

Good morning Chairman Hopkins and members of the University System Board of Regents. Thank you for inviting me to join you. I am Mark Risse, director of UGA Marine Extension and Georgia Sea Grant, and I look forward to talking with you about the state's first oyster hatchery, which we launched in 2015 on Skidaway Island.



History of Georgia's Oyster Industry

- In the 1930s, Georgia led the country with 13 canneries along the coast
- Overharvesting and market changes led to decline
- Natural wild production results in clumped oysters

Until about 1930, Georgia led the nation in oyster production. There were abundant oysters and at least 13 known oyster canneries along the Georgia coast.

- Because of over harvesting and changes in consumer demand, that industry died out.



Oyster Reefs

- Natural Georgia oysters grow in clumps
- Good to eat, but not pretty
- Oyster hatchery will grow single oysters



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- Oysters are still harvested in clumps, which are great for oyster roasts but are not attractive to high-end restaurants and most consumers.
- Using funding from the Georgia Department of Natural Resources, we created an oyster hatchery, the first of its kind in Georgia, to grow single shell oysters, which have a greater market value.



UGA Oyster Hatchery

- UGA hatchery is Georgia's first and only
- Spat, or baby oysters, are created and distributed to growers to be grown to market size
- Single oysters have a higher market value than clumped



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- Much like the poultry industry in Georgia, a hatchery provides growers with single baby oysters, called oyster spat, that can be placed in permitted waters and grown out to market size. It is a new way of growing oysters that takes less space and does not depend on our natural stock.
- Single oysters are easier to distribute and are in high demand by consumers. A bushel of wild clumped oysters (about 300) sells for \$40 to \$60. Three hundred single oysters would sell for \$105 to \$225, depending on their size and quality.
- In restaurants, single oysters typically are selling for \$1.50 to \$3 apiece.

Georgia's Clam Industry

1995

- \$64,973

2016

- \$2.4 million

This is a 37-fold increase in the value of the crop.

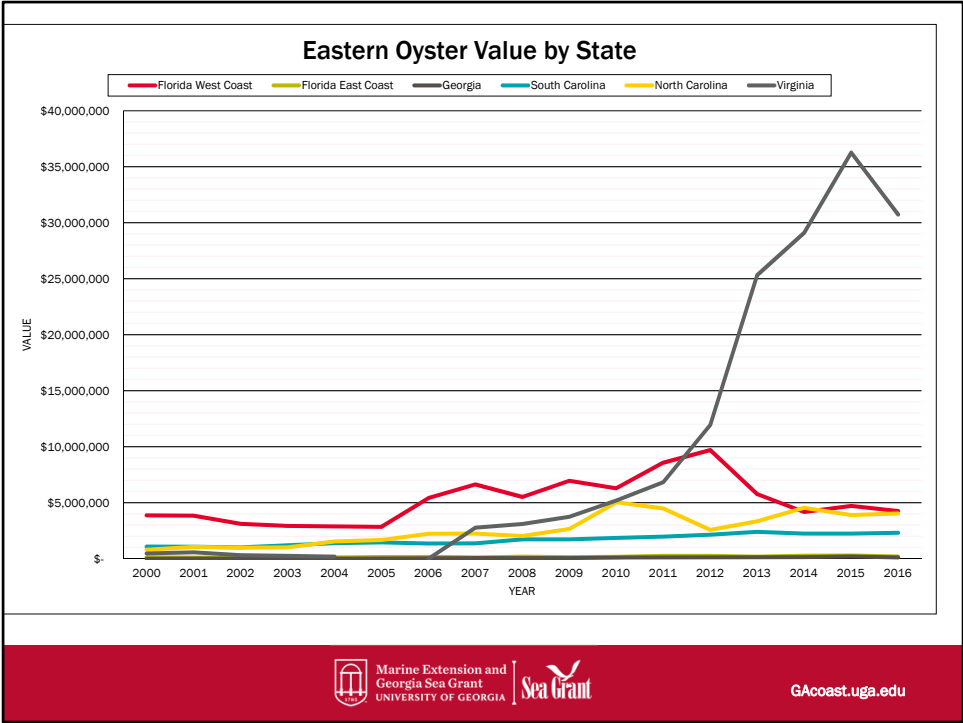
Virginia's Oyster Industry

2004

- \$196,125

2016

- \$36.2 million



Number of Growers

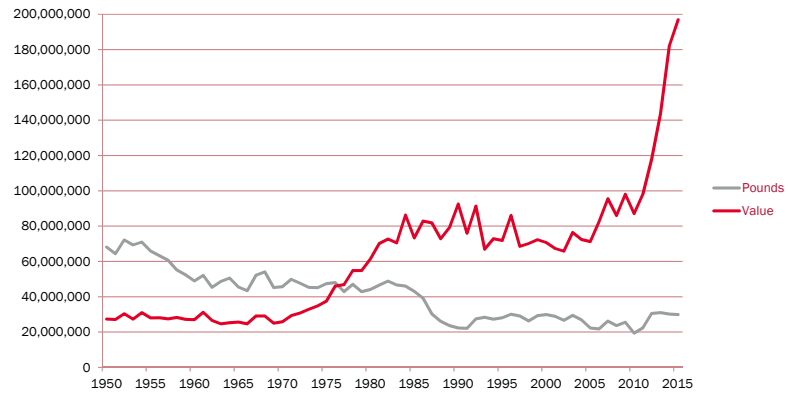
- Virginia has 47 intensive growing operations (2017)
- NC has 265 leases—only 1738 acres (2018)
- SC has 16 oyster aquaculture operations (2017)
- GA has 8 individuals with shellfish harvesting leases doing something with oysters

- Huge differences in regulatory capacity with Georgia CRD the smallest staff by far

- This year since January hatchery produced 11 million spat, more than 170 individuals toured the oyster hatchery and we provided technical assistance to more than 17 individuals with interest in aquacultural production oysters.

Value of Production is increasing

- Georgia harvest in values and lbs of production





Oysters on the Half Shell

- Georgia chefs and restaurants want local oysters
- Water quality along the Georgia coast is very good
- Georgia single oysters are high quality
- Demand exists—market is there!



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- The demand for single oysters in Georgia far outpaces the production of the local industry and there is enormous potential for growth. Restaurants and chefs have been some of our biggest supporters as they can not get the local product that is in demand. Traditional leaders in oyster production such as the Northwestern US, the New England states, and Appilacicola face problems with ocean acidification and water quality. The likelihood of market saturation for oysters is low in the foreseeable future.
- Georgia currently produces fewer than one percent of the total oysters harvested along the east coast and Gulf of Mexico. And yet we have some of the best water quality and expansive growing areas.
- Georgia oyster varieties are of the highest quality. The quality of an oyster is reflected in part by the estuary in which the oyster is produced as well as by how the oyster was handled by the grower.



Salt Marshes

- Pristine salt marshes impart different flavors
- Georgia oysters are salty sweet with a hint of lemongrass
- They are thick-shelled and deep with plump meat



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- Georgia's coast is characterized by expansive pristine salt marshes that impart distinct flavors that vary from one area to the next. Oysters from Wassaw Sound will taste slightly different than those from Sapelo Sound depending on weather and water chemistry.
- In general Georgia oysters are usually described as salty sweet with a pronounced lemongrass flavor. Georgia farmed oysters usually appear thick shelled and deep cupped with plump meat.
- Georgia needs to distinguish itself from other growing regions that are well represented in the market and we can do that by increasing availability. Production, marketing and promotion are all extremely important.



UGA Hatchery Growth

- Provided 4 million spat to growers last year
- Worth \$1 million to \$1.8 million at market size
- Produced about 11 million spat this year
- This year we also produced clams, blood arcs and triploid oysters for the first time



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- Last year we produced 4 million oyster spat to provide to growers. If all of these oysters grow to market size, the value would be about \$1 to \$1.8 million. The oysters we provided growers in 2015 are just hitting the market and growers have reported favorable results.
- By 2018, we expect to produce between five million and six million spat, with an estimated harvest value of \$1 million to \$2.1 million.
- The journey from oyster spat to harvestable oysters takes 12 to 19 months. Oysters must be two inches long to be legally harvested in Georgia.
- Grow-out techniques, equipment, and product handling can have a significant impact on production efficiency and product quality and consistency.



Oyster Maintenance

- Grown in mesh bags on racks in coastal estuaries
- Labor intensive to clean and grade oysters as they grow
- Multi-state project comparing floating gear with bottom year shows very promising results in all four states.

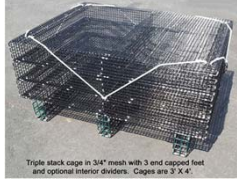


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- Currently, oysters grown in Georgia are placed in coastal estuaries on racks to maximize growth and minimize mortality during winter months.
- During the spring and summer single oysters are placed in grow-out bags to keep them from clustering together. During the warmer months it is extremely important to clean the oysters weekly and grade them monthly to prevent mortality and maintain size consistency.

We are also beginning to experiment with floating gear that would allow us to grow oysters outside the inter-tidal zone. We are working with Georgia DNR to hopefully get these new methods approved for use in Georgia.

Intensive Shellfish Aquaculture Gear Bottom Lease



Bottom
Cages



Rack and Bag

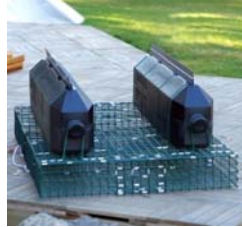


Spat on Shell

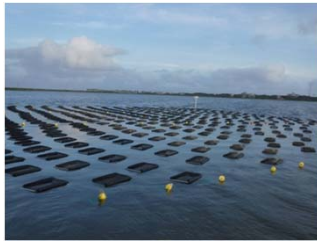
Intensive Shellfish Aquaculture Gear Water Column



LowPro
Grow



OysterGro



Floating
Bags/Flip
Bags



Hanging system



UGA Engineering Students

- UGA engineering students visited hatchery in February
- Capstone project: Design equipment to improve efficiency
- Would also like to look at entanglement issues although it does not appear to be a problem in other locations.



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- We are conducting research to improve our methodology and help the industry advance. In fact, in February a team of students from the UGA College of Engineering visited the hatchery as part of their capstone project. They are exploring a design for equipment that would make maintaining the growing oysters less labor intensive and more efficient.



Oyster Industry

- Developed a Blueprint for Oyster Aquaculture with Georgia Department of Natural Resources and the Georgia Department of Agriculture
- Hope to attract a commercial hatchery
- Bring in other industry related to oyster production



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- Our partners in this endeavor are DNR, and the Georgia Department of Agriculture. With them and the Shellfish growers, we have created a Blueprint for Oyster Aquaculture that outlines our plans to grow the industry to 50 growers in the next five years.
- We hope to attract a commercial hatchery, which would increase the amount of spat available, and we are working with the Georgia Department of Natural Resources to identify new growing areas and approve new permits.
- A private hatchery and increased production would likely draw other industries that build the equipment needed for single oyster production and companies that develop shucked oyster meat products. This would further benefit the economy on the coast, as well as throughout the state.

Goals & Action Steps

- **GOAL 1: Sustainably manage the UGA Oyster Hatchery to stimulate new industry.**
 - Completed
 - Aquaculture extension agent available to provide training to oyster growers.



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Goals & Action Steps

- **GOAL 2: Increase commercial leasing of shellfish growing areas and document suitable areas for growing commercial oysters.**
 - GA DNR aims to increase number of permitted shellfish growers from 10 to 50 over next six years.
 - Spatially depict best growing locations, based on habitat type and water quality.



Goals & Action Steps

- **GOAL 3: Protect water quality in shellfish growing areas.**
 - GA DNR will need to expand monthly water quality-testing program to support classification of growing area waters and new lease areas.



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Goals & Action Steps

- **GOAL 4: Ensure the safety of oyster products.**
 - GA DOA will need to hire more standardized shellfish inspectors to certify and inspect new shellfish processing facilities.
 - GA DNR's Law Enforcement Division will need additional officer support to protect valuable commercial oysters in new permitted lease areas.



Goals & Action Steps

- **GOAL 5: Provide education and training to shellfish growers.**
 - UGA Marine Extension and Georgia Sea Grant will develop oyster aquaculture training program to provide growers with finance and business skills needed to access capital from banks or federal sources.



Goals & Action Steps

- **GOAL 6: Establish a privately-run commercial hatchery.**
 - Create a budget and prospectus to prove profitability and viability of a private commercial oyster hatchery.
 - Demonstrate state support for additional infrastructure that industry growth will require.



Goals & Action Steps

- **GOAL 7: Establish methods for growers to access start-up capital for new oyster aquaculture businesses.**
 - Work with UGA Center for Agribusiness and Economic Development to develop enterprise budgets and feasibility analyses for new growers entering the market.
 - Identify low interest loan opportunities available through USDA and other sources.



Funding Needs

- \$150,000 obtained for UGA Marine Extension and Georgia Sea Grant
- \$150,000 for Georgia DNR Coastal Resources Division

Other expected needs as the industry grows:

- Funding for the Georgia DNR Law Enforcement Division
- Funding for Georgia Department of Agriculture inspectors
- Funding for the UGA Center for Agribusiness and Economic Development
- Funding to establish an oyster aquaculture training and certification program



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Additional needs and feedback

Research projects on these items would be viewed favorably by Georgia Sea grant.

Grower Concerns

- Regional seed sourcing
- Triploids
- Summer harvest
- Approval of floating gear

Other Stakeholders

- Backlog of lease permits requested
- Financial data and risk of starting an operation or hatchery
- Streamlined regulations specific to aquaculture
- Impacts on recreational fisheries
- Public perception and acceptance



Environmental Benefits

- Improves water quality
- Attracts recreational sport fish
- Educates and inspires inland residents about water quality



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• In addition to the economic benefits, oyster production also improves water quality. Oysters filter up to three gallons of water per hour. Oysters are also a keystone species that many other recreational sportfish depend upon for growth. Our research indicates that these growing areas will attract fish and support numerous other aquatic species. Finally, and perhaps most importantly are the educational benefits. In other areas where oyster production has grown, the community has connected the importance of upland practices to food production and water quality. By growing more oysters, we hope to produce cleaner water, which is a win for everyone, not just those in the seafood industry.



Oyster Roast

- Oyster Roast for a Reason held at the hatchery
- Last year we drew 250 attendees, and support from restaurants and other businesses

Join us for the next Oyster Roast for a Reason on Nov 17.



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- We have also begun efforts to raise private funds for this effort. Last year, we hosted our first Oyster Roast for a Reason on Skidaway Island at the hatchery. In addition to 230 attendees, numerous restaurants and other businesses supported this effort. This years Roast will be December 2 and we welcome you all to attend.