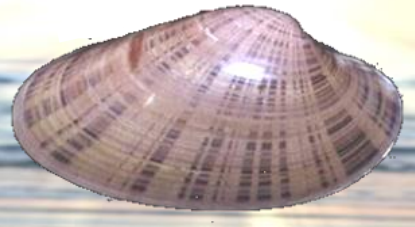
Vocational Education Network Using Sunrays



Project VENUS

- An integrated technology transfer project to assist the commercial development of sunray venus clam culture
- Brings together the following resources:
  - University of Florida IFAS
  - Harbor Branch Oceanographic Institute at FAU
  - FDACS Bureau of Seafood and Aquaculture Marketing
  - Cedar Key Aquaculture Association
- Funded through NOAA National Sea Grant Program

UF IFAS UNIVERSITY of FLORIDA

HARBOR BRANCH FLORIDA ATLANTIC UNIVERSITY

Fresh from Florida

Sea Grant Florida

Project VENUS

Vocational Education Network Using Sunrays

Project Objectives

- Ensure adequate sunray venus seed availability for Florida growers by working with shellfish hatchery operators
- **Educate current clam growers about culture and handling methods suitable for sunray venus clam production**
- Characterize bottom sediments to determine compatibility of existing leases and siting new leases for sunray venus culture
- Evaluate protocols used by shellfish processors for freezing sunray venus clams to assess product quality
- Educate consumers and seafood buyers about the availability and attributes of a new Florida aquaculture product

Project VENUS

Vocational Education Network Using Sunrays

Levy County Commercial Demonstration

- Eligible growers may learn and “experiment” with sunray venus culture practices on a demonstration site without investment and commitment of acquiring a lease
- Series of workshops will provide information on various principles and results from prior FSG-funded projects
- Network established to share learning experiences and develop standards or guidelines for industry in culturing, harvesting, handling, purging, processing and distributing sunray venus clams
- Sunray venus clams originating from the demonstration site will provide much needed visibility of this new culture product and allow market potential to be evaluated

Project VENUS

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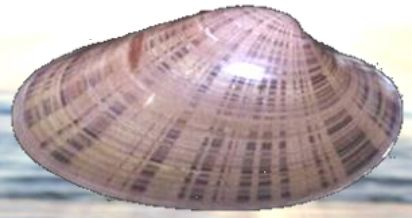

Participation Guidelines

- Certified shellfish aquaculture leaseholders in Levy County are eligible to participate.
- Each eligible participant will be assigned one parcel of about 0.1 acres (approx 50’ by 100’ in size).
- Co-leaseholders will be able to share a parcel.
- Each participant can rear a crop(s) of sunray venus clams on their parcel.
- Only sunray venus clams will be allowed to be cultured at the demonstration site.

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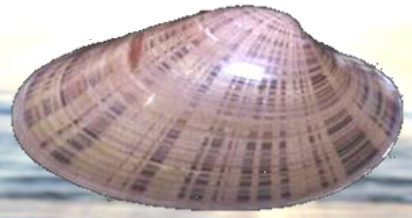


Participation Guidelines

- Participants must purchase their seed from certified hatcheries and comply with the DACS Division of Aquaculture's BMPs pertaining to shellfish seed.
- Seed prices are to be determined by the hatchery operator not the project, and are not subsidized through the project.
- Participants are encouraged to "experiment" on their own, adapting and testing different culture methods (for example, bottom planting).
- Provisions pertaining to existing clam leases will apply. Mechanical harvesting will not be allowed nor can culture activities exceed six inches above the bottom.

Project VENUS

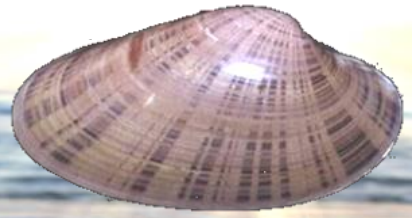
Vocational Education Network Using Sunrays

Participation Guidelines

- Participants will use their own culture gear and boats during the demonstration project.
- Participants will not be compensated for their time or effort in the project.
- Participants are obligated to attend the required project workshops. In 2014-15, a minimum of 2-3 workshops, providing information on parcel assignments, planting and handling of seed, and results from prior growout trials, will be held.
- Workshops will be held at the FWC Senator George Kirkpatrick Marine Lab in Cedar Key.

Project VENUS

Vocational Education Network Using Sunrays



Participation Guidelines

- During the demonstration project, participants will be encouraged to interact with others and share information gained from their experiences.
- Harvesting of sunray venus clams must follow DACS Division of Aquaculture rules pertaining to harvesting and handling of hard clams (for example, tagging, shading of product, time-temperature requirements, etc).
- Sunray venus clams originating from the demonstration site will provide much needed visibility of this new culture product and allow market potential to be evaluated by certified shellfish wholesalers and DACS marketing staff.

Project VENUS

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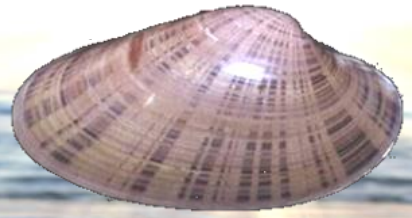


Participation Guidelines

- At the completion of the demonstration project, all culture gear must be removed by the participant.
- During the project, UF, the Cedar Key Aquaculture Association and project participants will work with DACS in assessing the need for developing leases.
- Funding for lease development (e.g., surveying and marking) will not be available through this project.
- The Cedar Key Aquaculture Association will provide industry oversight and guidance throughout the project.

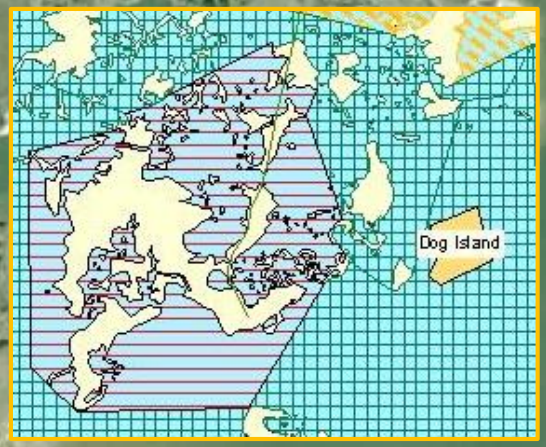
Project VENUS

Introduction to the Dog Island Demonstration Site, Cedar Key

- Site established as management agreement (#38-MA-1259) between FDACS Division of Aquaculture and UF IFAS in April 2014 for the purposes of education and demonstration of sunray venus clam culture
- Management agreement will be for three years, 2014-2017

Presented at Project VENUS Workshops, May 2014, Cedar Key, FL

Demonstration Site



Dog Island High-density Lease Area

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- Submerged sand spit located south of Dog Island and west of commercial leases
- Cedar Key SHA Zone A (3012), Conditionally approved
- Test plants (2010-14) resulted in promising production results

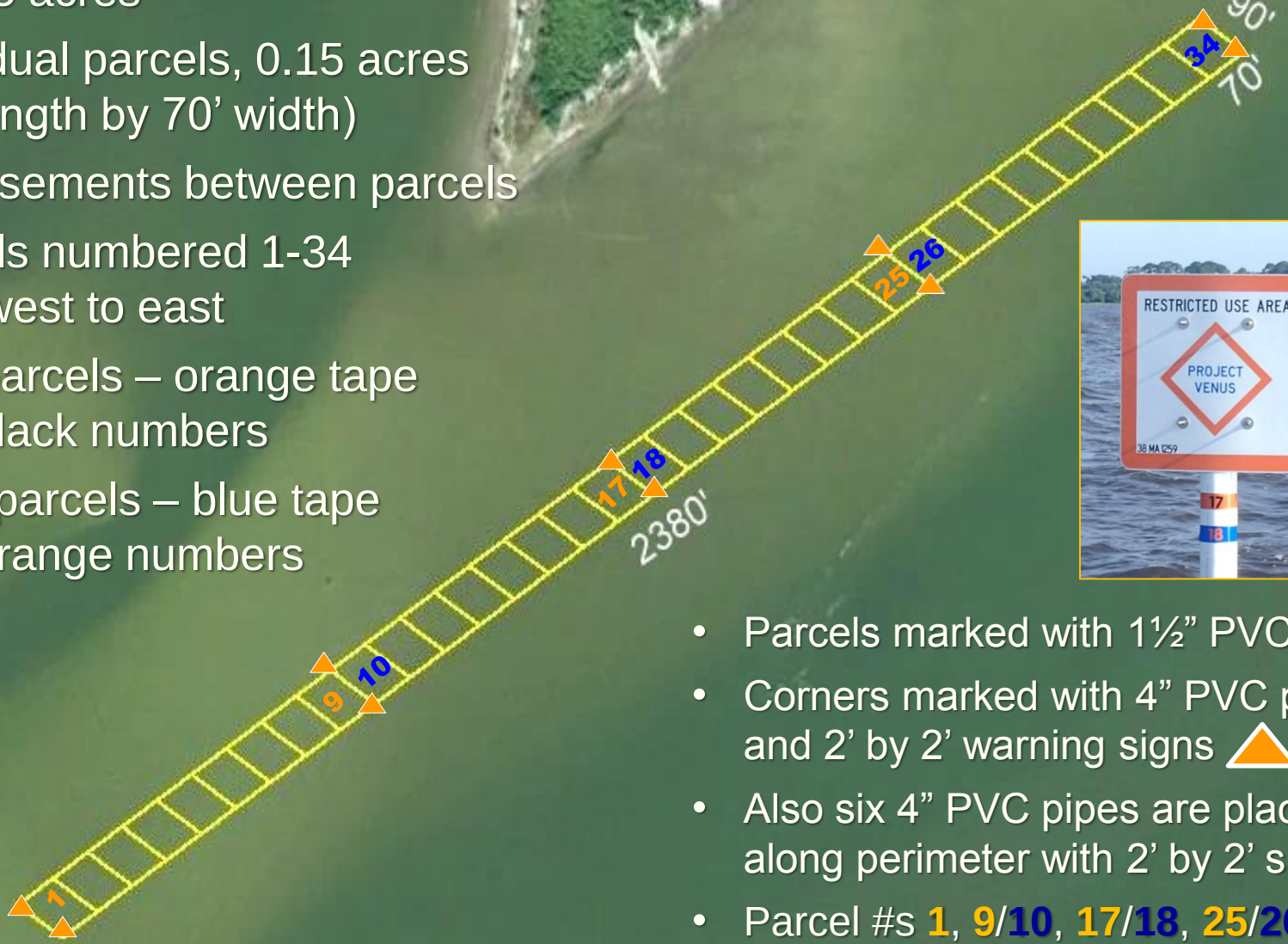
Demonstration Site

- Submerged sand spit located south of Dog Island and west of commercial leases
- Cedar Key SHA, Conditionally approved (Zone A)
- Test plants resulted in promising production results

- Site will be established as a management agreement between FDACS Division of Aquaculture and the University of Florida

Demonstration Site

- Size, 5 acres
- Individual parcels, 0.15 acres (90’ length by 70’ width)
- No easements between parcels
- Parcels numbered 1-34 from west to east
- Odd parcels – orange tape with black numbers
- Even parcels – blue tape with orange numbers



- Parcels marked with 1½” PVC pipes
- Corners marked with 4” PVC pipes and 2’ by 2’ warning signs
- Also six 4” PVC pipes are placed along perimeter with 2’ by 2’ signs
- Parcel #s **1**, **9**/**10**, **17**/**18**, **25**/**26**, **34**

Demonstration Site Signage and Marking

- Six 4” PVC pipes with 2’ by 2’ signs
  - Parcels # **1**, **17**/**18**, **34**
- Parcels marked with 1½” PVC pipes
  - Common markers between parcels
  - Odd parcels – **orange** tape
  - Even parcels – **blue** tape

Demonstration site is visible from Cedar Key

Demonstration Site Signage and Marking

- Ten 4” PVC pipes with 2’ by 2’ signs
  - Parcels # **1**, **9**/**10**, **17**/**18**, **25**/**26**, **34**
- Parcels marked with 1½” PVC pipes
  - Common markers between parcels
  - Odd parcels – **orange** tape
  - Even parcels – **blue** tape

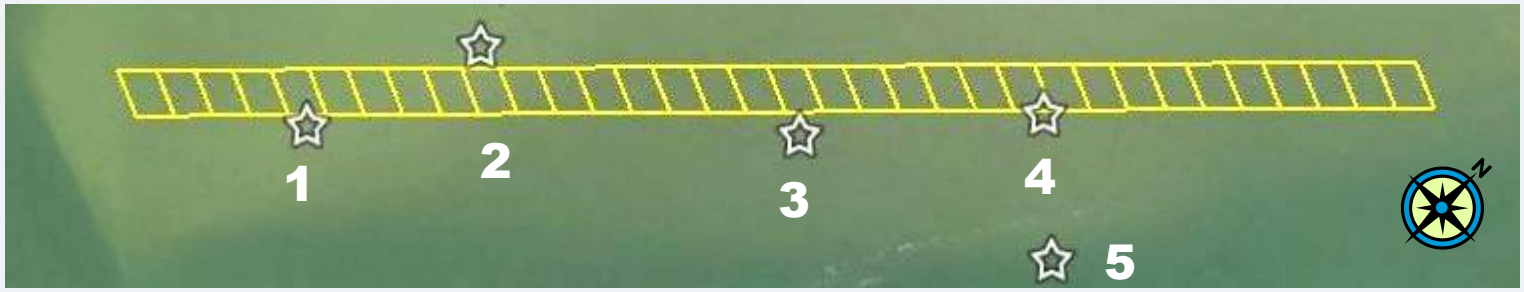
Demonstration site is visible from Cedar Key

Summary of 2013-14 Test Plots Dog Island Demo Site

- Planted two dipped bags each at 5 test plot sites at Dog Island demo site, Feb 2013
- Each bag stocked with 1000 seed (22mm SL)
- Harvested May 2014, 15 months
- Culture period too long
  - Live sunrays large (average = 2.5" SL)
  - 10-35% whole shell of harvest size (>40mm SL)

Test Plot	Survival (%)	Survival including shell >40mm SL (%)	Shell Length (mm)	Growth (mm/mo)
1	39	66	62	2.7
2	26	61	62	2.7
3	44	62	62	2.7
4	57	68	61	2.7
5	50	60	57	2.3

1 inch = 25 mm



Summary of 2013-14 Test Plots
Dog Island Demo Site

#1–10’ south of Parcel #4

#2–50’ north of Parcel #9

#3–40’ south of Parcel #18

#4–southern boundary of Parcel #23

#5–285’ south of Parcel #22

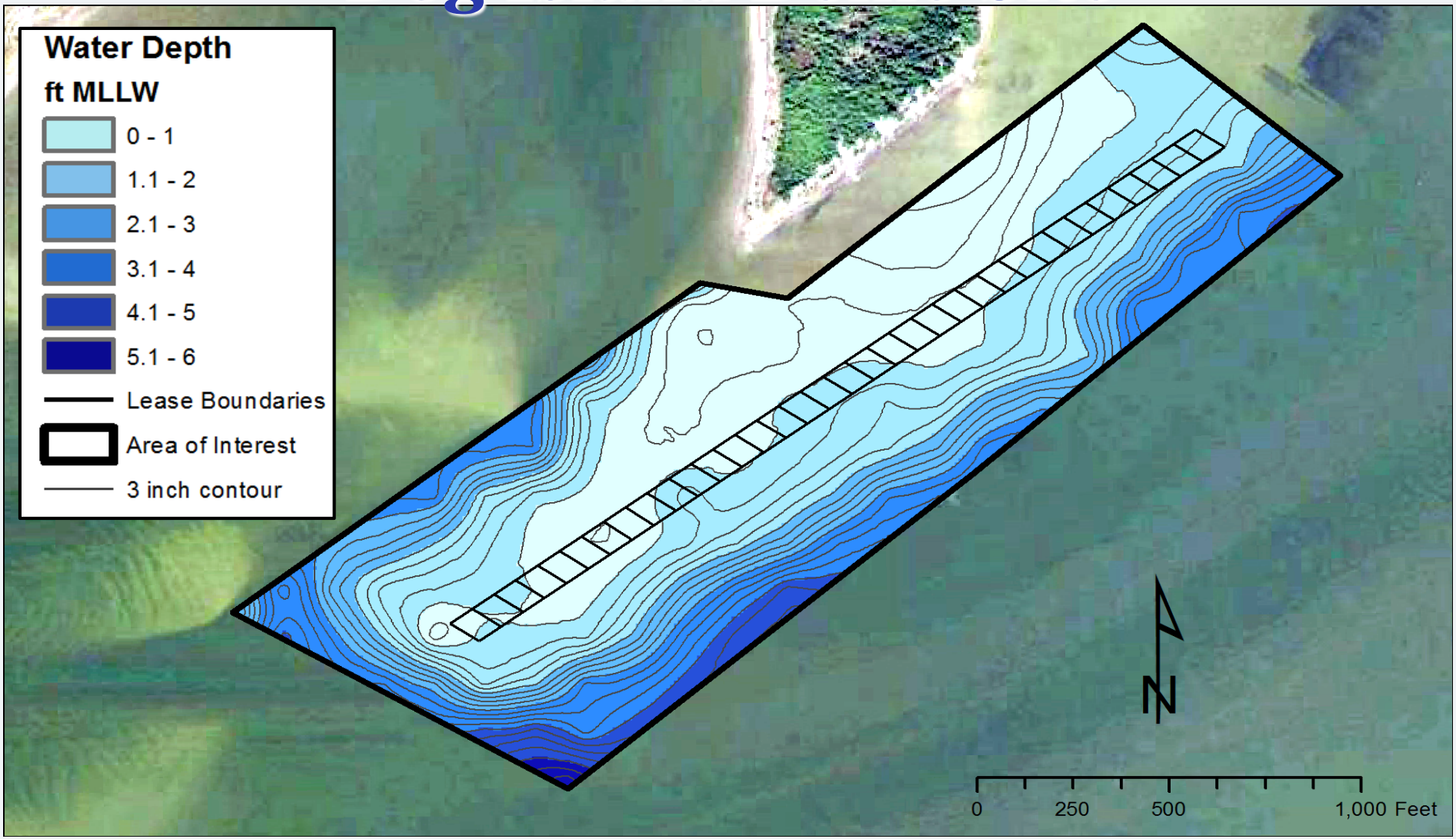
Soil Maps
Dog Island Demonstration Site

- Relationship between aqueous soils (substrate) and sunray venus clam productivity established using a soils-based approach, 2010-12
  - High sand content (>90%)
  - Low silt content (<5%)
  - Low organic matter content (<1%)
- Soil cores (n=130, 4 inches deep) taken at 40 meter intervals on 35-acre sand spit, January 2014
- Soil samples analyzed for sand, clay, silt and organic matter content
- Bathymetry (water depth) determined, February 2014

Florida

Water Depth, feet MLLW

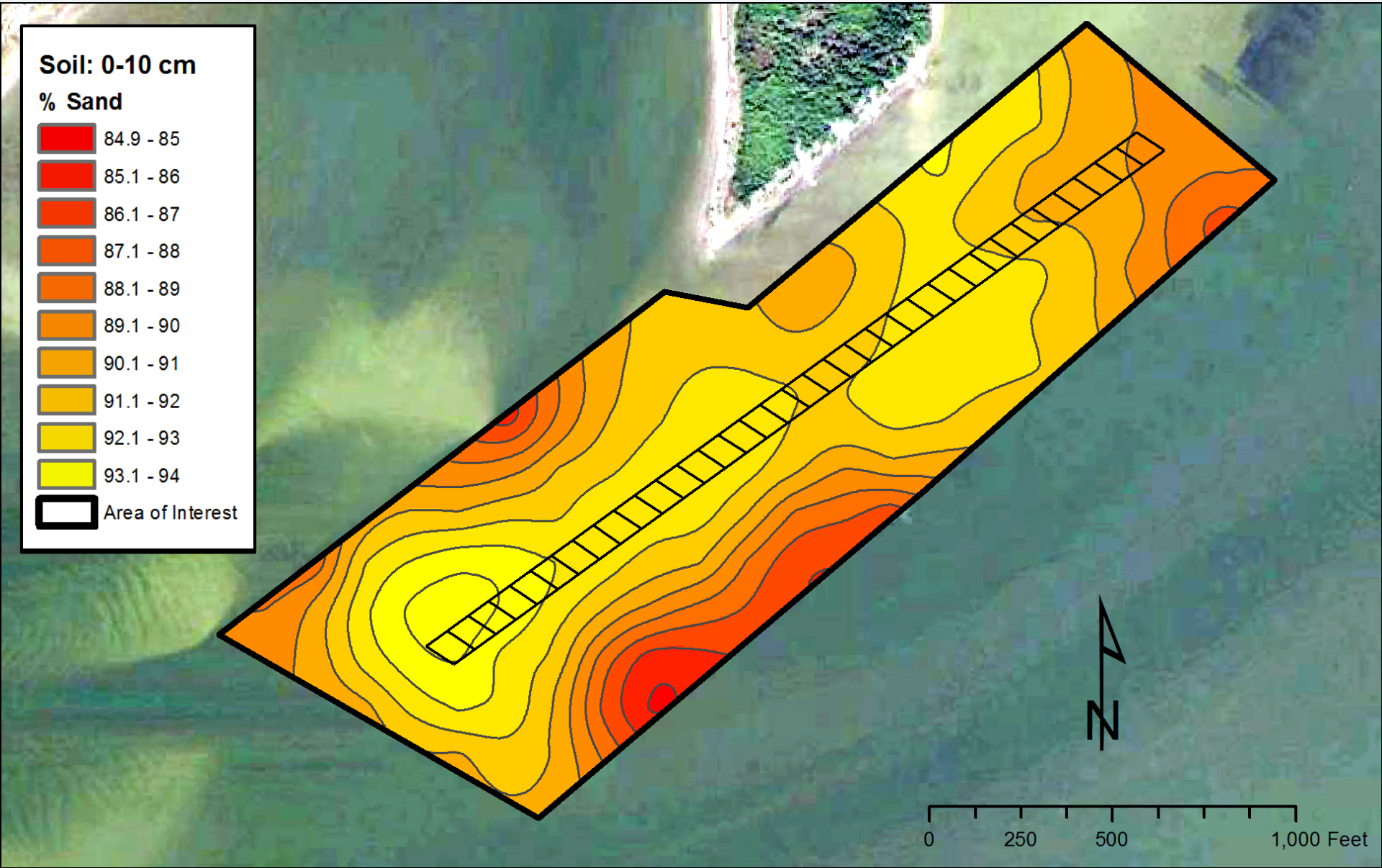
Dog Island Demo Site



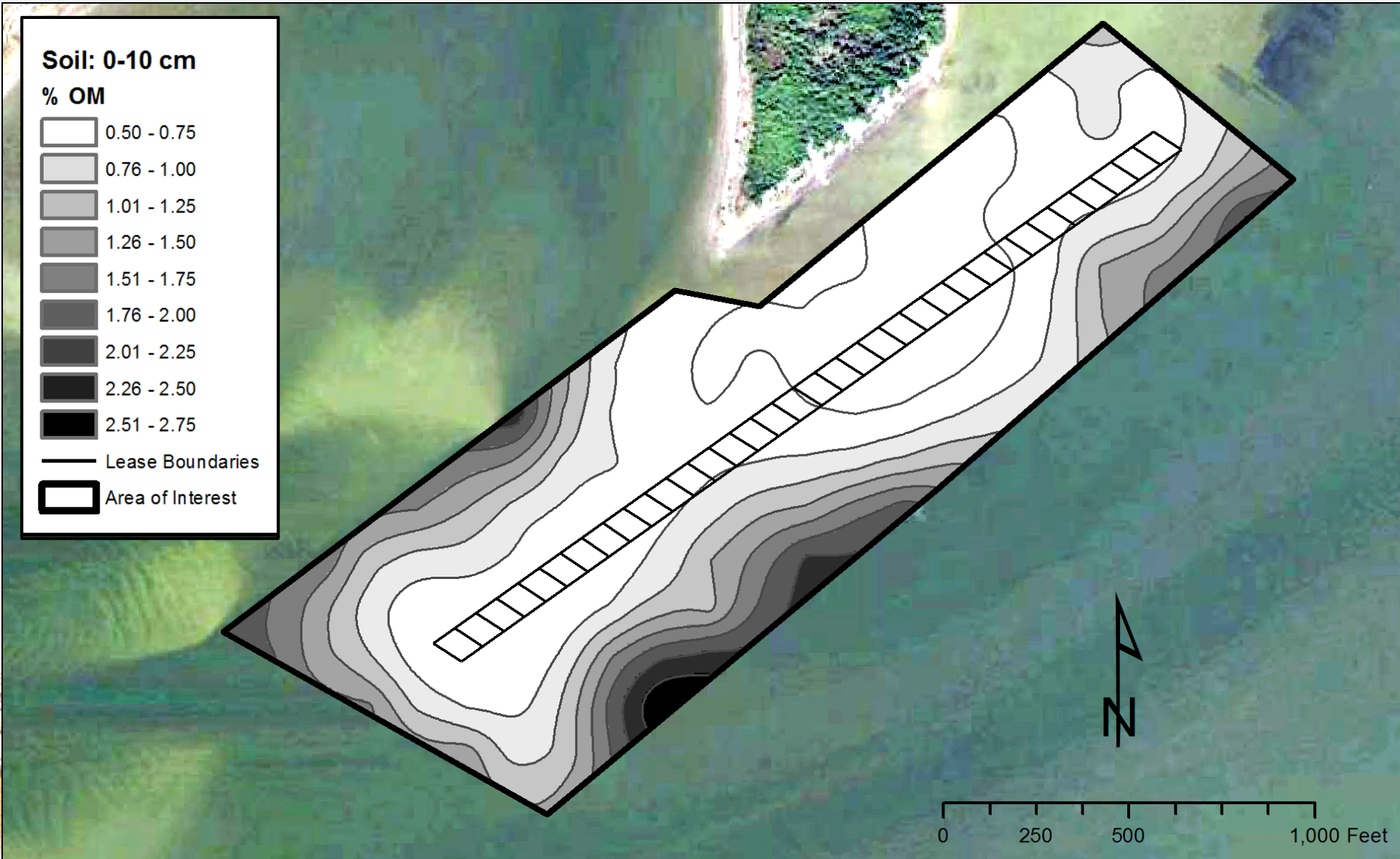
Water depth when tide range is Mean Lower Low Water (MLLW). Solid black lines are 3 inch depth contours. Shades of blue indicate depth in 1 feet ranges from 0-1 feet to 5-6 feet.

% Sand Content

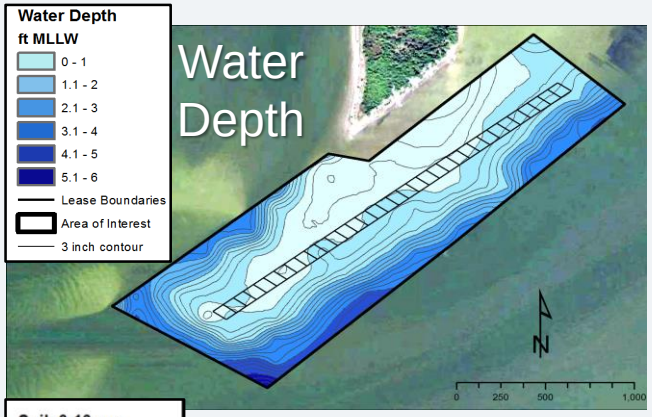
Dog Island Demo Site

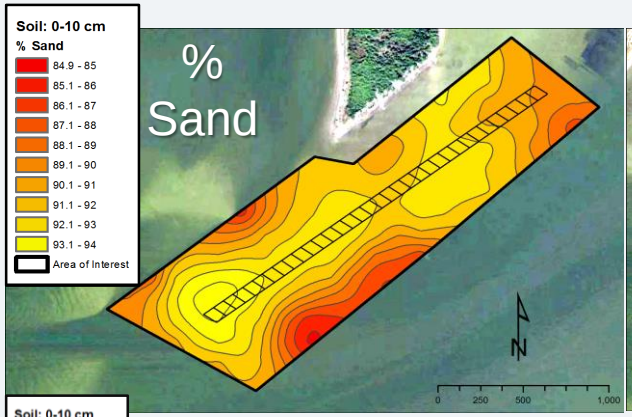


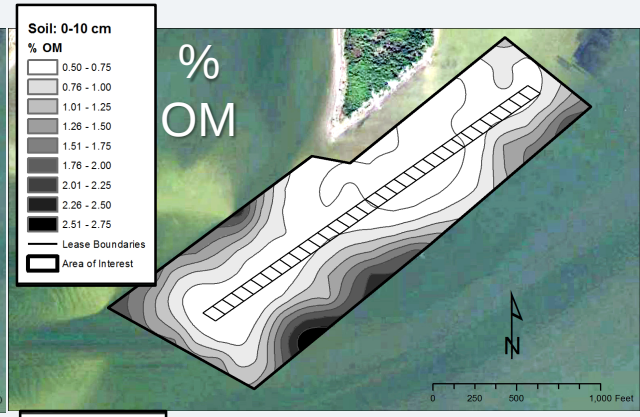
% Organic Matter
Dog Island Demo Site

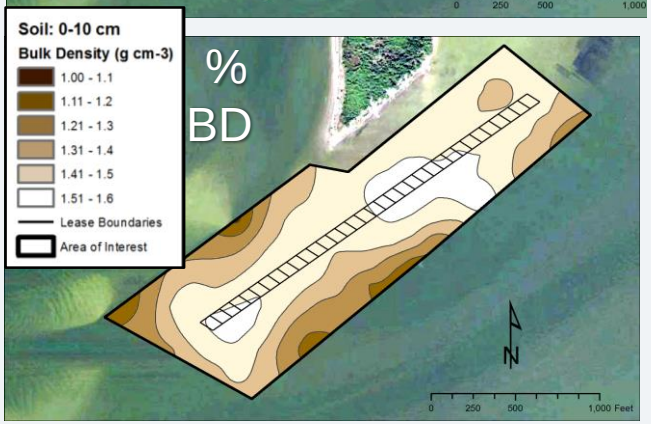


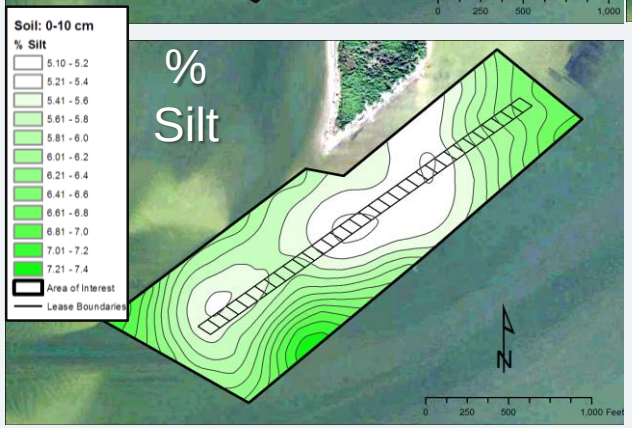
Summary of Soil Characterization Dog Island Demo Site

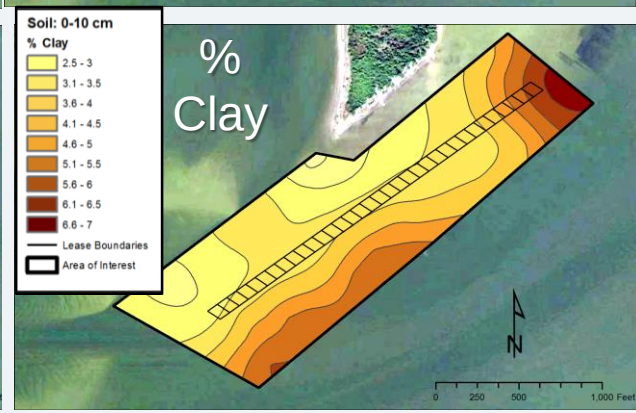












Lighter colored areas are more conducive to sunray venus clam culture. These areas are **shallow**, have **high sand**, **low organic matter** (OM), **high bulk density** (BD, weight per unit volume), **low silt** and **low clay** content, all of which is good for sunray venus growth and health (no shell deformities).

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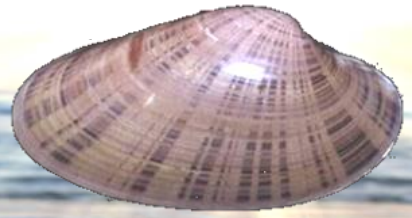

Questions?