

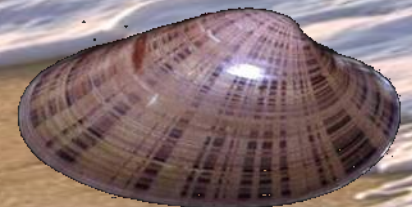
Sunray Venus Clam Culture:

Project VENUS Demonstration 2014-6
Harvesting and Post-Harvest Information



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Presented at Project VENUS Workshops, September 2015, Cedar Key, FL



Project VENUS: Cedar Key Demonstration, 2014-15

- 34 participants, each with 0.15 acre plot
- Seed available in summer 2014
- Results of seed planting survey, Sept '14
 - 80% responded
 - Of those, 80% indicated planted seed
 - Estimated about 2 million seed planted
- Three participants dropped out, spots replaced with new participants
- Field nursery results variable with bags
 - Need to check after 2 months
 - High mortalities after 3+ months



Project VENUS: Cedar Key Demonstration, 2014-15

- Growout in bags and bottom plants
- Harvesting has begun after 9-10 months of growout
- Excellent results, particularly from bottom plants
- Local wholesalers are purchasing
- Grower and wholesaler prices high



Project VENUS: Cedar Key Demonstration, 2014-15

- So what about you?
- What experiences did you have with planting, growing, and harvesting sunray venus clams this past year?

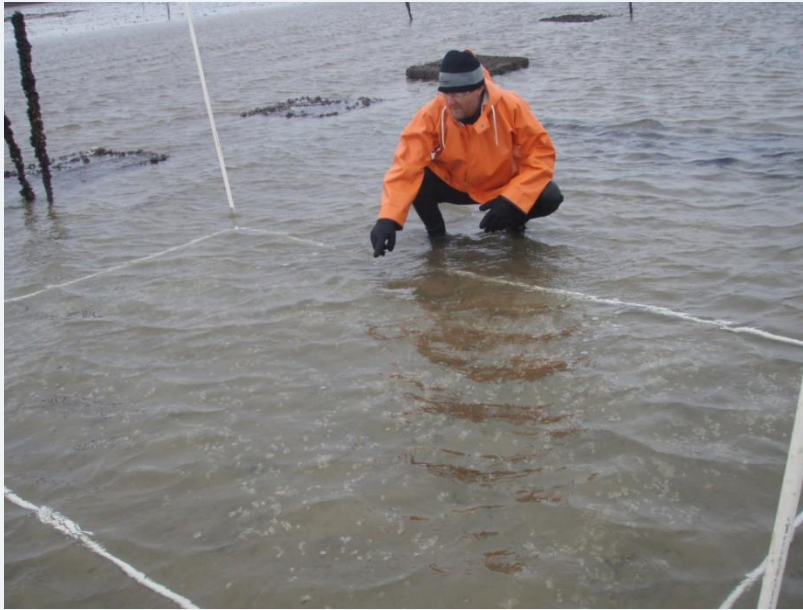


Project VENUS: Cedar Key Demonstration, 2015-16

- Seed availability initially limited in spring and summer 2015
- Surplus seed from HBOI-UF research project to be provided to participants
 - 10,000 seed (>4.0 mm sieve)
 - Pick-up during Sept 15-28
- Seed now available from a commercial hatchery
 - Check *2015 Florida Shellfish Seed Suppliers List*
- Participants who do not plant seed this year and have no product on their plot will be dropped from project
- New participants being solicited for crop year 2015-16



Bottom Plant Culture Method



- Shorter growout period
- Higher survival
- Less shell deformities
- More uniform in size
- Requires harvesting methods



Harvesting with pump-driven device



Hand harvesting with rakes

Harvesting Sunray Venus Clams

- All handling and harvesting rules for hard clams also apply to sunray venus clams
 - AQ certification and harvester training
 - Shellfish harvesting area classification and management plan
 - VENUS demo site: **3102 Zone A**
 - Time / temperature matrix
 - Harvester tag
 - VENUS demo site: **38-MA-1259**
 - Boat and vehicle requirements
 - Sell to certified shellfish wholesaler
 - *Comprehensive Shellfish Control Code, Chapter 5L-1. F.A.C.*

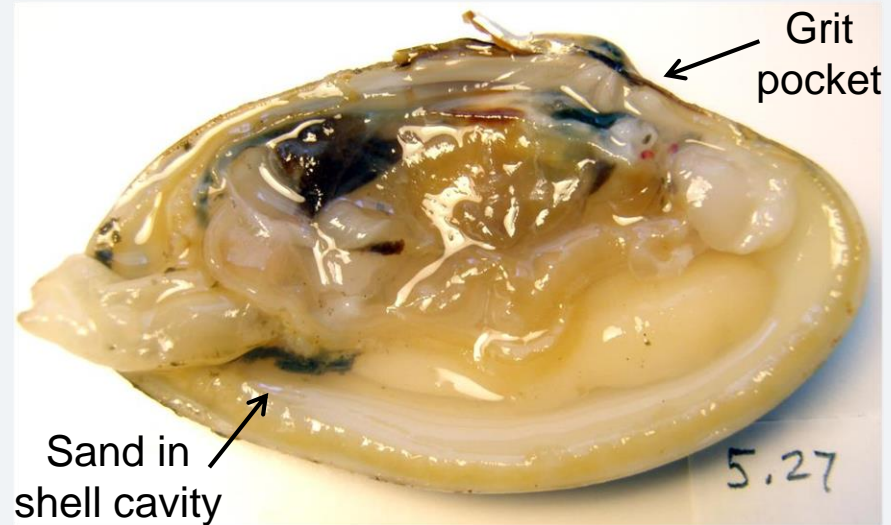


Bags serve as the harvesting device



Purging Sunray Venus Clams

- Tend to have more “grit” in shell cavity and gut after harvest
 - High filtration rates
 - Cultured in substrate with high sand content
 - Dependent on harvest method
- Not to be confused with kidney stones, or “grit pocket”
 - Can not be purged
 - At market size, not apparent or distinct in sensory profile or consumer acceptance studies
 - Grit pocket increases with size and age of sunray venus



Purging Sunray Venus Clams

- On lease after harvest
 - Place in “hard” bag (for example, oyster bag) staked to bottom
 - Leave for several hours or until next low tide
 - Time dependent on ambient conditions
- Shore-based wet storage facility
 - Must be certified wholesaler
 - Requires approval and inspection from DACS
 - Surface waters must be approved for shellfish harvesting (classified)
 - Ground waters must be treated and monitored
 - See *Rule 5L-1.008, F.A.C.*

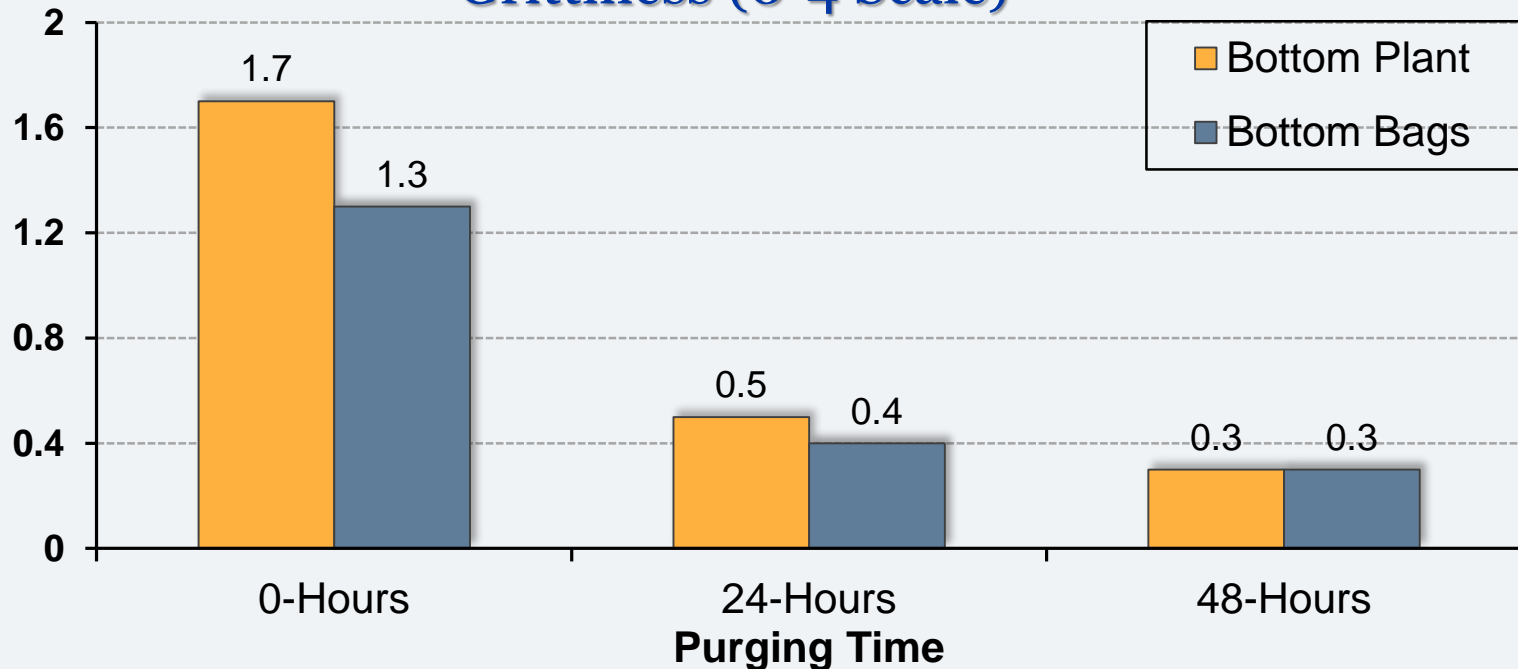


Purging Sunray Venus Clams

- In purging evaluation, using a 5-point scale of 0 = no grit to 4 = extremely gritty
 - After harvest, sunrays from bags and bottom plants rated as “slightly to moderately” gritty
 - After 24 hours, 70% reduction in grittiness values for clams harvested by both methods
 - After 48 hours, values same for both methods



Grittiness (0-4 Scale)



Processing: Washing and Grading

- Washing is necessary but tumbler may not be suitable due to thinner shell
- Smaller volumes may make alternative, more labor intensive methods feasible
- “Mudders” are harder to detect



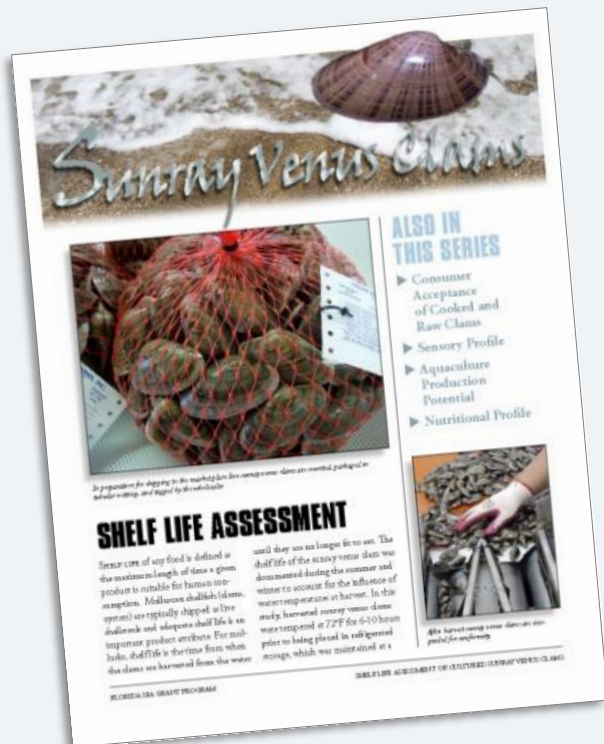
- Market sizes not yet defined
- Harvest shell lengths range from 2-3”
- Harvest and grade sizes may not necessarily be determined by shell width
- Can be sorted by grader, but need to “cushion” the drop into harvest bag

Shelf Life of Sunray Venus Clams

- Assessment based on survival in refrigerated storage (<45°C) and sensory judgements by UF seafood trained panel
- Results similar to hard clams
- Unlike hard clams, tendency to remain closed when approaching mortality

Refrigerated Storage:

Harvest	Shelf life (days)	Survival (%)
Winter	14	90-94
Summer	8	86-92



○ Recommendations

- Tempering at <72°C for several hours prior to refrigeration
- Reduce gaping by tightly packaging in tubular netting
- Conduct daily sensory evaluations as nearing shelf life expiration date to ensure product is suitable for consumption (“the nose knows”)

Sensory and Nutritional Information

Attribute	Profile
Appearance	Very plump, fully covered clams, predominantly light color meat. Attractive external shell, peach to orange color tones.
Aroma	Moderate briny and metallic aroma
Basic Flavors	Salty, with moderate umami
Flavor and Aftertastes	Seaweed was the predominant flavor accompanied by strong metallic.
Textures	Firm texture

Nutrition Facts

Serving Size 4 oz (113g)
Servings Per Container

Amount Per Serving

Calories 45 **Calories from Fat 5**

% Daily Value*

Total Fat 0.5g **1%**

Saturated Fat 0g **0%**

Trans Fat 0g

Cholesterol 20mg **7%**

Sodium 640mg **27%**

Total Carbohydrate 2g **1%**

Dietary Fiber 0g **0%**

Sugars 0g

Protein 8g

Vitamin A 8% • Vitamin C 2%

Calcium 10% • Iron 30%

Vitamin B12 40% • Zinc 6%

Copper 4%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Sunray Venus Clams

ALSO IN THIS SERIES

- ▶ Consumer Acceptance of Cooked and Raw Clams
- ▶ Aquaculture Production Potential
- ▶ Shelf Life Assessment
- ▶ Nutritional Profile

SENSORY PROFILE

The present study focuses on the sensory attributes of the clam meat. The clam meat is characterized by its firm texture and its light color. The clam meat is also characterized by its mild flavor and its low fat content. The clam meat is also characterized by its low cholesterol content and its high protein content.

FLORIDA SEA GRANT COLLEGE PROGRAM

Sunray Venus Clams

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NUTRITIONAL PROFILE

The clam meat is characterized by its firm texture and its light color. The clam meat is also characterized by its mild flavor and its low fat content. The clam meat is also characterized by its low cholesterol content and its high protein content.

FLORIDA SEA GRANT COLLEGE PROGRAM

Low-fat source of protein
Low cholesterol
High in minerals and vitamins

Consumer Acceptance, 2008-09



- Shellstock (2.5" SL) provided to restaurants
- 239 surveys completed by patrons
 - Detect grittiness? **No-89%**
 - Would you order product again? **Yes-94%**
 - Would you recommend product? **Yes-97%**

	Excellent	V. Good	Good	Fair	Poor
... % of all respondents for each attribute ...					
Appearance	84	13	2	1	0
Taste	72	18	8	2	0
Texture	63	25	9	2	1
Tenderness	58	25	9	4	2
Value	61	24	10	4	1
Overall	70	20	8	2	0

Overall Excellent and Very Good attribute ratings by consumers, chefs, and managers

- Larger sunrays (3"SL) provided to sushi restaurants for evaluation

Buyer Acceptance, 2011-12



Chuck Adams (above), interviewed over 250 buyers at the *Fresh from Florida* Pavilion during the 2011 Boston Seafood Show. Chef Justin Timineri (right) served sunray venus clams during the 2012 Show.

Chef Peter Stefani (above) of The Island Room in Cedar Key served sunray venus clams to thousands of attendees.

Responses of buyers revealed an overwhelming, positive assessment of the product across a range of attributes and factors, and willingness to purchase

Consumer Acceptance, 2013-present



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Sunray Venus Clam

It is believed the Caloosa Indians enjoyed Sunray Venus Clams hundreds of years ago as a staple in their regional cuisine. A native species found from waters off of South Carolina into the Florida Panhandle, Sunray Venus Clams (*Macrocallista Nimbosa*) have never before been commercialized or produced for distribution. During our research into these incredibly rare & stunningly beautiful clams, we've spoken with seasoned generational Florida Fishermen who recall coming across these delicacies, but were unable to find enough to be a reliable resource to offer into market. Whatever minimal catch came in was kept local & prized for the delicate sweet flavor, smooth glassy shells & remarkable meat fill.

Now, Supreme Lobster's new exclusive partnerships with Scientific Associates & Research Aquaculture Inc. of Stuart Florida will be bringing these unique animals into Chicago's culinary community.

Sustainable Raising & Harvesting of Sunray Venus

Three Waterfront Restaurants ... Three Unique Dining Experiences

WELCOME [Log In · Register]

Chef's Resources

Culinary Knowledge for Professional Chefs & Culinarians

The Professional Chefs Resource | Kitchen Management Tools | Meats | Oyster Varieties

G+1 0

Sunray Venus Clams

[Back to Shellfish](#)

Sunray Venus Clam Flavor Profile

Sunray Venus Clams have stunning multicolored shells, seaweed, metallic flavor. The meats are light and plump than Manila clams, yet still tender.

Suggested Shell Life

7 days from harvest in the summer and 12 days in winter

Sunray Venus Clam Description (*Macrocallista Nimbosa*)

These clams have beautiful shells with a radiating pattern of colors including coral, peach, golden-tan or lavender. These colors fade in water offers a dramatic sunburst on a polished canvas.



Florida Aquaculture: Learning About Sunray Venus Clams Posted By [Solo Travel Girl](#) on Feb 15, 2013

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Sunray Venus clam – a new star rising

by Linda Hiemstra
February 27, 2015

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"Several years ago we took the Sunray Venus clam to the Boston Seafood Show and the response was overwhelming," says Tom McCrudden, President of Research Aquaculture Inc. "Customers from across the country were ordering but supply is still an issue. The demand is there but we can't keep up with production."

Research Aquaculture Inc. (RAI) is the first commercial producer of the Sunray Venus Clam.

Located on the east coast of Florida, north of West Palm, McCrudden and his staff have 20 years growing experience with clams, mostly *Mercenaria*, and about 8 years ago started looking at the potential for aquaculture for the local Sunray Venus clam, *Macrocallista nimbosa*.

The Sunray Venus clam has a winged shell with a unique star design. The grey shell turns coral pink when cooked making it especially attractive to chefs. "It also has a higher meat count than other clams, more like a



Marketing Needs?

- Another project component is to educate consumers and seafood buyers about the availability, high quality, and environmentally sustainability of a new aquaculture product
- Conducted by the Department of Agriculture and Consumer Services, Bureau of Seafood and Aquaculture Marketing staff
 - Promotional materials for consumer awareness will be designed
 - Brochures will provide information about availability, buying, handling, storage, and cooking tips, as well as recipes.
 - Materials to be made available to consumers and retailers and posted at the DACS website

