

**Marine Extension and
Georgia Sea Grant:
Aquaculture's Role in
Georgia**

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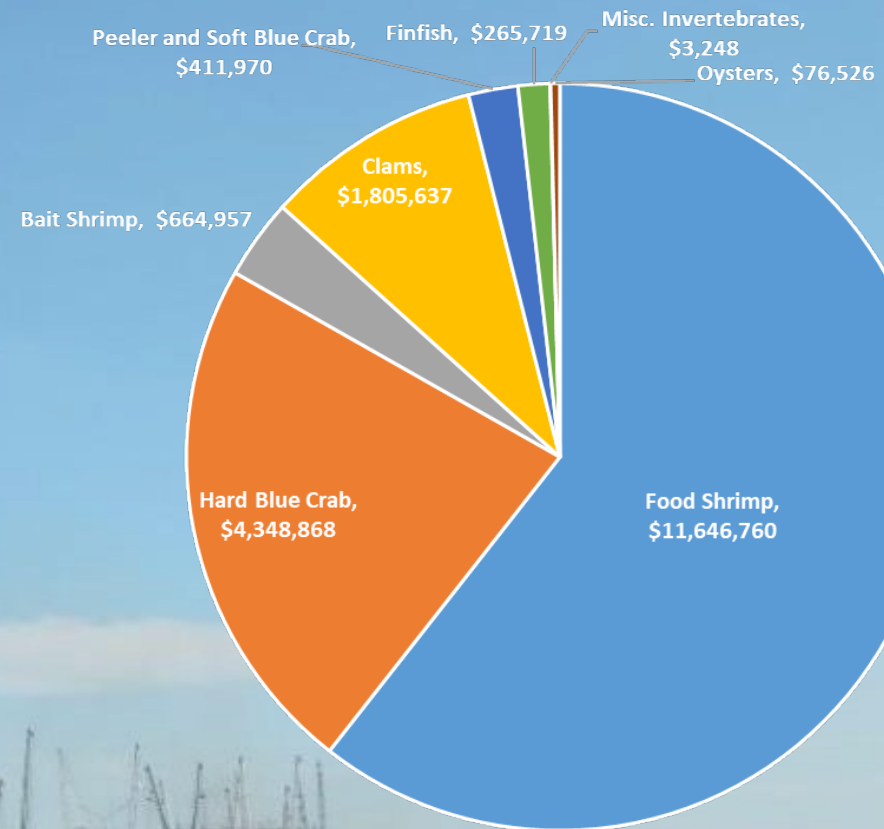
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Seafood Values

2019 Landings:
6.3 million pounds

2019 Dockside Value:
\$19.2 million



Georgia's Clam Industry

1990

- \$22,886

This is a 80-fold increase in the value of the crop.

2019

- \$1.84 million





Oyster Reefs

- Oysters naturally grow in clusters
- Good to eat, but difficult to process for singles
- Oyster hatchery produces seed to grow single oysters



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!





UGA Oyster Hatchery

- UGA hatchery is Georgia's first and only started in 2015
- Spat/seed are created and distributed to growers to be grown to market size
- Single oysters have a higher market value than clumped
- Provided 1.6 million spat to growers in 2021
 - Mixture of diploid and triploid oysters





Inter-tidal Bottom Farm

- Grown in mesh bags on racks or cages in the intertidal zone
- Labor intensive to clean
- 15-18 months to harvest size, 50% - 60% survival



Sub-tidal Floating Farm

- Less intensive for cleaning
- Multi-state project in seven states
- Georgia project comparing diploid and triploid oysters
- 10-12 months to harvest size, 70% - 80% survival



Oyster Farm Budget



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SINGLE SEED FLOATING CAGE OYSTER CROP BUDGET Marketing 50,000 up to 1,000,000 oysters per year

May 2020

Instructions: Start by entering the first year's target annual oyster sales. This sales number will be the basis to calculate expected costs and returns for Year 1-5 for a representative farm based on variables chosen based upon prior research. Most other variables in this worksheet can be changed however, those that have the most impact are identified by red-color. Changes to fixed cost item's unit costs must be made in the Line Item Notes worksheet by selecting that tab at the bottom of the screen. Many cells are locked to protect proper functioning of the spreadsheet. For a complete set of instructions please see the user manual.

Item	Key Assumptions	Year #	Oyster Seed Planted	Target Annual Oyster Sales
		Year 1	133,333	100,000 ← Start Here with 1st Year Target Sales
Average Market Price	\$0.54	Year 2	313,333	235,000
Oyster Mortality Rate	25%	Year 3	493,333	370,000
Starting Cages	100	Year 4	673,333	505,000
Increase in Cages per year	225	Year 5	853,333	640,000
Increase in Seed Per Year (Stocking Density)	135,000			

Item	Units	Quantity of Units	Price or Cost /Unit	Year 1	Year 2	Year 3	Year 4	Year 5
1. Gross Revenue								
Market Oyster Revenue	Single Oyster	Target Annual Oyster Sales (Dependent on Year)	\$0.54	\$ 54,000.00	\$ 126,900.00	\$ 199,800.00	\$ 272,700.00	\$ 345,600.00

2. Variable Operating Expenses								
Oyster seed	1,000	Total Seed Planted / Unit	\$ 12.75	\$ 1,700.00	\$ 3,995.00	\$ 6,290.00	\$ 8,585.00	\$ 10,880.00
Full Time labor	Hours (2080 per employee)	Employees (see Line Items)	\$ 14.49	\$ -	\$ 30,139.20	\$ 30,139.20	\$ 60,278.40	\$ 60,278.40
Part Time Labor	Hours (960 per employee)	Employees (see Line Items)	\$12.20	\$ 11,712.00	\$ 11,712.00	\$ 23,424.00	\$ 11,712.00	\$ 11,712.00
Employment Tax (FICA)	Taxable total Wages (\$)	Total Labor Costs	7.65%	\$ 896.00	\$ 2,306.00	\$ 4,098.00	\$ 5,508.00	\$ 5,508.00
Workers Compensation	Annual Expense per \$100 of Payroll	Total labor/100	\$ 2.25	\$ 263.52	\$ 941.65	\$ 1,205.17	\$ 1,619.78	\$ 1,619.78
Boat Fuel	Annual Gallons	1,000.00	\$ 3.75	\$ 3,750.00	\$ 3,750.00	\$ 3,750.00	\$ 3,750.00	\$ 3,750.00
Truck Fuel	Annual Gallons	693.00	\$ 2.45	\$ 1,698.00	\$ 1,698.00	\$ 1,698.00	\$ 1,698.00	\$ 1,698.00
Boat Maintenance	Annual	1.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00
Truck Maintenance	Annual	1.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00
Expendable Supplies	Start up Cost	1.00	\$ 2,925.00	\$ 2,925.00	\$ -	\$ -	\$ -	\$ -
Misc. Supplies	Per Cage	100.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Misc. Equipment Maintenance	Annual	1.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ice for summer Harvesting	Annual	1.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other (office supplies, electricity, etc)	Annual	1.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Operating expenses				\$ 23,944.52	\$ 55,541.85	\$ 71,604.37	\$ 94,151.18	\$ 96,446.18
Return over Operating Expenses				226%	228%	279%	290%	358%

2020 Oyster Crop Budget for Georgia User Manual



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FOR QUESTIONS, CONTACT

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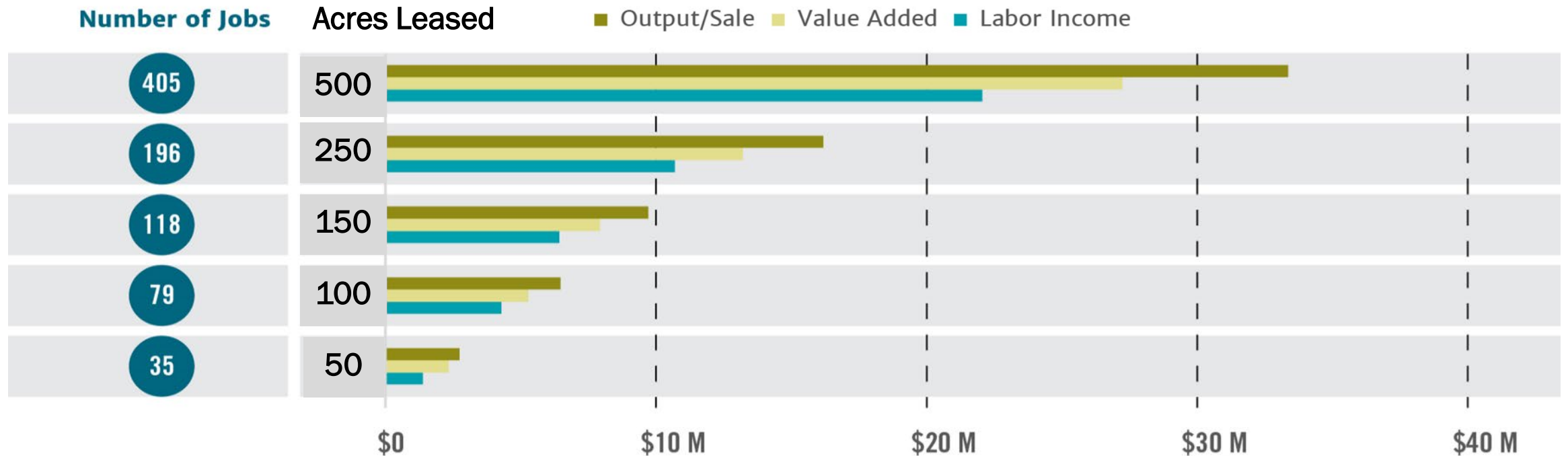
Spreadsheet was developed by: Adam Stemle(UGA), Thomas Bliss(UGA), Will Lewis (Research Associate, UGA)



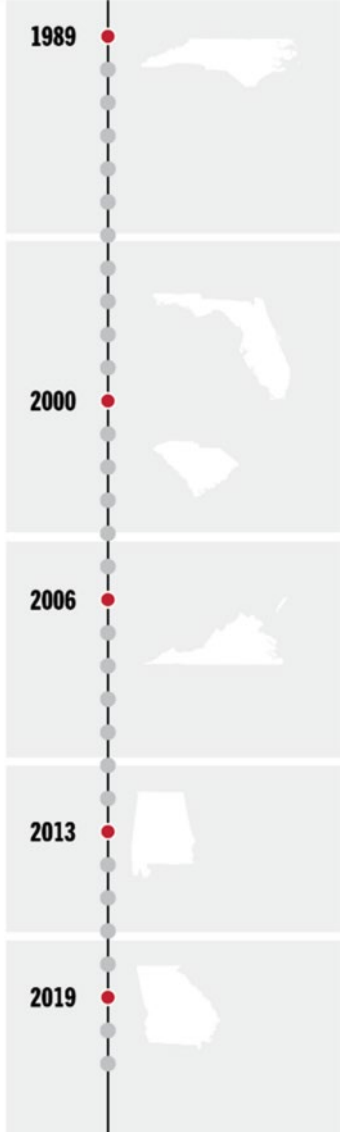
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Sub-Tidal Oyster Farming Economic Impact Estimates



Oyster Landings 2017-2019



North Carolina
 1.4 Million Acres Available
 400 Oyster Farm Leases/2,000 Acres
 200 with Water Column Amendments

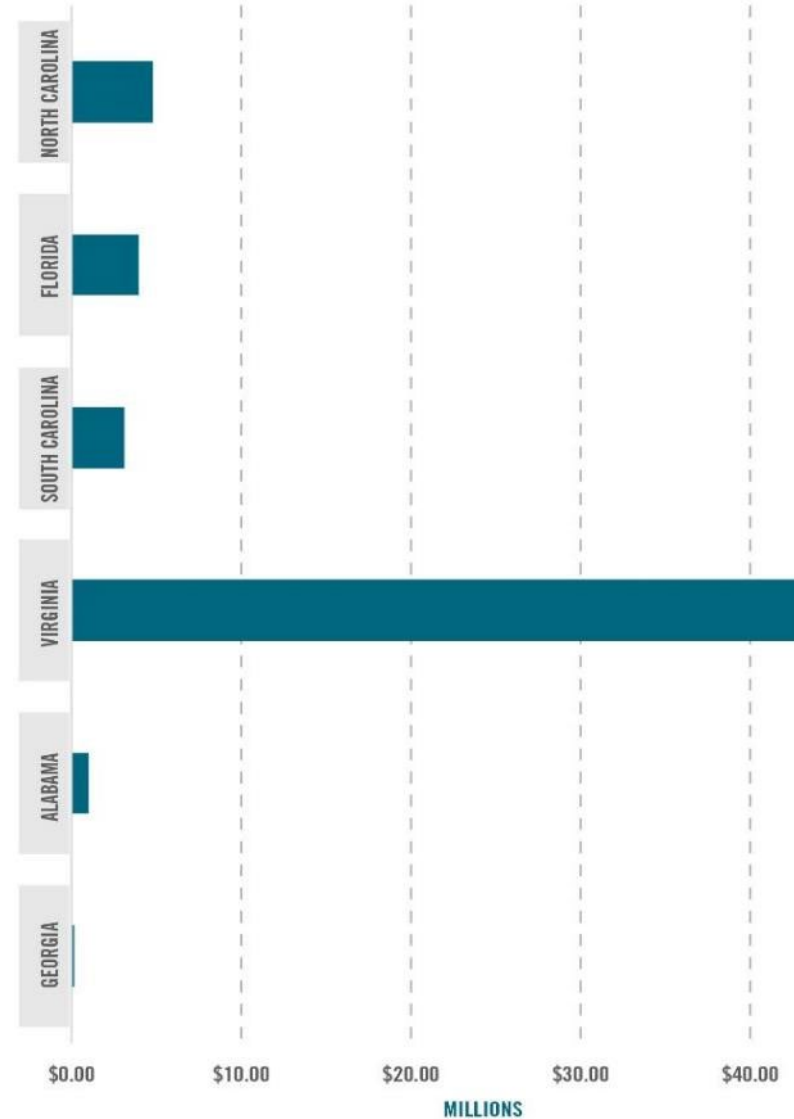
Florida
 1.3 Million Acres Available
 358+ Oyster Farm Leases/1,500 Acres
 300 Leases for Water Column

South Carolina
 404,600 Acres Available
 21 Permits /665 Acres
 11 Leases for Water Column

Virginia
 400,000 Acres Available
 5000+ Oyster Farm Leases/ 136,000 Acres
 50-60 Floating leases,
 98 Aquaculture of some kind

Alabama
 211,200 Acres Available
 (Conditionally Approved)
 21 Oyster Farm Leases/ 44 Acres
 2 Oyster Parks/ 72 Acres Total

Georgia
 150,000 Acres Available (Approved Only)
 3 New Subtidal Leases /30 Acres
 1 Intertidal lease



Oyster Lease Process

Year	State	Enacted / Amended Oyster Laws	State-funded hatchery	Select Own Sites?	Lease Selection Process	Year-round harvest?
1989	NC	1989 / 2009 / 2019	Yes	Yes	First come, First serve	Yes
2000	FL	2000 / 2005	Yes	Yes	First come, First serve	Yes
	SC	2000 / 2017	No (private only)	Yes	First come, First serve**	Yes, with permit
2006	VA	2006	Yes	Yes	First come, First serve	Yes
2013	AL	2009 / 2013	Yes	Yes	Competitive Bidding***	Yes
2019	GA	2019	Yes	No	Competitive Bidding (Intertidal), Lottery (Subtidal)	Yes, with DNR approval (subtidal only)



Additional needs and feedback

Grower Concerns

- Regional seed sourcing
- Summer harvest



Other Stakeholders

- Financial data and risk of starting an operation or hatchery
- Lease availability
- Effects on recreational fisheries
- Public perception and acceptance
- Aquaculture outreach and education



Additional Aquaculture Research



Oyster Genetics

- Become regional resource for broodstock in the southeast
- Initial focus on growth and survival
- Additional focus areas
 - Heat tolerance
 - Salinity
 - Disease
 - Grower feedback

Blood Arks

- Develop hatchery techniques for commercialization
 - Current technique is not economically viable for commercial hatcheries
- Evaluate field grow-out to determine stocking density and placement in the intertidal

Southern Quahogs

- Evaluate field grow-out methods
- Evaluate post-harvest processing



Resilience



Living Shorelines/Oyster Restoration

- Efforts limited to March-June due to focus on natural oyster set
- Spat on shell
 - Evaluate success in planting in spat on shell outside natural oyster set

Ribbed Mussels

- Excellent for restoration and marsh stability
- Difficult to produce in hatchery
 - Working to standardize methodology



THANK YOU!

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