VIRGINIA’S OYSTER MANAGEMENT and INDUSTRY TODAY
Oyster Landings (1880 - 2011)
Public vs. Private Oyster Harvest
Virginia Economic Value

Current Oyster Use

500,000 bushels handled - $46M

235,000 (2010) Virginia Harvest - $22M

265,000 bushels imported - $24M which is available for the Virginia oyster industry to produce.
Imported Oysters

Economic loss to Virginia industry

Imports are not dependable:
Interruptions do to hurricanes, flooding, pollution, health issues, and product quality.
High costs for trucking
Less Virginia jobs

Loss of water quality benefits from fewer oysters in the Bay removing nitrogen
Status of Oyster Reef Restoration in Virginia’s Coastal Zone

▲ Completed Oyster Reef Restoration Sites
What Controls Natural Oyster Populations

Recruitment-Spatset
Shell “Budget”
Oyster Disease
Great Wicomico River Oyster Standing Stocks

- Bushels
- Year
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011

Graph showing the standing stocks of oysters from 2005 to 2011, with categories for Market and Small.
What Can We Do As Managers

Control Harvest
Replace Shells
Public Ground Oyster Harvest

- Controlled By MRC Fisheries Management Through:

- Seasons
- Limits
- Gear Types
- Public restoration funding
Rappahannock River
Area 4
(Oys/m)

Harvest Area

Sanctuary
Public Ground Oyster Harvest

• Limited By:
  • Oyster Disease
  • Availability of Large Amounts of Cultch
  • Tragedy of the Commons
Areas of Concern

• Consistent funding-Shells must be replenished regularly to maintain productivity-currently $7 return for $1 spent
• Increasing shell prices-competition among restoration “partners” and private industry
• If there are no funds, should public grounds be privatized?
Public vs. Private Oyster Harvest

The graph compares the public and private oyster harvest over the years from 2000 to 2011. The y-axis represents the harvest in thousands of oysters, ranging from 0 to 250,000. The x-axis represents the years from 2000 to 2011.

- **Private Bu**: The blue line represents the private oyster harvest. It shows a steady increase from 2000 to 2011, reaching its peak in 2011.
- **Public Bu**: The red line represents the public oyster harvest. It also shows a steady increase from 2000 to 2011, reaching its peak in 2011.

Both lines indicate a significant increase in oyster harvest from 2000 to 2011.
Private Ground Oyster Harvest

• All Private Industry
• Limited By:
  • Economic Investment
  • Production Capacity
  • Uncertainty of the Bay Environment
We have the private oyster ground

One of the oldest but most progressive private oyster ground leasing systems in the world

The Virginia leasing system is very pro-business

More than 100,000 acres are currently under lease
What Does Oyster Aquaculture Mean To Virginia
Create Habitat
Water Filtration
Our Economy

Public Restoration

Public Repletion

Private Planting
We Have A Labor Force

648 licensed oyster fishermen

542 licensed oyster aquaculturists

32 licensed oyster shucking houses
How Does Private Industry Produce Oysters
HATCHERIES
Water Filtration

Raw Water in the Bay must be Improved for Hatchery Use

Particles, Plankton, Toxins and other impurities must be removed from the ambient water

Currently this is the Most Problematic Aspect of hatchery production in Virginia
Algae Production

Food for Broodstock, Larvae, and Small Oysters

Several Monocultures of different Algal Species must be Maintained year round

Very Dependent on Water Quality

Huge Quantities Must Be Available Every day
Broodstock

Genetically Selected for Fast Growth and Disease Tolerance

Most of the Industry is Using Triploids

Hatcheries must manage Food, Temperature and Water Quality to insure Broodstock Availability for the Entire Hatchery Season
Larvae Holding Tanks

Oyster Larvae are held in Tanks for 12 to 18 days

Larvae are fed algae and the water quality must be ideal for maximum survival
Cage Culture

- Production for Half Shell-Raw sales
- Cultchless-Single Oysters
- Must Be Protected from Predators
- More Labor Intensive
- Requires More Gear and Boat Modifications
Upwellers

Nursery for Small Cultchless Seed
Floating Upweller
Cultchless Oyster Seed
Handling Cages
Sorting Small Oysters
Market Oyster Harvest
Spat on Shell

- Oysters Produced for Shucking Industry
- Planted Loose on the Bottom
- Lower Labor and Production Costs
- Use Normal Bay Boats and Harvesting Methods
- Subject to Cownosed Ray Predation
Containerized Shell
Eyed Oyster Larva

Ready to set after 12-18 days in culture

D. Meritt
University of Maryland
Center for Environmental Science
Horn Point Oyster Hatchery
Eyed Larvae Hatchery Production

Eyed larvae production (millions)

- 2005: 1
- 2007: 1
- 2009: 2
- 2011: 8
Spat-on-Shell Production

<table>
<thead>
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<th>Year</th>
<th>SOS Planted (millions)</th>
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<tbody>
<tr>
<td>2005</td>
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<td>2012</td>
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Public vs. Private Oyster Harvest
Areas of Concern

Hatchery Productivity and Water Quality
Chesapeake Bay Watershed
Water Filtration

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