Florida Clam Farming

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Florida Hard Clam Aquaculture

- Leading producer of hard clams in nation (USDA 1998)
- Fell behind other states in 2005 & 2012 USDA surveys
- Largest marine aquaculture industry in Florida
- Farm gate sales from $0.4M in 1987 to $19M in 2007 (FASS 1988, UF 2009)
Industry Development on West Coast

In the 1990s due to:

- Successful job retraining programs for former fishermen
- Excellent leasing program and regulatory framework
- Year-round growing conditions allow for fast growth rates, short crop periods, and continuous production
Florida Shellfish Aquaculture Retraining Programs

- Infrastructure provided to expand employment opportunities for Florida fishermen affected by increasing regulatory restrictions
  - “Hands-on” training
  - Classroom curriculum
  - Development of business plans, lease applications
Florida Shellfish Aquaculture Retraining Programs

- **Project OCEAN**
  - 1991 – 1993
  - Cedar Key

- **Project WAVE**
  - 1995 - 1997
  - Charlotte Harbor

- **Project CLAM**
  - 1996 - 1998
  - Charlotte Harbor

- **Project Oak Hill**
  - 1996 - 1997
  - Atlantic Ocean

- **Gulf of Mexico**

- **Oak Hill**
Florida Shellfish Aquaculture Retraining Programs

- Accomplishments
  - Culture technologies transferred
  - Over 400 former fisherman placed into small businesses
    - 2 to 4-acre leases
    - Annual net profit potential of $30-35K
  - 1500 acres of aquaculture leases established

Project OCEAN Graduation, 1993
State of Industry

- 288 certified clam growers in state
  - 150 in Cedar Key
- Over 1600 acres of submerged lands dedicated to leases in 11 coastal counties
- About 90% of production from west coast
- Profile dominated by small businesses
Certified Clam Farmers*

*FL Department of Agriculture and Consumer Services, 2014-15

- Atlantic Ocean
- Gulf of Mexico

- Franklin County, n=30
- Dixie County, n=15
- Levy County, n=152
- Manatee County, n=3
- Charlotte County, n=7
- Lee County, n=33
- Collier County, n=4
- Brevard County, n=15
- Volusia County, n=9
- Indian River County, n=17
- St. John’s County, n=3
Production, 1987-2012*

*1987-2012, Compiled from Florida Agricultural Statistics Service’s survey of aquaculturists
Sales Value, 1987-2012*

*1987-2012, Compiled from Florida Agricultural Statistics Service’s survey of aquaculturists
New **Pick-up Trucks** in Cedar Key*

*Compiled by Sturmer, UF IFAS; Economic indicator derived by Turner and Tammi (1994)*
Supporting Infrastructure

- Seed suppliers
- Bag suppliers
- Other suppliers
- Equipment manufacturers

- Boat builders
- Wholesalers
**Economic Impact**

- Surveyed wholesalers to determine number and value of clams handled in 1999, 2007, and **2012**
- Input-output methodology used to estimate direct, indirect, and induced impacts

<table>
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<tr>
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<th>Sales output</th>
<th>Value added</th>
<th>Labor income</th>
<th>Jobs</th>
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<td>33.9</td>
<td>12.1</td>
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<tr>
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<td>52.9</td>
<td>31.5</td>
<td>25.3</td>
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<tr>
<td>2012</td>
<td>38.7</td>
<td>21.9</td>
<td>14.7</td>
<td>543</td>
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Clams Require Clean Water

WHY?
• Molluscan shellfish are filter feeders
• Impurities can be concentrated in tissues
• Shellfish eaten partially cooked or raw
• Clams harvested from polluted waters — a HEALTH HAZARD if consumed

HOW?
• Federal and state regulations for shellfish handling and harvesting
• National guidelines established for
  — Classifying and managing waters
  — Bacteriiological monitoring
  — Using fecal coliform as indicator organism
  — Meeting a mean of 14 MPN/100 ml
Clam farmers must become advocates of clean water and citizen stewards!

- 37 Shellfish Harvesting Areas in Florida
- Cedar Key Shellfish Harvesting Area
  - Mgmt Plan: Temporary closure on 4-day rainfall >5"
  - Big Bend Seagrasses Aquatic Preserves
  - FDEP Class II surface waters
Cedar Key Water Quality Activities

- Master storm water plan implemented (1998)
- Wastewater treatment plant expansion (1999)
- Removal of over 200 septic tanks (2001)
- County ordinance requiring advanced on-site performance-based, treatment systems (2003)
- City ordinance limited number of slips in new marina developments (2006)
The Good News!

- SHAs reviewed every 12 years by FDACS
- In 2004, Cedar Key SHA reviewed
- Management plan remained the same
- Prohibited area reduced by 4,200 acres!
- In 2016, better news!
Shellfish Aquaculture is **GOOD** for the Environment!

**Ecosystem Services Provided by Florida Clam Farming**

- Quantified values of three environmentally-beneficial ecosystem services for harvest-sized clams at water temperatures found in Florida
- Calculated costs to replace services with next best alternative

**N Removal:** Replacement cost values based on costs of wastewater treatment plants

**C Storage:** Pine tree plantations used as possible alternative to clam production

Did you know?

Shellfish Aquaculture is **GOOD** for the Environment!

**Clams Clean the Water by Filter Feeding**

A single clam can clear 4.5 gallons a day

**Clams Remove Nitrogen**

A single clam can remove 0.09 grams of N

**Clams Store Carbon**

A single clam can store 2.8 grams of C

Water filtration video, N and C cycle illustrations can be accessed at [http://shellfish.ifas.ufl.edu/environmental-benefits/](http://shellfish.ifas.ufl.edu/environmental-benefits/)
Clam Farming is **GOOD** for the Environment!

**Economic Values of Ecosystem Services Generated by Industry**

Did you know? Clam Farming is GOOD for the Environment!

**Florida Clam Farm Environmental Benefits Calculator**

- **SEAWATER FILTRATION**
  - 544 million gallons of seawater were filtered per day by the statewide production of 136 million clams.

- **NITROGEN REMOVAL**
  - 25.4 thousand pounds of nitrogen were removed from the coastal waters.

- **CARBON STORAGE**
  - 760.6 thousand pounds of carbon were sequestered from the coastal environment.

- **ECONOMIC VALUE**
  - Value of these benefits was estimated at $99,680, which represents the public good value provided to Florida citizens at no cost.

*Based on production results from the 2012 Florida Aquaculture Survey*

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*Florida Clam Farm Environmental Benefits Calculator can be accessed at [http://shellfish.ifas.ufl.edu/](http://shellfish.ifas.ufl.edu/)*
Did you know?

Shellfish Aquaculture is GOOD for the Environment!

Clam Farming is Sustainable

Information allows growers to inform buyers, consumers, and resource managers that shellfish aquaculture is a “green” sustainable industry.
Access to Cedar Key Clam Farms

The Problem:

• Growers had limited access to leases west of Cedar Key, where 50% of farms are located

• Unimproved city easement located in residential area used by traditional fisheries as launch area for years

• Increased usage by clammers resulted in conflict as trucks and trailers parked in front of homes
Access to Cedar Key Clam Farms

The Solution:

• Local growers association acquire funding from USDA Rural Development - RBE grant (2005)
  – Purchase two lots nearby ramp
  – Improve lots for parking and boat ramp

• City ordinance allows for aquaculture parking in residential areas within 1000 feet of boat ramp
  – Conditional use permit

• Association enters into agreement with City and manages parking lot with specific conditions for clammers
  – Annual fee ($150) for gate key and parking pass used for maintenance
“Old” Florida or Tourist Destination?

- Small town with 750 residents
- For most of the 20th century, a fishing (and clamming) village
- Over 400 “beds” in Cedar Key
  - No chain hotels, but a variety of lodging and condos
- Annually, thousands of visitors come to enjoy several festivals
- Recognized in popular national magazines
A Need to Educate the Public

• Cedar Key is a working community
  – Boat access – conflict on weekends
  – Smells – clam bags, gear drying
  – Noises – processing plants, nursery pumps
  – Trucks for commerce
• Future land use activities could affect industry’s continued viability and good water quality
• A need arose to educate our visitors and new residents
Introducing the Publication

• A 40-page, magazine-style publication, suitable for any coffee table
• Inspire readers to appreciate community’s aquaculture and fishing industries and what it takes to sustain them

• Acknowledgements
  — Cedar Key Aquaculture Association
  — UF IFAS Shellfish Aquaculture Extension
  — Florida Humanities Council
  — Florida Sea Grant

Copies provided to real estate agencies, condo management firms, other lodgings, Chamber of Commerce, Visitor’s Bureau, builders, congressional and state legislative delegations, federal and state agencies, local government officials, affiliates and friends
“Don’t let it be forgot that once there was a spot
for one brief shining moment that was known as Clamelet.”

Essays contributed by experts in their field provide information on the environmental, economic, and sociological benefits of clam farming.
Two renown Floridian nature photographers captured the essence of our community that engages readers and helps carry the science-based messages to the broader audiences.
Thank you!

For further information, contact Leslie Sturmer at LNST@ufl.edu or visit the website: http://shellfish.ifas.ufl.edu
WHEN A TOWN’S INDUSTRY SHUTS DOWN, DOES THE WORLD HAVE TO END?

TOGETHER, WE CAN FIND STABILITY.

http://gatorgood.ufl.edu/stories/cedar-keys-story