Florida's Biotoxin Management Plan

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Division of Aquaculture – Shellfish Harvesting Area Classification Program

Why are molluscan shellfish one of the most regulated commodities in the US?

- Filter Feeders
- Can retain microorganisms, toxins and chemical contaminants
- If water is contaminated = potential health hazard to consumers
- Necessary because public choose to consume shellfish raw or partially cooked
- $$$ Important economically

National Shellfish Sanitation Program

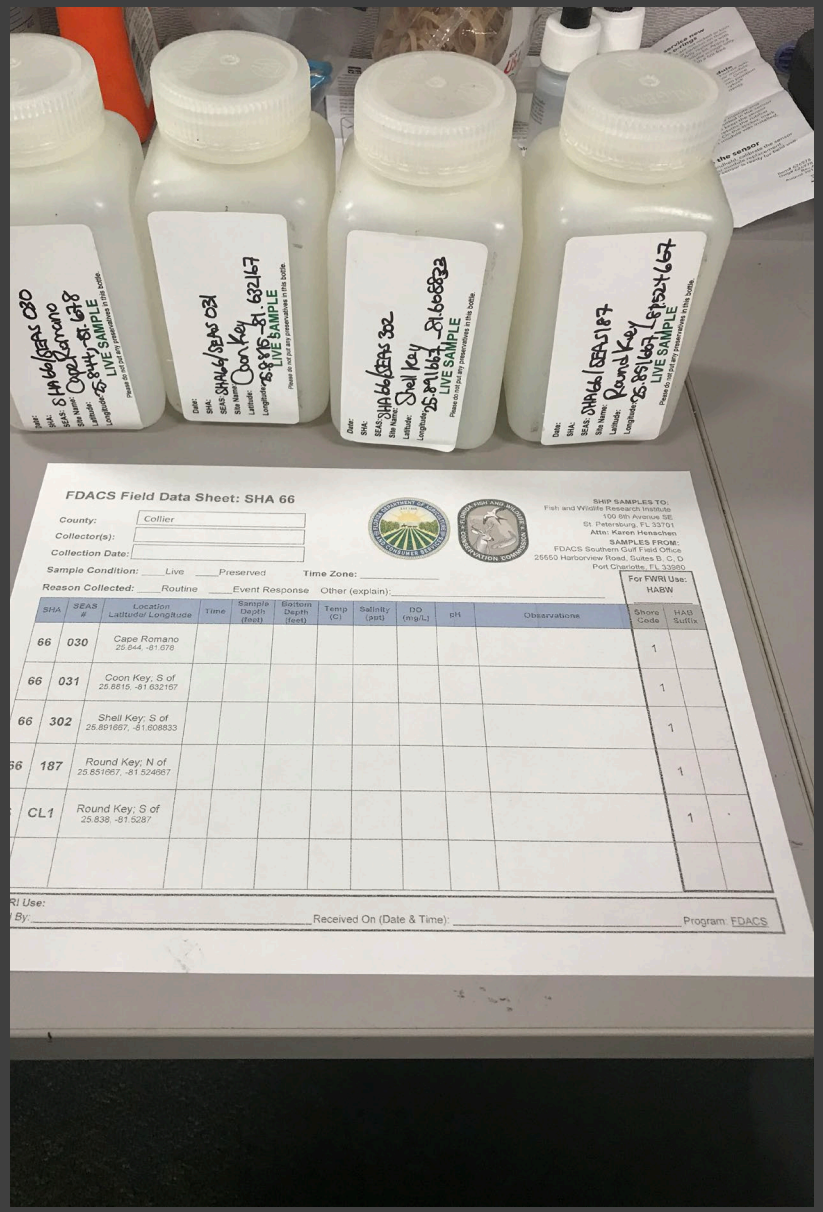
- A federal/state cooperative program collaborating with the Food and Drug Administration (FDA) and the Interstate Shellfish Sanitation Program (ISSC)
- Establish minimum requirements to regulate interstate commerce of shellfish – NSSP Model Ordinance
- Protects public health by ensuring the harvest of shellfish are from properly classified waters and ensuring shellfish are handled properly at all levels from harvest to final sale to the consumer.
- US Food and Drug Administration oversees and ensures compliance of the NSSP by all member states through annual audits

What shellfish are regulated in Florida?

- Molluscan shellfish
  - Oysters
  - Clams
  - Mussels

Florida's Shellfish harvest area biotoxin management plan

- Staff from SHAC program collect water samples to manage for HAB closures
- Water and meat samples are sent to FWRI for analysis
- Frequency depends on time of year and area
- Shellfish meat may be collected for toxin analyses



Species of Concern

- *Pseudo-nitzschia spp.* – Amnesic shellfish poisoning (ASP)
- *Pyrodinium bahamense* – Paralytic shellfish poisoning (PSP)
- *Karenia brevis* – Neurological shellfish poisoning (NSP)

Pseudo-nitzschia spp. (ASP)

- **Precautionary Closure***:* Cell counts approach or exceed 1,000,000 cells/liter if a meat sample can't be collected within 1-2 days. Subject to toxin levels in water samples.
  - Meat sample has a positive result from Neogen Reveal 2.0 for ASP
- **Closure:** Meat sample results ≥2mg/100 grams (HPLC-UV)
- **Reopening**: Meat test results <2mg/100 grams on two consecutive samples 7 days apart (HPLC-UV)

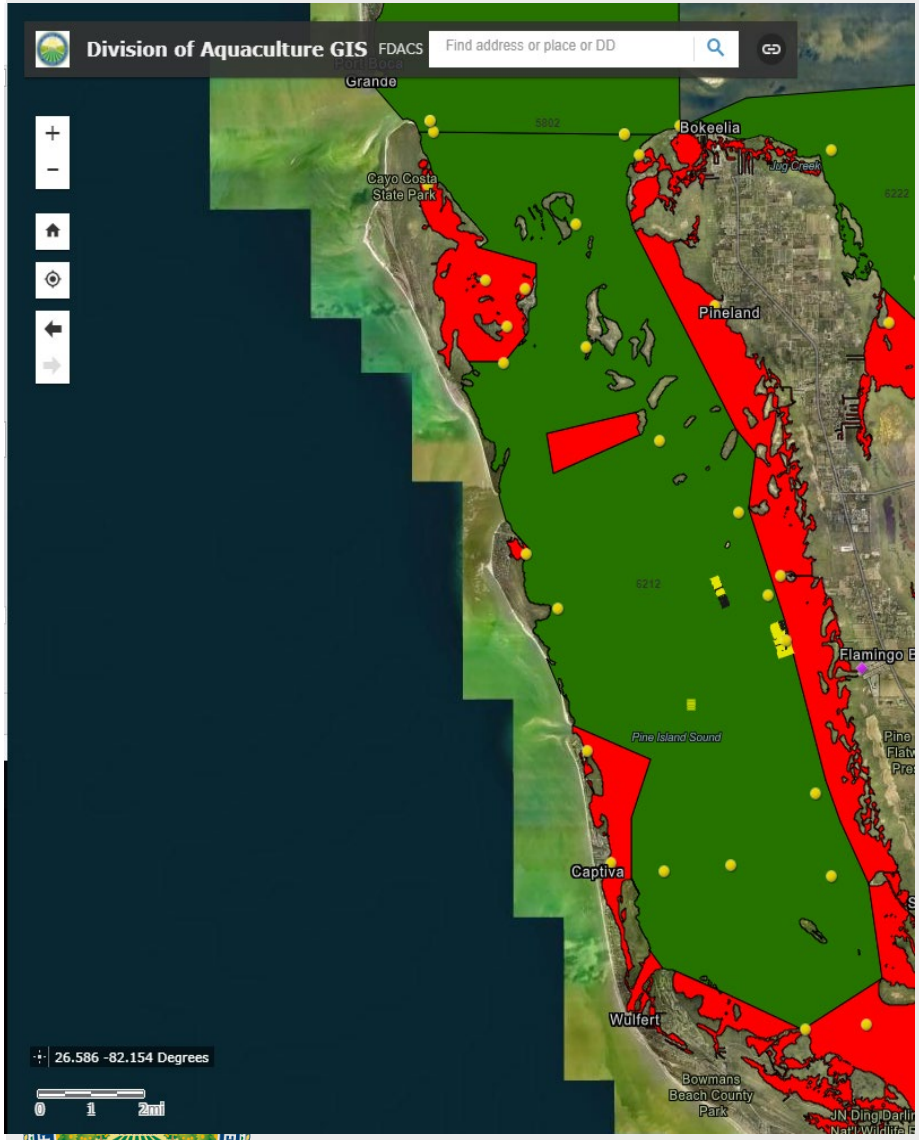
Pyrodinium bahamense (PSP)

- **Precautionary Closure***:* Cell counts can cause a trigger if meat samples can not be obtained in 1-2 days.
  - Meat sample has a positive result from Neogen Reveal 2.0 for ASP

- **Closure**: Meat sample results ≥80µg/100 grams subject to status of bloom

- **Reopening**: Meat test results <80µg/100 grams on two consecutive samples 7 days apart (PSP mouse bioassay)

Karenia brevis (NSP)



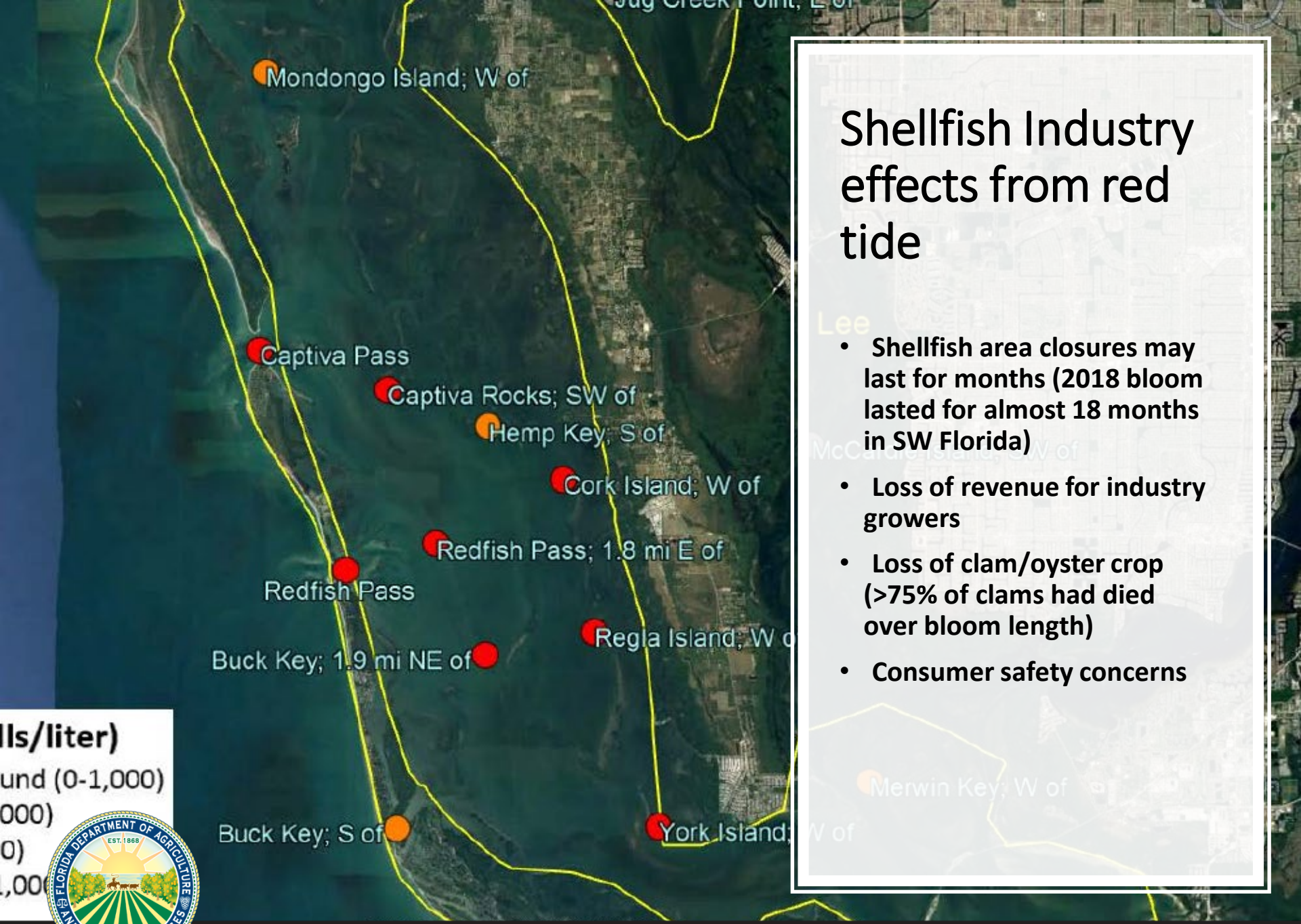
- **Shellfish Harvest Area Plan**

- **Precautionary Closure**: >50,000 c/L adjacent to SHA, >5,000 c/L in SHA collected by other agency

- **Closure:** >5,000 c/L in SHA collected by FDACS

- **Reopening**: <5,000 c/L and meat results and <20 mouse units/100g (NSP mouse bioassay) or,
  - ≤ 1.6 ppm (Clams, ELISA)
  - ≤ 1.8 ppm (Oysters, ELISA)

- Note: Southwest Florida harvest areas have specific aquaculture lease NSP biotoxin management plans developed late 2020.

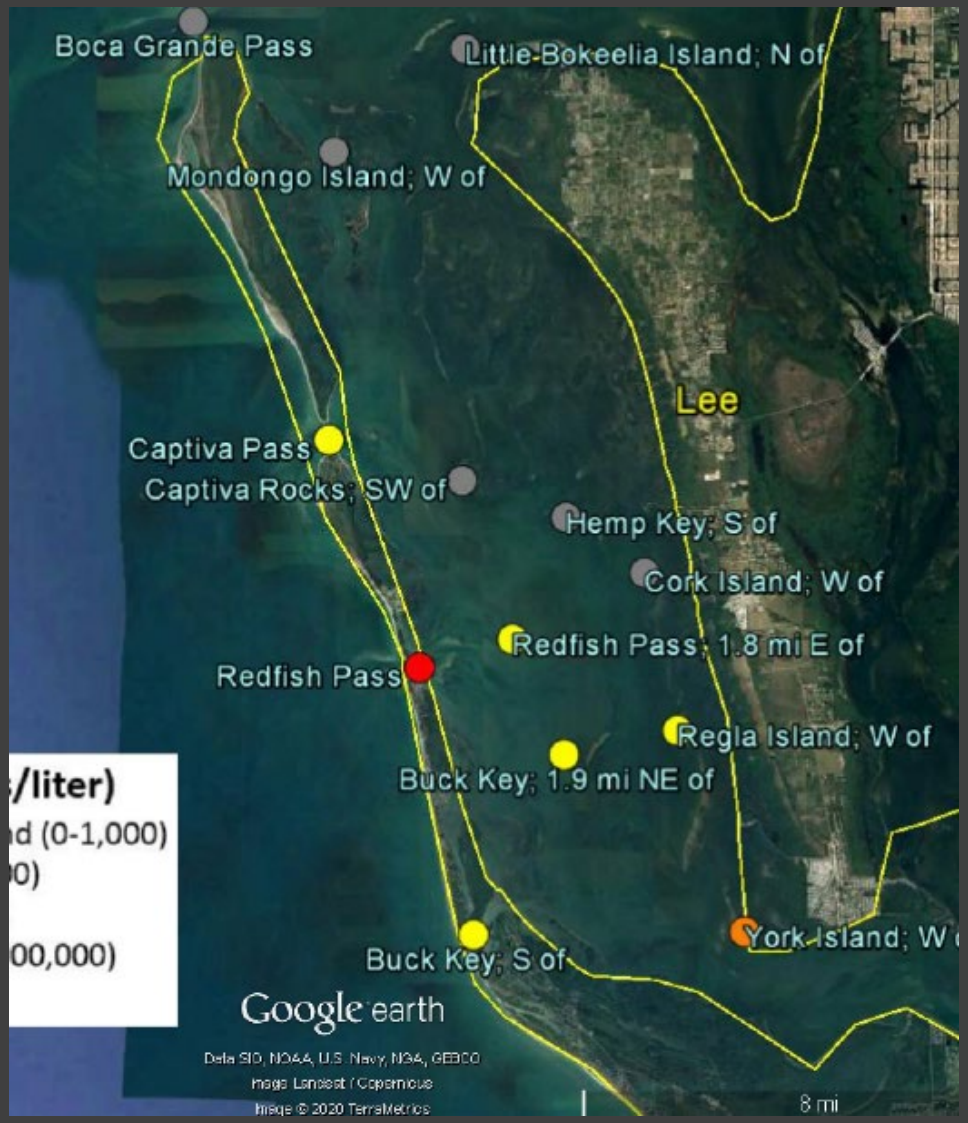


Shellfish Industry effects from red tide

- **Shellfish area closures may last for months (2018 bloom lasted for almost 18 months in SW Florida)**
- **Loss of revenue for industry growers**
- **Loss of clam/oyster crop (>75% of clams had died over bloom length)**
- **Consumer safety concerns**

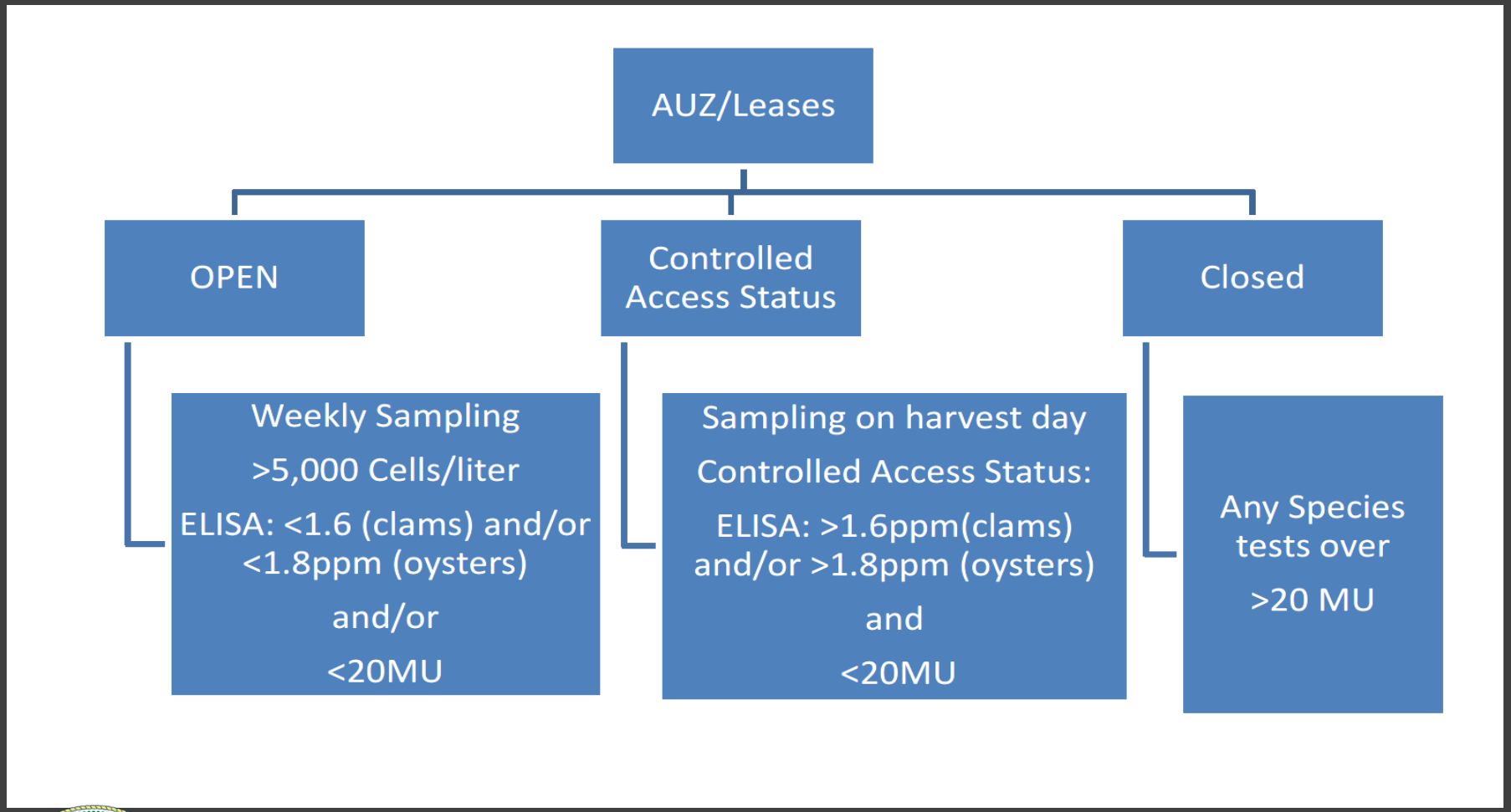
Aquaculture Use Zone management

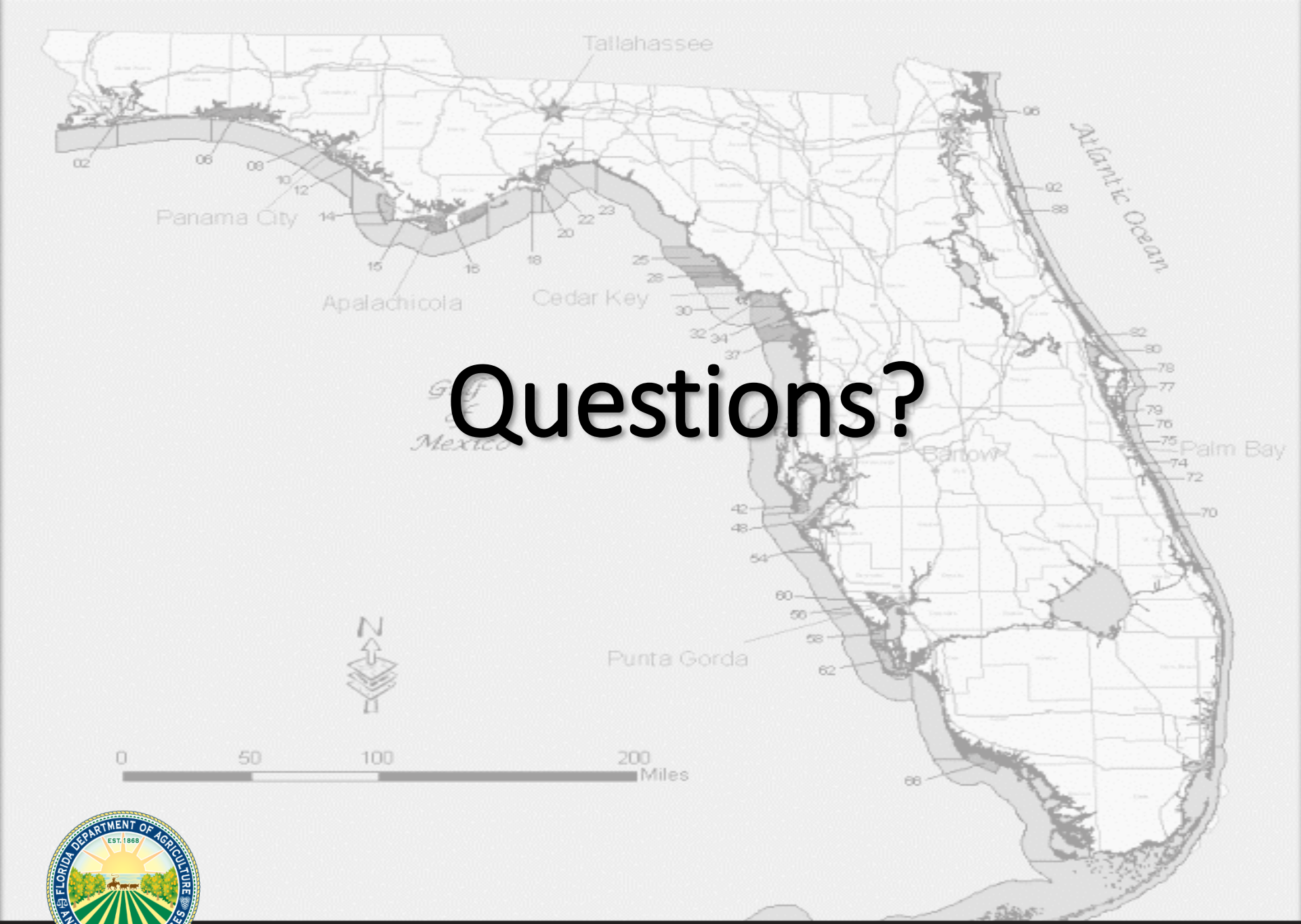
- Implemented in Lower Tampa Bay, Gasparilla and Pine Island Sound
- Allows leases to remain open while the SHA is closed and the bloom is monitored
- Weekly meat sampling on leases is initiated when cell counts exceed 5,000 c/L at any station within the harvest area.
- Specific to NSP



FWRI: 12/14/2020

Aquaculture Use Zone management




Tallahassee
Panama City
Apalachicola
Cedar Key
Atlantic Ocean
Gulf of Mexico
Punta Gorda
Palm Bay
N
0
50
100
200
Miles

Questions?