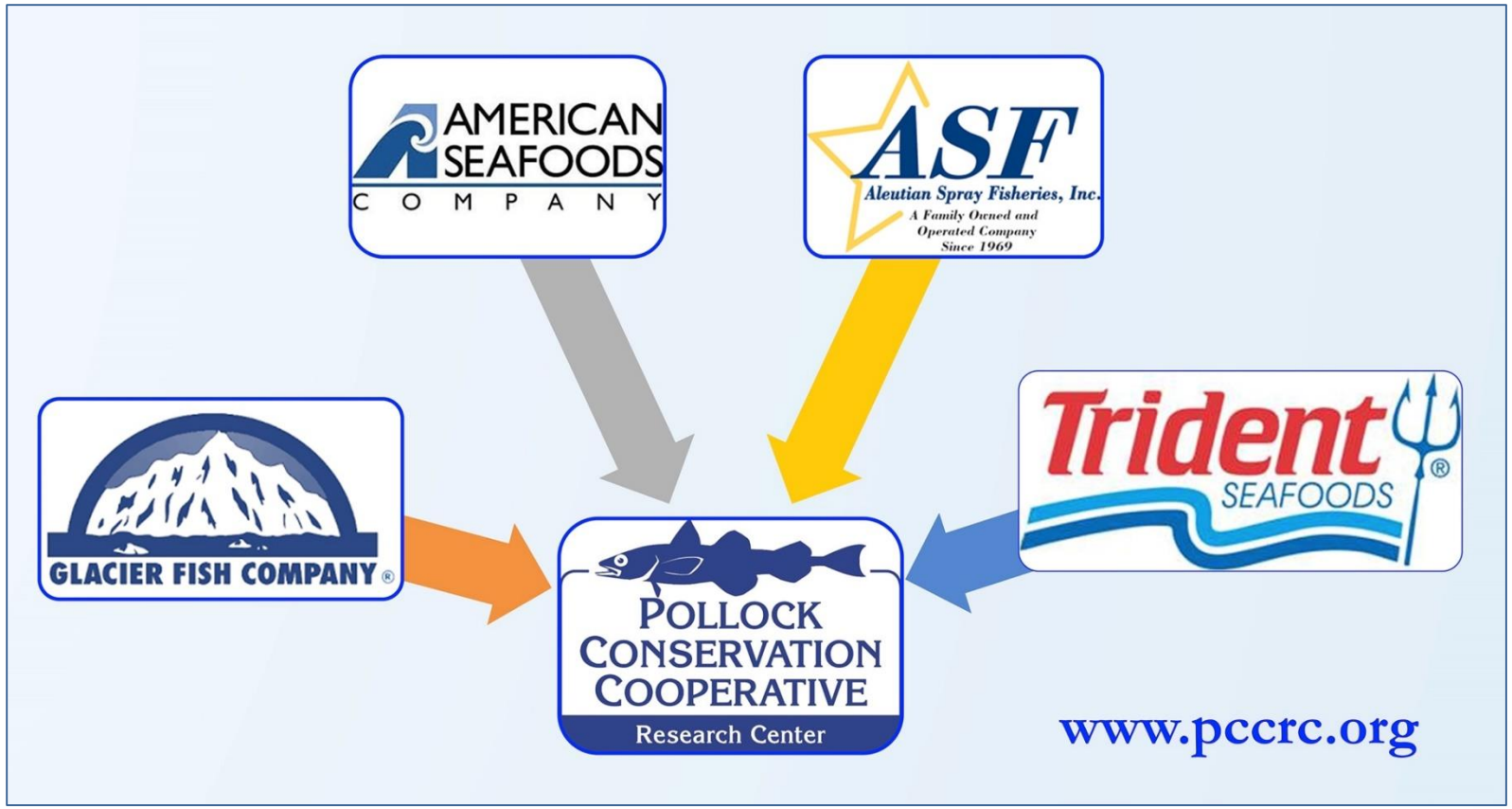
Industry Partnerships

- *Cooperative is the largest philanthropic donor to University of Alaska*
- *~$16M through 2019*



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Federal Agency Partnerships

- *CFOS/Alaska Sea Grant partnership; ~$1.5M annual budget*
- *Bureau of Ocean Energy Management; $1M to Coastal Marine Institute*
- *Leverages funding to support research and Alaska's coastal communities*

COASTAL MARINE INSTITUTE

Kasitsna Bay

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Innovation and Commercialization

- *Blue Evolution leasing space at Kodiak to process kelp for market*
- *Blue Pipeline Incubator at Seward fostering ocean business & workforce*
- *MARINER ARPA-E award to develop sugar kelp for market*
- *Pet treats from fish skins developed at Kodiak*

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Mariculture Facilities, Faculty & Research

Facilities:

- **Kodiak Seafood and Marine Science Center:** Seafood R&D facility
- **Kasitsna Bay Laboratory:** Research on kelp and invertebrate ecology
- **Seward Marine Center:** Research on mariculture studies
- **Lena Point:** CFOS research and teaching facility in SE Alaska

Active Mariculture Research:

- MARINER Program – DOE ARPA-E Phase I; proposing Phase II w/ UAS.
- Numerous faculty and students working on kelp, crabs, ocean acidification

CFOS

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R/V *Sikuliaq*

- ***Since March 2014, CFOS operates R/V Sikuliaq through a Cooperative Agreement with the National Science Foundation***

- ***$200M, ice-capable vessel***
- ***$33M award 2018-2023***

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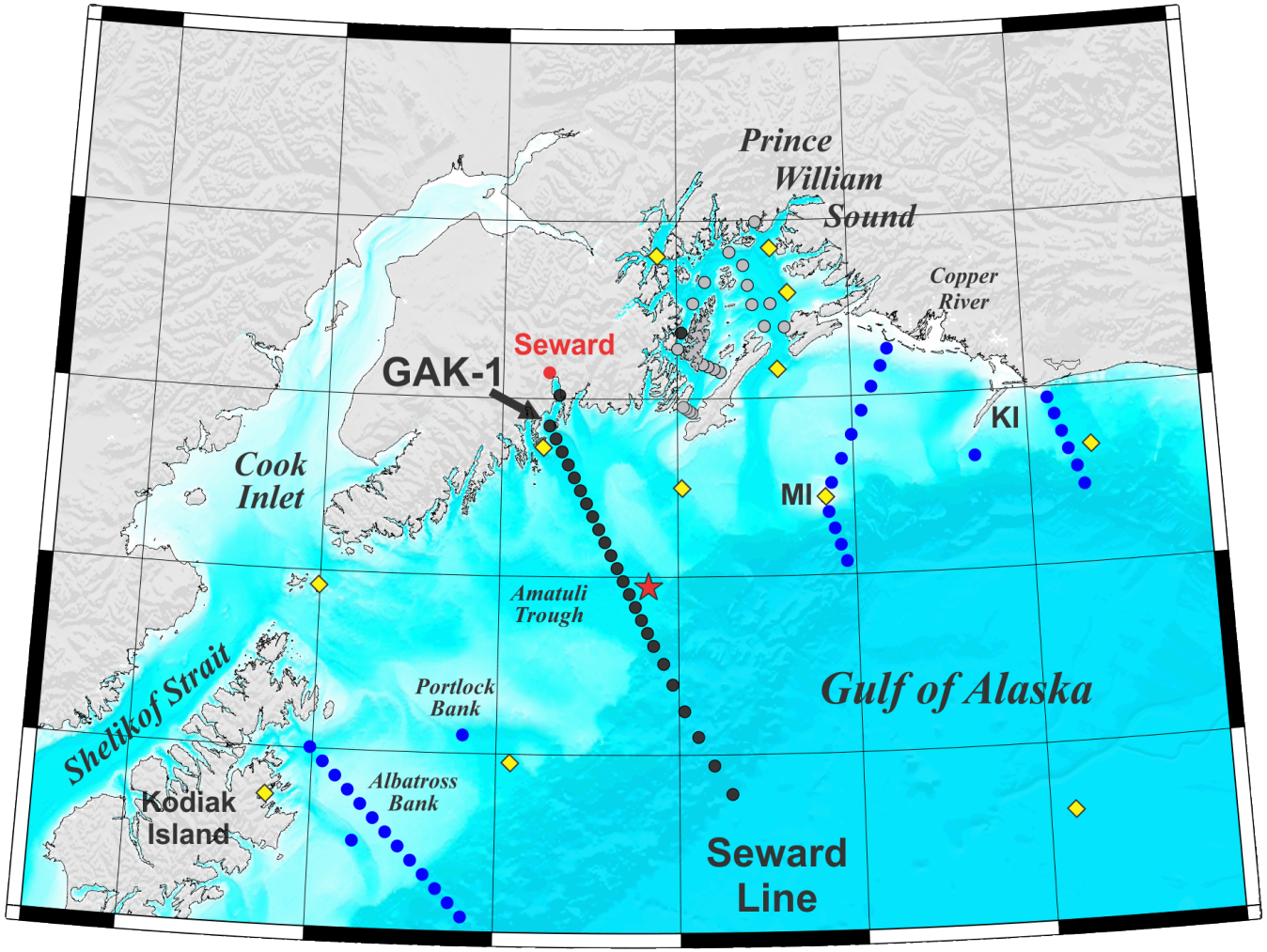
Northern Gulf of Alaska Long-term Ecosystem Research
(NGA LTER)



- *NGA LTER anchored by 45 years of research*
- ~$2.5M in research and ship time annually
- *Research to understand high productivity that supports commercial fisheries*

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EU Arctic Research Icebreaker Consortium

- *International networking & coordination*
- *Transnational vessel access*
- *Joint international research activities*

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Fisheries Graduates in Alaska's Economy

Commercial Fisheries:

- Alaska commercial fisheries yield over 60% of the nation's fishery landings
- Over $4 billion wholesale value
- Alaska's largest private employer; ~60,000 workers

Sport Fisheries/Subsistence:

- Anglers spend $1 billion on trip-related expenditures, supporting ~16,000 jobs in Alaska
- Important customary and traditional uses of fishery resources

UAF Blue MBA

University of Alaska Fairbanks

Blue MBA

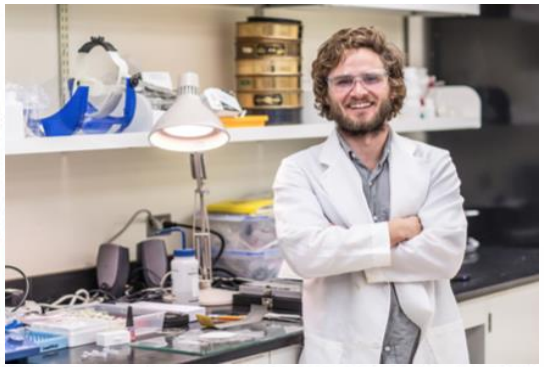
SOM UAF SCHOOL OF MANAGEMENT

BUSINESS SOLUTIONS FOR A CHANGING ARCTIC

Environmental changes occurring throughout the Arctic and particularly in Alaska's oceans, coasts, and inland waters present significant challenges and opportunities to a broad range of businesses and the global economy. To meet these challenges, there is a growing demand for leaders with the combined skills of business and science, particularly in fisheries, oceanography, and climate science and policy.

The UAF Blue MBA program combines an accredited Master of Business Administration in the School of Management (SOM) with a concentration in fisheries, marine biology and oceanography, offered through the College of Fisheries and Ocean Sciences (CFOS).

- *Online*
- *Unique to University of Alaska*



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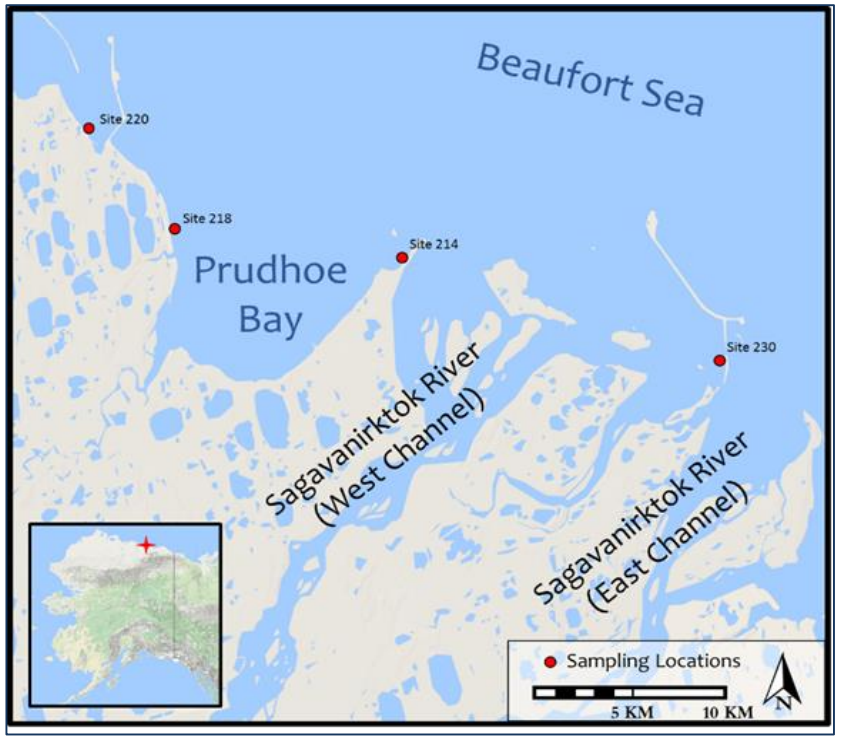
Beaufort Sea Fish Monitoring

Goal: As part of their commitment to environmental and social responsibility, since 1985 Hilcorp has funded surveys of nearshore fishes in the Beaufort Sea for potential impacts of oil and gas development.



Results: Ongoing research is focusing on climate effects on fish communities, bioenergetics, and growth.

Methods: Fyke nets sampled daily from late June to early September.

Funding: Hilcorp Energy Company

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Whale Depredation on Longline Fisheries

Problems

Management: Inaccurate Stocks Assessments

Fishermen: Reduced Catches • Increased Costs

Whales: Risk of Entanglement • Behavior Change

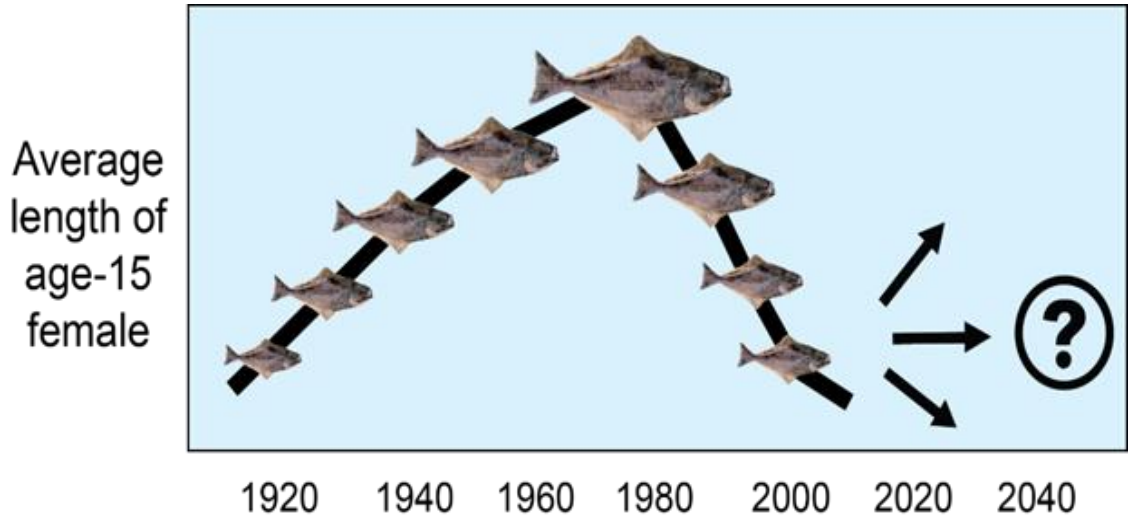
Outcomes

Adjustments to stock assessments -- pot gear now allowed in Gulf of Alaska

Results

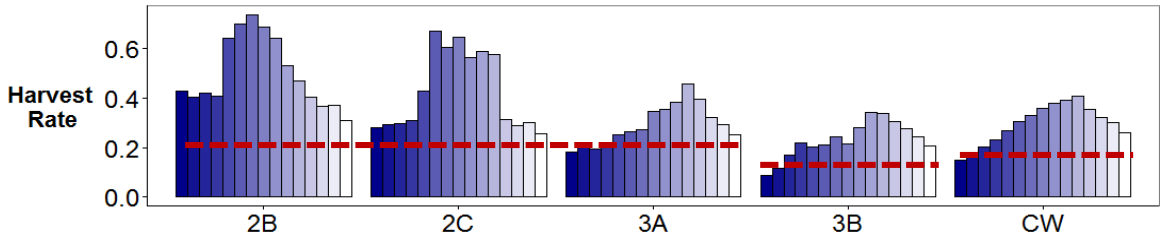
39-73% reduction in survey catches, and 35-70% reduction in commercial catches of halibut, sablefish and Greenland turbot

Declines in size of Pacific Halibut



Problem

Average weight of age-20 halibut declined from 120 lb in 1988 to 45 lb in 2015 – population stock also declined



Methods

Cumulative effects of size-selective fishing and harvest rates evaluated by simulation models

Results

High harvest rates and size-selective fishing explains 30-65% of the decline in the Gulf of Alaska

Outcome

International Pacific Halibut Commission revised stock assessment model

Funding: *PCCRC and NPRB*

Collaborators: *IPHC*

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Analysis of Tanner Crab Size Limit

Problem

Many Tanner crab never grow to legal size, resulting in excessive discards and waste

Approach

Computer model analysis of catch, bycatch, and fishery economics

Results

Lower size limit reduces discard mortality -- produces higher yields and revenues, and lower fishing costs

Outcome

Board of Fisheries approved proposal -- reduce size limit, improve profitability of Tanner Crab fishery

Funding: Bering Sea Fishery Research Foundation

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Improved Hatchery Release of Salmon

Dr. Anne Beaudreau, Douglas Duncan

How are nearshore predators responding to hatchery released salmon?

Preliminary Results

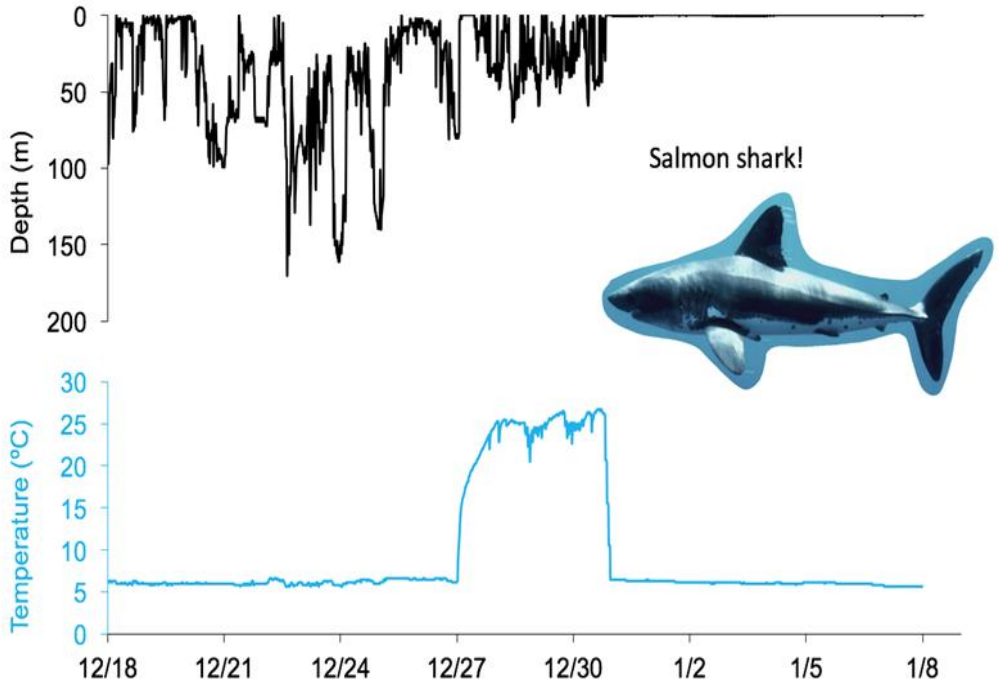
- Sculpin and Dolly Varden consume juvenile salmon in areas near hatchery release sites
- Hatchery salmon may be less vulnerable to predators -- released at a large size

Application

- Optimize hatchery strategies to improve survival
- Better understand predation in early marine survival of juvenile salmon

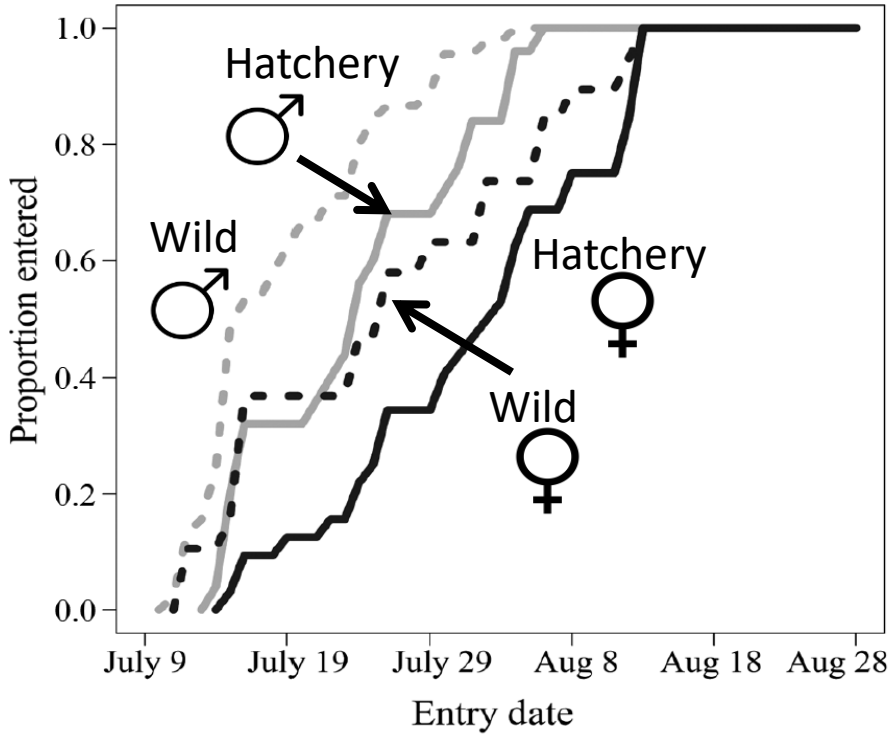
Research for Fishery Management

Decline of Chinook Salmon Abundance and Size



Part of the reason there are fewer?

Interactions of Hatchery and Wild Fish



Different run timing -- overlap on spawning grounds

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Solutions across the University

Shark Research for Biomedical Advances

- UA research on shark jaws develops artificial cartilage implant for discs, knee meniscus, prosthetic linings
- Use for military combat injuries and veterans

Expertise for policymakers and coastal communities

- UA Fisheries economists inform agencies and resource managers
  ex. *North Pacific Fisheries Mgmt. Council*
- Researchers study range of topics from global salmon markets, subsistence, arctic
- Alaska Sea Grant Program a resource for fishermen, public, and coastal economies

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Thank You

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