Shell Availability and Alternative Substrate

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Oyster Summit

Thursday, February 18th, 2016

Ward Slacum
Oyster Recovery Partnership

Oyster Recovery Partnership | ORP

Historic Use of Shell/Substrate in the Chesapeake

Bottom Hardening- Using shell to build a base

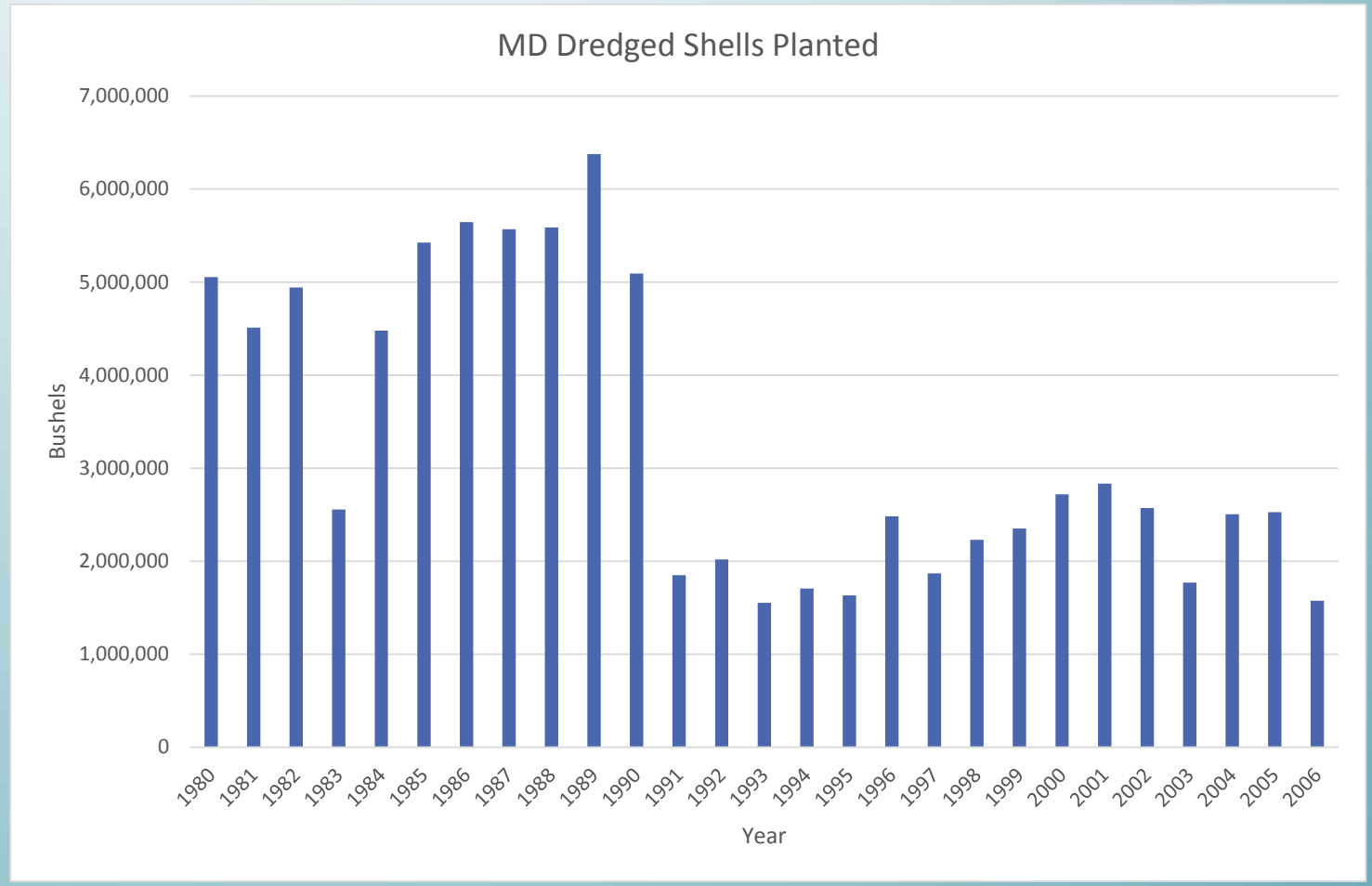
Seed - Using shell to capture a spat strike

Alternative Substrate- Use of material such as granite, clam shell and other hard substrate other than oyster shell

Shell Repletion Programs in MD/VA

Program Activities

- Planting dredged shell
- Planting fresh shucked shell
- Creating seed oysters



Source: Maryland DNR

Meeting Substrate Demand

- Shell Dredging - Upper Bay / James River
- Bar Rehabilitation
- Fossilized Shell (FL)
- Shucked Shell (VA, MD, DE/NJ)
- Recycled Shell
- Alternate Substrates (granite, slag, clam shell)

Current and Growing Demand

Aquaculture

Extensive aquaculture using spat-on-shell

VA Aquaculture

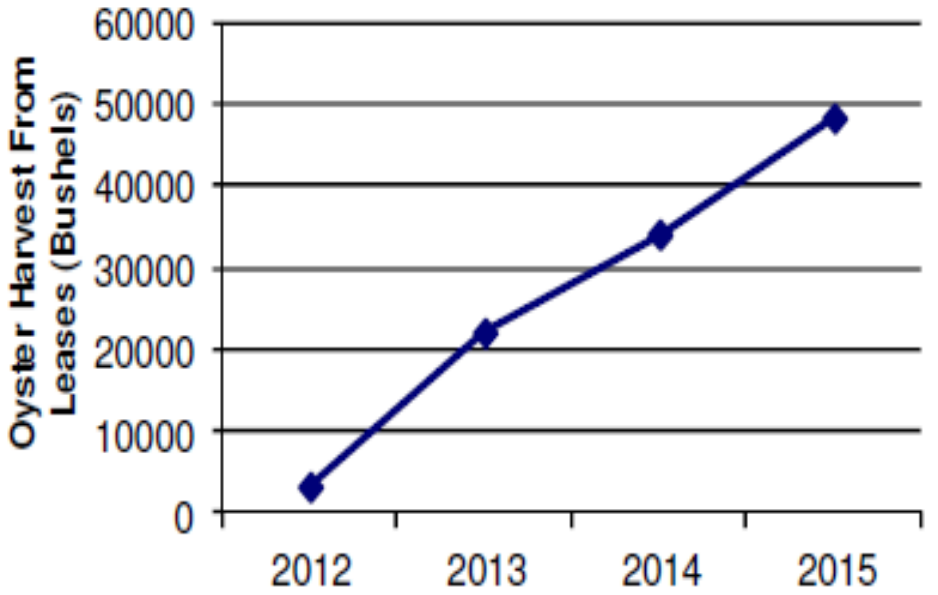
Harvest of spat-on-shell was 38,0000 bushels in 2014, but it's expanding; however industry is limited by shell availability and cost.

MD Aquaculture

Oyster Management Areas – Aquaculture

Most shellfish harvested worldwide are produced by aquaculture.

Maryland's aquaculture industry is on the rise!

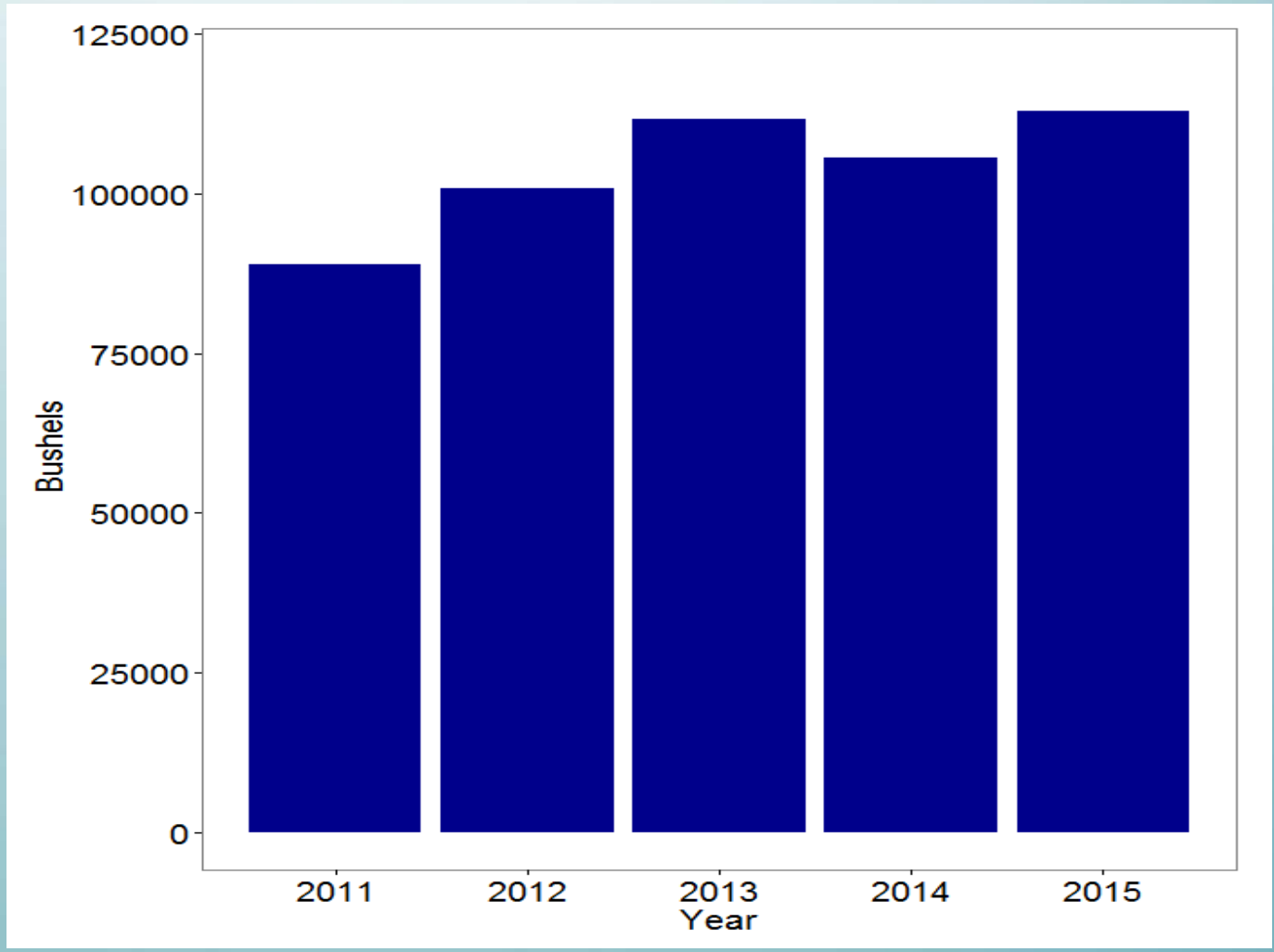


Source: Maryland DNR

Current and Growing Demand

Restoration

- MD Example

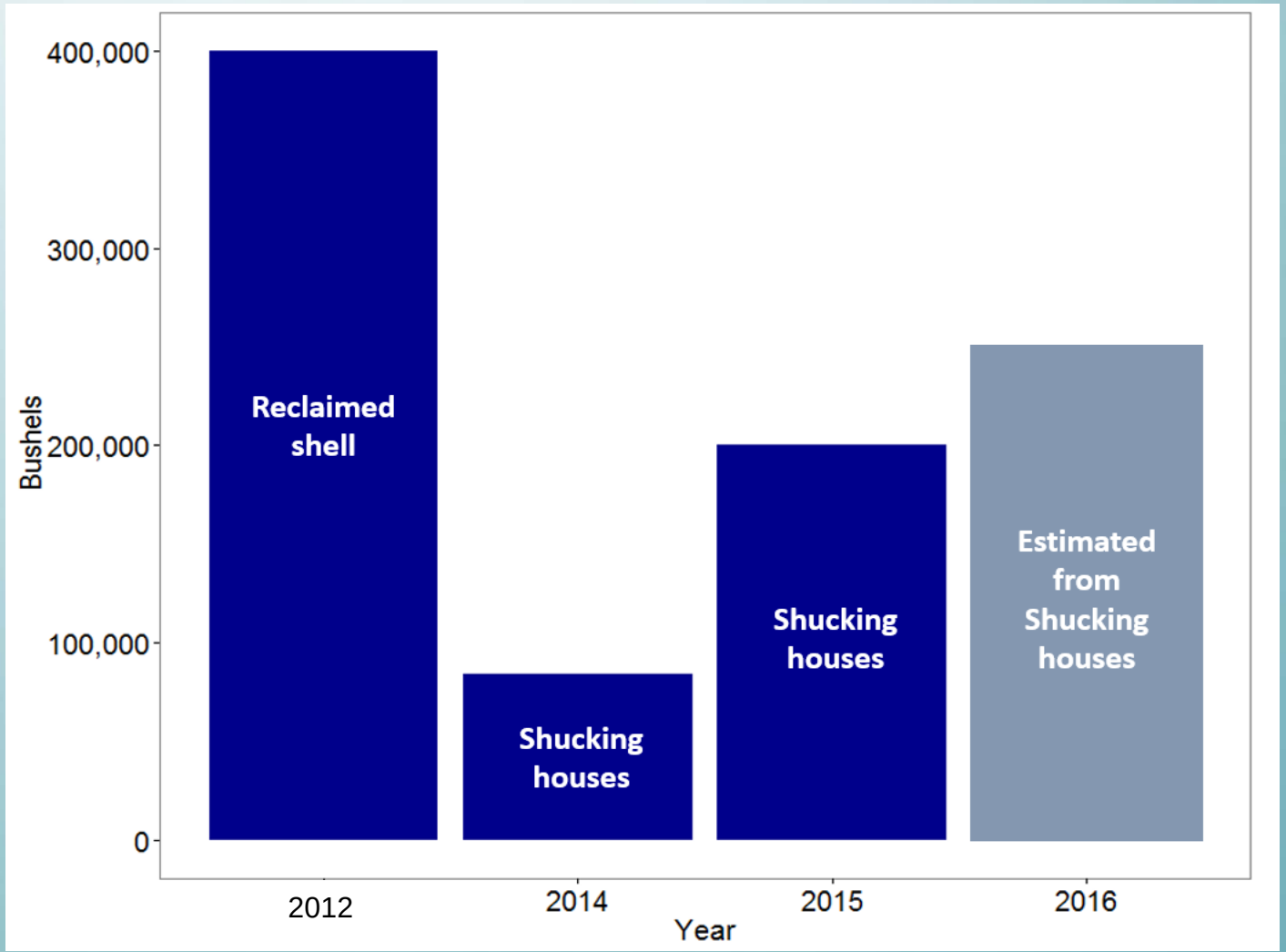


Source: Oyster Recovery Partnership

Current and Growing Demand

Public Oyster Grounds

- MD Example

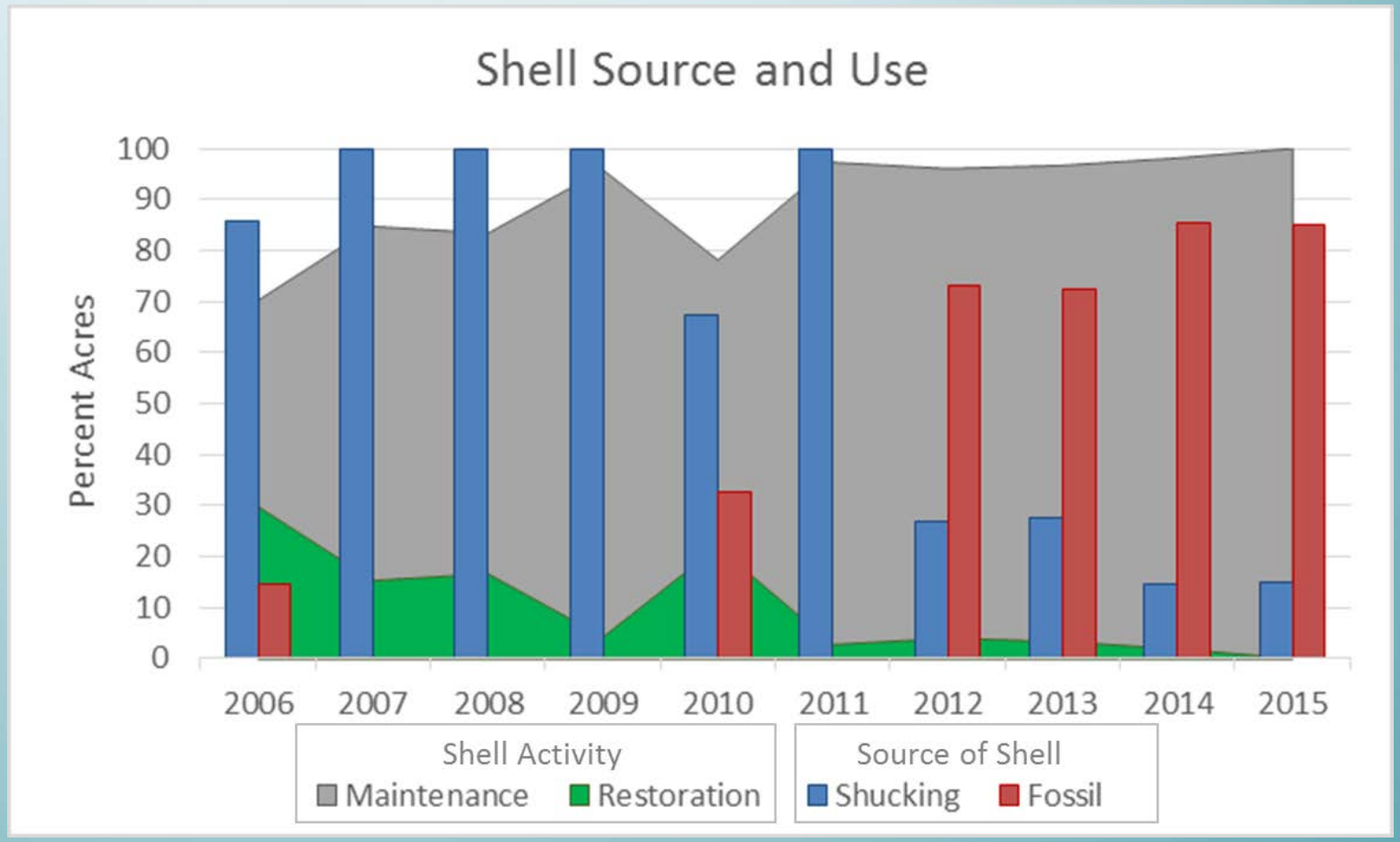


Source: Maryland DNR

Current and Growing Demand

Public Oyster Grounds

- VA Example



Source: Virginia Marine Fisheries Commission

Increasing Cost of Shell

State	Shell Source	2006 (Avg. per bushel)	2015 (Avg. per bushel)
MD	Dredge	$1.17	N/A
	Shucked	$0.25	$2.00
VA	Dredge	$1.26	$3.63
	Shucked	$0.50	$3.00

Cost of Shell has Significantly Increased!

Source: Maryland DNR, Oyster Recovery Partnership, Virginia Marine Fisheries Commission

Official Use of Shell in MD

2008 MD Oyster Advisory Commission Report

- Limited fresh shell should be reserved for hatchery spat-on-shell production
- Annually assess and evaluate available substrate material and placement methods
- Identify areas where buried shell deposits could be mined and develop a plan to evaluate a potential mining operation
- Explore cost-effective ways to recover buried shell deposits for foundation layer of restoration
- Investigate the potential availability of shell deposits on land and out-of-state

Official Use of Shell in MD

2007 VA Blue Ribbon Oyster Panel

- Goals to increase oyster production for both population growth and harvest
- Goal to improve and expand oyster habitat and substrate
- Expand spat-on-shell production
- Continue shell planting to increase habitat and maintain public oyster grounds
- Focus ecological restoration

Summary

- History of using substrate to enhance oyster growth in the Chesapeake
- History of state support to enhance oyster production in all sectors
- Demand for shell is increasing
- Cost of shell is increasing
- Alternative substrate is being use for restoration in MD and VA
- Shell has been shared among public oyster grounds, aquaculture, and restoration, and there is guidance to prioritize allocation, but is this enough?

Is this Needed?

- Should there be a multijurisdictional policy or strategy that defines the equitable distribution of shell resources among states/stakeholders in Chesapeake Bay?

Panel Questions

- What is your experience with the shell/substrate issue?
- What are the challenges and limitations you have encountered? What is the underlying challenge here?
- How could these challenges be resolved to help efforts moving forward to meet the total demand in the Bay for hard substrate?