



Red Tide Stinks: Addressing the impact of red tide regulations upon the commercial shellfish industry in Southwest Florida



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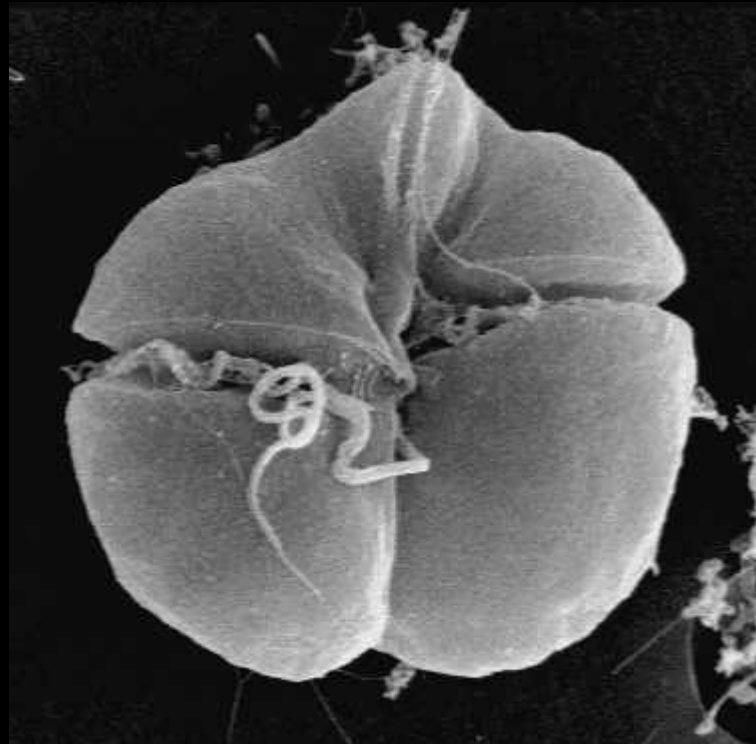


The Issue: Red Tide

- Dinoflagellate (*Karenia brevis*)
- Blooms may result in water discoloration, fish kills, marine mammal mortality, human health effects

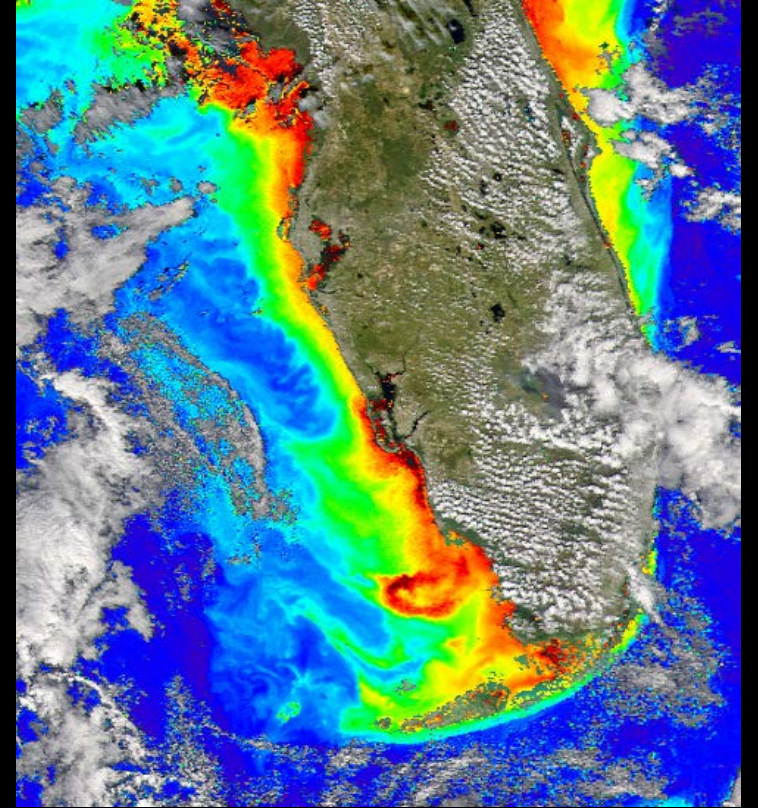


Ivan, is this ok?



The Issue: Red tide

- Naturally occurring phenomenon
- Events are generally* restricted to SW Florida
 - *severity, duration, frequency and location expanding
- Implications for tourism, fisheries, aquaculture

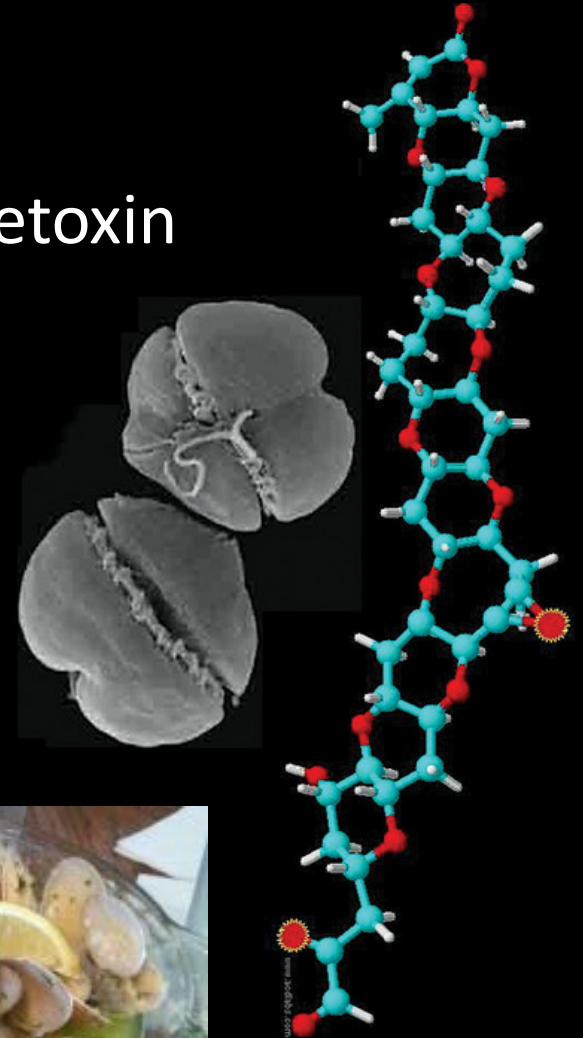


The Issue: Red tide

- *Karenia brevis* produces a neurotoxin (brevetoxin)
- Bivalves are filter feeders – high concentrations of brevetoxin may result in Neurotoxic Shellfish Poisoning (NSP)
 - Tingling and numbness in mouth and throat
 - Dizziness
 - Reversal of hot/cold
 - Vomiting and diarrhea



Image credit: Betty Staugler



Red tide regulations for commercial shellfish

- Shellfish harvesting areas
- Quarantine zones
- Water samples and cell counts
- Meat samples and mouse bioassay



Process bottlenecks.

Policy communication challenges.

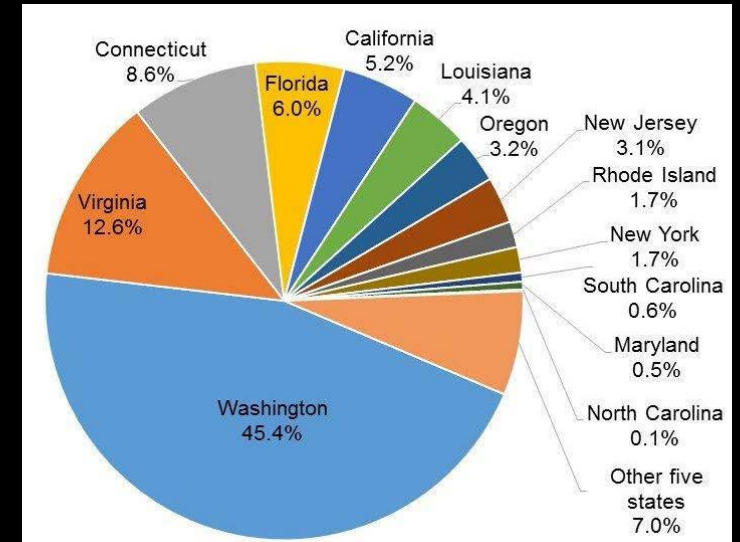
Perception of exclusion in the process.

So what?

- Clams are the most important aquaculture food product in FL.
- Significant economic impact (> \$40 M).
- Closures create decreased revenue, impact potential growth, reduce product availability.

Goals of this project:

- Create a forum for discussions regarding policy and potential modifications.
- Present industry-driven alternatives to the current red tide protocol.



Molluscan aquaculture sales in the US. From Yang et al. 2016.

Powers that be...

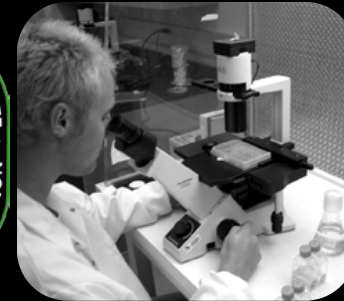
- Regulating agencies

- DACS
- FDA
- ISSC



- Scientists

- FWRI Harmful Algal Bloom Section (cell counts and mouse bioassays)

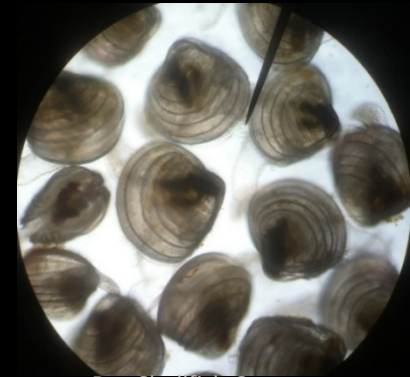


- Southwest Florida Shellfish Industry

- Farmers
- Dealers
- Hatcheries



Two Docks Shellfish Co.



Bay Shellfish Company

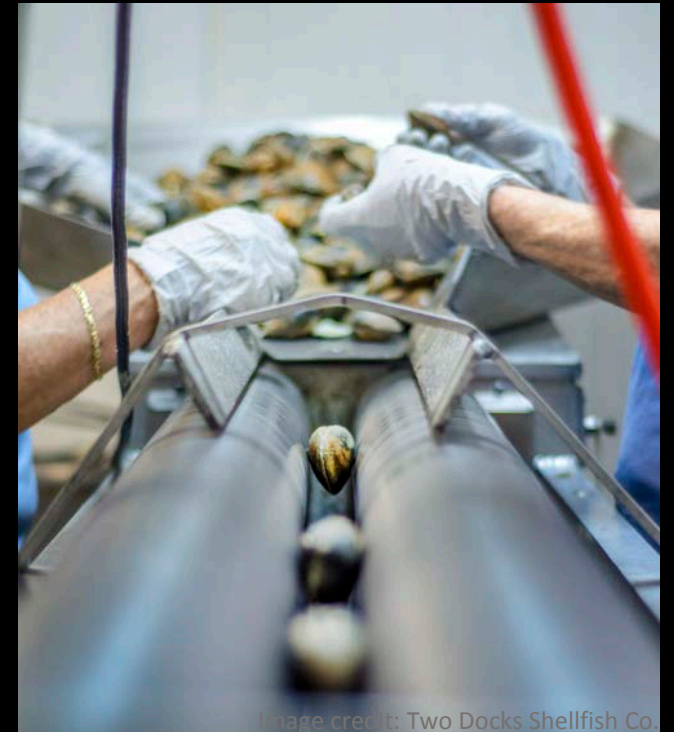
Interests

- Southwest Florida Shellfish Industry
 - Economic
 - Efficiency (time, labor, energy)
 - Reduced anxiety, perception of exclusion
- Regulating agencies (DACS, FDA, ISSC)
 - Charged with protecting public health, ensuring consumer safety and enforcing regulations.
 - Reputation of the organization.
- Scientists
 - Responsible for providing the data that are used to enact regulation and harvest restriction.
 - Scientific credibility.



Questions

- What do we know?
 - Current and historical rules
 - Available science
- What do we want?
 - Highest level of consumer safety
 - Maximum efficiency & minimum economic loss for the industry
- What can we do?
 - Present alternatives to current situation



Techniques

- Association meetings (industry)
- Smaller break out groups (industry)
- One-on-one in-house visits (industry, researchers)
- Phone conversations (industry, scientists, regulators)
- Email exchanges (industry, scientists, regulators)
- Listening
- Rephrasing and Reframing



Image credit: Ron Mayhew

Outcomes

- Regional Shellfish Task Force formed
 - Composed of industry nominated individuals (3) + Sea Grant Agent (me)
- Economic Impact Survey
 - designed (UF IFAS FL Sea Grant Economist) and is in the process of being implemented
 - Designed to demonstrate economic loss per day of closure
 - Ammunition to support regulatory assessment to ensure length of closure is not unnecessary



Lessons Learned

- Diversity of group is intense.
 - Techniques had to adapt to schedules and personalities
- Write everything down.
 - Write everything down.
- Reframing really is a thing.
- I'm not good at post-its.



Next Steps

- Task force red tide options paper and meeting agenda
- Formal task force meeting with FDACS
- Economic Impact survey results and dissemination
- Assist research that will grow efficiency and expand the industry



Acknowledgements



- The Southwest Florida Shellfish Association
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Questions?

