

Highlights of the History of Oysters in the Chesapeake Bay

by Vic Spain, MOG



Growing Oysters for a Cleaner Bay



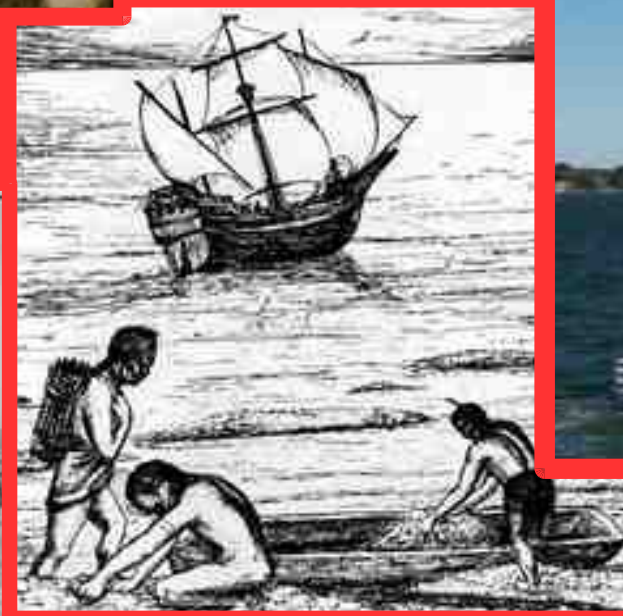
The Reefs



The Oyster



The Packing Plants



The Natives



The Boats



The Wars



Aquaculture

“And the tragedy of the commons for the Chesapeake Bay was that men believed that the resources were available to all to exploit because the resources of the bay were inexhaustible.”
Wennersten, John R.

Introduction

The Chesapeake Bay is a unique and beautiful estuary, once a pristine and bountiful home to Native Americans as well as the European settlers of the seventeenth century. The oyster reefs were so prevalent that they were navigational hazards to the early explorers but also helped the colonists avoid starvation.

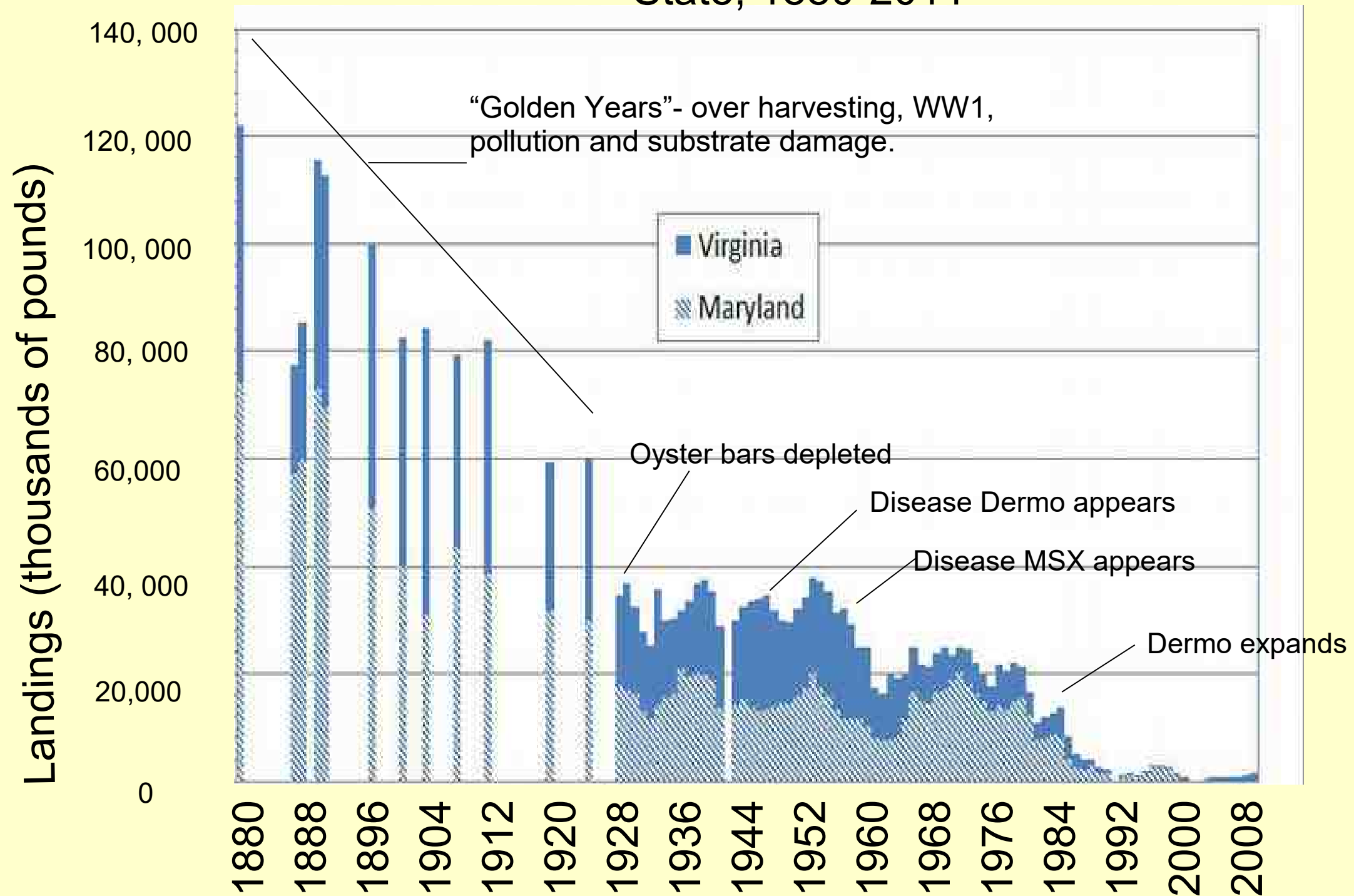
History teaches that dense human populations will exploit a common resource until it is exhausted. So we should not be too surprised by the story that follows.



Chesapeake Oyster History at a Glance

The boom in oyster harvest following the Civil War went into steady decline until the collapse in the 1990s.

Chesapeake Bay Oyster Landings by State, 1880-2011



10000 Years Before Present to 3000 BP—Chesapeake Bay Formed and Was Populated by Oysters

- The modern Chesapeake Bay was created by glacier melt running down the Susquehanna River Basin and the rise of sea level submerging the enlarged valley.
- The Eastern Oyster populated the Bay and formed reefs that grew vertically and horizontally as sea level rose. Oyster reefs often grow vertically with peaks in the intertidal zones.



Natural oyster reef at low tide in a Georgia preserve
Photo by Vic Spain, Master Oyster Gardener

3000 BP to 1607—Native Use of Oysters

- The Gouldman Oyster Shell Midden Site is near Colonial Beach, Virginia.
- Site was occupied regularly during the Middle Woodland period, approximately 500 B.C. to 900 A.D. in the spring when low on food stocks.
- The time of the year was determined by the fact that the smaller shells did not show spat scars. Spat start striking in June.



1607-1781—Colonial Era

- **The English settlers** came with an acquired taste for oysters but lacked basic survival skills and diplomatic ability with the natives.
- Oysters were a local commodity and food source for the colonists.
- **By the Revolutionary War, deforestation and plowing of fields were the beginning of the run-off and siltation process.**
- **Oyster shells were used for roads and construction as well as for decorations.**



Tabby concrete walls were made by the colonists by burning oyster shell which converts the calcium carbonate to quicklime. Shells were also used as aggregate.

Early 1800s—Tongs and Dredges

- By the early 1800s, New Yorkers and New Englanders came into the Bay with the windlass dredge.
- Virginia and Maryland banned dredges, which allowed mass harvesting and damaged habitat.
- Legal and illegal use of dredges has been a major issue since.



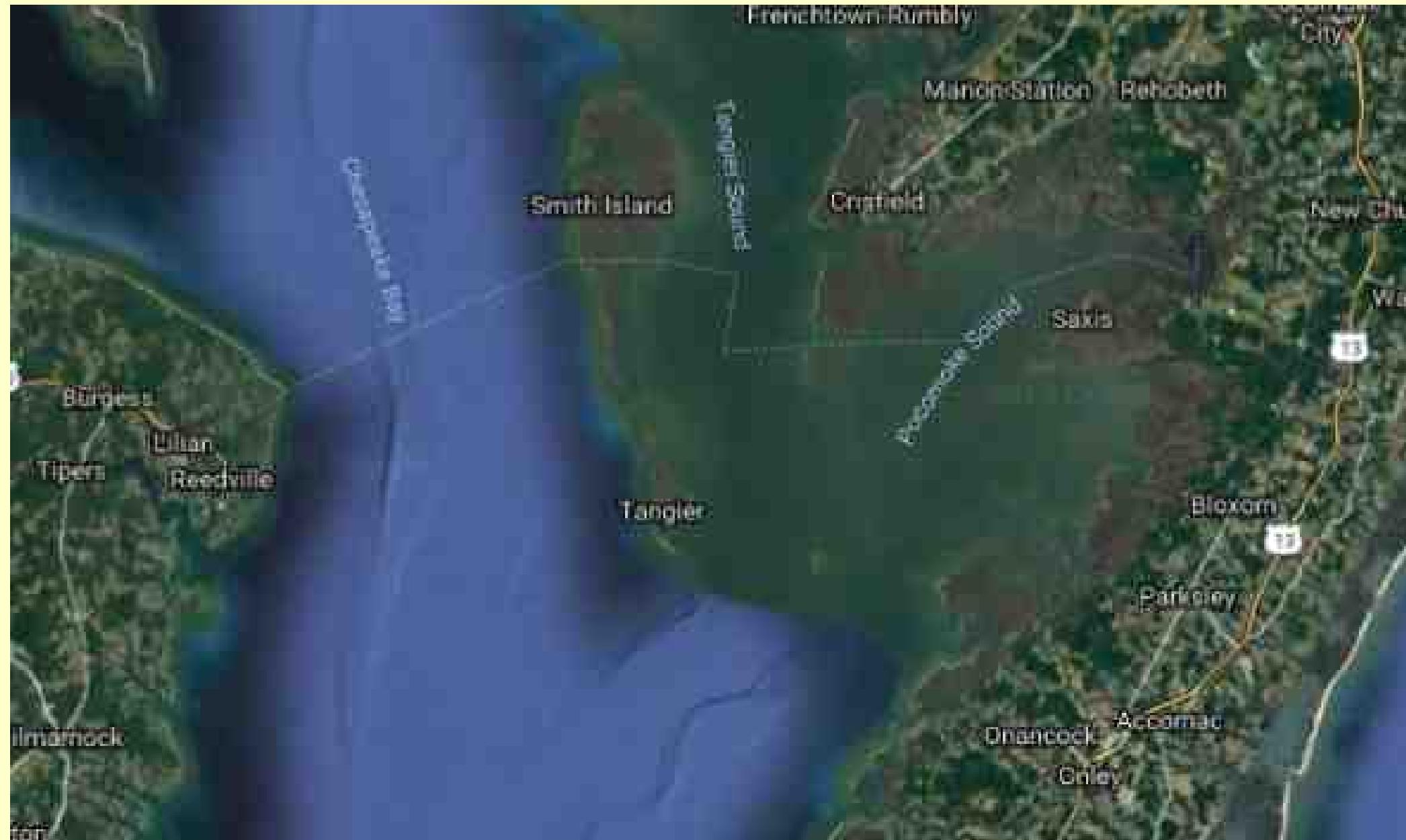
Oyster pirates using windlass dredges



TOGA member and waterman Dudley Biddlecomb with oyster tongs

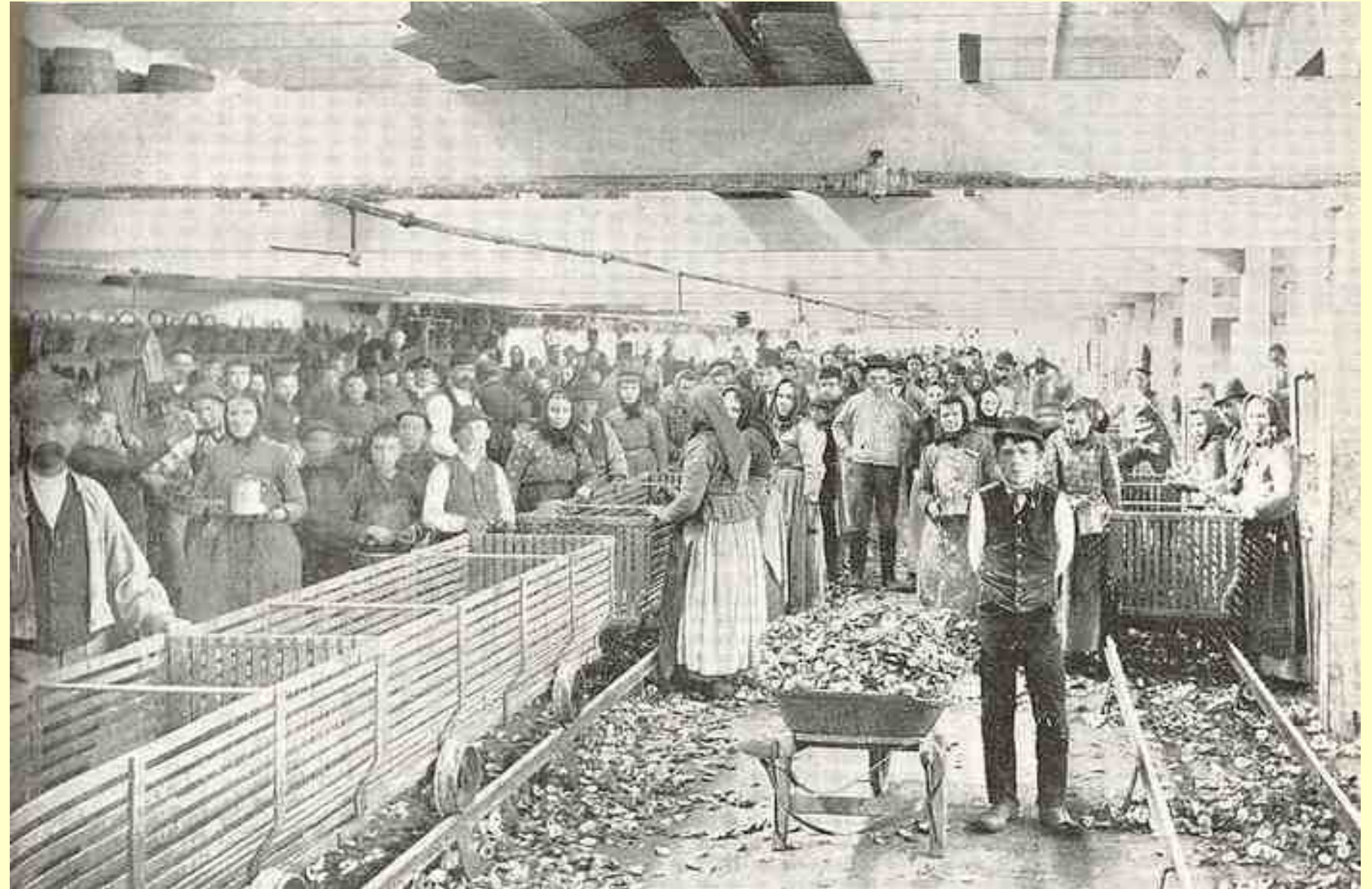
1830s-1840s—Big Business

- Shipping and railroads expand.
- Baltimore opened oyster-packing plant in 1834.
- Large oyster reefs discovered in **Tangier** and **Pocomoke Sounds**, so deep they could only be harvested with dredges.



1860s—Post Civil War

- Oyster harvesting was slowed by the Civil War but afterwards increased dramatically.
- End of the War brought large labor force of ex-soldiers and ex-slaves.
- The dredge was reinstated in Virginia.
- The Transcontinental Railway was completed in 1869 enhancing oyster sales.
- The “Boom” years were coming.



Oyster shucking room,
Baltimore, Maryland, late 1890s

1870s—Oyster Wars and Golden Years Begin

- Serious destruction of oyster bars due to dredging was noted.
- Wild and ruthless waterman culture prevailed. Abduction, enslavement, murder, beatings, shootings, ship ramming and drownings were common.
- Oyster Wars continued off and on until the late 1950s.
- The wars were between Virginia and Maryland, tongers and dredgers, police and pirates and ship captains and crew.
- Oyster policing was often ineffective.



Sylvester Cannon
was an oyster pirate who
threatened a judge and surrendered
to Maryland police.

1880s-1920s—The Golden Years, continued

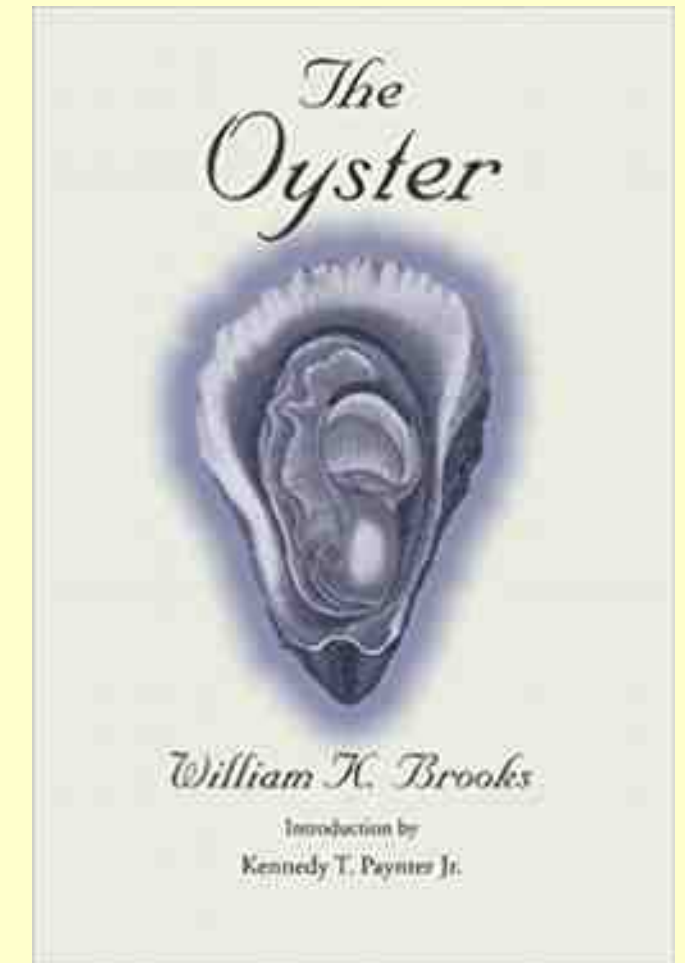
- Oyster harvesting peaked.
- Shell vital to Bay habitat was removed.
- **William K. Brooks** published “The Oyster” in 1891. **“We have wasted our inheritance by improvidence and mismanagement.”**
- Gasoline power dredges were introduced in 1906 easing labor demand.
- By 1920 “The “Golden Years” were over.
- Over harvesting and run-off caused the biology of Bay waters to change.



Massive shell pile

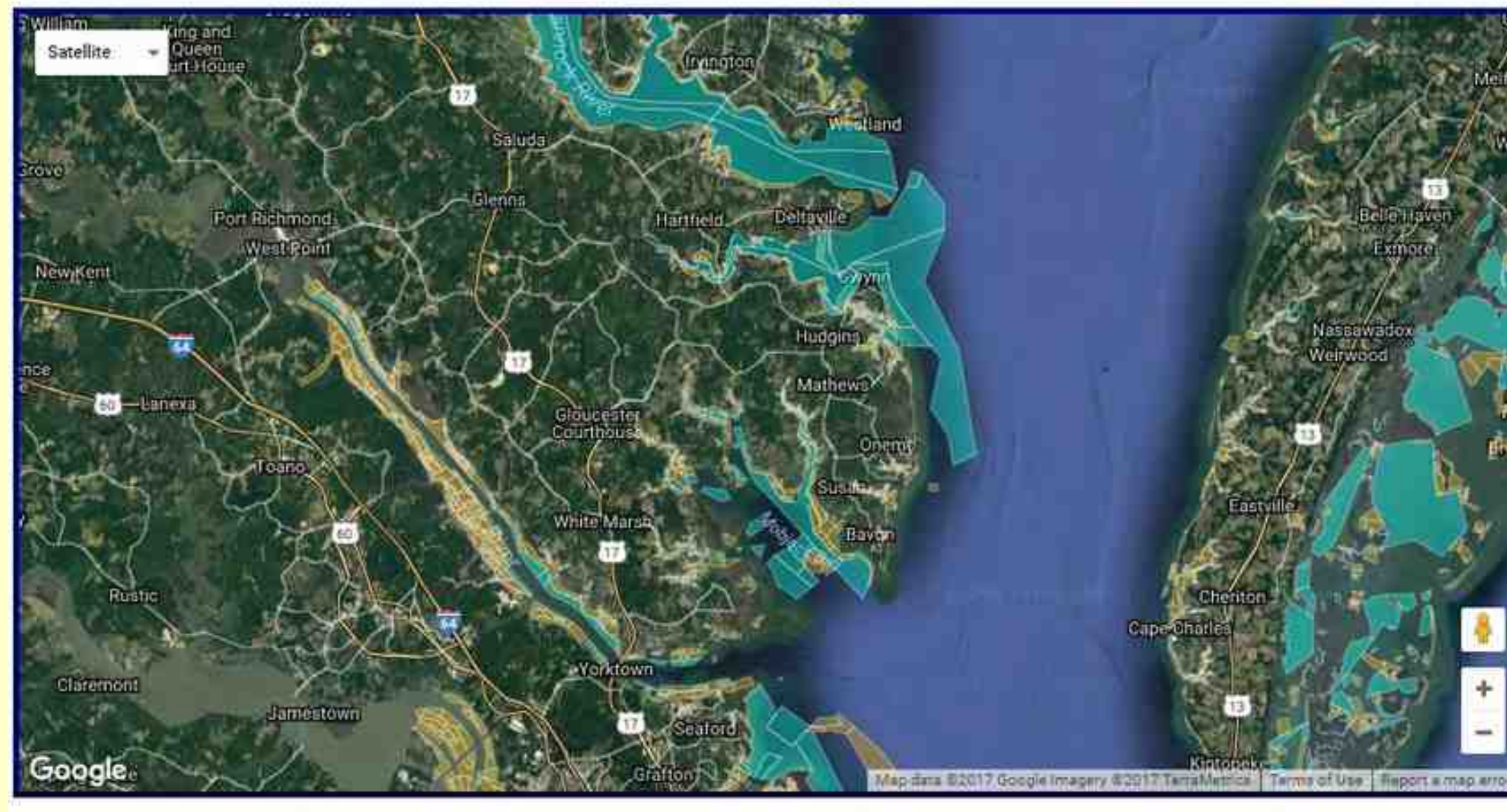


William K. Brooks



1880s-1920s—The Golden Years, concluded

- The Constitution of Virginia guarantees that the natural oyster beds, rocks and shoals be reserved for public use.
- 1892 to 1894—James Baylor surveyed what became **public shellfish grounds**.
- Grounds outside public grounds could be leased as **private grounds**.
- Maryland did not adopt private grounds until the 21st century.



Partial map of Virginia oyster growing area shows **public** grounds (Baylor) in aqua, **private** leased grounds in beige.

1920s-1960s—Golden Years End, Mini-Boom, Oyster Diseases Invade Bay

- The Great Depression and WW2 suppressed the global oyster market.
- Powered deadrise boats and buyboats replaced sailing oyster vessels.
- 1933 hurricane wreaked major damage to oyster communities and equipment and inundated oyster bars with deadly fresh water and pollution.
- The post-war years were known as the “oyster mini-boom.”
- The Virginia Fisheries Laboratory was founded in 1940, later named Virginia Institute of Marine Science (VIMS).
- 1949—Dermo disease was found in Chesapeake Bay.
- 1957—MSX disease was detected in Delaware Bay then Chesapeake Bay. (In the 1990s VIMS determined MSX organism is carried by the *Crassostrea gigas* oyster from Asia.)

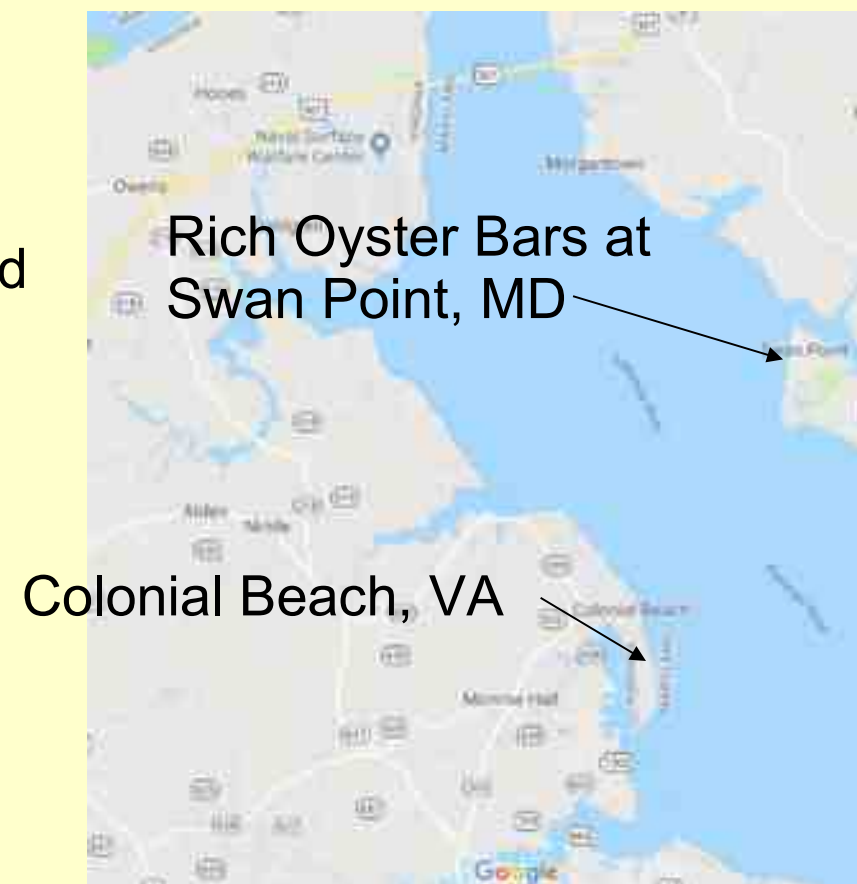


The restored 1924 Chesapeake oyster buyboat F. D. Crockett is owned by the Deltaville Maritime Museum.

1959—The Last Battle of the Oyster Wars

- Virginia and Maryland oystermen illegally dredged Maryland's Potomac River.
- Along for the ride, Colonial Beach resident Berkley Muse in a high-speed Virginia dredge boat was shot and killed by pursuing Maryland marine police.
- The battle led to the formation of the **Potomac River Fisheries Commission (PFRC)** ultimately signed into law by **President John F. Kennedy in 1962.**

The Battle Ground
on the
Potomac River



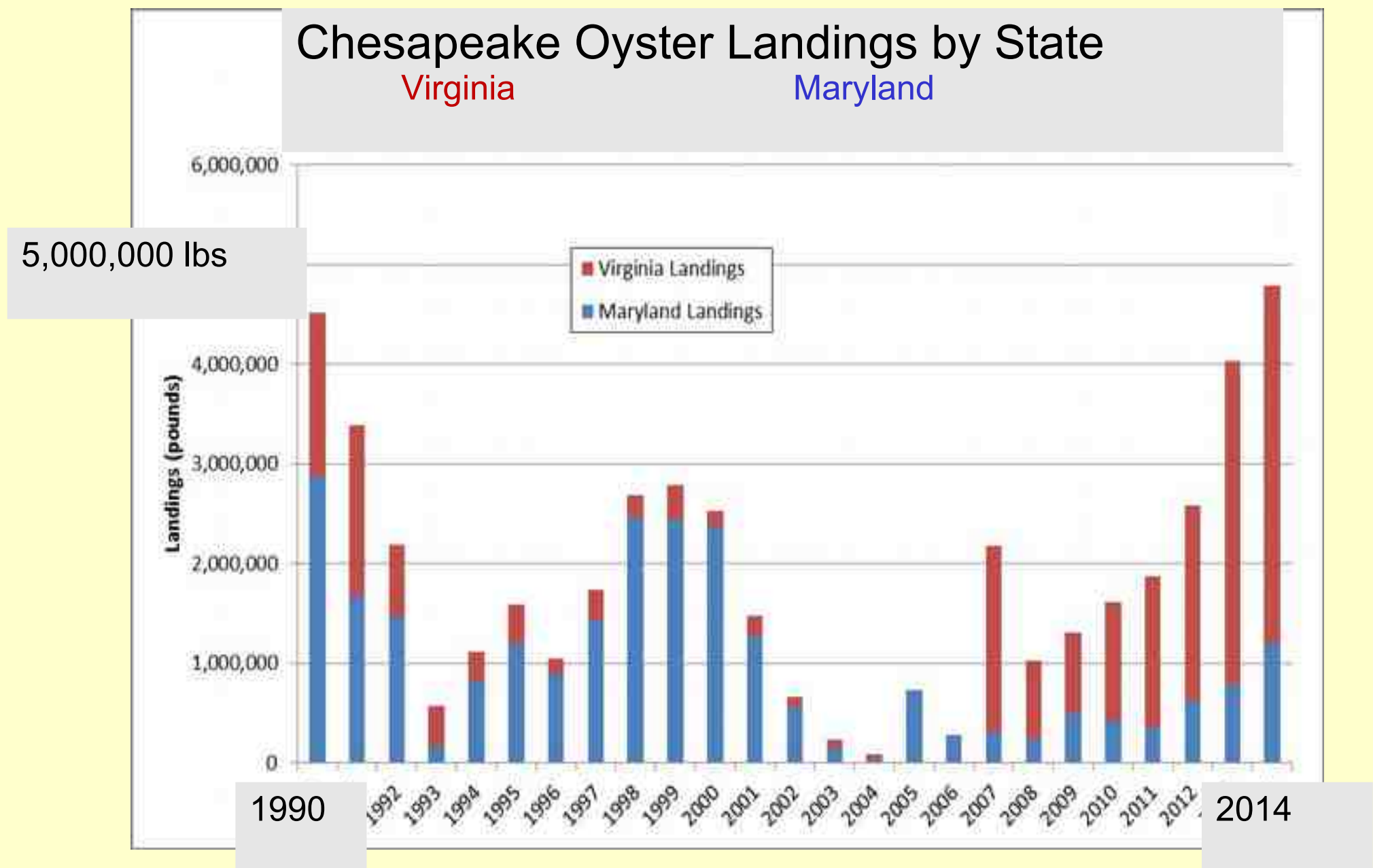
Landon Curley's Oyster Packing
House in Colonial Beach was a
hangout for oyster dredgers.



Berkeley Muse

1990s to Present—A Slow Recovery amid Continuing Problems

- Management practices improved.
- Runoff, dredges, poor water quality, diseases are still with us.
- Massive but frustrated efforts are made to restore oyster reefs.
- 1990 peak harvest was less than 4% 1880 harvest.



1990s to Present—Restoration, Repletion and Sanctuaries

- Many believed in 3D (mounded) reefs in places where natural reefs once existed.
- At Virginia Marine Resources Commission (VMRC), Dr. Jim Wesson found that flatter reefs saved precious shell and that **man-made reefs are not self sustaining.**
- The keys to maintaining oyster grounds are **annual supplies of fresh shell** and **periodic “resting.”**
- System is **expensive** and **shell difficult to obtain.**
- Recently, wild spat sets have improved but **too few survive to reach market size.**

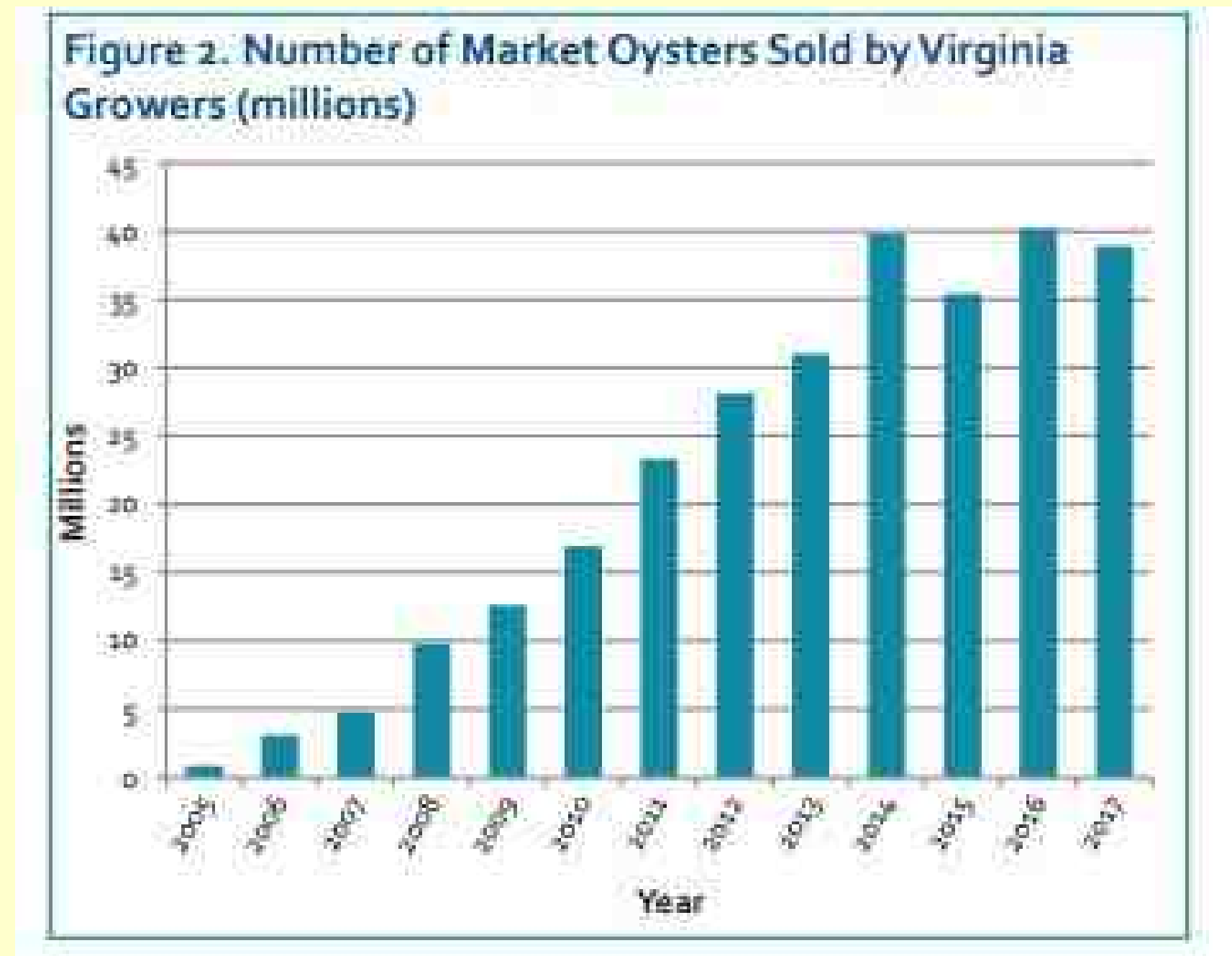


Water cannons spray fossilized shell on working oyster grounds on the James River.

1997 to Present—Breakthroughs in Aquaculture Begin at VIMS Gloucester Point

- VIMS Aquaculture Genetics and Breeding Technology Center (ABC) Program develops disease-resistant and sterile aquaculture oysters that are now the **larger portion** of Virginia oyster sales.
- The chart below shows the dramatic increase in oyster aquaculture harvest since the beginning of the VIMS ABC program.

Results of the 2016 Virginia Shellfish Aquaculture Crop Reporting Survey, July 2018
Karen Hudson,
Shellfish Aquaculture Specialist
Marine Advisory Services, VIMS



2017—Aquaculture Grows

Oyster fishery in the Chesapeake Bay is now growing again, thanks mainly to aquaculture.



Richard Burlingame shakes an oyster cage before it is lowered into the water at Rappahannock Oyster Company in Topping, Virginia, on May 9, 2016.
(Image by Will Parson, from article by Joan Smedinghoff, Chesapeake Bay Program, February 27, 2017)

Oyster Gardening

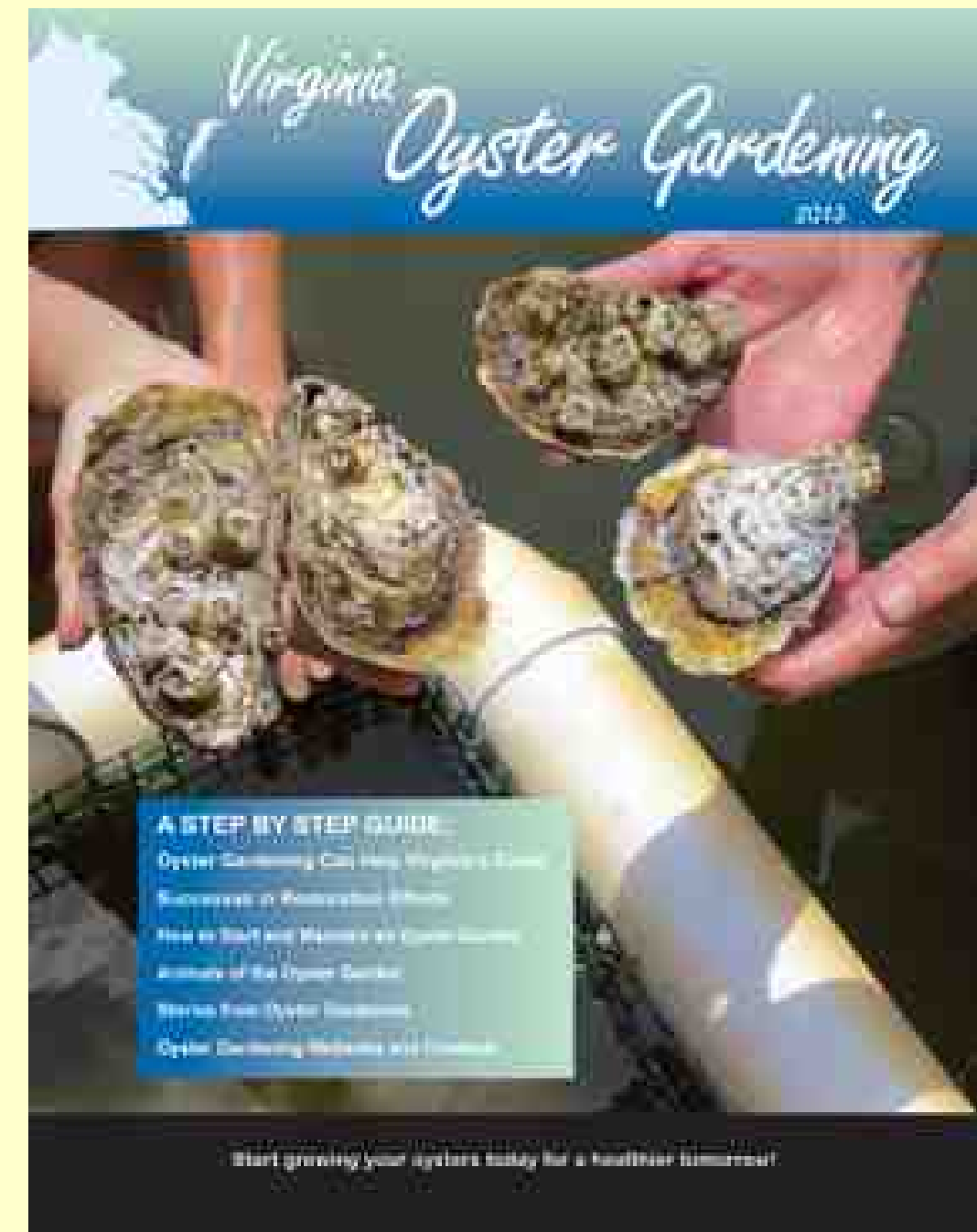
Virginia encourages non-commercial oyster gardening.

The Tidewater Oyster Gardener Association (TOGA, founded 1997)

- promotes oyster gardening and Bay stewardship.
- conducts frequent educational events.
- works with VIMS, VMRC and Bay conservation groups.
- sponsors a VIMS/TOGA Fellowship Endowment.



Students of all ages learn about oyster gardening.



Virginia Oyster Gardening Guide

Further Reading

The full text for this work and the TOGA posters can be downloaded at
oystergardener.org/toga-static-display

All references used in the study and additional reading material references are available.



Scan for TOGA Static Display Page