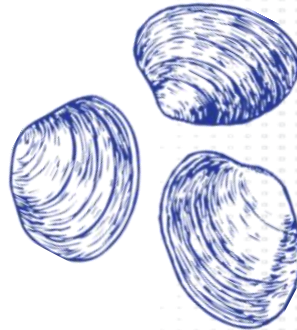




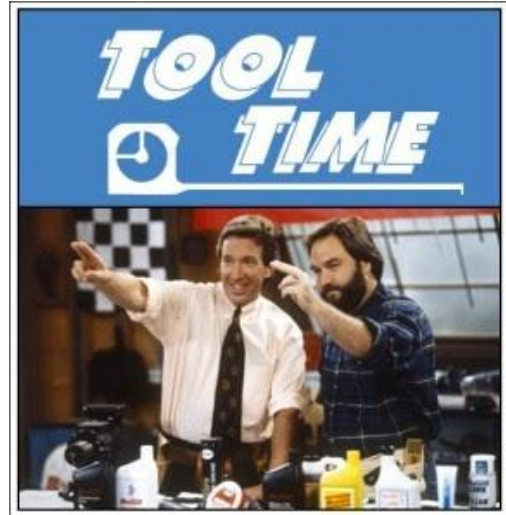
Resources and Tools to Evaluate and Manage Risks in Shellfish Farms



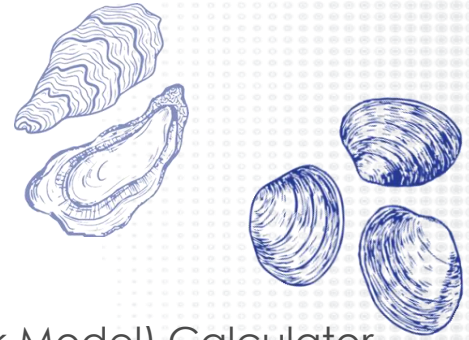
<https://shellfish.ifas.ufl.edu/risk-workshop>

Resources and Tools

- Risk management is about reducing the cost of risk
- It is recommended to use a combination of strategies, resources and tools in managing business risks
- Online tools available to assist shellfish growers in
 - Budgeting
 - Economic forecasting
 - Disaster planning
 - Record keeping



Current Resources and Tools

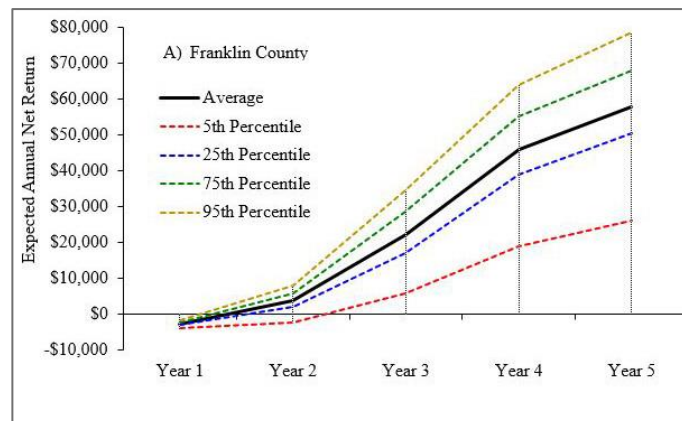


- Shellfish Farming Resilience Index
- Financial Risk in Florida Oyster Culture
- Florida Oyster FARM (Financial And Risk Model) Calculator
- Alabama Enterprise Budget for Oyster Farms
- Estimating Farm Size and Gear Costs for Oyster Culture
- Hurricane Planning Guide for Off-bottom Oyster Farms
- Hurricane Planning Guides for Operations
- Budget for Existing Florida Clam Farms
- Clam and Oyster Farm Inventory Reporting Sheets
- **In Development:** Enterprise Budgets for Florida Clam Farms

Financial Risk in Florida Oyster Culture



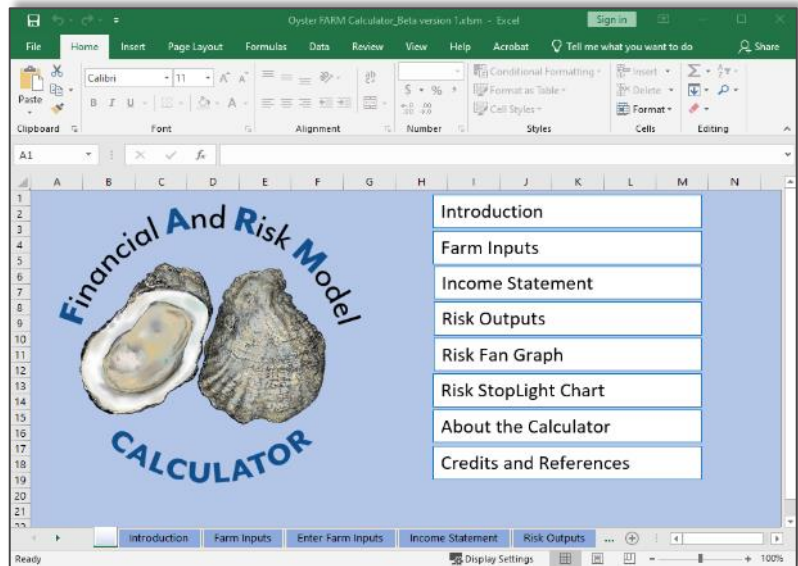
- Fact sheet discusses aquaculture risks – normal, environmental and economic
- Financial characteristics of hypothetical farm used in risk assessment
- Farm budget model simulated over 5 years
- Specific for 4 counties on FL west coast



- Annual net returns of farms by county given environmental and markets risks
- Each line represents net income over 5 years at 5, 25, 75, 95% probabilities

FL West Coast Oyster FARM (Financial And Risk Model) Calculator

- Excel based tool
- Specific for counties on FL's west coast
- Farm income statement based on grower's inputs
- Incorporates risk analysis by county for 5 years using long-term databases
 - Mortalities
 - Hurricane/tropical storms
 - High/low salinities
 - Market prices



Oyster Farming Business Planning Tool

Oyster Farming Business Planning Tool

► About the Tool

This tool is hosted by the S.C. Sea Grant Consortium. See our website for more information: www.scseagrant.org/aquaculture-toolkit.

The tool was adapted from a similar oyster farm business planning tool developed by the University of Maryland Extension Program (Parker, Dill, Webster, and Meritt; 2016)

The purpose of this tool is to aid oyster farmers and potential oyster farmers in business planning. The tool provides the user with an educated understanding of expenses and revenues to help increase the likelihood of business success. Being able to accurately determine cost and return in business allows you to plan to maximize potential profit and determine expenses, cash flow and other important aspects of management. In a business with as many risks as aquaculture this is a wise choice to begin your business planning.

[Introduction](#)[How To Use](#)[Land Expense](#)[Assumptions](#)[Bottom Prep and Capital Cost](#)[Yearly Enterprise Budget](#)[Yearly Income Analysis](#) ...

- Excel-based tool for business planning and understanding of expenses and revenues in an oyster farm operation
- Determines annual cost and return, enterprise budget, income statement, and sensitivities analysis
- For more information: www.scseagrant.org/aquaculture-toolkit



S.C. SEA GRANT CONSORTIUM
Coastal Science Serving South Carolina

Enterprise Budget for AL Oyster Farms

- Web based guide for planning purposes
- Provides estimates based on farm using
 - Six-bag floating cages
 - Stocking density of 1,000 oysters per cage
- Calculates profit breakdown and breakeven analysis

The screenshot shows the 'extension' logo at the top left, with navigation links for English, Calendar, Extension TV, Store, and Be Prepared. A search bar is on the top right. Below the navigation bar is a green header with links for TOPICS, COUNTIES, DIRECTORY, MULTIMEDIA, and ABOUT US. The main title is 'Oyster Farming Budget Calculator'. Under the heading 'Oyster Costs and Estimations', there are four numbered questions with input fields: 1. 'How many oysters would you like to grow per year?' with a 'Choose...' dropdown and a numeric input field (0). 2. 'How much will the seed cost?' with a 'Choose...' dropdown and a numeric input field (0). 3. 'What do you estimate the mortality rate to be for your oysters?' with a 'Choose...' dropdown. 4. 'What is the expected market price for your oysters?' with a '\$' symbol and a numeric input field (0.00). To the right of the first two questions are labels for 'Acres Required' and 'Hours per Week'. To the right of the fourth question is a label for 'Per Spat (1000)'. A green 'Next' button is at the bottom right.

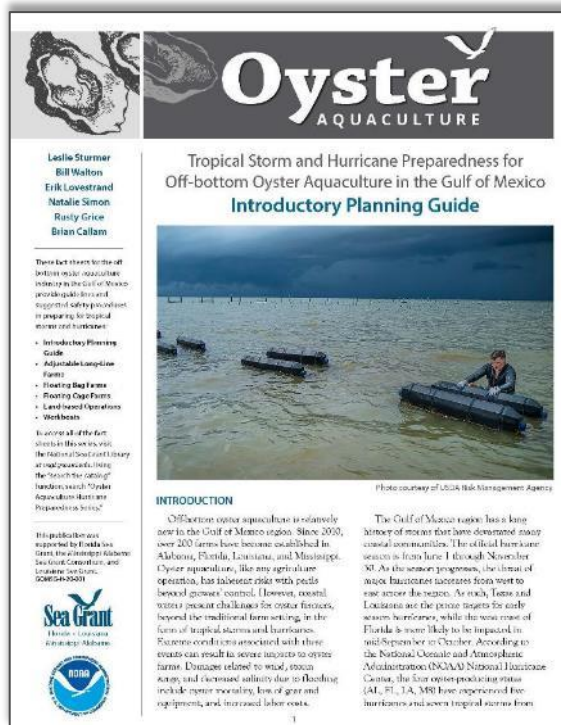
Estimating Farm Size and Gear Costs for Oyster Culture

- Web based tool for planning purposes
- Provides model budgets for different gear types and farm sizes
 - Adjustable longlines
 - Floating bags and cages
- Supplier prices included or can add custom prices
- Calculates farm acreage, number of market size oysters, and gear costs



Hurricane Planning Guide for GoM Off-bottom Oyster Farms

- Hurricane plan guidance in
 - Developing
 - Preparing
 - Implementing
- Recommended equipment and supplies
- Recovery steps after the storm
- State resources



Hurricane Planning Guides for Oyster Farms



- Floating bag farms
- Floating cage farms
- Adjustable longline farms

- Land-based operations
 - Nurseries
 - Processing plants
- Workboats

Budget for Existing Clam Farms

- Practical, easy to use, Excel-based tool
- For existing operations in Florida
- Farm inputs include seed planted, survivals, bag densities, harvest sizes, prices, capital and variable costs

Production Item	Assumption
Total Seed Planted	1,000,000
Nursery Seed Density (# clams per bag)	10,000
Growout Seed Density (# clams per bag)	1,150
Survival Rates (%)	
Nursery	80%
Grow-out	80%
Overall	64%
Harvest Size Distribution (%)	
1"	70%
7/8"	15%
Pasta	15%
Total (Must equal 100%)	100%
Number of Bags Required	
Nursery	100
Growout	696

Financial Item	Assumption
Seed Price	\$ 0.010
Market Price	
1"	\$ 0.14
7/8"	\$ 0.12
pasta	\$ 0.08

Budget for an Existing Florida Hard Clam Culture Operation

Introduction

This worksheet is designed to model the cash flows for an existing small-scale Florida hard clam culture operation. The worksheet will generate an average annual budget based upon user input that captures the fixed and variable costs, net returns, cost per clam, and breakeven survival rate. Some of the cells have been protected to preserve the formatting. **Those cells which can be modified are highlighted in orange.** The default values currently displayed in these orange cells are estimates that are meant to be changed by the user. The tabs marked "Cash Cost Sensitivity" and "Total Cost Sensitivity" are sensitivity analyses that automatically calculate how changes in seed prices, survival rates, market prices, and size distributions affect the budget. The buttons at the bottom of the first three sheets will bring you through the directions and to the budget. Feel free to return to any of the individual sheets by clicking on the tabs at the bottom of the window.

Worksheet Assumptions

As the worksheet models an existing clam operation, the program is built with the following assumptions:

Production:

- Existing hard clam aquaculture operation in Florida with a minimum of five (5) years of farming experience.
- Maximum 2-year growout period, which combines both field nursery and growout phases.
- Nursery phase is "3-6 months.
- Growout phase is "12 to 18 months.
- Harvest period is extended as dictated by demand, environmental conditions, growth, etc.

Financial:

- All capital costs, asset replacement costs, and operating costs are owner financed. No borrowed capital.
- Capital assets (such as truck, boat, motor) are already purchased and in use by operator. Depreciation is computed using a straight line method with zero salvage value.
- Contract services or wages to assist in farming activities are required each year.
- Grower replaces 25% of nursery bags per year and cleans/repairs 75% per year.
- Grower replaces 10% of growout bags per year and cleans/repairs 90% per year.
- Most variable costs, overhead expenses, and capital asset purchases are inflated at a 3% annual rate.
- Income and self-employment taxes are not included.
- Capital assets are automatically reinvested if the asset's years of life is less than the 5-year planning horizon.
- Withdrawals from the business income for owner "salary" or family living expenses are not included.
- Owner/family labor cost is not included.
- All net returns are pre-tax to the owner/operator's capital, management labor, and risk.

[Click Here to Begin](#)

Investment and Capital Asset Requirements

Capital Item	Unit Cost	Estimated Years of Life	Expected Next Purchase	# Purchased In Year 1	Annual Replacement Cost	Year 1	Year 2
Nursery Bag	\$ 9.00	5		20	\$ 180	\$ 180	\$ 185
Growout Bag	\$ 5.00	10		70	\$ 350	\$ 350	\$ 361
Wet Suits	\$ 250.00	3	Year 1 (this year)			\$ 250	- \$
Boat	\$ 25,000.00	15		0		\$ -	- \$
Truck	\$ 35,000.00	15		0		\$ -	- \$
Motor	\$ 10,000.00	10		0		\$ -	- \$
Winch, Davit, Boom, Pulley, Batteries	\$ 1,000.00	5	Year 1 (this year)			\$ 1,000	- \$
Total Investment						\$ 1,780	\$ 546

Budget for Existing Clam Farms

- Provides annual cash flows and depreciation over 5-years
- Calculates average annual budget
- Sensitivity analysis for seed costs, market prices, survival rates



Annual Cash Flows					
	Year 1	Year 2	Year 3	Year 4	Year 5
Beginning Cash	\$ 0	\$ 52,534	\$ 102,716	\$ 153,546	\$ 203,755
Cash Receipts	\$ 81,920	\$ 81,920	\$ 81,920	\$ 81,920	\$ 81,920
Cash Outflow					
Production Costs	\$ 29,387	\$ 29,958	\$ 30,544	\$ 31,149	\$ 31,773
New Capital	\$ -	\$ 1,780	\$ 546	\$ 562	\$ 829
Total Outflow	\$ 29,387	\$ 31,738	\$ 31,090	\$ 31,711	\$ 32,602
Annual Cash Position	\$ 52,534	\$ 50,182	\$ 50,830	\$ 50,209	\$ 49,318
Ending Cash Position	\$ 52,534	\$ 102,716	\$ 153,546	\$ 203,755	\$ 253,073

Sensitivity Analysis: Cash Costs (Depreciation Excluded)

Market Price								
Market Prices			# of Clams Harvested	Total Revenue	Total Cash Costs	Net Returns to Cash	Cash Cost per Clam	Break-Even Survival (Cash Costs)
1"	7/8"	Pasta						
\$ 0.07	\$ 0.05	\$ 0.045	640,000	40,480	\$ 30,344	\$ 10,136	\$ 0.047	48%
\$ 0.08	\$ 0.06	\$ 0.050	640,000	46,400	\$ 30,344	\$ 16,056	\$ 0.047	42%
\$ 0.09	\$ 0.07	\$ 0.055	640,000	52,320	\$ 30,344	\$ 21,976	\$ 0.047	37%
\$ 0.10	\$ 0.08	\$ 0.060	640,000	58,240	\$ 30,344	\$ 27,896	\$ 0.047	33%
\$ 0.11	\$ 0.09	\$ 0.065	640,000	64,160	\$ 30,344	\$ 33,816	\$ 0.047	30%
\$ 0.12	\$ 0.10	\$ 0.070	640,000	70,080	\$ 30,344	\$ 39,736	\$ 0.047	28%

Inventory and Record Keeping for Shellfish Farms

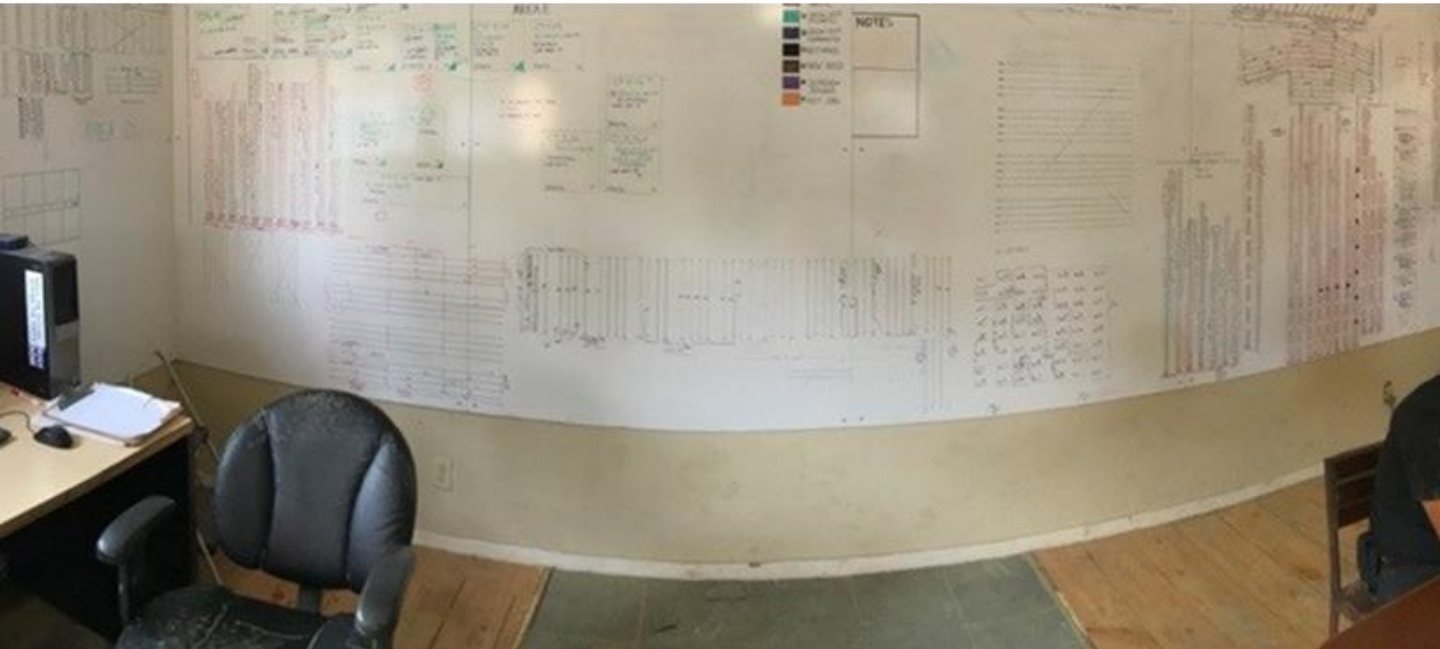
WHY?

- How many shellfish do you have
- What size are they
- Where are they
- How do different batches perform
- When is it time to harvest
- What is the value of your crop now
- What are inventory requirements for USDA disaster/financial assistance programs



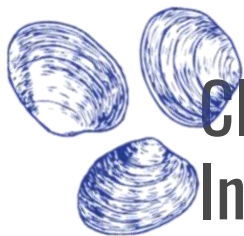
Photo courtesy of Bonish Studio

Traditional Methods



Slide courtesy of Bill Walton

- Memory
- Whiteboard
- Notebook
- Color-coded tags
- Excel (with some modern twists)



Clam Farm Inventory Sheets

- Developed to meet USDA Farm Service Agency's NAP requirements for crop reporting
- Excel based worksheets for reporting
 - September starting inventory
 - Monthly inventory reports (October-August)
- Calculator provides monthly summaries
- Also available as pdf files to use as template

USDA FARM SERVICE AGENCY NAP - CULTURED CLAMS INVENTORY REPORT - OCTOBER 2024					
Name:					
Lease:					
County:					
INVENTORY FROM SEPTEMBER					
# Nursery Bags		Avg. Clams Per Bag		# Nursery Clams	
NURSERY:					
# Growout Bags		Avg. Clams Per Bag		# Growout Clams	
GROWOUT:					
NURSERY PLANTS					
Plant Date	# Nursery Bags	Clams Per Bag		# New Nursery Clams	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
NURSERY TO GROWOUT TRANSFERS					
Transfer / Plant Date	Nursery Bag Plant Date	# Bags Transferred	# New Growout Bags	Clams Per New Growout Bag	# New Growout Clams
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
OCTOBER MONTHLY INVENTORY SUMMARY					
# Nursery Bags		Avg. Clams Per Bag		# Nursery Clams	
NURSERY:					
# Growout Bags		Avg. Clams Per Bag		# Growout Clams	
GROWOUT:					
OTHER INFO:					



Oyster Farm Inventory Sheet

- In development to meet USDA Farm Service Agency's NAP requirements for reporting
- Proposed Excel based worksheets for monthly reporting
- Difficulties due to practices - routine sorting by oyster size and multiple bag sizes
- Currently basic monthly template in Excel and pdf files

USDA FARM SERVICE AGENCY - CULTURED OYSTERS INVENTORY REPORT				
Name:				
Lease:				
County:				
Month/Year:				
INVENTORY AT MONTH END				
Date	Bag Size	# of Bags	Est # of Oysters/Bag	Estimated # Oysters
1				0
2				0
3				0
4				0
5				0
6				0
7				0
8				0
9				0
10				0
11				0
12				0
13				0
14				0
15				0
16				0
17				0
18				0
19				0
20				0
21				0
22				0
23				0
24				0
25				0
Month End Inventory Summary				
	Bag Size	# of Bags	Avg # of Oyster Per Bag	Estimated # of Oysters
Small		0	0	0
Medium		0	0	0
Large		0	0	0
Total		0	0	0
OTHER INFO:				

Questions, Comments, Suggestions for Tools

- Andrew Ropicki
- Assistant Professor & Extension Specialist
- University of Florida & Florida Sea Grant
- aropicki@ufl.edu
- 352-294-7667



New Options for Shellfish Farms

- Apps / software
 - OceanFarmr
- Radio Frequency Identification (RFID) technology
- GIS packages



Where to Access Resources



WEBSITE

<https://shellfish.ifas.ufl.edu/risk-workshop>