
SEA CUCUMBER SPAWN TIMING: A CO-MANAGER COLLABORATION

- Bethany Stevick, Taylor Frierson, Hank Carson (WDFW)
- Rana Brown (Squaxin Tribe)
- George Stearns (Puyallup Tribe)
- Margaret Homerding (Nisqually Tribe)
- Sarah Anderson, Zachary Vetak (Suquamish Tribe)
- Mike McHugh (Tulalip Tribes)
- Annie Raymond (Jamestown Tribe)
- Megan Russell (Lummi Nation)



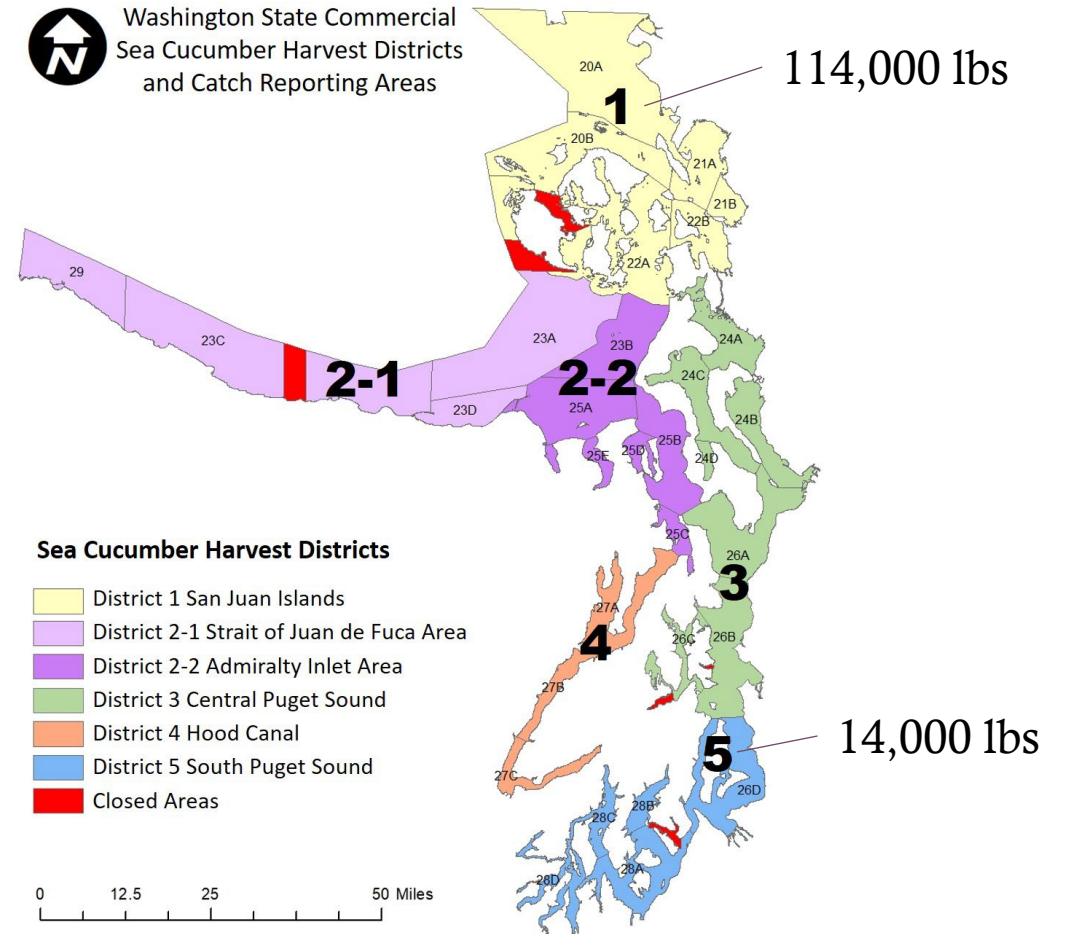


GIANT RED SEA CUCUMBER (*APOSTICHOPUS CALIFORNICUS*)

- Range from Alaska to California
- Intertidal to 250m deep
- Prefers rocky and mixed substrates
- Very mobile with 5 rows of tube feet
- 20 feeding tentacles to sift sediments for organic matter
- Broadcast spawners in “cobra” position
- May self-eviscerate organs when threatened
- Seasonal dormancy period over winter
- Challenging to measure length and weight

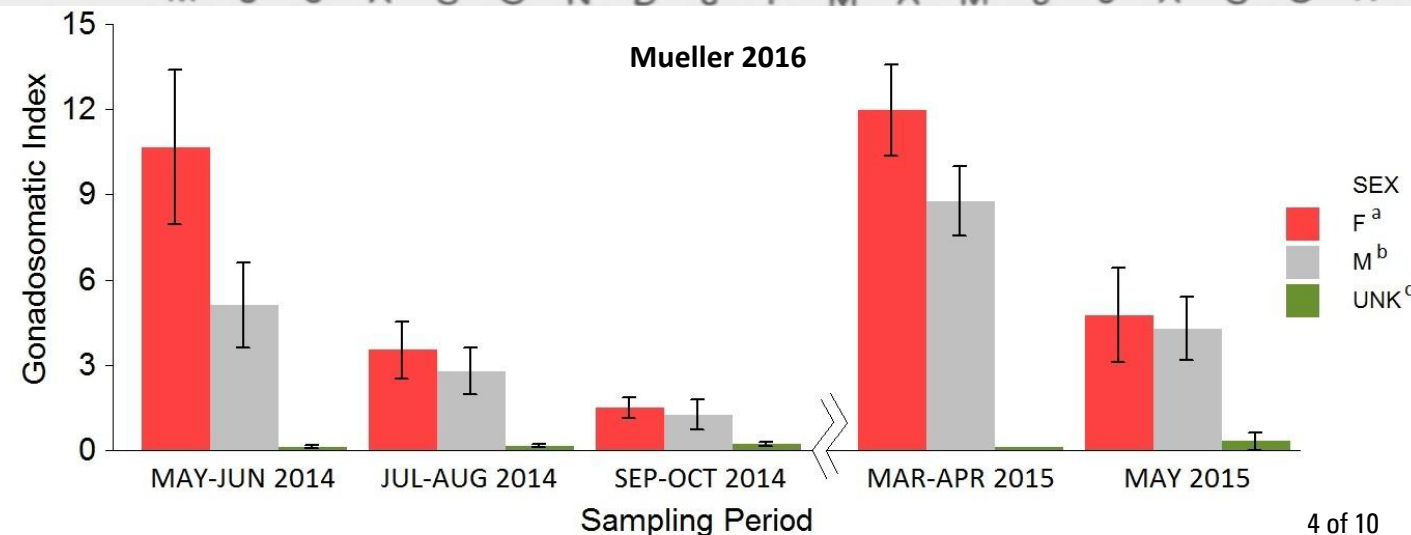
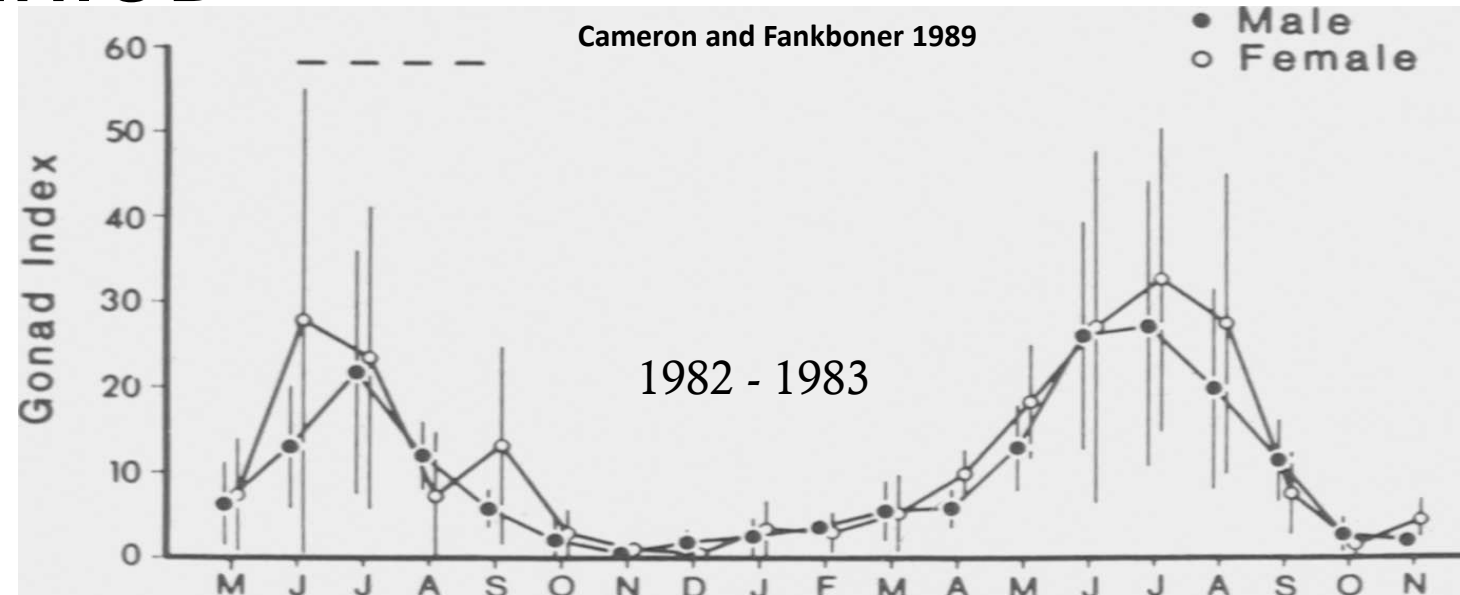
SEA CUCUMBER FISHERY MANAGEMENT

- Co-management by state and 15 tribes
- Commercial divers harvest by hand
- Cukes are split open to drain fluid/organs
- Annual quotas by district
- Spawn closure period (March to July)



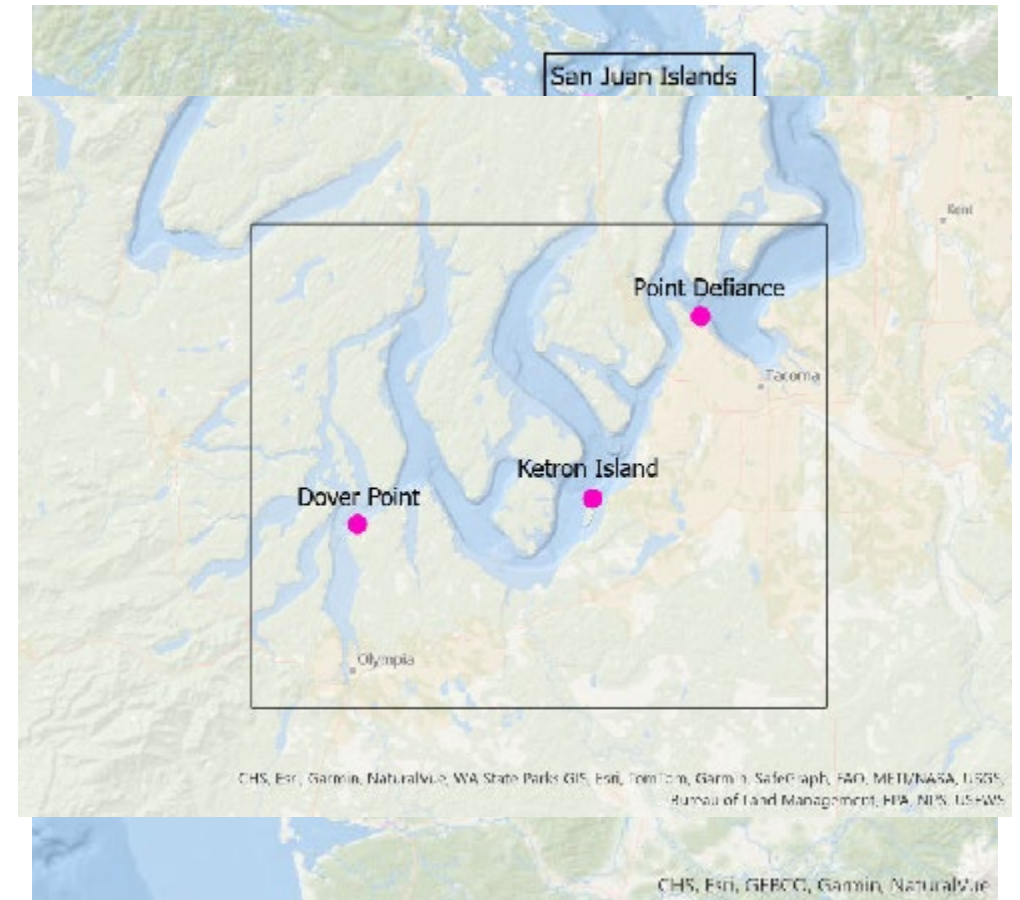
SPAWN CLOSURE PERIOD

- Originally closed June-July (Cameron & Fankboner 1989)
- These max gonad indices closely aligned with max water temp trends
- Research in 2014-15 signaled earlier max gonad index for San Juan Islands (Mueller 2016)
- These data did not align with max water temps (however, the Blob!)
- Co-managers agreed to an extended closure, now **March to July**



SPAWN TIMING RESEARCH 2024

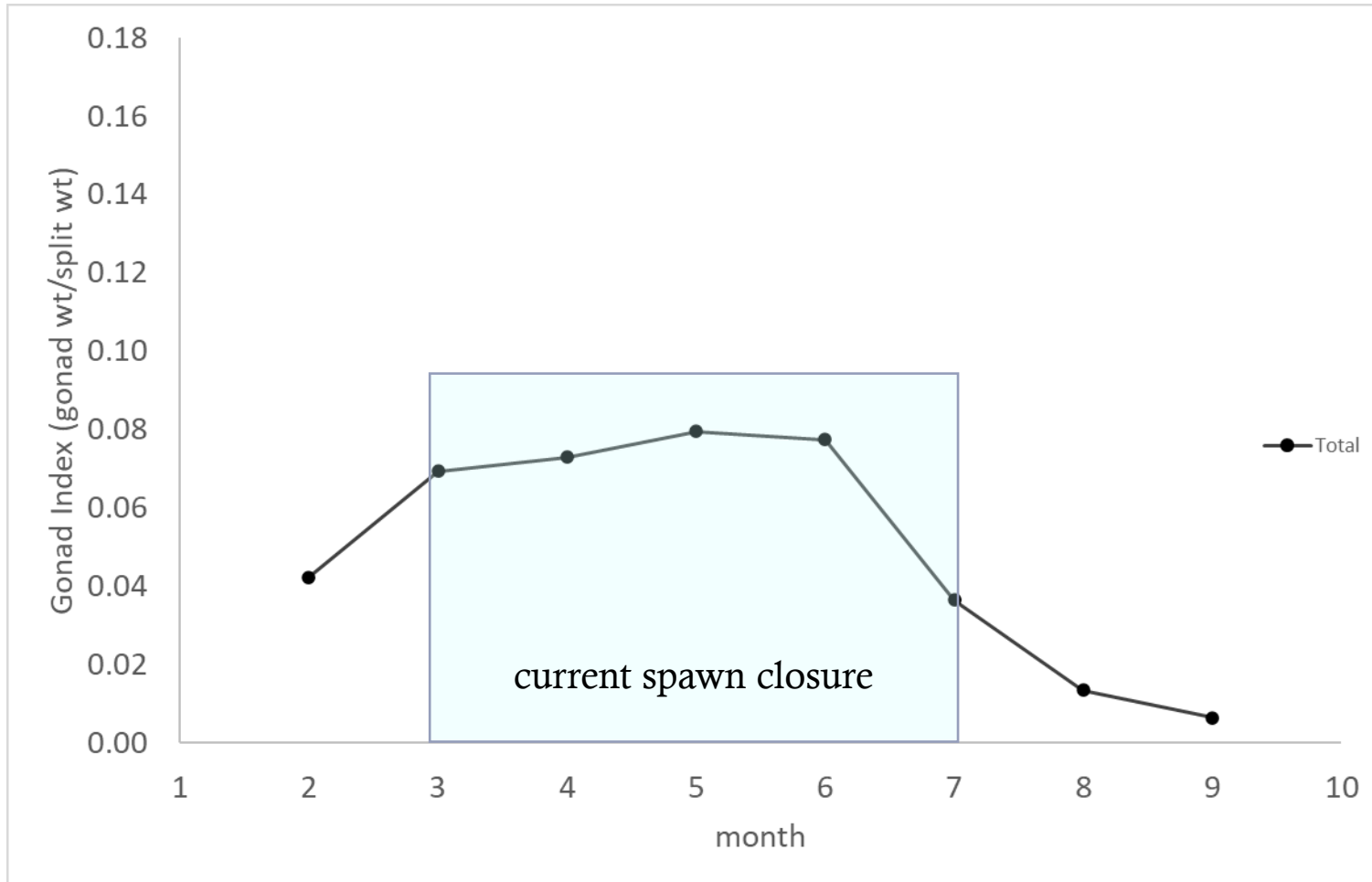
- Co-managers collaborate to initiate research on a broader scale
- What time of year do cucumbers spawn?
 - Is timing different across regions?
- 9 sites across Puget Sound
- Monthly collections and sampling (n= 30 per site) for 2024 and 2025
- Sea cucumber length, weight, gonad weight, and tissue samples



LOTS OF EFFORT, MANY HANDS



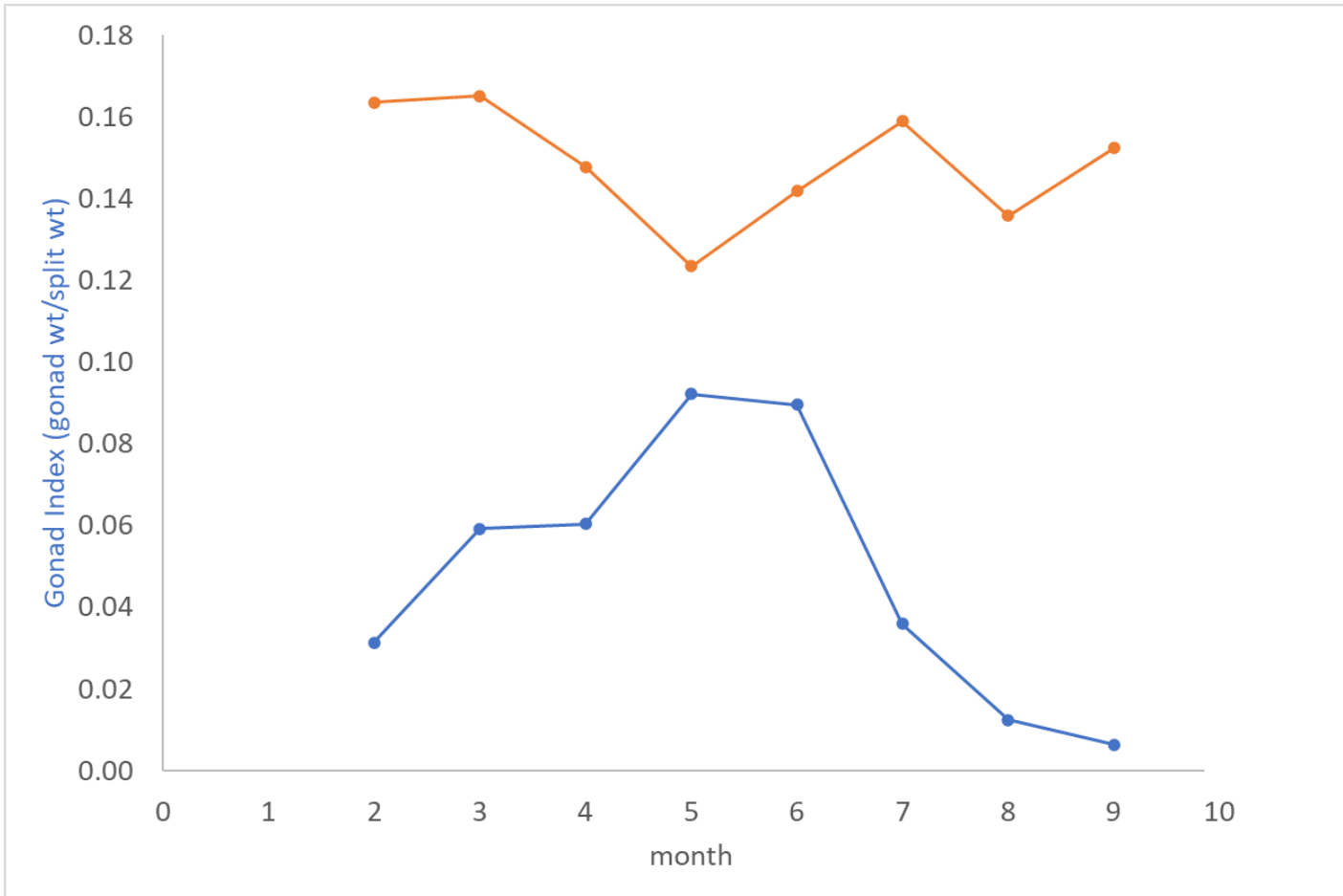
SPAWN TIMING RESULTS - 2024



CUCUMBER SPAWN TIMING



SPAWN TIMING RESULTS - 2024



Body Condition:

- When is the body wall the thinnest?
 - Harvest during thin body wall conditions = more cucumbers taken per pound of quota





CUCUMBER SPAWN TIMING

CONSIDERATIONS & NEXT STEPS

- South Sound sea cucumbers showed peak spawn in May and June, similar to Central Sound but later than San Juan Islands and Strait of Juan de Fuca
- Body wall condition was thinnest in May
- Could consider a more contracted harvest closure period
- Will continue to sample San Juan Islands through the winter
- Repeat sampling in 2025 for all regions

THANK YOU!

WA DNR dive team:

Corey Oldham
Olivia Castro
Ben Kilfoil
Robyn Cole
Kurt Heikkila
Forrest Streeter
Beau Babkirk
Bryan Morrow

WDFW Enforcement:

Taylor Kimball
Josh Koontz
Kelly Denny
Ralph Downes
Owen Barabasz
Brant Johnson

Lummi Nation

Jamestown S'Klallam Tribe
Port Gamble S'Klallam Tribe
Tulalip Tribes
Suquamish Tribe
Puyallup Tribe
Nisqually Tribe
Squaxin Tribe

Volunteers:

Karl Mueller
Taylor Bruntl
Sofia Sherman



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INDIGENOUS PEOPLE AND THE GIANT RED SEA CUCUMBER

Known in Lushootseed as tδjábac