



Pacific Cod in Southeast Alaska: Challenges of Managing a Data Limited Fishery

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Alaska Department of Fish and Game: Southeast Region

Groundfish Project



Pacific Cod

in Southeast Alaska



Pacific Cod

in Southeast Alaska



•Fisheries:

- Bait
- Directed
- Bycatch

Gear :

- Longline
- Pots
- Jig
- Dinglebar/Hand Troll

Target:

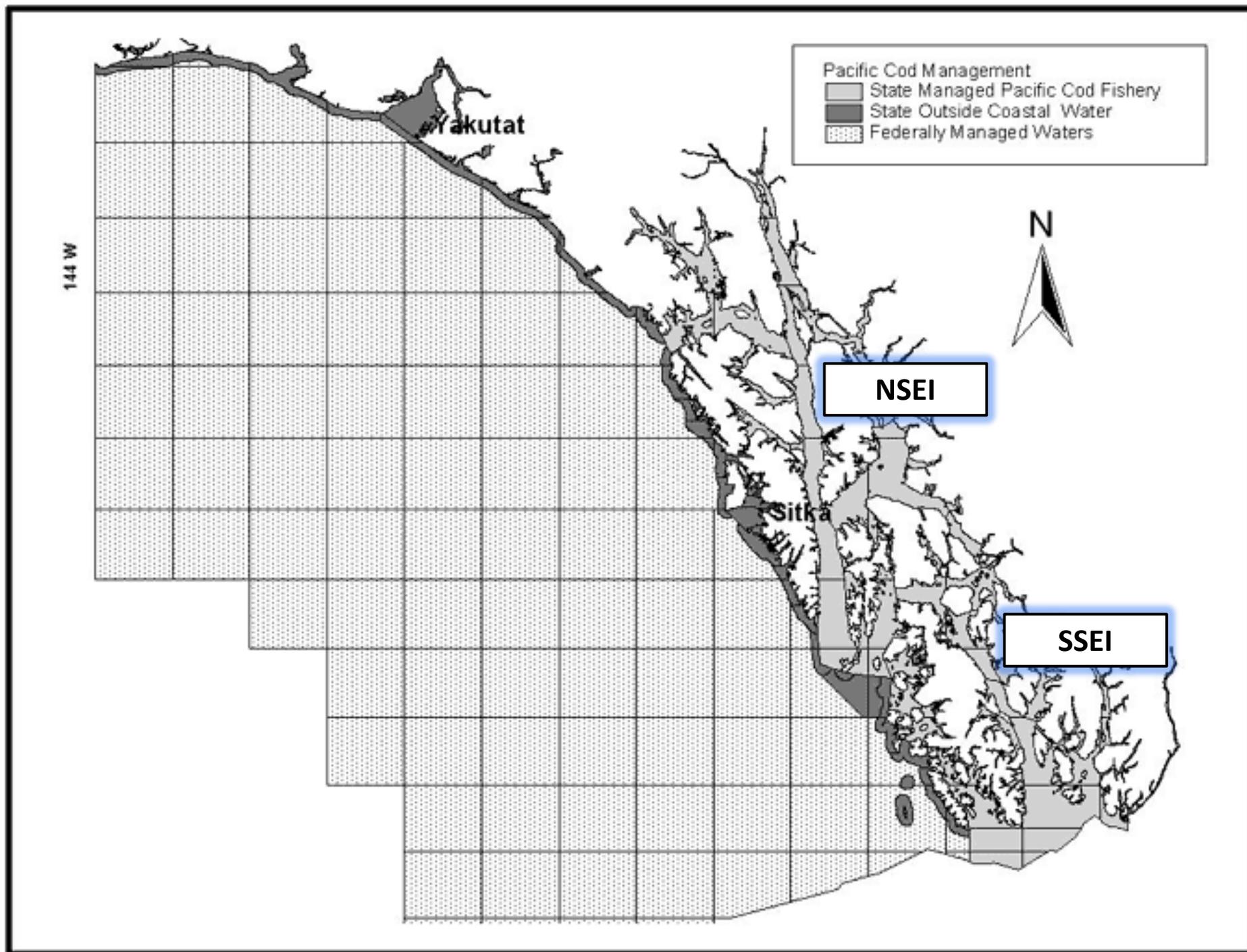
- Spawning Aggregations
October – April

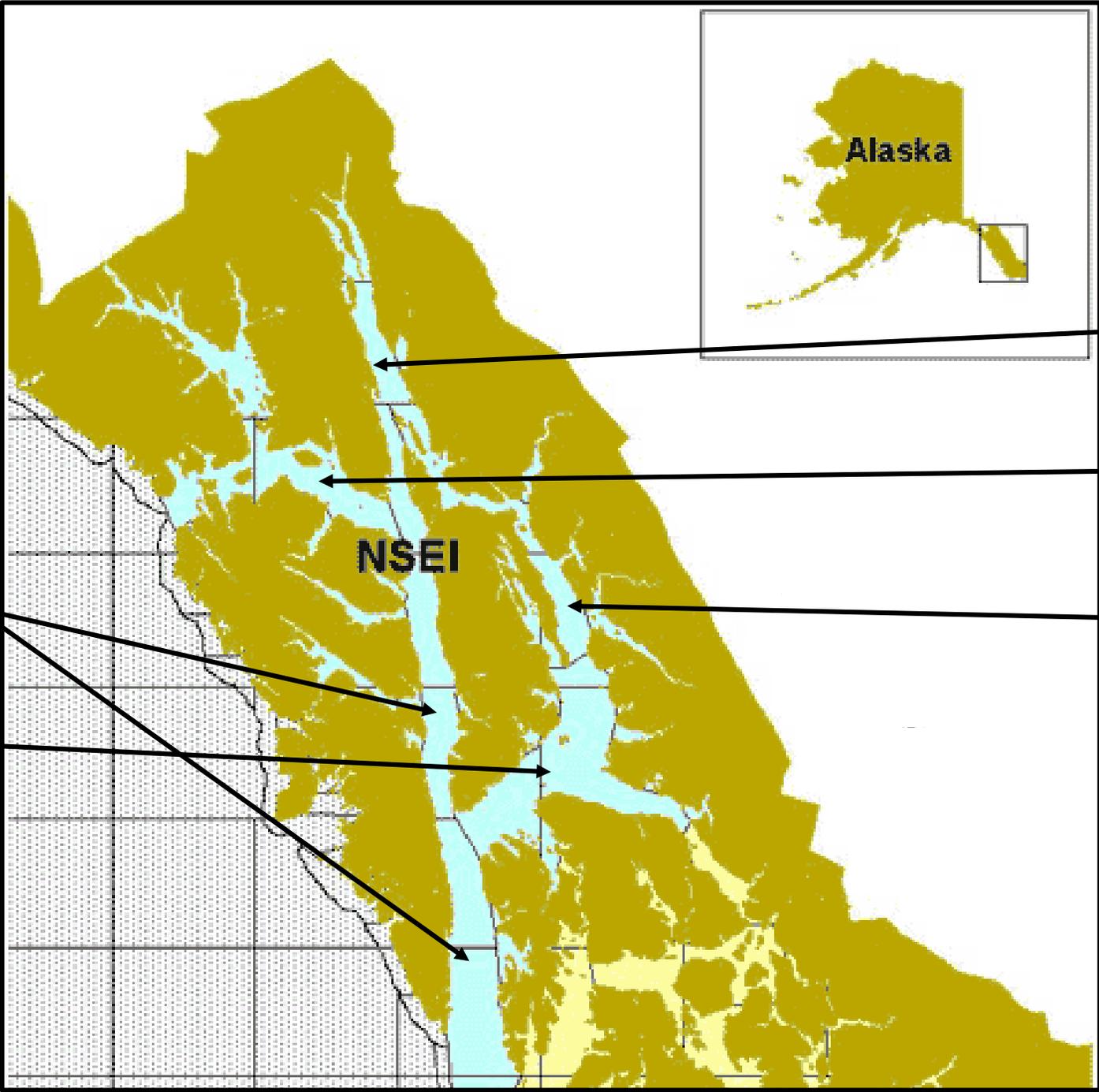
Season:

July 1st –
June 30th

GHR:

750,000 -
1,250,000 lbs





Lynn Canal

Icy Strait

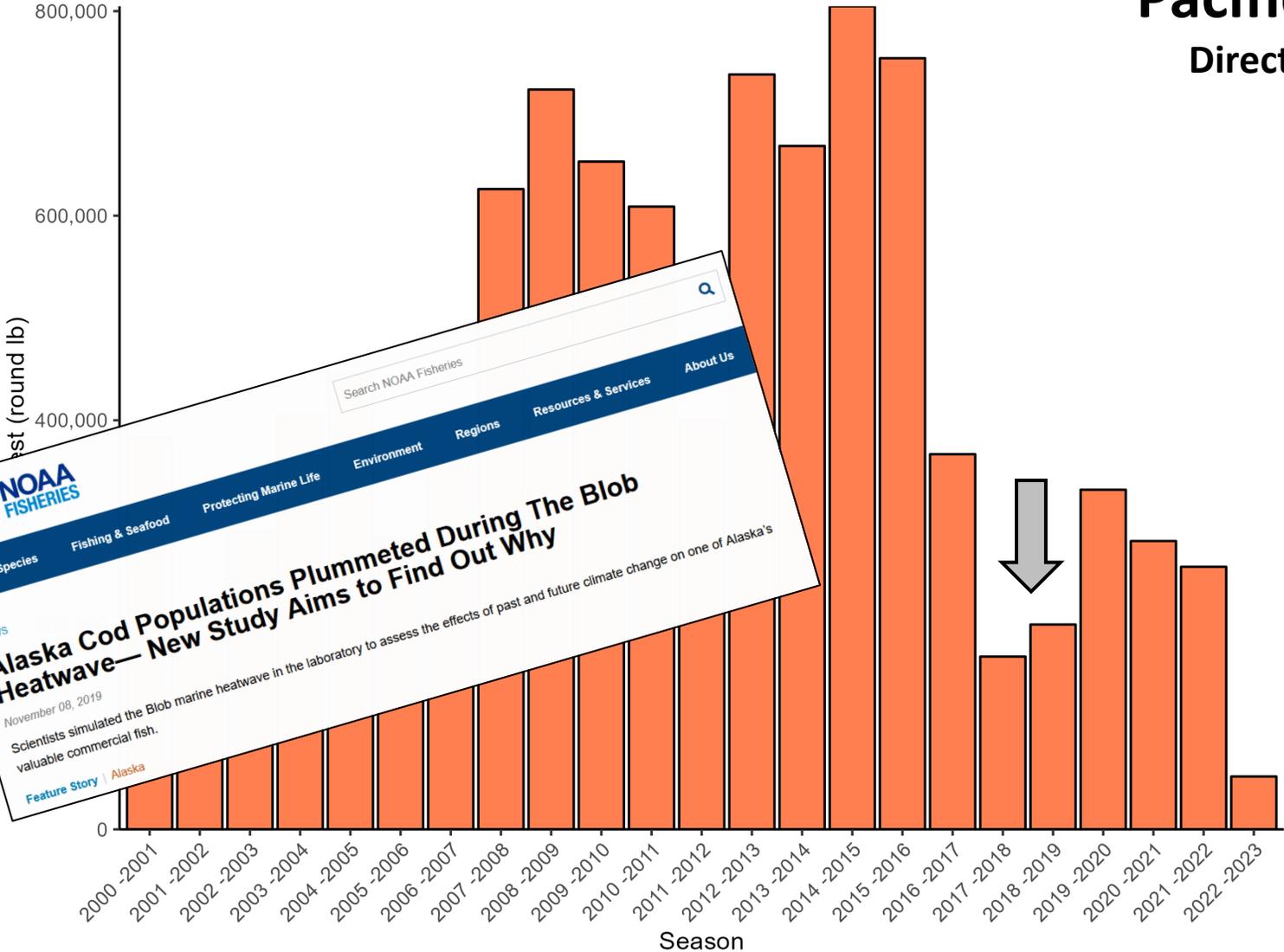
Stephens
Passage

Chatham Strait

Frederick Sound

Pacific Cod Harvest

Directed and Bait Fisheries



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NEWS
Alaska Cod Populations Plummeted During The Blob Heatwave— New Study Aims to Find Out Why
 November 08, 2019
 Scientists simulated the Blob marine heatwave in the laboratory to assess the effects of past and future climate change on one of Alaska's valuable commercial fish.
 Feature Story | Alaska



How do we manage Pacific Cod?



**Time
Restrictions**



**Area
Restrictions**



**Reduce
Guideline
Harvest Range
(GHR)**



**Reduce
Guideline
Harvest
Limit (GHL)**

How do we manage Pacific Cod?

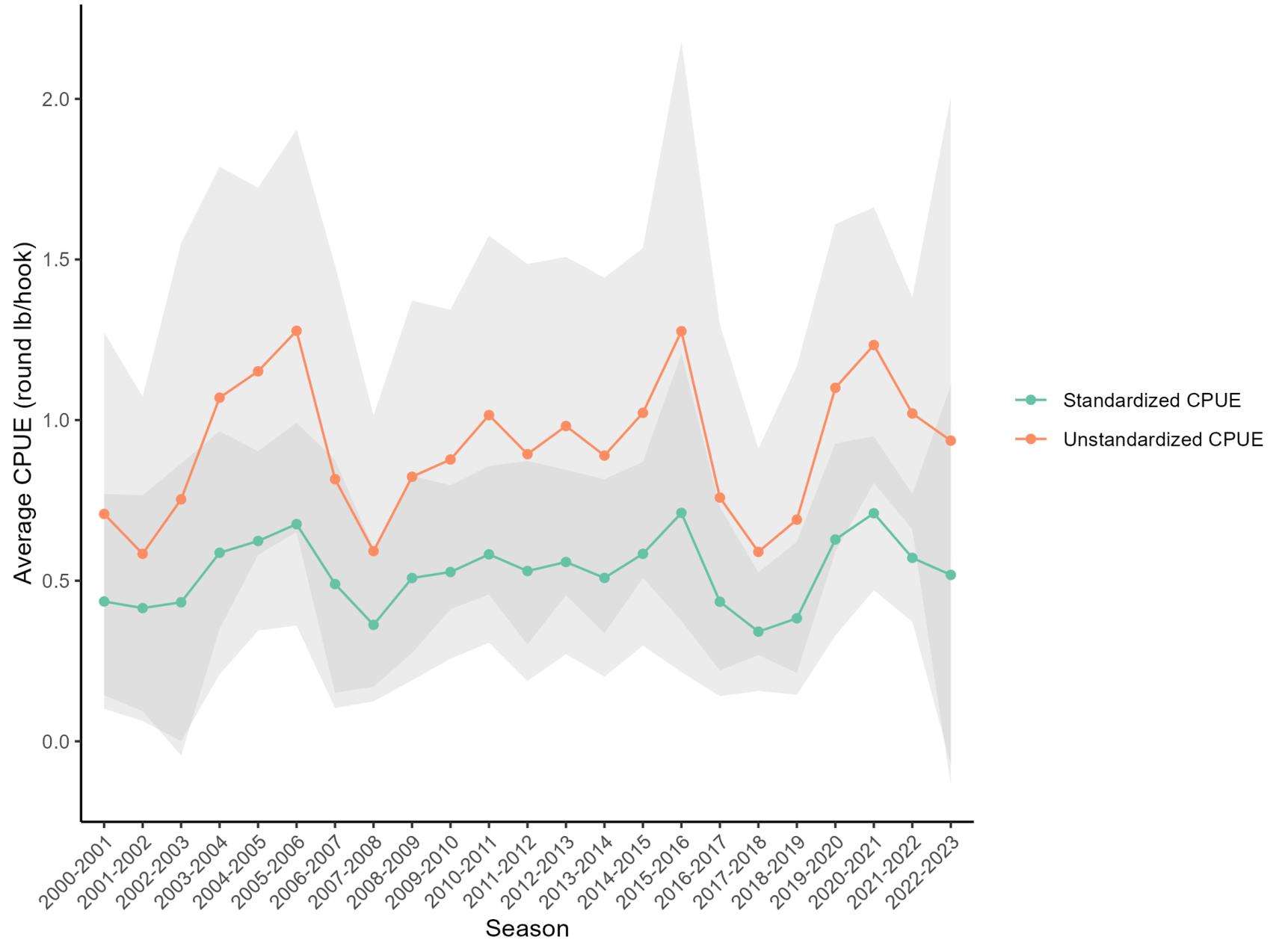
Catch and Effort Data

- Logbooks
- Fish Tickets

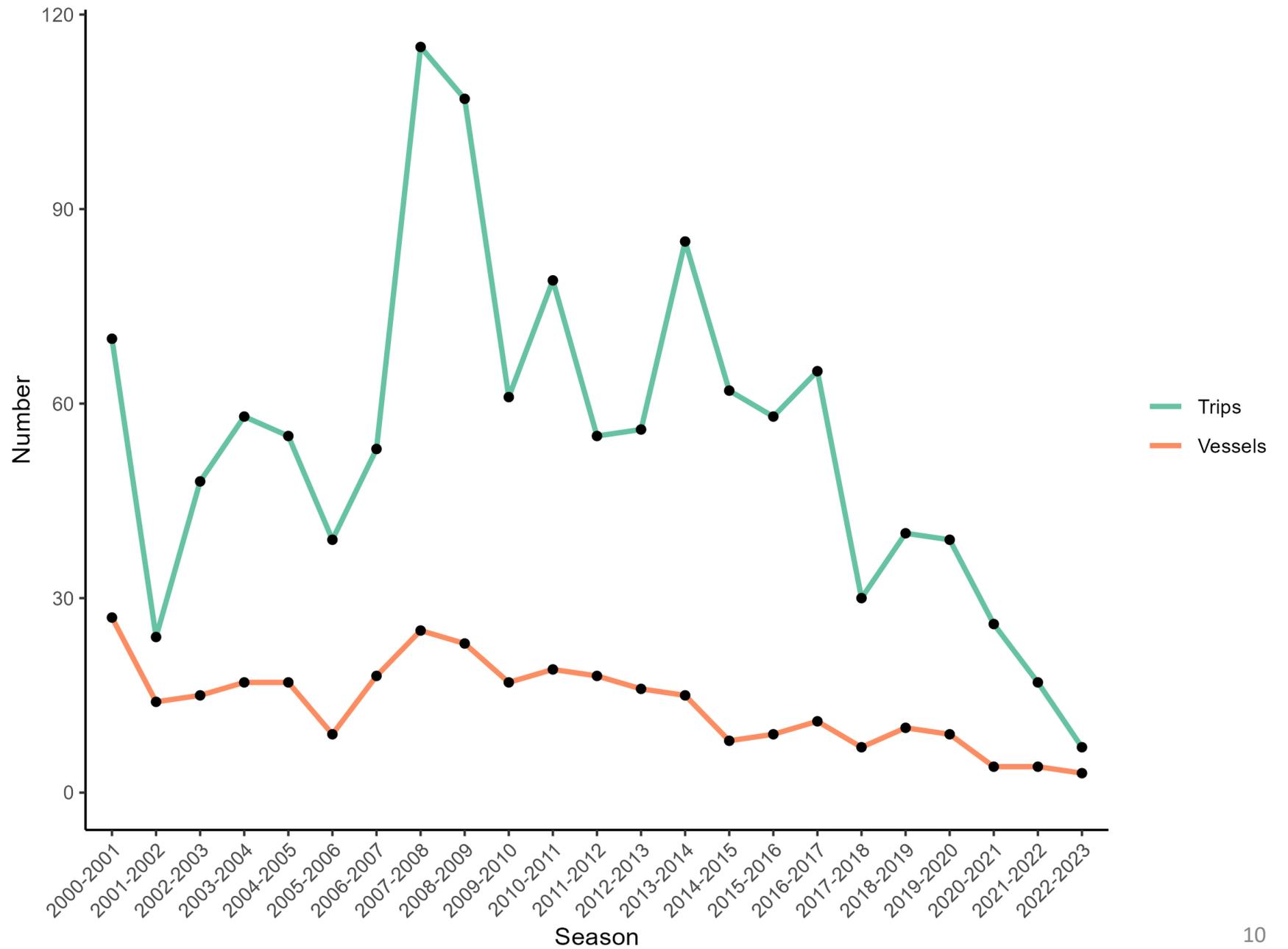
Biological Data

- Length
- Weight
- Sex
- Maturity
- Otoliths for Aging

Average Catch per Unit Effort



Fishery Participation



Limited Markets



Small and Wormy Fish



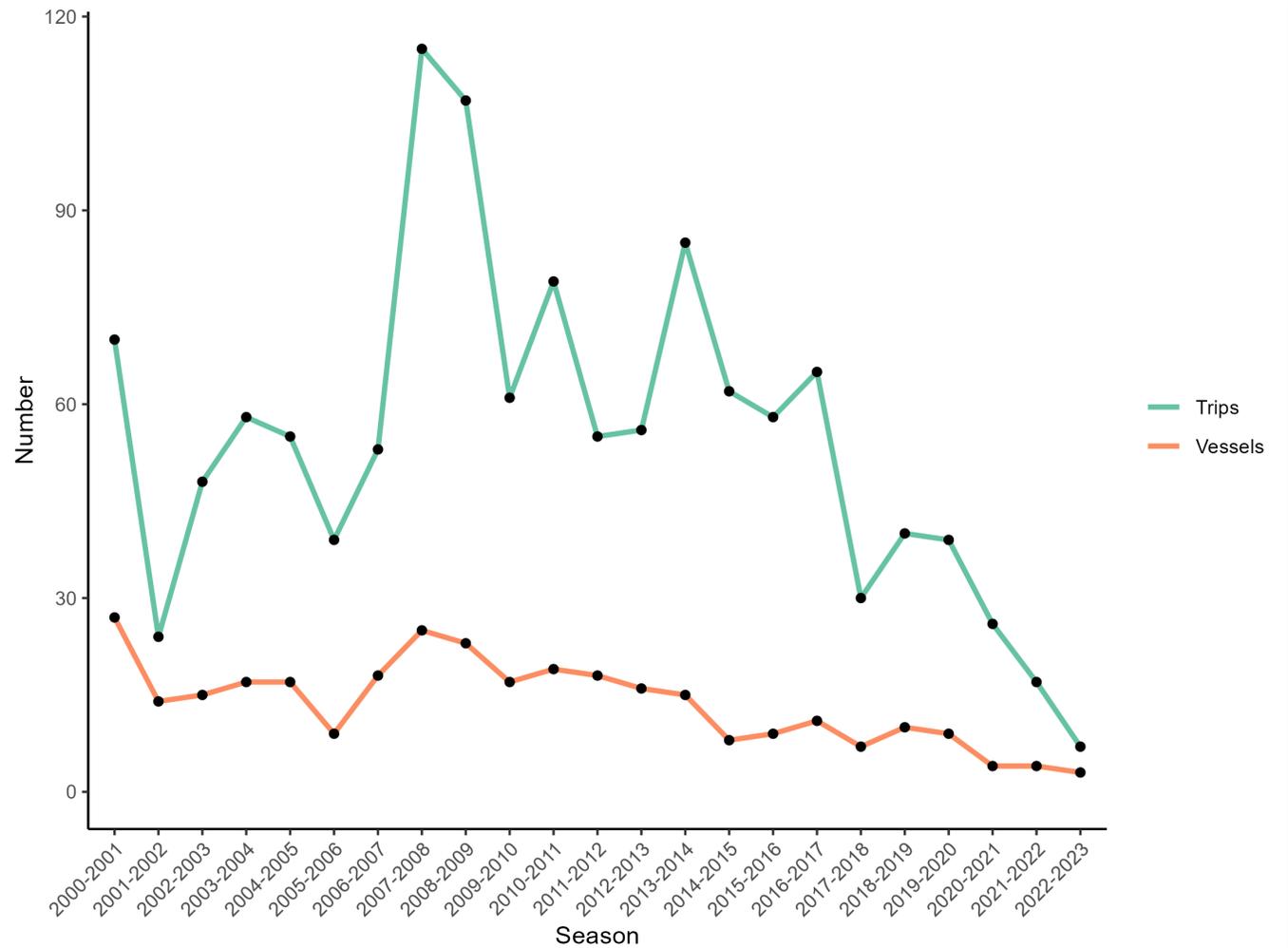
Difficulty Delivering to the Fresh Market



Low Price per lb



Fewer Buyers



How do we manage Pacific Cod?

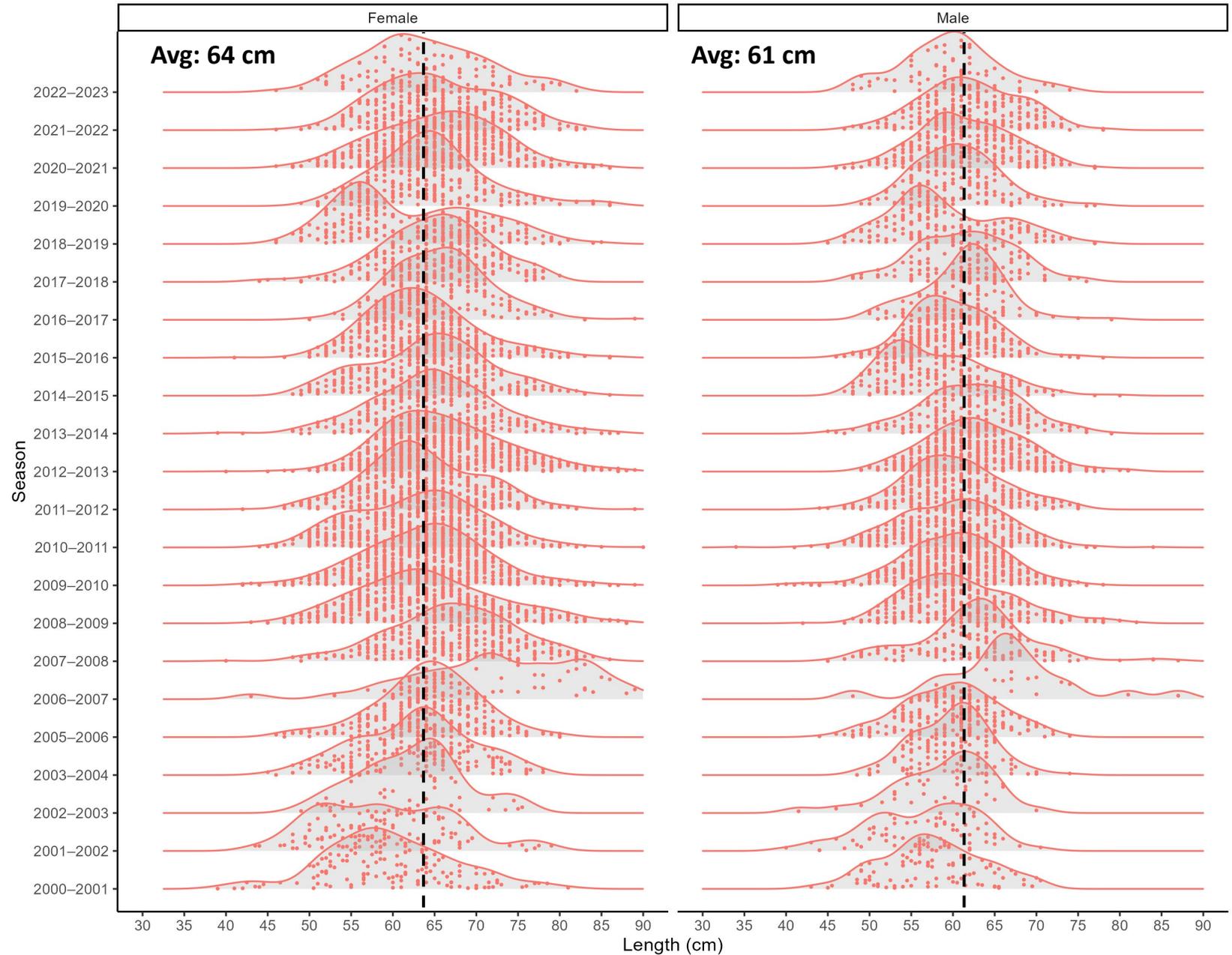
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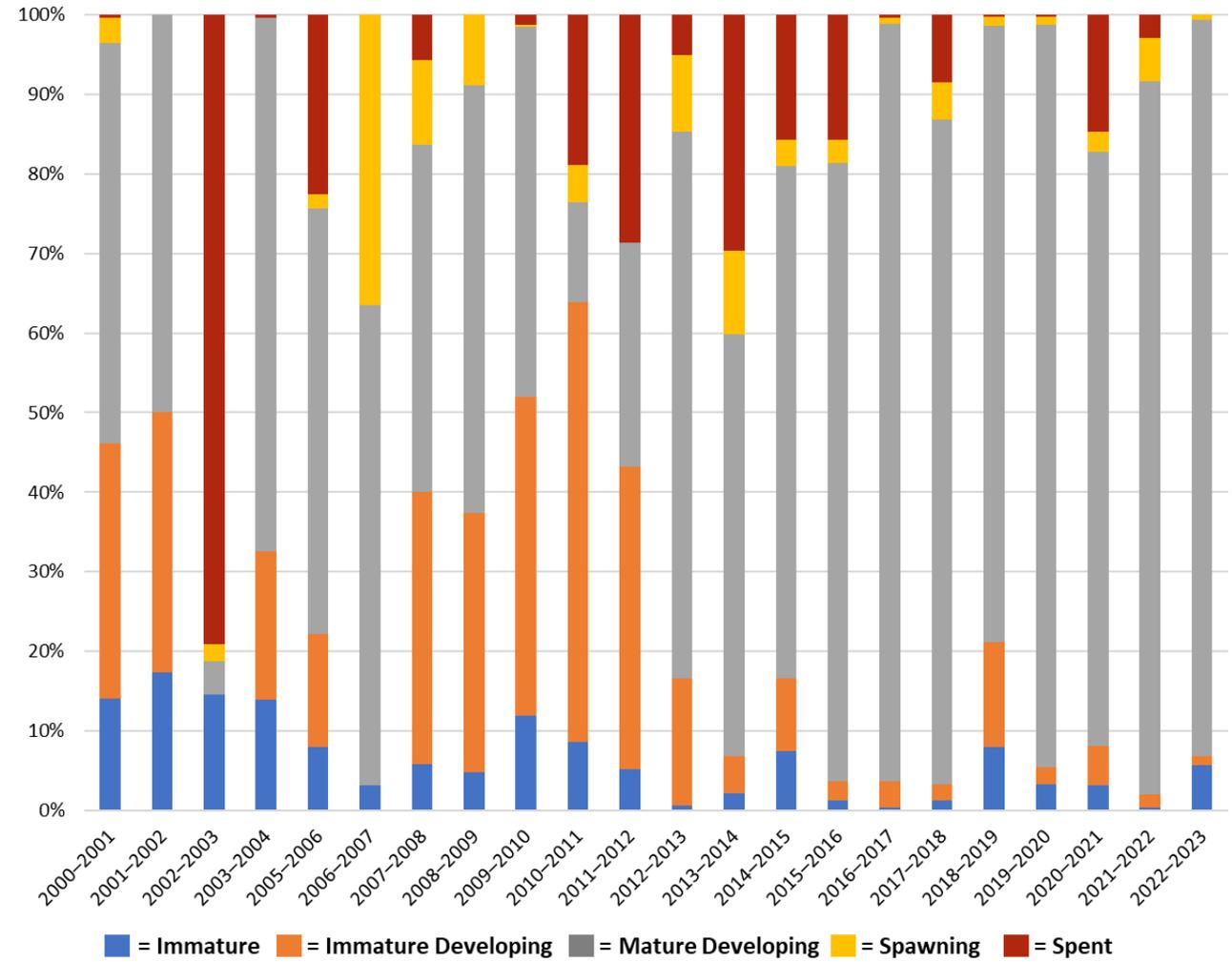
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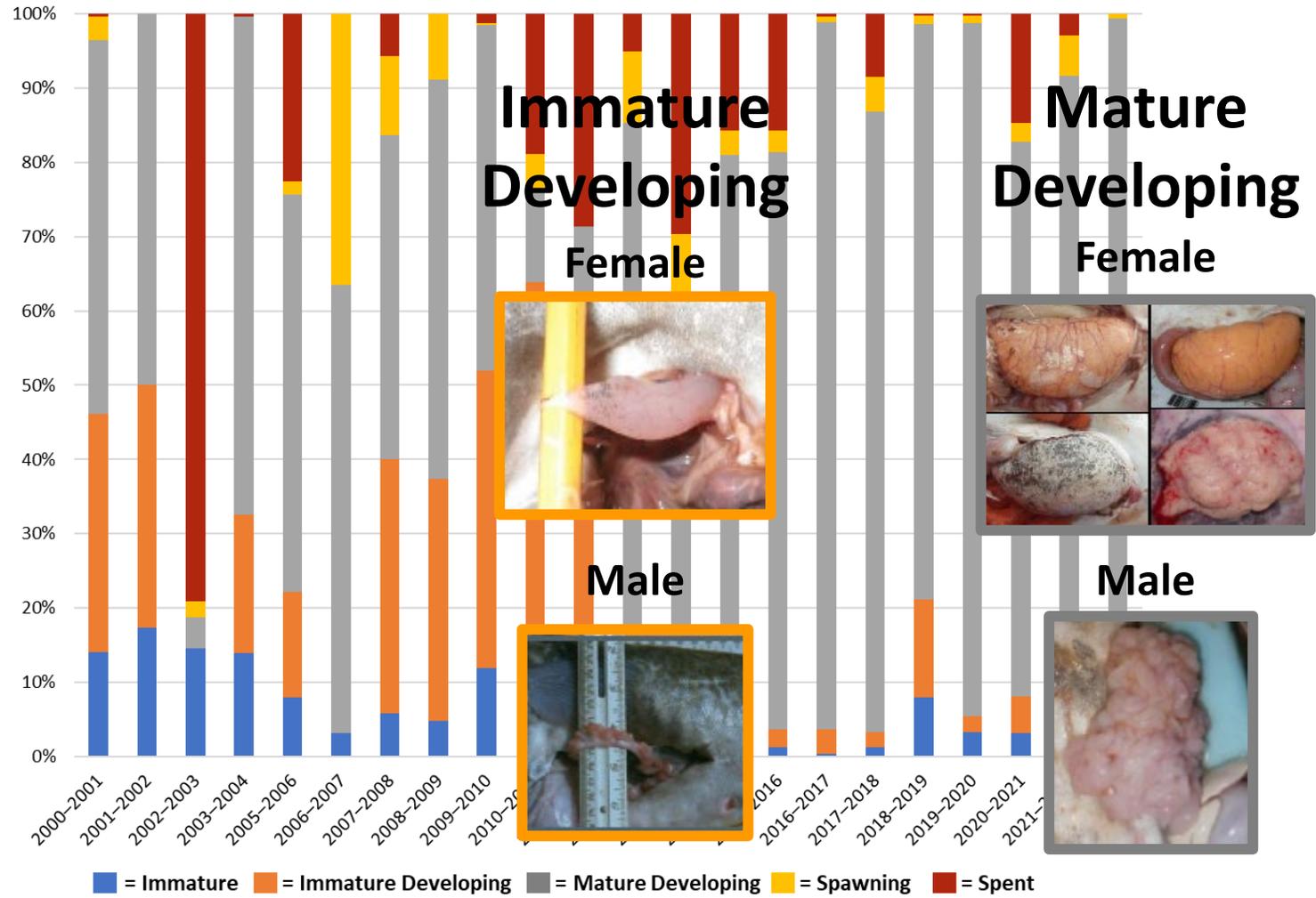
Length

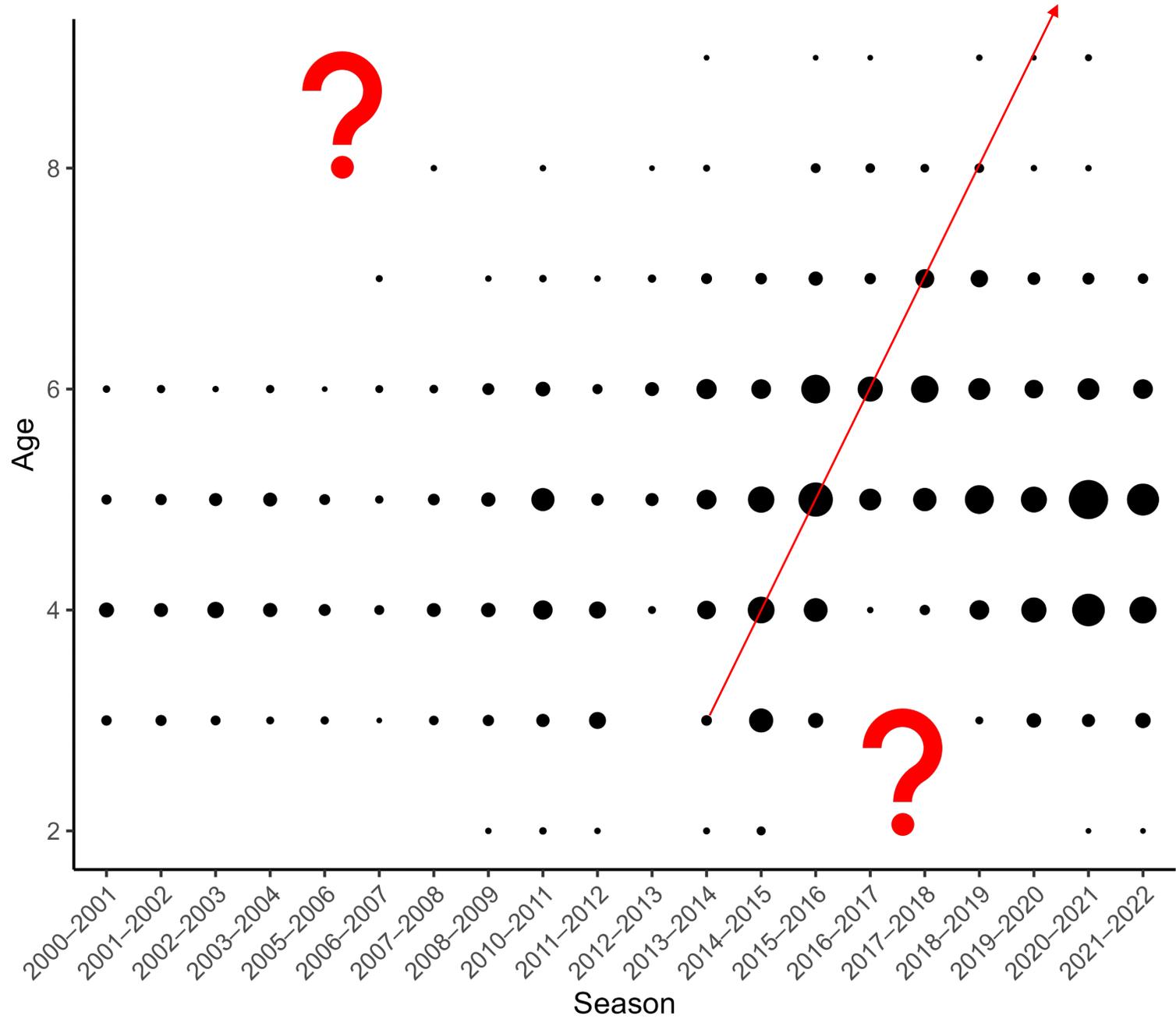


Maturity



Maturity





Moving Forward



- Conservative Management Needed
- Improve Current Management Plan
 - Adjust Regional GHLs
 - Break Subregions into Smaller Areas
- Develop Data Limited Assessment
- Future Research
 - Movement Study



Acknowledgements

- **Groundfish Project Team**
- **ADFG's Age Determination Unit**



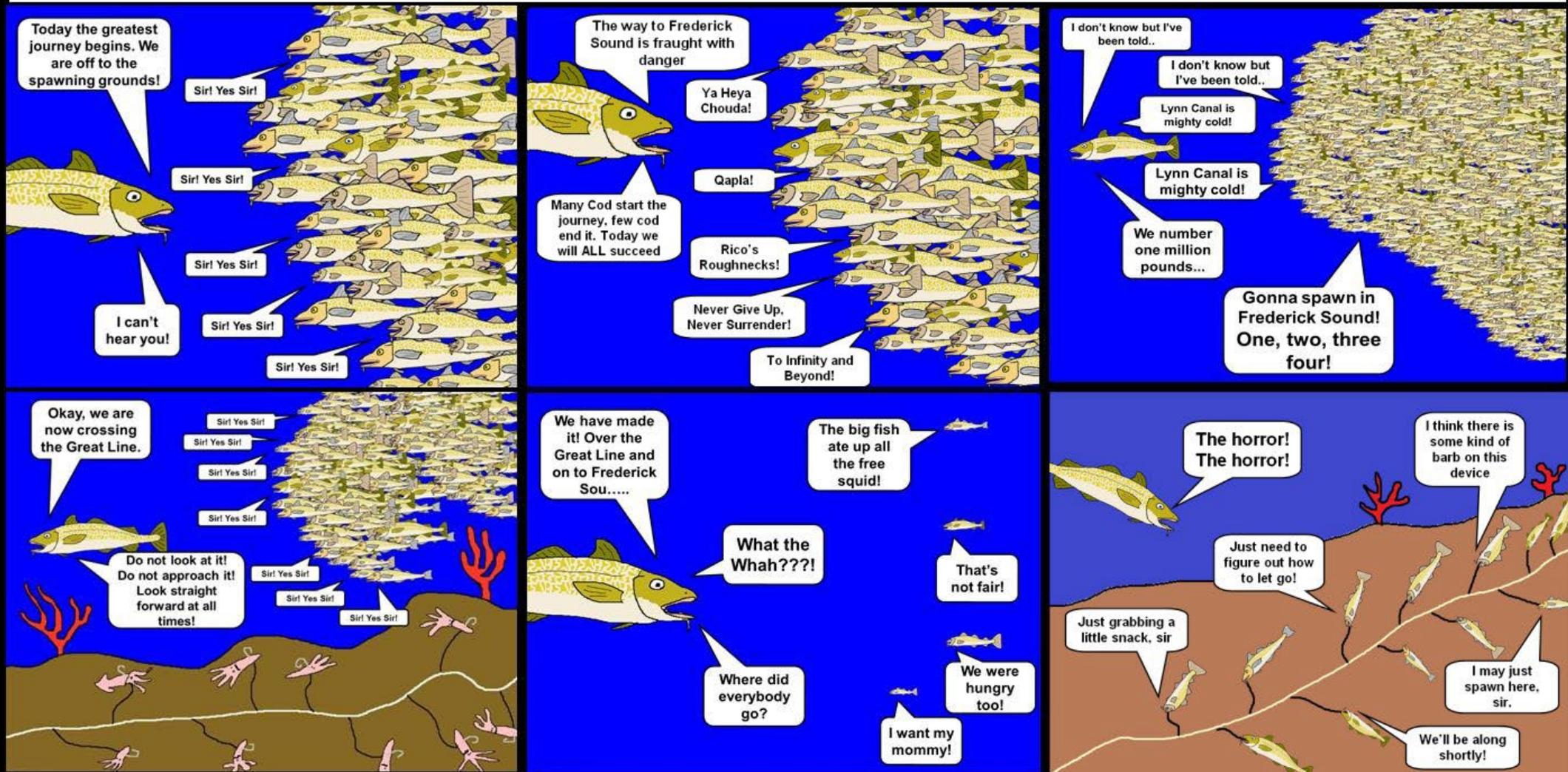
We're Hiring!

If you are interested in Groundfish Research or Management, please keep an eye on Work Place Alaska for job openings!!

Life on the Longline

#8 Children of a Lesser Cod

by Aaron Baldwin



Questions?

Proposed Statewide Pacific Cod Gonad Maturity Codes					
Code	Condition	Female		Male	
1	Immature	<p>Has not previously spawned and will not spawn this season.</p> <p>Ovaries are small, elongate, and transparent paired sacs that are located close to the vertebral column and may be difficult to find.</p>		<p>Has not previously spawned and will not spawn this season.</p> <p>Testes are translucent and appear as "bumps" on thread-like strands that are often indistinguishable from gut mesentery.</p>	
2	Maturing Juvenile	<p>Has not spawned before.</p> <p>Ovaries are translucent with developed blood vessels and distinct lobes and may be up to approximately 1/2 of body cavity. No oocytes are visible to the naked eye. Ovary wall may have some light black and silver speckling.</p>		<p>Has not spawned before.</p> <p>Testes are ribbon-like with a "ruffled" appearance and are increasing in size and becoming opaque.</p>	
3	Mature / Developing	<p>Preparing to spawn this season.</p> <p>Ovaries are enlarged and generally greater than 1/2 the length of the body cavity. Sticky orange or pale grey or beige opaque eggs (oocytes) are visible. Ovary wall may have black or silver coloration if the fish has previously spawned.</p>		<p>Preparing to spawn this season.</p> <p>Testes are enlarged, swollen, white or tan and convoluted "leaf-lobed" ribbons filling half to the entire body cavity. During this stage, testes are increasing in size, becoming more convoluted and increasingly whitish as sperm fills the testes.</p>	
4	Spawning	<p>Spawning.</p> <p>Eggs run under slight pressure. Most eggs appear as mature clear hydrated ova with few opaque oocytes. Ovary wall thin and stretched.</p>		<p>Spawning.</p> <p>Testes are milky white, highly convoluted, fill much of the body cavity and sperm runs under slight pressure. Milt is emitted when testes wall is compressed.</p>	
5	Spent	<p>Recently spawned.</p> <p>Ovaries still enlarged, but appear flaccid and watery. Ovaries may be dark and bloodshot with reddish-brown interior. May contain remnants of disintegrating ova and associated structures, as well as some translucent eggs.</p>		<p>Recently spawned.</p> <p>Testes are flaccid and watery, white to tan/translucent in color, may be watery or partially contain sperm, and usually appear bloodshot.</p>	
6	Resting	<p>Spawned before; transition state before oocyte development.</p> <p>Ovaries reduced in size, firm, compressed, and opaque with a thickened ovarian membrane, and often some black or silver coloration. No ova development visible to naked eye.</p>		<p>Spawned before; transition state before sperm development.</p> <p>Adult fish with firm, tan to translucent testes but showing no development of sperm (white coloration) and less convolution. (Testes are larger than in juvenile fish.)</p>	
99	Unknown	Maturity condition indiscernible			
9	Unknown	Maturity not observed			