

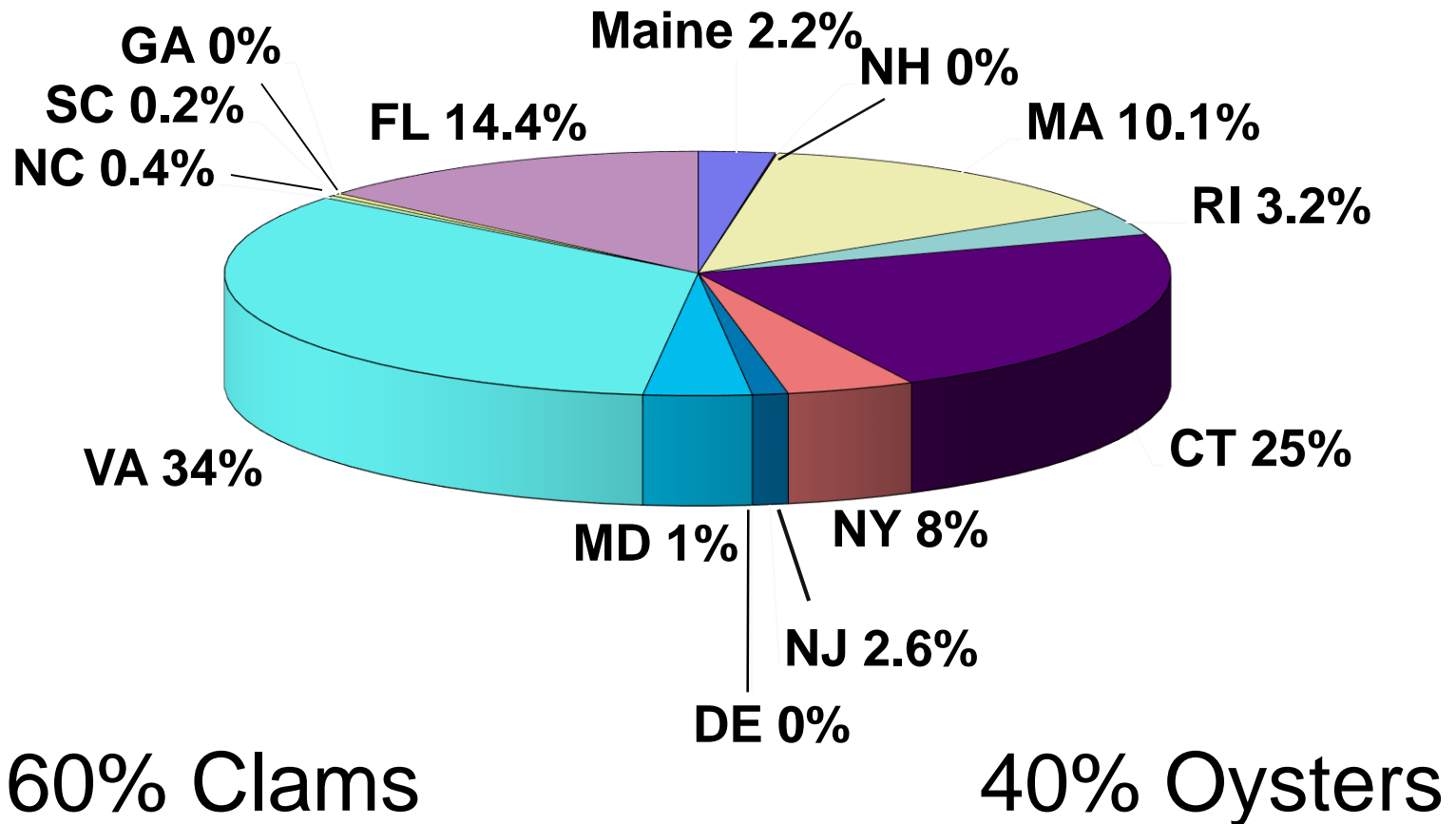
Aquaculture Debris Lease Stewardship and Public Perception

**Cedar Key, FL
September 12, 2018**



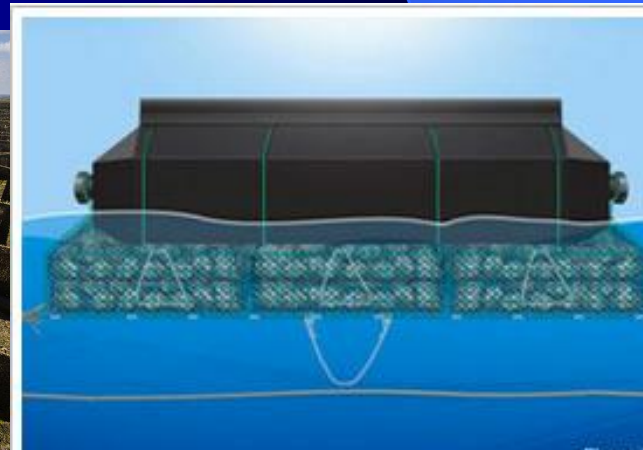
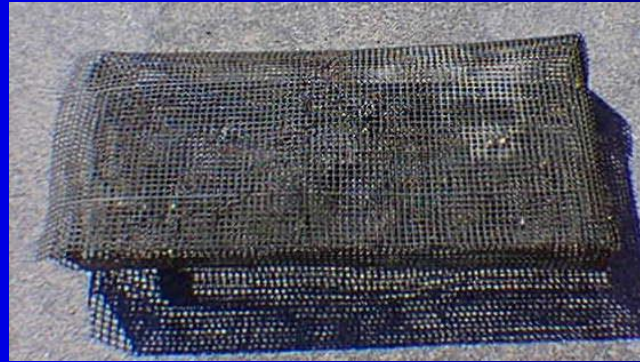
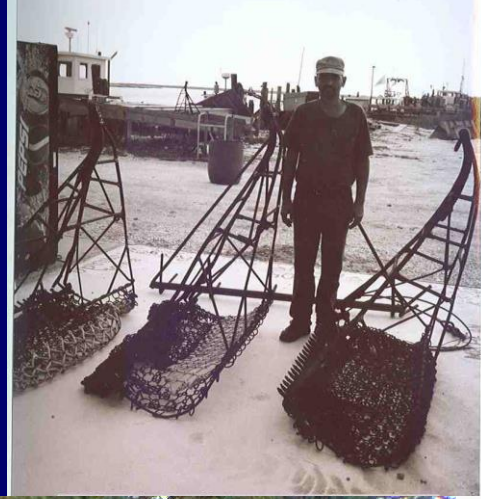
**Bob Rheault
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Shellfish aquaculture by state percent of total East Coast \$163 million farm gate



Adaptive Evolution

- 80's Vinyl coated wire, bird netting, ADPI bags
- 90's Aquatray, Seapa baskets, FLUPSY
- 00's OysterGro, Flip bags

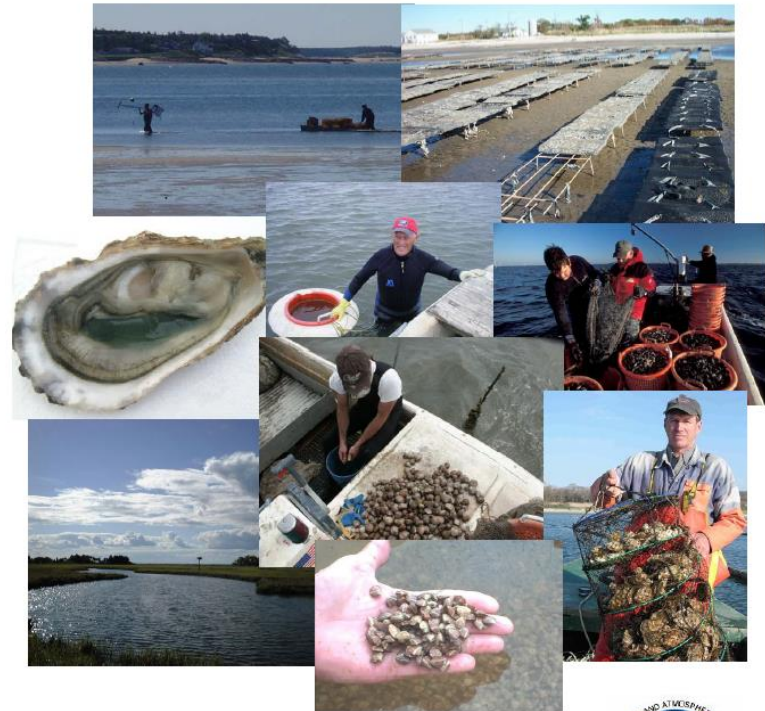


Industry BMP project

- Top industry priority
- Funded by NRAC and NOAA
- Worked with states that had existing BMPs (ME, MA, VA & FL)
- Help growers develop individualized operation manuals
- A marketing tool
- Adoption has been slow



Best Management Practices for the East Coast Shellfish Aquaculture Industry



United States
Department of
Agriculture

National Institute
of Food and
Agriculture



Growers BMPs (simplified)

- Follow the rules
- Don't transport diseased or uninspected seed
- Pick up your trash
- Don't be an eyesore
- Stay within the lines
- Don't get anyone sick
- Be a good neighbor



Plastic Debris

The Next Battleground

- Aquaculture opponents are looking for reasons to oppose new leases
- On the West Coast they collect (or steal?) gear and then show up at lease application hearings and dump piles of trash
- Beach cleanups (2X per year) are now required element of Army Corp permitting in WA, OR, CA

Plastic sources



- 82 percent of the world's marine plastic debris comes from Asia, while less than 2% comes from the U.S. and Europe.
- In the U.S. fishing and aquaculture are viewed as “significant sources” (often conflated).
- (<https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy-rethinking-the-future-of-plastics>)



Science on microplastics

- Detection of microplastics
- Impacts on wildlife
- Impacts on human health



Microplastics <5mm

- Microfibers from washing pile fabric
- Microbeads in cosmetics and cleansers
- Photo-degradation of polymers and physical abrasion of larger plastics, ropes etc.
- Challenging to measure – lots of junk science

Impacts of Microplastic

- If your mouth or anus is small enough to be clogged by a piece of microplastic – it can be fatal
- Limited evidence of impacts to various filter feeders esp. larvae – probably mechanical interference w/ feeding and digestion.
- On study indicated migration of fibers in tissue
- Speculation about adsorption of toxins and bacteria

Impacts of Microplastics on Humans

- Filter feeders like shellfish usually get singled out
- Since we eat shellfish whole we eat what they eat
- Largely speculative impacts
- What is clear is that you eat far more plastic from household dust than shellfish

Impacts of Microplastics on Humans

- Microplastics may be like any other inert particle
- Nano particles may migrate in tissue
- *With the current state of our knowledge, we can assume that microplastics in seafood are unlikely to cause us any harm either directly or by their ability to act as vectors of contaminants. However, there is much that we do not know*

Public perception

- Varies regionally - depends on what you are used to.
- Reflects poorly on industry.
- Largely a preventable, self-inflicted wound.
- Prohibition being discussed



Aquaculture Debris

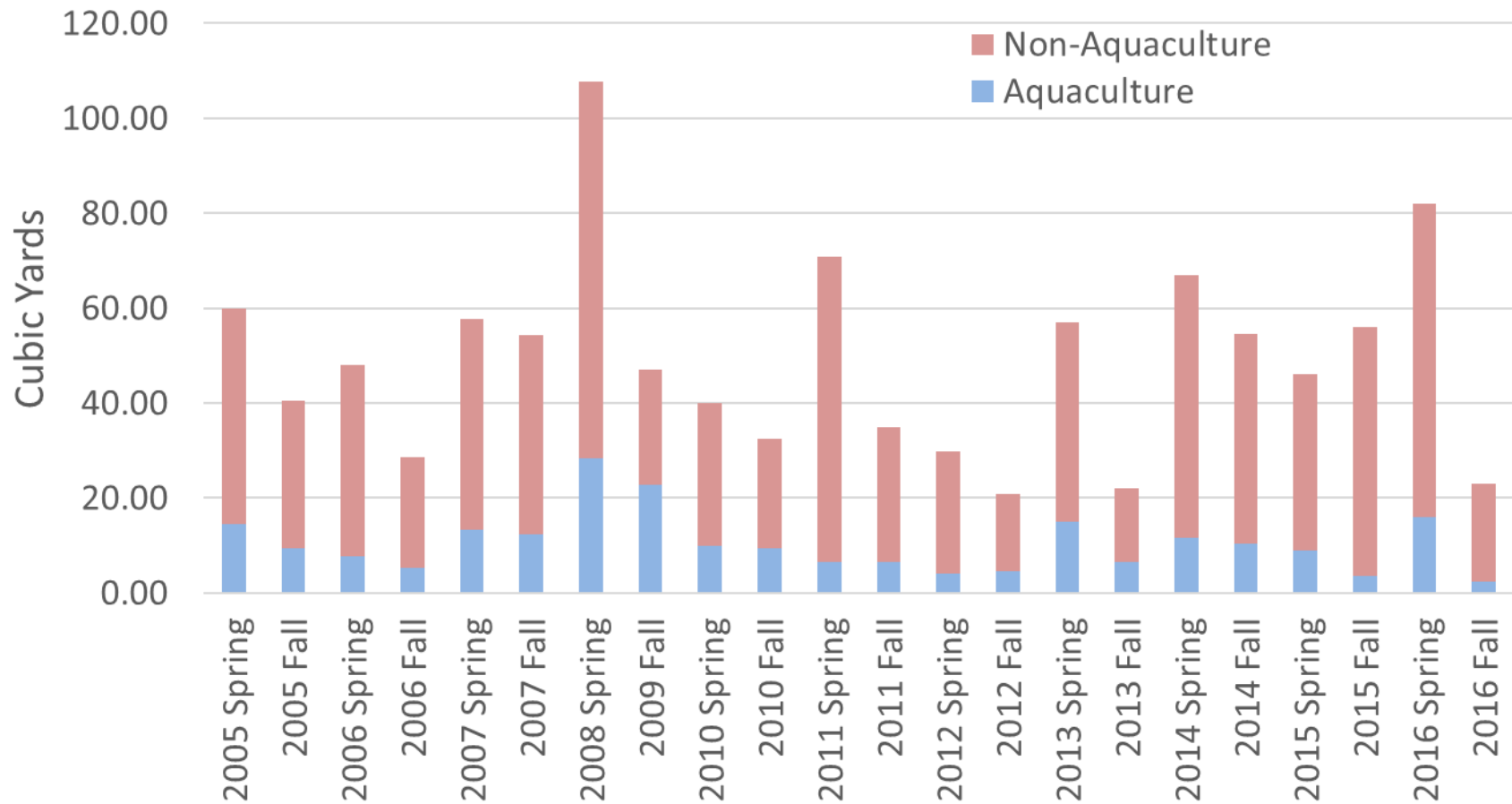
- Prevention
 - Minimize use of potential sources
 - Dispose of appropriately
 - Seek non-plastic alternatives
biodegradable materials, metals ?
 - Storms and vandals - - plan for the worst
- Recovery

PCSGA Beach Clean-Ups



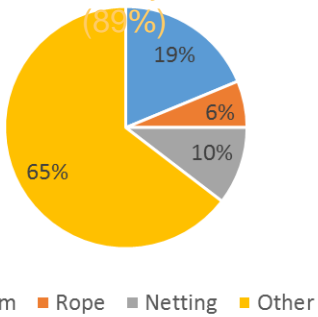
Volume of marine debris and aquaculture gear

from 2005-2016

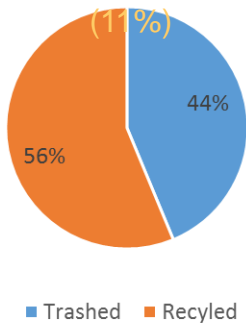


What Turned Up?

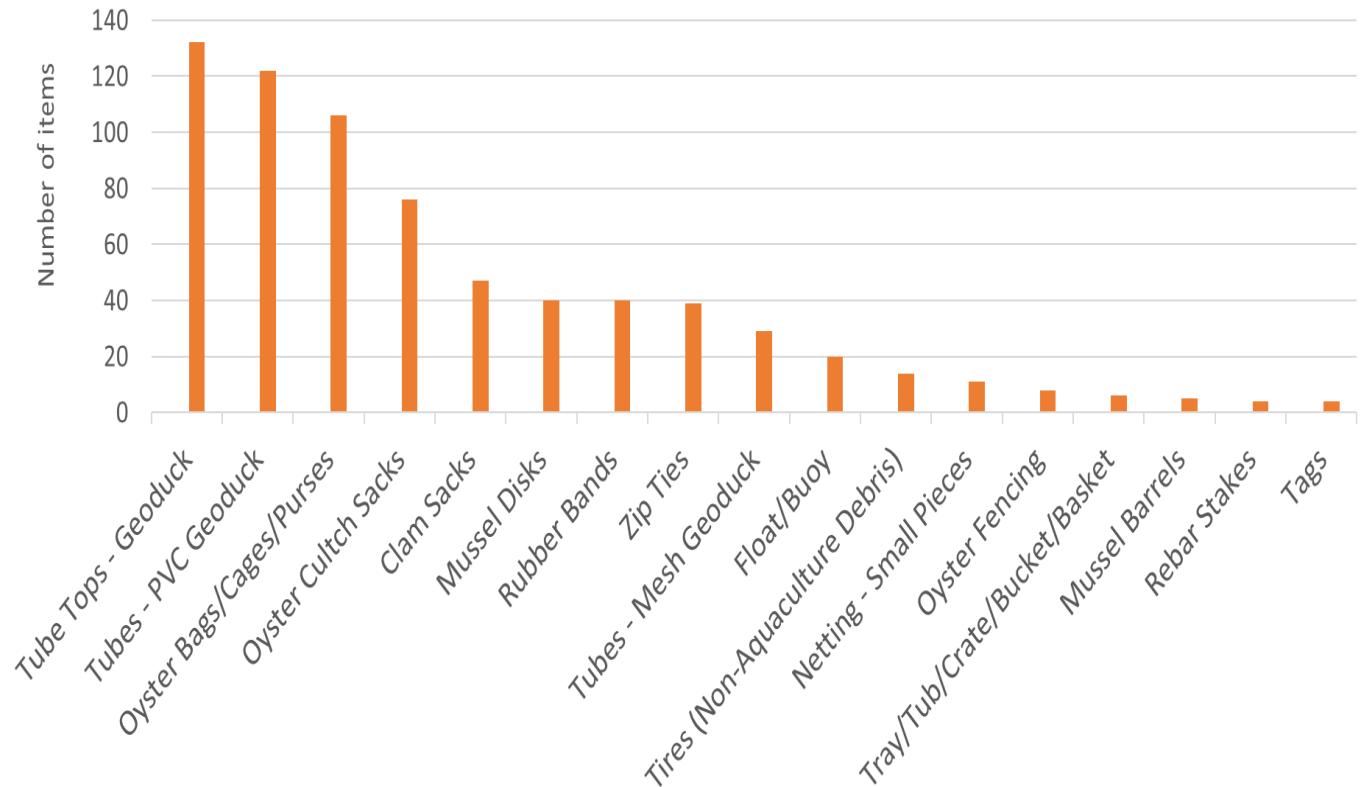
Marine Debris
24 cubic yards



Aquaculture Gear
4.5 cubic yards



Fall 2016 - Quantity of Aquaculture Debris Items



Willapa Bay and Grays Harbor

- PCSGA held 3 small grower meetings to better understand regional marine debris and aquaculture pollution issues.
- The Association partnered with eNGOs
- PCSGA paid for 5 shared dumpsters using SLURP funds.



- During the weekend of September 17-18, shellfish growers removed over 10,000 pounds of debris from their farms and upland areas!



What we learned

- Gear is still in waterways.
- Beach cleanups are still needed.
- To squelch the NIMBYs and avoid regulations we need to:
 - Implement proactive best management practices
 - Be aware if you are losing gear, and track it!
 - Maintain and secure gear in advance of storms



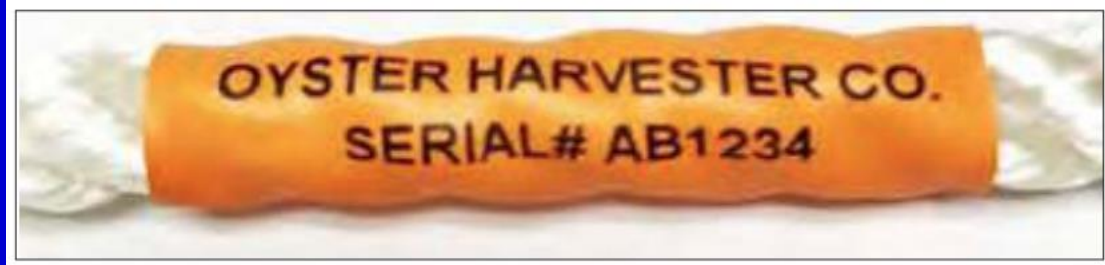
Images from Protect
Our Shoreline Website

Looking out on the Horizon

- PCSGA cleanups are getting positive media coverage in local press and radio interviews.
- PCSGA is exploring site-specific cleanups of abandoned and derelict farms.
- PCSGA is expanding the geographic footprint of beach cleanups.



Mark gear to limit debris



www.Nelcoproducts.com

- Shoreline surveys to determine the biggest problems
- Mandate labeling to identify offenders
- Let industry peer pressure do its thing
- Help with dumpster expenses and beach cleanups

Improve public education

- Tours – show legislators the positives
- Signage - kiosks
- Partner with NGOs
- Get press involved

Extension folks
help a lot here

If we don't fix it
they will regulate it



What Do We Do?

- Saying it is all someone else's fault doesn't work
- Acknowledge the challenge
- Propose steps to address the issue
- Marking and shaming
- Beach cleanups and peer pressure
- Work with gear manufacturers to discuss alternatives (biodegradable or non-plastic alternatives)

Final thoughts

- Encourage experimentation
- The conventional wisdom may be wrong
- Foster a strong local grower's association – work together

Questions?

East Coast Shellfish Growers Association

Your voice in DC

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