

# Maryland DNR Welcomes You to an Oyster Open House



January 2010

# Purpose of the Open House

We are soliciting comment regarding the proposed changes to the management of oysters in Maryland.

Maryland's proposed *Oyster Restoration and Aquaculture Development Plan* will:

1. Significantly increase MD's network of oyster sanctuaries in Chesapeake Bay.
2. Identify large new areas open to leasing for oyster aquaculture in MD's Chesapeake and Coastal Bays and streamline the permitting process through Aquaculture Enterprise Zones (AEZs).
3. Identify areas off limits to leasing, allowing for a more targeted, scientifically managed and sustainable public fishery.

Please help yourself to the refreshments while you review the materials we have provided.

If you have any questions, please feel free to ask one of the DNR staff in attendance.

# History of Fisheries Service

1868 - State Fishery Force (Oyster Police)

1882 - Oyster Commission

1906 - Shell Fish Commission

1916 - Conservation Commission

1922 - Conservation Department

1941 - Board of Natural Resources

**1943 Authority for oyster management assigned to the Board (Tidewater Fisheries Commission) by the General Assembly**

1964 - Dept. of Chesapeake Bay Affairs

1969 - Dept. of Natural Resources

1972 - Fisheries Administration created

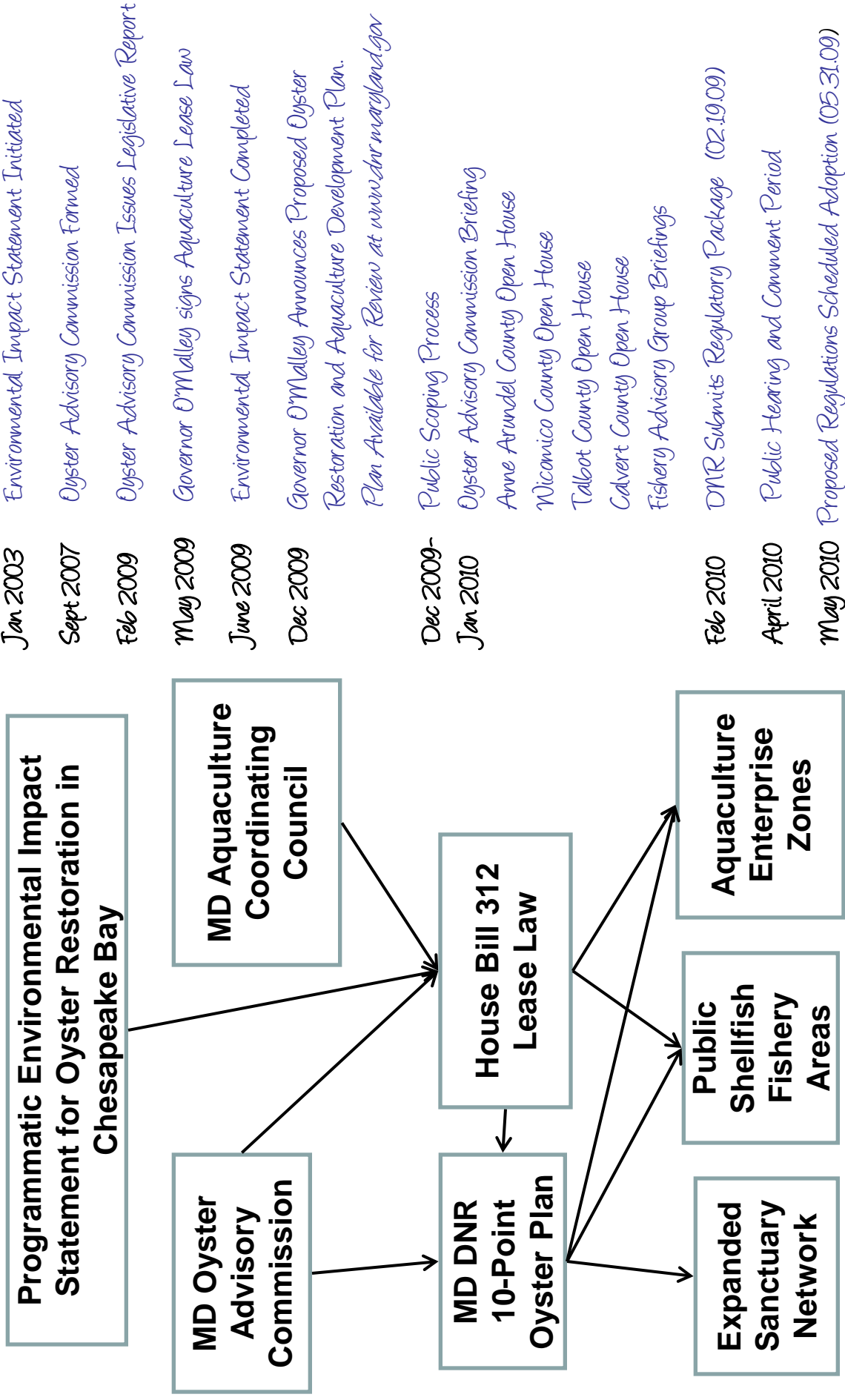
# History of Fisheries Service

In 1882, an Oyster Commission was created to study and submit a report on the status of Maryland's oyster resources.

Over the years, the name of the organization has changed many times but the mission has remained the same:

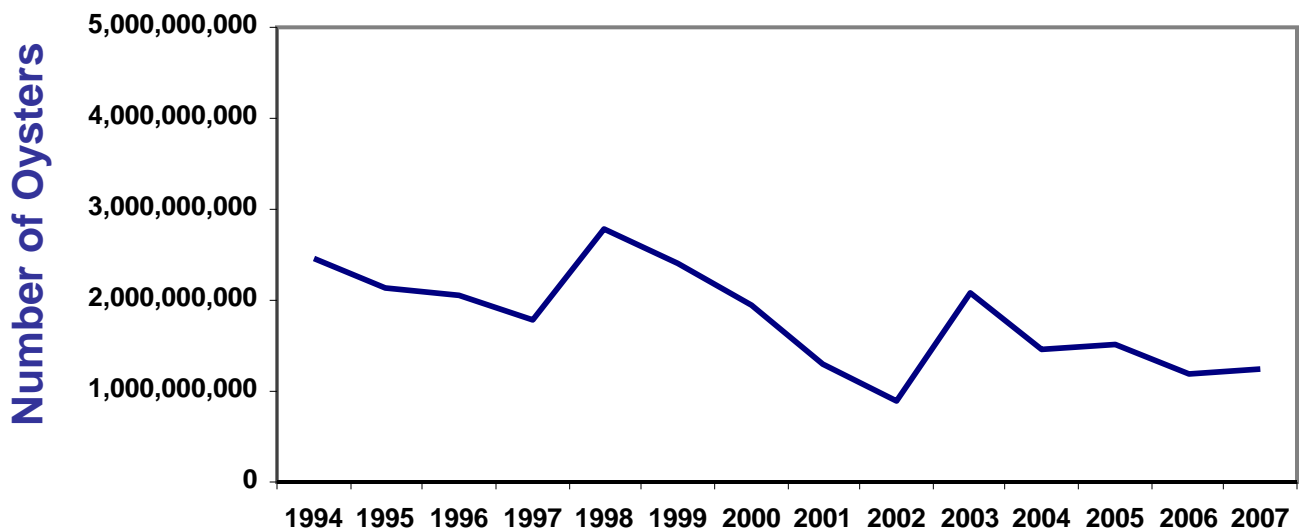
It is our responsibility to take action to conserve and manage fish resources, including oysters. Failure to act is a failure to the people of Maryland.

# How the Proposed Plan Evolved



# Status of the Chesapeake Bay Oyster Resource

**Population** - Since 1994, the Chesapeake Bay's oyster population has languished at 1% of historic levels.

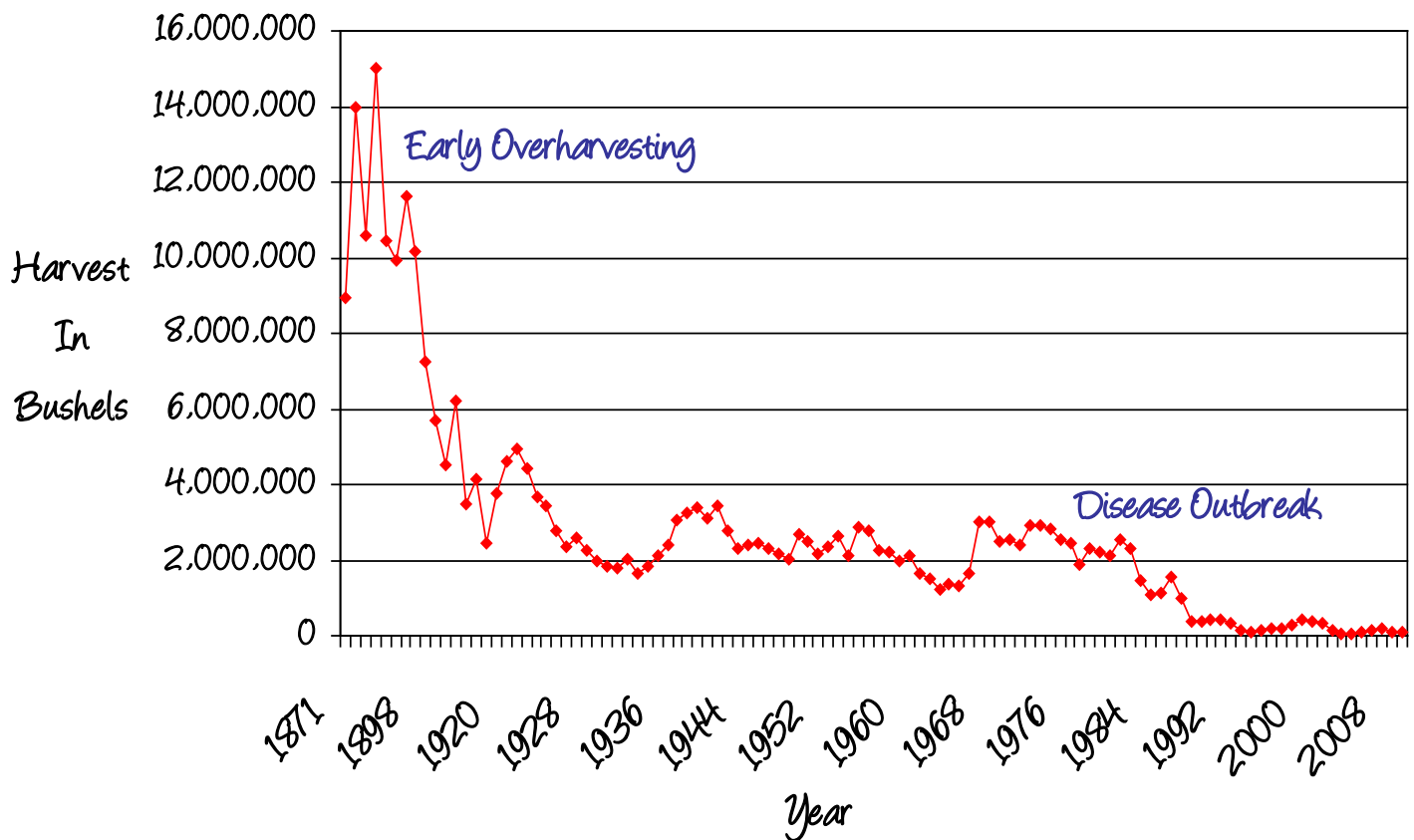


The graph above shows oyster population estimates for small and market oysters in the Maryland portion of Chesapeake Bay over the period 1994-2007 (estimated by applying MDNR Fall Survey density estimates to total habitat).

**Habitat** - Over the past 25 years, the amount of suitable oyster bar habitat has declined 80%, from 200,000 to 36,000 acres. Exposure to pollution, sedimentation, algal blooms due to excessive nutrient runoff, disease, and low dissolved oxygen levels in bottom water compound the problem and frustrate natural population recovery.

# Status of Maryland's Oyster Industry

**Harvest** - Maryland's oyster harvest has been about 100,000 bushels annually since 2002. The annual harvest averaged 2.5 million and 1.3 million bushels during the 1920-69 and 1970-2002 periods, respectively.



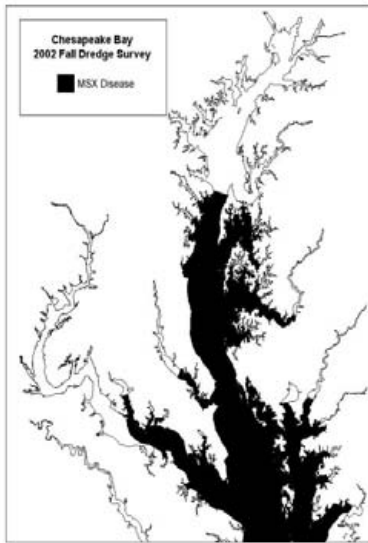
**Harvesters** - Prior to the disease epizootics of the mid-1980s, there were more than 2,000 oyster harvesters. The average number of annual license holders in MD from 2002 through Dec. 2010 is 550.

**Processors** - In 1974, there were 58 oyster processing companies in Maryland. Today there are fewer than 18.

# The Impacts of Disease

The oyster diseases, MSX and Dermo, are caused by parasites that are not harmful to humans but can cause significant oyster mortality in the saltier areas of the Bay. Disease prevalence varies with annual rainfall and the resulting freshwater inflow.

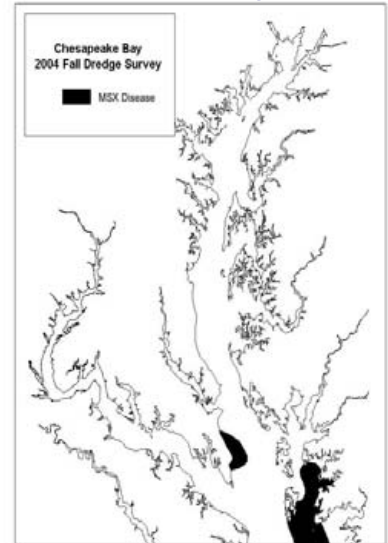
2002 - Drought Year



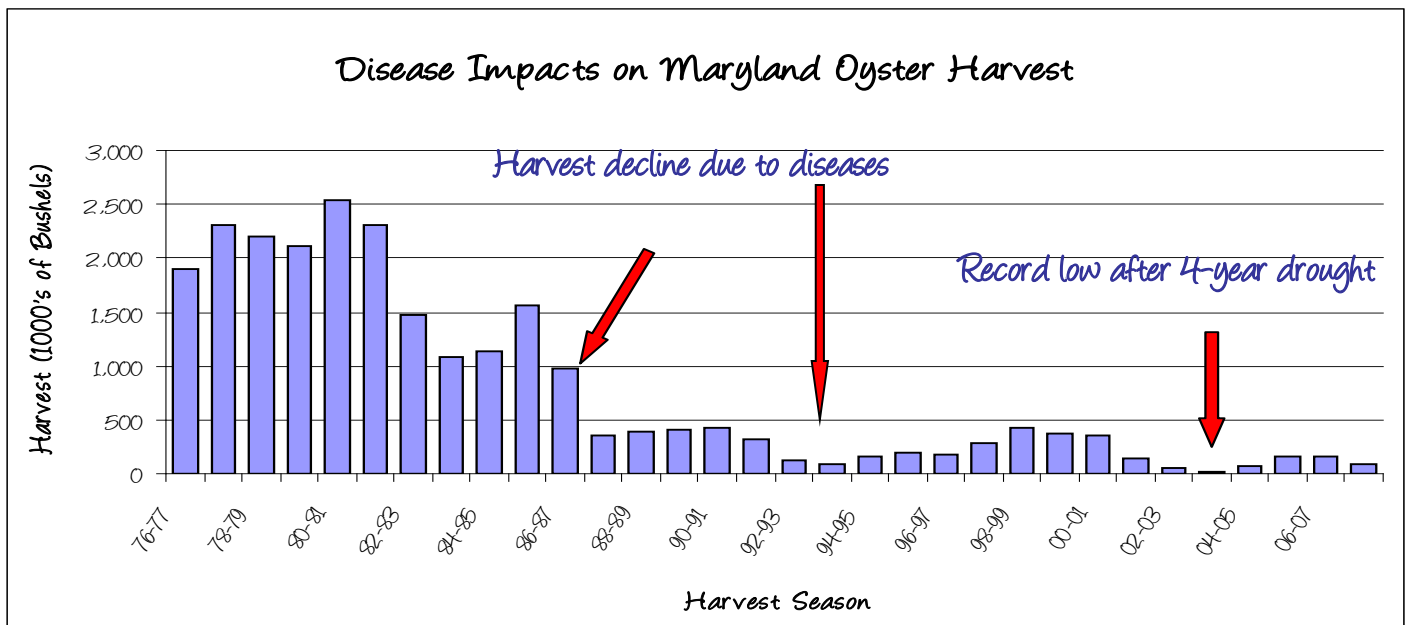
2003 - Wet Year



2004 - Wet Year



The restoration of native oysters will depend on the establishment of natural disease resistance. Once planted in the Bay and exposed to disease, they must be allowed time to grow and reproduce for many generations in order for disease resistance to take hold in the natural population. A reduction in harvest pressure will help foster this process.



# What is the Problem?

From 1994 to 2007, the State and Federal governments combined invested \$39.7 million on in-the-water oyster recovery activities in Maryland.

Despite this significant investment:

- The oyster population remains at 1% of historic levels
- Habitat loss continues
- The public fishery has not improved
- Privatized aquaculture is challenged by
  - limited access to bottom
  - lack of capital
  - low hatchery seed availability
  - insufficient enforcement resources
  - complicated and lengthy permit process

**STATUS QUO IS NOT ACCEPTABLE!**

# Need to Evaluate Alternatives

In January 2004, a Programmatic Environmental Impact Statement (PEIS) was initiated to evaluate oyster restoration and industry revitalization alternatives.

This process involved numerous federal, state and other partners, included extensive scientific peer review and public participation processes, and resulted in the most comprehensive oyster evaluation in the Bay region to date.

PEIS recommendations, issued in June 2009, were to:

- expand, improve and accelerate native oyster restoration efforts
- implement more restrictive public oyster fishery management regime
- expand native oyster aquaculture

In September of 2007, the Maryland General Assembly established the Maryland Oyster Advisory Commission (OAC).

The OAC's major recommendations in Jan. 2010 included:

- establish separate ecological restoration and industry revitalization goals and management strategies
- focus ecological restoration efforts in a large-scale, interconnected fashion to allow large oyster populations to persist in the face of disease and other stressors
- implement a new oyster fisheries management plan, based on maximum fishing mortality rates, improved annual surveys, and more accurate harvest reporting
- address and resolve illegal oyster harvesting from all Bay areas
- develop a balanced transition strategy for growing MD's oyster industry, based primarily on aquaculture, that includes education, training and startup funding
- reverse habitat degradation and loss.

# Oyster Plan Vision



Based on the scientific findings of the Programmatic Environmental Impact Statement, advice from the MD OAC and Aquaculture Coordinating Council, and 2009 Lease Law, the MD DNR established the following vision for oysters:

- Establish an expanding and sustainable population of native oysters in significant portions of Chesapeake Bay and its tributaries.
- Establish a private aquaculture industry that emerges as a major economic contributor to the State of Maryland while maintaining a more targeted and scientifically managed wild oyster fishery that is sustainable.



# Definitions -

## What do we mean by:

**Sanctuary** - areas permanently closed to shellfish harvest. These often contain oyster restoration projects to help enhance native oyster populations for their environmental benefits.

**Public Shellfish Fishery Area** - parts of the Bay where shellfish are harvested for commercial purposes and no leases are allowed.

**Aquaculture Enterprise Zone** - parts of the Chesapeake Bay and Maryland Coastal Bays where aquaculture leases are established by the state, and in which individuals can begin leasing without obtaining their own permit.

**Lease** - portion of the public waters of Chesapeake and Maryland Coastal Bays where the privilege to grow shellfish has been granted by the State to a person (individual, business, non-profit, university, or cooperative group of watermen).

**Demonstration Lease** - a lease granted for the purpose of demonstrating the ecological benefits of growing shellfish for research or education.

**Managed Reserve** - areas that are planted with oysters, then closed to fishing until specific oyster size criteria are met.

# MARYLAND'S 10-POINT OYSTER RESTORATION AND INDUSTRY REVITALIZATION PLAN

1. Focus on targeted restoration strategies to achieve ecological and economic goals
2. Expand the sanctuary program
3. Support a more targeted, scientifically managed and sustainable wild oyster fishery
4. Shift commercial production to aquaculture
5. Rehabilitate oyster bar habitat
6. Manage against oyster disease and facilitate natural disease resistance
7. Increase hatchery production
8. Enhance law enforcement
9. Increase citizen involvement
10. Integrate inmate labor

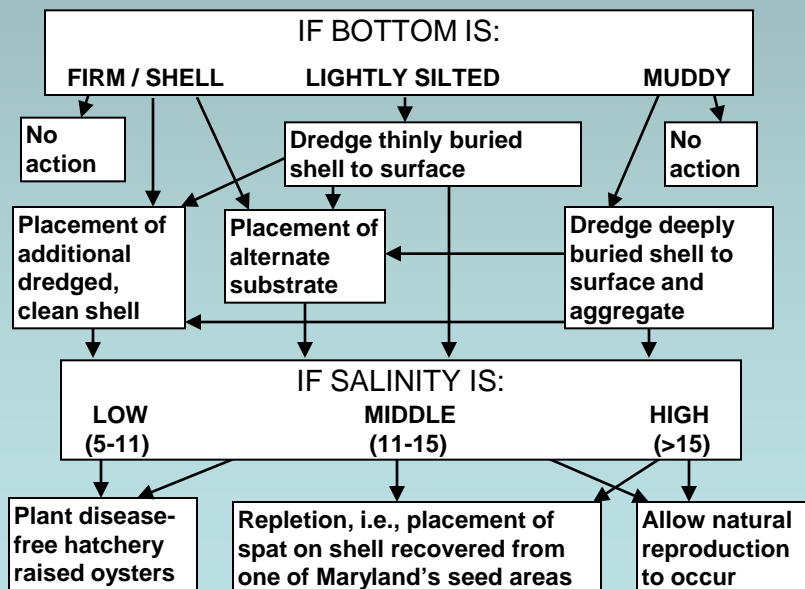
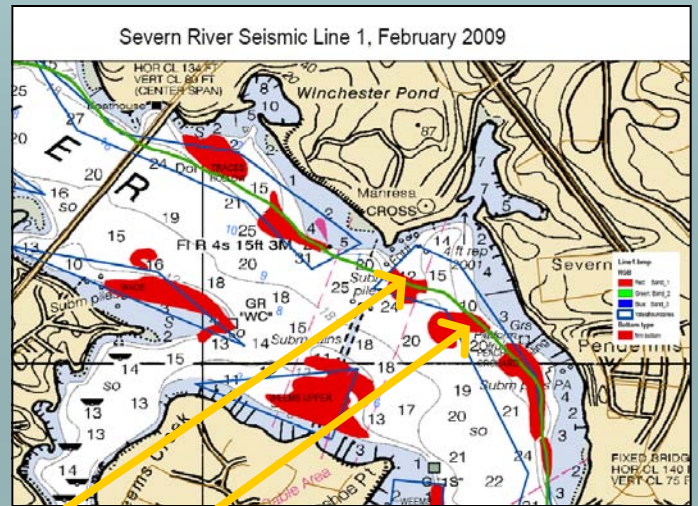
# MARYLAND'S 10-POINT OYSTER PLAN

## 1. Focus on targeted restoration strategies

We will set goals to maximize ecological benefits, facilitate population recovery and create positive outcomes for the commercial fishery.

### An Example from the Severn River

Side scan sonar technology was used to survey the bottom of the river. The green line at right shows one of many paths taken by the survey vessel. Data taken along that track are shown in cross-section below. The firm mounded areas with dark outlines correspond to the red shaded areas on the map to the right. These spots indicate the presence of current or historical oyster beds and shell.

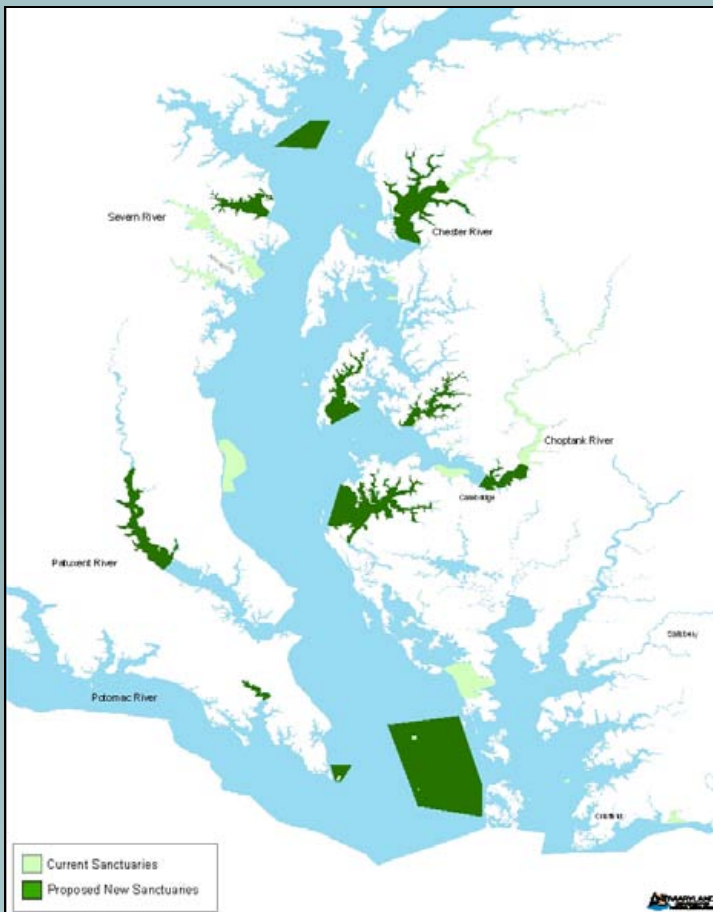


Bottom survey data are combined with historical oyster bar locations (blue polygons above) to help determine the best sites for rehabilitation (red shaded areas). Knowing the average salinity in a tributary allows us to select a restoration alternative that appropriately addresses disease and recruitment issues at each site. The flowchart at left is a simple, ecologically-based representation of the targeting process.

# MARYLAND'S 10-POINT OYSTER PLAN

## 2. Expand the sanctuary program

The Oyster Advisory Commission (OAC) recommended that DNR initiate a process to select and identify large sanctuaries in low, mid, and high salinity areas.



The proposed sanctuary expansion will maintain 167,720 acres of natural oyster bars for the wild oyster fishery, including 76% of the remaining quality oyster habitats.

### Current Sanctuaries in MD

In 2009, Maryland added three new oyster sanctuaries that more than doubled the area of protected bottom from 1475 to 2581 acres. These locations were the entire Severn River, Sandy Hill in the Choptank River, and Hooper Straight north of South Marsh Island. Yet the current sanctuary system still comprises primarily small, dispersed areas that protect only 9% of available oyster habitat.

### Proposed Sanctuary Network

The areas included in the proposed expansion of Maryland's sanctuary network are targeted to:

- Facilitate natural disease resistance;
- Protect some of the Bay's most productive oyster grounds, as determined by an analysis of fall survey data compiled from 1996 to 2007;
- Increase the total area designated as oyster sanctuaries from 9% of habitat in 2009 to approximately 24% of remaining quality habitat in the Bay in 2010.
- Provide a broad geographic distribution across all salinity zones

# MARYLAND'S 10-POINT OYSTER PLAN

## 3. Support a more focused, scientifically managed and sustainable wild oyster fishery

Develop biological reference points (targets and thresholds) that will provide for a sustainable wild oyster fishery

- Establish a conservative, bay-wide harvest target/quota as for blue crabs and striped bass.
- Monitor harvest and close the fishery upon harvest quota achievement.
- Work with the oyster industry to develop a new fishery management plan that provides watermen with increased flexibility while achieving the Department's management principles including staying below the biological reference points, harvest accountability and enforceability.



A close up of oyster tongs.  
Photo by S. Brown, NOAA

## 4. Shift commercial production to aquaculture

Coordinate a strategy that will help Maryland's traditional wild oyster fishery evaluate the potential economic viability of privatized aquaculture.

- A 2009 Lease Law, developed out of recommendations from the Aquaculture Coordinating Council, made it easier for watermen and others to grow shellfish in the Bay. Passed unanimously in the legislature (House Bill 312/Senate Bill 271), this bill is the first reform of its kind in 103 years and will increase the amount of bottom available for leasing.
- Grants to offset start-up and operational costs for new oyster farms have been secured through Governor O'Malley, Senator Barbara Mikulski, and MD's Congressional Delegation
- MD DNR has partnered with the University of Maryland Center for Environmental Science (UMCES) and their Sea Grant program to assist with implementing new aquaculture initiatives.
- The first Aquaculture Enterprise Zone (AEZ) was established by regulation in October 2009. The Island Creek AEZ is located in the Patuxent River near Broomes Island.
- DNR is also addressing enforcement problems that have been an obstacle to aquaculture

# MARYLAND'S 10-POINT OYSTER PLAN

## 5. Rehabilitate oyster bar habitat

One limiting factor for native oyster population recovery is the amount of suitable habitat on which oyster larvae can settle and for which oyster seed can be planted on. Approximately 80% of oyster habitat has been lost during the past 25 years. The Department believes that at least 10,000 acres of habitat will need to be rehabilitated to facilitate large-scale recovery and will choose from a suite of habitat rehabilitation 'tools' using information gathered by assessing bottom conditions using innovative technologies.

### Alternative Substrates

The most feasible function of alternative substrates is to provide a firm base for constructed oyster bars. To this end, DNR obtained a new permit in 2009 for placement of alternative materials on charted natural oyster bars. Alternate materials that replace the need for natural shell and can be economically manufactured in large quantities have not yet been identified.

### The Cost of Rehabilitation

Depending on the method chosen, rehabilitation costs can range from \$2,000 to \$100,000 per acre. In 2008-09, Maryland spent \$2.3 million in capital funds to design, coordinate, and implement oyster bar rehabilitation. In the process, 600 watermen were provided with work opportunities through a bar rehabilitation program. To date, these efforts have yielded 250 acres of rehabilitated oyster reef.

### Facing a Shell Shortage

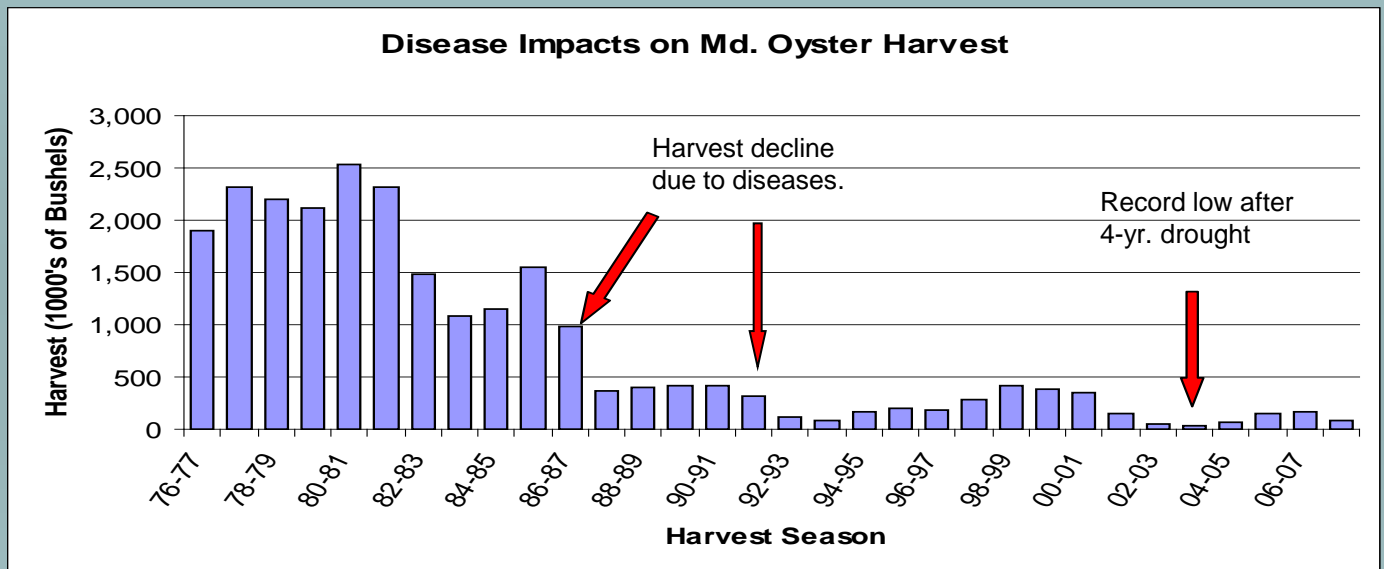
Oyster shell, either new (shucked) or from buried deposits, is the predominant and preferred cultch for oyster habitat projects in the Bay. Since 1960, the dominant source of shells for restoration has been dredged shells from buried deposits in the upper Bay. However, improving degraded oyster habitat across large areas will require more shell than is available from traditional shell deposits.

To obtain sufficient cultch for upcoming restoration projects, Maryland has obtained a reclamation permit that would provide up to 25 million bushels of shell. Also pending is a shell dredge permit application to obtain up to an additional 5 million bushels of shell from Man O' War shoal. There will be a separate public participation process for this permit application later in 2010.

# MARYLAND'S 10-POINT OYSTER PLAN

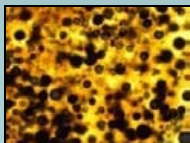
## 6. Manage against oyster disease to facilitate natural disease resistance

Oyster diseases are responsible for significant levels of non-fishing mortality among oysters inhabiting the Chesapeake Bay. To address disease challenges, Maryland will use a targeted restoration approach to facilitate the evolution of natural disease resistance, while managing against the spread of disease in the interim.



Each year during the Fall Oyster Survey, DNR Fisheries Staff collect 1,300 sample oysters throughout the Bay specifically for pathogen and disease testing.

Dermo



Dark-stained *Perkinsus marinus* cells

Dermo is caused by the protozoan parasite *Perkinsus marinus*. It is broadly distributed among Chesapeake Bay oysters and occurred at high annual prevalences of 53-94% during recent decades. Since its arrival to the Bay in 1949, it has been found on most of the oyster bars surveyed in MD.

MSX



Sampling oyster tissues for MSX disease diagnosis

MSX was first discovered in the Chesapeake Bay in 1959. It is strongly regulated by freshwater inflows and can kill oysters within the first year of exposure. Its protozoan parasite, *Haplosporidium nelsoni* does not affect oysters in low-salinity waters (<10).

# MARYLAND'S 10-POINT OYSTER PLAN

## 7. Increase hatchery production

In order to meet the demands of an aggressive restoration program, a rapidly growing Marylanders Grow Oysters program (see MGO poster), and a new commercial aquaculture initiative, Maryland must have access to large quantities of disease-free hatchery seed (up to 2 billion per year). To this end, the Maryland DNR has:

- Established a new Memorandum of Understanding with UMCES for future hatchery production
- Purchased all available oyster shells from shucking houses in the state and transported them to the UMCES Horn Point Hatchery for 2010-2012 production
- Supported legislation that increased the price paid per bushel of oyster shell from \$0.25 to \$0.50 to allow the State to be more competitive with the private market.
- Initiated oyster production at its own Piney Point Aquaculture Facility in St. Mary's County. Approximately 50 million oysters were produced there in 2009.
- Planned to make grants available to lease holders to produce their own hatchery seed.



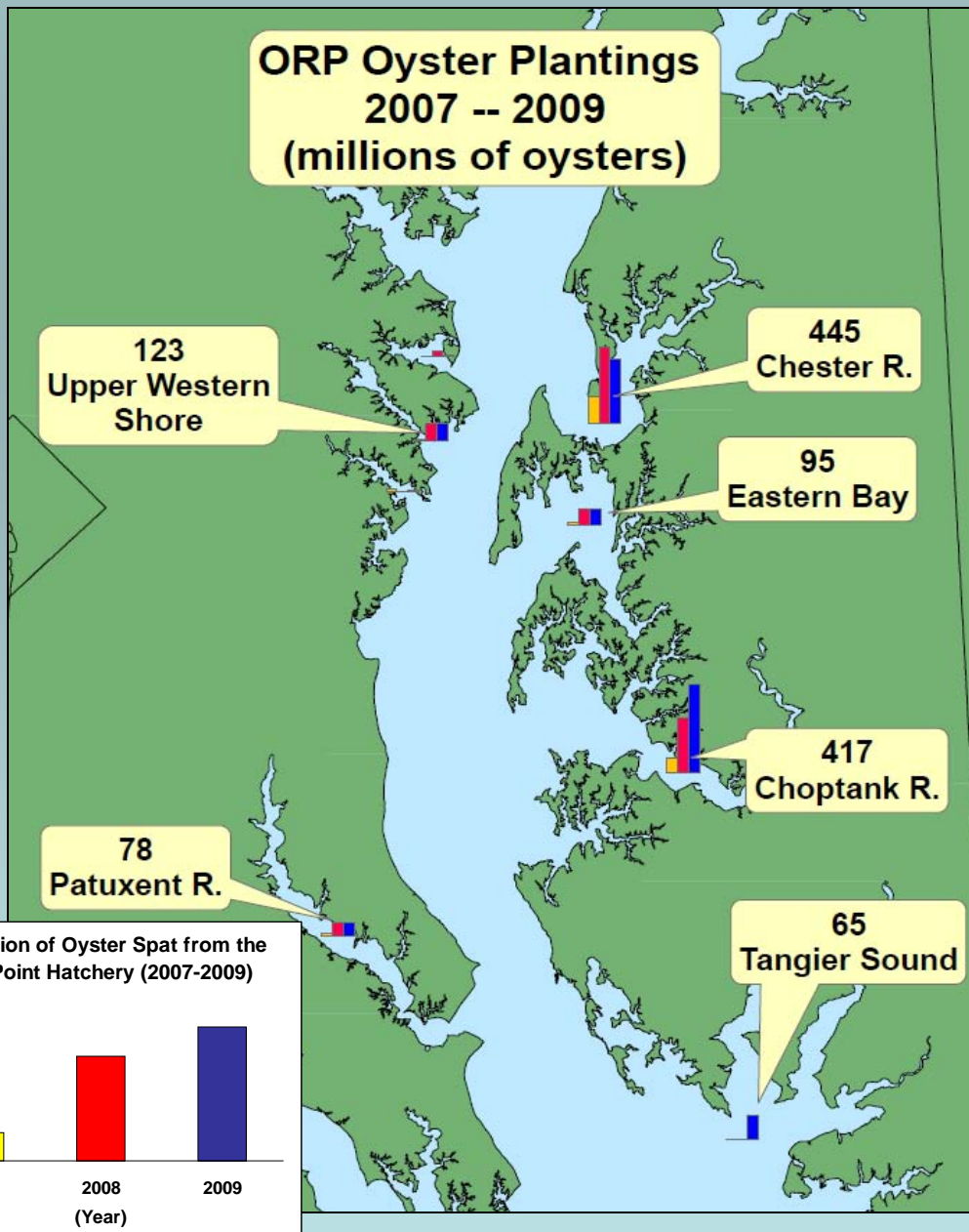
Stanley Tomaszewski, manager of the Piney Point Aquaculture Center, surveys the large, concrete tanks that his staff is using to grow spat oysters for distribution in the Bay.



The UMCES Horn Point Oyster Hatchery (above), managed by Don Meritt, is currently under expansion. After construction is complete, annual production from this facility is expected to increase from 350 - 750 million to 1.5 - 2 billion spat.

# MARYLAND'S 10-POINT OYSTER PLAN

Through close collaboration with the University of Maryland Center for Environmental Science Horn Point Hatchery and the Oyster Recovery Partnership, nearly 750 million hatchery-reared oysters were planted in the Bay in 2009. This set a record in the State's oyster restoration efforts. This production level and expanding partnership facilitated the revitalization of nearly 350 acres of oyster reefs, planted on 26 sites across the Bay and its rivers.





# MARYLAND'S 10-POINT OYSTER PLAN

## 9. Increase citizen involvement

Initiated by Governor Martin O'Malley in September 2008, the *Marylanders Grow Oysters* program is managed by the Maryland DNR in conjunction with the Oyster Recovery Partnership, the University of Maryland Center for Environmental Science, and local organizations. Maryland Department of Public Safety and Correctional Service inmates produce the cages for the program and help in the Piney Point Oyster Hatchery.

The goal of this program is to facilitate environmental stewardship and encourage citizens to contribute to the ecological health of the river. The oysters they grow are planted in sanctuaries where an oyster reef community of fish, crabs and other organisms can thrive.

In 2009, *Marylanders Grow Oysters* expanded into 12 new tributaries that were selected through an online application process. Each tributary has a local sponsor who leads the program by organizing the growers and distributing cages and oysters. DNR works closely with the local sponsor, providing guidance, advice, cages and oysters. Up to 5,000 cages were distributed with oyster spat to volunteer growers in the Magothy, Severn, South, lower Patuxent, St. Mary's, Wicomico, Corsica, lower Nanticoke, and Annemessex Rivers, as well as San Domingo and La Trappe Creeks.



# MARYLAND'S 10-POINT OYSTER PLAN

## 10. Integrate inmate labor

Inmates at Eastern Correctional Institution in Westover, MD gain work skills, confidence, and a new respect for the resources of the Bay building oyster cages for the Marylanders Grow Oysters Program. The inmates are able to construct an average of 100 cages per day using an assembly line process, and the program saved the Department of Natural Resources thousands of dollars in labor costs.

The 2009 production season marked the first time in 4 years that the Department's Piney Point aquaculture facility has produced oyster spat. The spat grow in large concrete tanks and when they reach the right size they are transplanted into the Bay.

The facility could not operate without help from local inmates who are part of the Southern Maryland Pre-Release Unit in Charlotte Hall, MD. The labor costs little and the inmates get a chance to do something unique and positive in the community - it is a win-win situation.

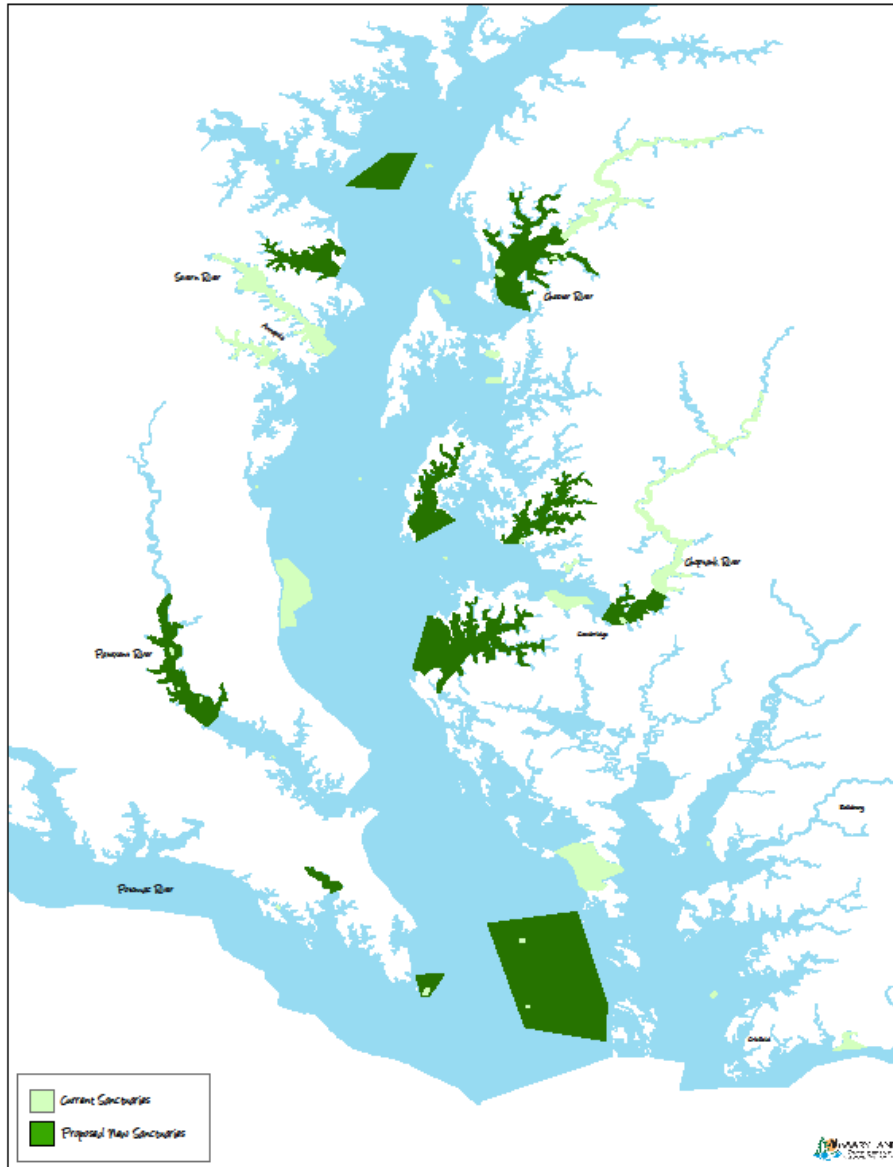
On a typical day, the inmates arrive at dawn to begin their work. They remove the oyster spat from growth tanks and load them onto boats before the daytime sun has a chance to overheat the baby oysters.

The inmates and watermen who assist with their boats can ship out as much as 3 million spat in a day.



Inmates from the Southern Maryland Pre-Release Center in Charlotte Hall load bags of shells seeded with oyster spat onto a boat for distribution in St. Catherine's Sound. Photo by J. Friess, Southern Maryland Newspapers.

# Maryland's Proposed Oyster Sanctuary Network



Proposed sanctuary areas include the 11 tributaries of the York River, the Chester River, the area between the mouths of the Patuxent and Back Rivers bounded by the main channel, Upper St. Mary's River, Point Lookout, Little Choptank River, Upper Patuxent River, mainstem portion and lower tributaries of Choptank River and area between the main channel and shore from Hooper Strait to Smith Island.

Of the 36,000 acres of remaining quality habitat in the Bay, this proposal would increase the amount of habitat to be protected as sanctuaries from 9% to 24%

# How Were the Proposed Sanctuary Areas Chosen?

Recognizing that conservation requires less effort and funding than restoration, and faced with a charge to select new sanctuary areas for the proposed Oyster Restoration and Industry Revitalization Plan, the Department supported an analysis of data from the Fall Survey for 1996 – 2007. This study identified Maryland's most productive oyster bars based on several criteria.

## Process for Identifying Maryland's Best Oyster Bars

Each year, the Maryland Fall Oyster Survey records the number of live and dead oysters in 3 size classes for 25 regions in the Maryland portion of the Chesapeake Bay.

Any bar having 4 or more years of high market oyster counts (top 10% relative to the other bars), received a "best bar" designation. Some traits of these 18 "best bars" (at right) are that they are:

- Often characterized by high spatfall (recruitment) and/or high production (harvest)
- Primarily located north of the Patuxent River
- Primarily located on the Eastern Shore
- Typically associated with more low and medium salinities and a recent rehabilitative treatment (application of dredged shell, fresh shell, and/or seed oysters).
- Concentrated most highly in the regions of Broad Creek, Little Choptank River and Eastern Bay.



# Issues Raised by the Public

The following are questions that have been asked regarding the proposed Oyster Restoration & Aquaculture Redevelopment Plan.

Following each question is the Department's perspective on the issue.

If we have missed any issues or have not addressed the question please let us know in the notebook provided. Thanks!

# House Bill 154

## Questions & Answers

Q: What would the bill do?

A: The bill would expand patent tonging in the Patuxent River from the current area below St. Leonard Creek upriver to Broomes Island. The oyster bars in these areas are currently only open to hand tonging.

Q: What would the impact of the bill be?

A: The heavier, more effective patent tongs can effectively fish deeper areas than hand tongs, and would harvest a substantial percentage of the legal sized oysters left in this part of the river. Hard substrate in the area would increase, but oyster reproduction would be expected to decrease.

Q: Who sponsored this bill?

A: Delegates Anthony J. O'Donnell (29c) and Sue Kullen (27b)

Q: Where can I read this bill?

A: <http://mlis.state.md.us/2010rs/billfile/HB0154.htm>

# Senate Bill 222

## Questions & Answers

Q: What would the bill do?

A: The bill would prevent the Department from establishing sanctuaries in Maryland.

Q: What would the impact of the bill be?

A: The sanctuaries being proposed by this Oyster Plan would no longer be implemented. New sanctuaries would need to be established by the legislature.

Q: Who sponsored this bill?

A: Senator Richard Colburn

Q: Where can I read this bill?

A: <http://mlis.state.md.us/2010rs/billfile/SB0222.htm>

# Senate Bill 37

## Questions & Answers

Q: What would the bill do?

A: The bill would prevent the Department from prohibiting the use of patent tongs and power dredges in areas where these gears are currently allowed.

Q: What would the impact of the bill be?

A: New leases and the sanctuaries being proposed by this Oyster Plan could no longer be implemented in areas currently open to dredging or patent tonging.

Q: Who sponsored this bill?

A: Senator Richard Colburn

Q: Where can I read this bill?

A: <http://mlis.state.md.us/2010rs/billfile/SB0037.htm>

# Oyster Sanctuary

## Questions & Answers

Q: Why are you creating more sanctuaries when we need more fishable areas?

A: The scientific findings of the Programmatic Environmental Impact Statement to evaluate oyster restoration alternatives for Chesapeake Bay and recommendations from Maryland's Oyster Advisory Commission concluded that an increase in the size of Maryland's oyster sanctuary network is essential. Sanctuaries are needed to facilitate natural disease resistance, which is the long-term strategy for restoring oysters to the Bay. Oysters protected in sanctuaries also serve as important broodstock, the reproducing members of the oyster population, to the region. There are also ecological benefits of a natural, undisturbed oyster reef that are not obtained from a harvested oyster bar. These include essential habitat for many marine organisms, and this in turn benefits sports fishermen who focus their fishing efforts near sanctuaries.

# Oyster Sanctuary

## Questions & Answers

Q: Bars need to be power dredged or they will get smothered with silt and die. How are sanctuaries going to help?

A: The historical creation of oyster bars in the Bay was not dependent upon power dredging. While there at times is an increase in spat set after power dredging an area, the benefit appears to be short-lived and not sustainable.

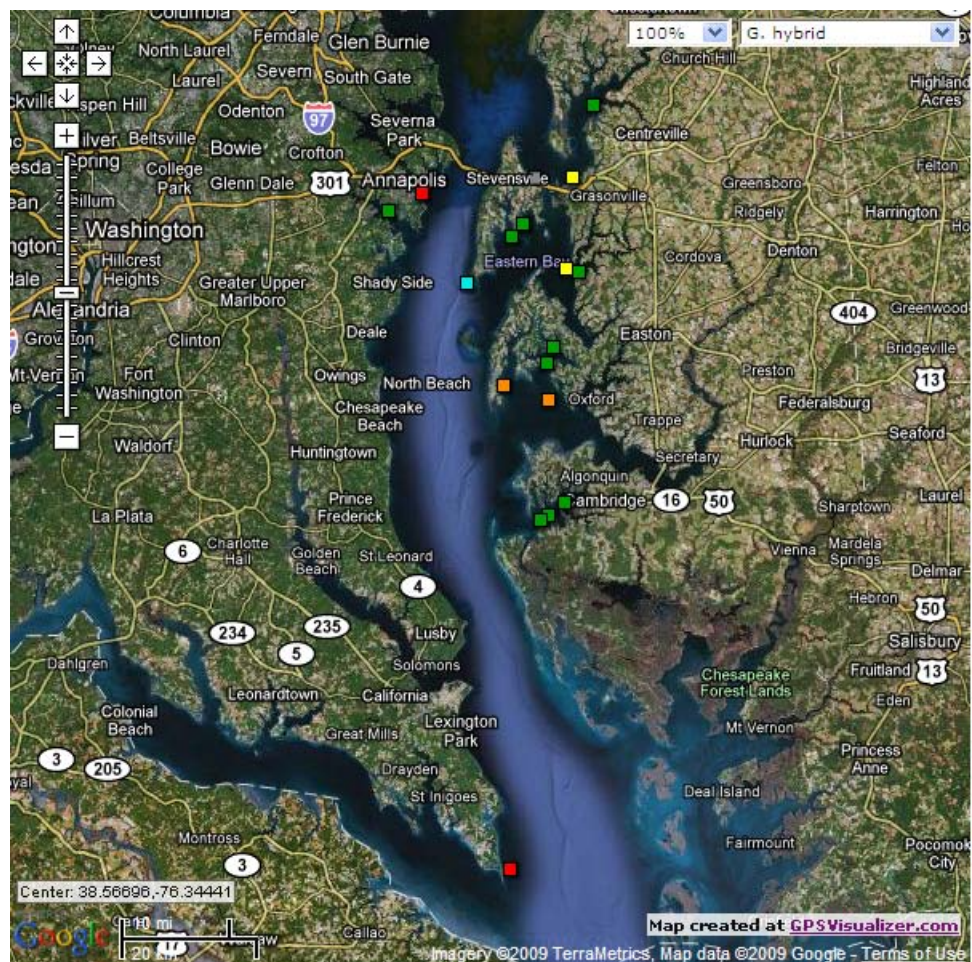
Although power dredging may be an acceptable harvest practice, it is not compatible with achieving ecological restoration. Dredging an oyster bar does not allow for the creation of a natural oyster reef, or facilitate natural disease resistance. The majority of areas proposed as sanctuaries have been naturally sustaining some of the highest densities of oysters in the Bay without any power dredging activity.

# Oyster Sanctuary

## Questions & Answers

*Q: Bars need to be power dredged or they will get smothered with silt and die. How are sanctuaries going to help?*

*A (Continued): A scientific analysis done in 2009 of oyster bar productivity showed that nearly all of the best oyster bars are not open to power dredging- the opposite of what would be expected if dredging were either good or necessary for oysters.*

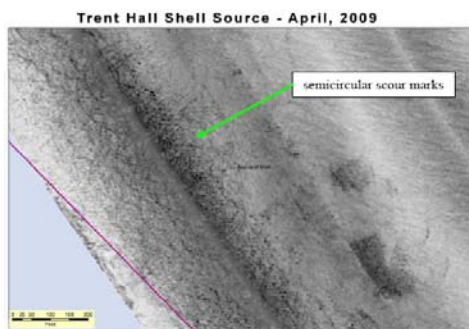


# Oyster Sanctuary

## Questions & Answers

*Q: Watermen get paid to dredge for bar rehabilitation work. This must mean dredging is good for oysters.*

*A: In some areas where oyster shells are buried by a layer of fine silt, dredging can help bring shell to the surface to revitalize oyster bottom. Scientists perform sediment mapping to identify areas buried thinly by silt. The areas are buoyed off and dredged by boats for a few days.*



*Before*

*After*

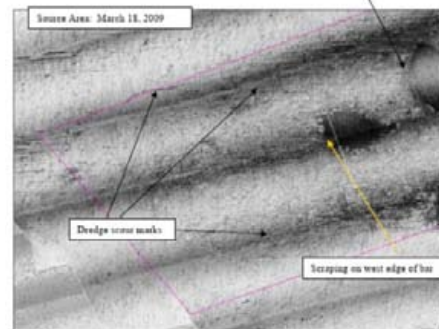
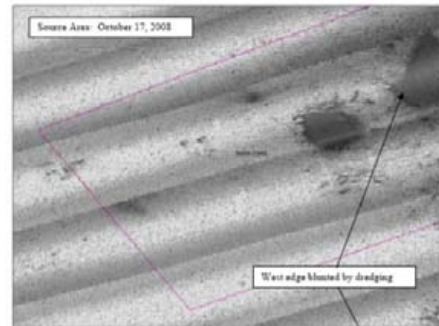


Figure 7: Pre- and post-dredge source area

*The panels above demonstrate that dredging can be an effective tool for increasing hard substrate. The amount of shell exposed on the river bottom (darkened areas) has increased.*

*The panels above show that dredging can also be damaging to reefs. Dredging has damaged the west edge of the oyster bar in the top right corner of the photo.*

*Carefully targeted dredging for specific objectives can be beneficial. Widespread, uncoordinated efforts are less likely to result in real results beneficial to oysters.*

# Oyster Sanctuary

## Questions & Answers

*Q: Why not open some of the upper Chesapeake Bay to power dredging?*

*A: As oyster density decreases in any given area, oysters become difficult to catch with hand tongs. The Department often receives requests to open new areas to dredging to facilitate the harvest of the remaining oysters. The Department believes allowing this is not likely to be a good idea, and that it is particularly unwise in the upper Bay, where oyster reproduction is naturally lower and disease is less of a problem.*

*Oyster fertilization efficiency declines when fewer oysters are present. Allowing additional fishing pressure that will drive populations even lower does not make ecological sense. In the upper Bay, the remaining oysters are almost certain to survive another season, and will spawn in the summer to help the population recover. Taking reasonable steps to keep the populations as high as possible makes sense.*

| Oyster Density (oysters/m <sup>2</sup> ) | % Fertilization efficiency |
|--|----------------------------|
| 1  | 0.49                       |
| 5  | 1.56                       |
| 10                                       | 2.57                       |
| 50                                       | 8.19                       |
| 100                                      | 13.50                      |
| 500                                      | 43.00                      |
| 1000                                     | 70.83                      |

*From Mann and Evans (1998) adaptation of Levitan (1991); current MD mean oyster density (OD) is 1 oyster/m<sup>2</sup>.*

# Oyster Sanctuary

## Questions & Answers

*Q: Disease and pollution are the reason that oyster populations are low. Why are you only targeting oyster harvesters?*

*A: It is true that disease has devastated oyster populations. It is also true that pollution is harmful to oysters, particularly those living in deeper water and susceptible to low dissolved oxygen. While this proposal does not focus on addressing pollution issues, the Department of Natural Resources and its sister state agencies are taking steps to address pollution.*

*Q: These sanctuaries are big. Will there be anywhere left for a watermen to catch oysters?*

*A: While the acreage of sanctuaries is proposed to increase from 9% of productive oyster habitat in 2009 to 24% in 2010, the remaining 76% of the habitat remains accessible to the fishery. More than three quarters of the remaining available oyster habitats in the Bay will still be open to oyster harvesting.*

# Oyster Sanctuary

## Questions & Answers

*Q: Oysters in sanctuaries are poached. What good will more sanctuaries do if the oysters are stolen from them?*

*A: Oyster theft is a serious problem. The existing sanctuaries, with small closed areas surrounded by fishable waters, are very difficult to enforce. Having large, intact closures will allow enforcement to be more effective. The Maryland Law Enforcement Intelligence Network (MLEIN), explained elsewhere in this Open House, should also dramatically improve protection. The Department has also proposed regulations, open for public comment now, that will increase the penalties associated with illegal harvesting. And, the Department is working with the judiciary branch so that these cases are taken more seriously.*

*Q: I've heard that most sanctuaries don't have any oysters in them. If this is the case, why make more?*

*A: Prior to 2009, very few sanctuaries had been established in areas with good reproduction so they were not naturally sustainable. The sanctuaries proposed here include some of the Bay's most productive oyster reefs. With no fishing pressure, we expect to see a substantial increase in oyster populations in these areas.*

# Oyster Sanctuary

## Questions & Answers

Q: Will clamming be allowed in the new sanctuaries?

A: Clamming has always been and will always be prohibited on oyster bars. No clamming will take place on oyster bars within the new sanctuaries. The Department may allow the harvest of soft clams and razor clams within sanctuaries as long as they are distant enough from oyster bars to prevent siltation.

Q: Adding all these sanctuaries would mean these areas will be closed to new aquaculture operations, right? Doesn't this go against the desire to increase aquaculture?

A: Yes, the 1994 Chesapeake Bay Program Oyster Management Plan does prevent 'new' aquaculture in sanctuaries. The State intends to change the Management Plan to allow for new shellfish aquaculture on unproductive bottom (areas with few or no living oysters) within sanctuaries.

# Oyster Sanctuary

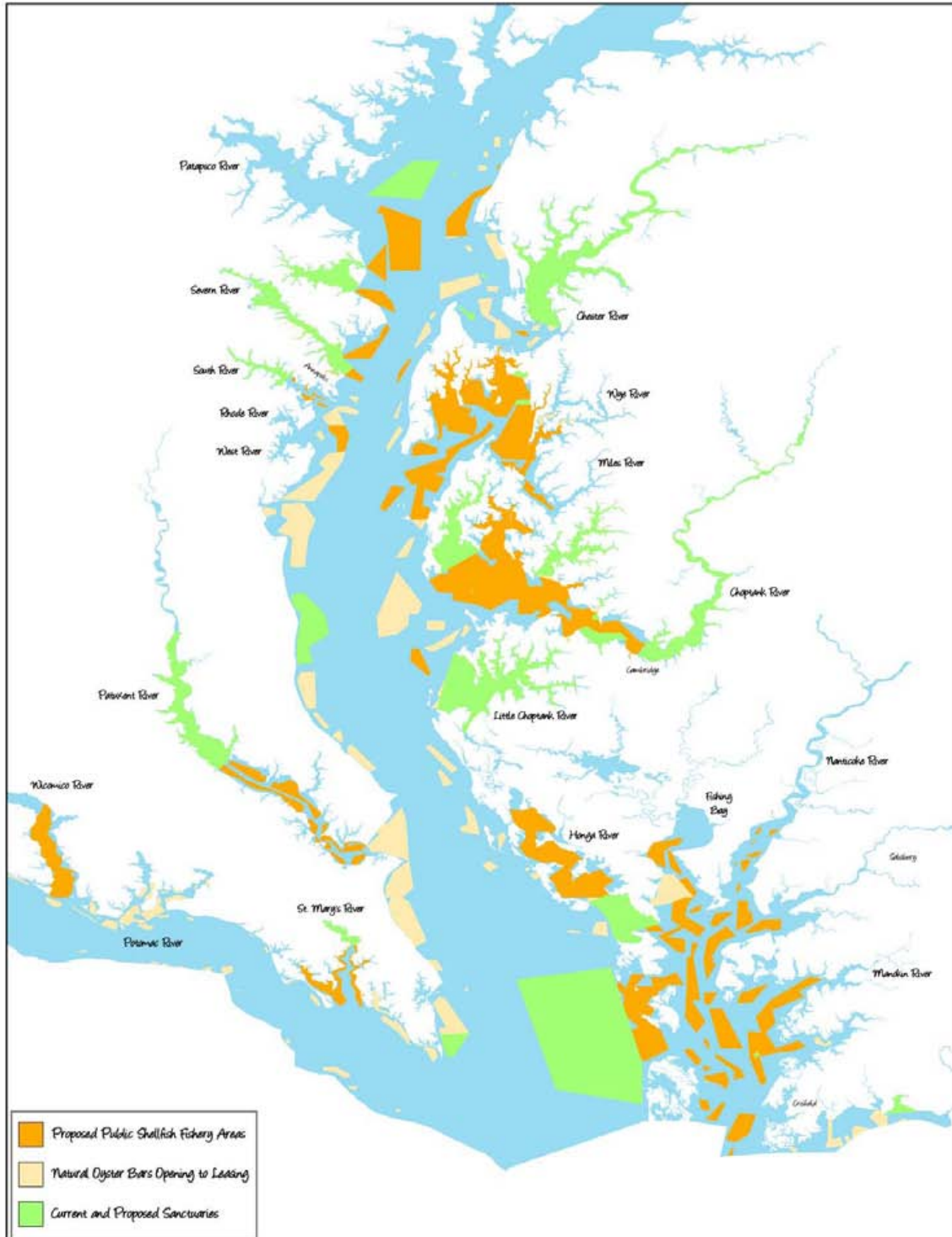
## Questions & Answers

Q: Why not declare a moratorium on oyster harvesting and make the entire bay a sanctuary to allow for a rapid recovery? It worked for striped bass, why wouldn't it work for oysters?

A: Were a moratorium on oyster harvest to be declared, it is unlikely that there would be an oyster population increase similar to that which occurred for striped bass. Oyster populations are limited primarily by disease. While oyster harvesting reduces population density in areas open to fishing, it does not pose a threat to the species baywide. The Department believes that a combination of scientifically targeted sanctuaries and carefully controlled harvest performed with appropriate gear is sustainable in the long term and will provide significant ecological, economic, and societal benefits.

# Public Shellfish Fishery Areas

Areas of the Chesapeake Bay where shellfish may be harvested for commercial purposes and leases are prohibited



# Public Shellfish Fishery Areas

## Questions & Answers

Q: Why establish Public Shellfish Fishery Areas (PSFA's)?

A: The PSFAs were mandated by 2009 legislation to set aside naturally productive oyster bars for the commercial harvest of wild oysters. No leases are allowed in these areas.

Q: How were the PSFAs determined?

A: PSFAs were selected based on the previous three years harvest reports, input from Maryland's County Oyster Committees, and DNR survey data. Unfortunately, only 10% of the harvest reports submitted from buyers had useable spatial information. And, the County Oyster Committee members were reluctant to identify areas that could be open to leasing. The proposed PSFAs are not intended to remove productive bottom from the wild oyster fishery. If you believe there is a productive wild oyster fishery area that is not among the proposed PSFAs, please let us know.

# Public Shellfish Fishery Areas

## Questions & Answers

Q: Can I still harvest oysters on the Natural Oyster Bars?

A: Yes, you can still fish any bars as long as they are not part of an oyster sanctuary, leased bottom, or reserve and you follow the current DNR bushel, gear, and time restrictions as well as Maryland Department of the Environment's health advisories for restricted harvest areas.

Q: I oyster in an area not shown as a PSFA on your map, how does this affect me?

A: This will not affect your ability to commercially harvest oysters in the area as long as it is not a sanctuary, reserve or other closed area.

Q: Will leases ever be allowed on PSFA's?

A: The Department may consider converting small sections of individual PSFAs to leases or AEZs if the areas don't contain fishable populations of oysters as verified by direct measurement. The Department will not convert PSFAs that are already productive oyster bottom. See next slide.

# Opening Sections of Public Shellfish Fishing Areas to Leasing

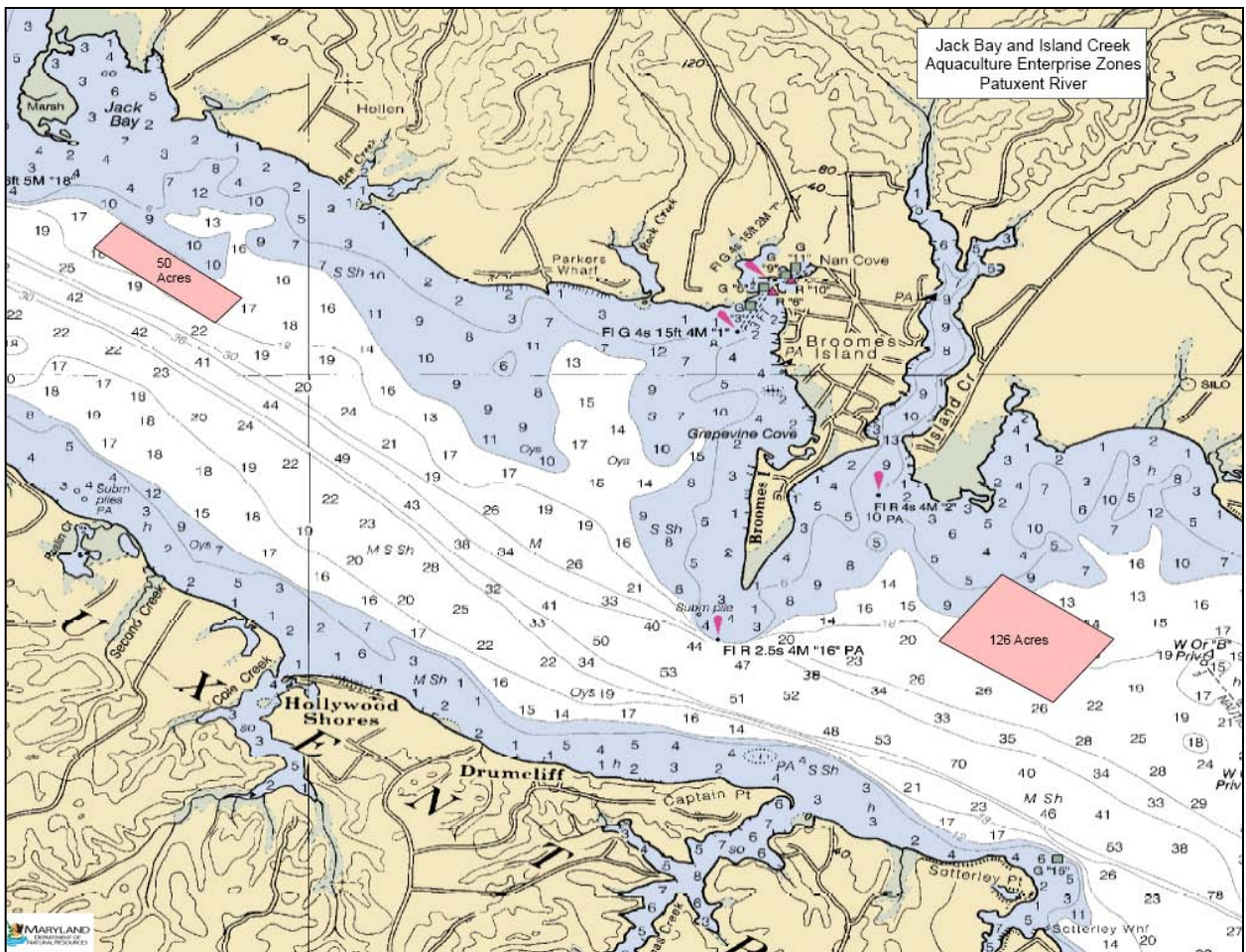
The Department will consider opening sections of the established PSFAs to leasing if the following criteria are met. For instance,

- The area must have less than 2 market oysters per square meter, as measured directly by DNR approved biologists,
- The area must not be in prohibited waters,
- The area must be 10 acres or less in size, and
- The area must meet all other requirements for the establishment of new leases.

The exact criteria have not yet been established. These are just a few examples of how the Department may choose to select new areas to open for leasing.

# Aquaculture Enterprise Zones

Aquaculture Enterprise Zones (AEZs) are areas of the Chesapeake Bay where the leasing process is streamlined to facilitate on-bottom and water-column shellfish aquaculture.



The map above shows the first AEZs that the Department established in 2009.

# Aquaculture Enterprise Zones

## Questions & Answers

Q: I have learned the Department of Natural Resources is encouraging oyster aquaculture by introducing Aquaculture Enterprise Zones (AEZ).

A: Yes, Aquaculture Enterprise Zones are defined areas the Department has pre-approved and identified through regulation as submerged bottom land available for Shellfish Aquaculture.

Q: How are AEZ areas selected?

A: Through cooperation with the Aquaculture Coordinating Council, local watermen, and nearby interested parties.

Q: How do I get permission to use an AEZ?

A: Submit an application to the Maryland Department of Natural Resources. The first of these areas is expected to be available in 2010. Anyone can apply to use an AEZ, but 25% of each AEZ is reserved on a first-come, first served basis for licensed watermen.

Q: How much does it cost to apply for a permit to use an AEZ?

A: The application fee for an AEZ will be comparable to that for bottom leasing (\$300 one time application and \$3.50 /year).

Q: I know an area that would be great for an AEZ, who do I talk to?

A: Leave a comment today, or call Katie Busch (410) 260-8342.

# Aquaculture Development

- In 2004 the oyster Environmental Impact Statement was initiated to evaluate oyster restoration and industry revitalization alternatives.
- In 2007 the Oyster Advisory Commission found that the greatest opportunity for expanding the economic production of oysters in Maryland is through privatization and aquaculture.
- In September 2008, the Maryland Shellfish Aquaculture Plan was developed and published through the Maryland Department of Agriculture (MDA) in consultation with the MD DNR, Maryland Department of the Environment (MDE), Department of Health and Mental Hygiene (DHMH), Maryland Aquaculture Coordinating Council, and the Board of Public Works.
- Recommendations from this plan and the Oyster Advisory Commission about how to develop a sustainable shellfish industry while creating opportunity for prospective aquaculture shellfish growers in Maryland waters were implemented into Senate Bill 271/House Bill 312.
  - This bill passed both the houses unanimously and was made into law on March 24, 2009.
  - The law outlines the requirements for prospective and current shellfish leaseholders.

# Previous Challenges for Leaseholders

Lack of bottom available for leasing - Under the new legislation, areas that were previously unavailable for leasing will be available, including bottom in several Eastern Shore counties.

Financial resources - Several funding sources will be able to provide assistance to those getting started with aquaculture operations in Maryland. Some amount of training will be required before funding is made available

Larvae and spat on shell availability - Larvae and spat on shell oysters will be available from State hatcheries and private companies. In addition the Department will help establish several "remote-setting" facilities across the State where individuals can cooperatively set their own oysters using eyed larvae from hatcheries.

Complicated and lengthy permitting process - The establishment of the first state Aquaculture Enterprise Zones in 2009 provided a streamlined process by which individuals can lease bottom without obtaining their own permit.

Enforcement - Theft of oysters from leased bottom has always been a great concern, particularly in the more remote areas of the lower Eastern Shore. DNR is working to address enforcement issues utilizing a variety of new methods including new monitoring technologies.

# Changes for Current Leaseholders

- Leaseholders must **actively use** the leased area for commercial purposes. Active use is defined as annually planting at least one-fourth of the leased area at a minimum density agreed to by the Department. The deadline for submitting an alternative use plan to DNR for review was December 31, 2009.
- Leaseholders must **pay an annual rent** of \$3.50 per acre of leased area.
- On or before January 1 of each year each leaseholder must **provide a detailed written report** documenting the active use of the lease during the prior year.
- **Failure to comply with these regulations will result in forfeiture of the shellfish lease.**

# Current Leaseholders

## Questions & Answers

Q: My lease does not run out for 9 years, do the new rules apply to me?

A: Yes. Existing leases are not exempt. All leaseholders must abide by the new law.

Q: I have heard that demonstration leases are going to be set up all over the bay, and that these leases will block out those who really want to do aquaculture. Is this likely?

A: There probably will be a network of demonstration leases over time, but these are limited to 5 acres and can only be held by specific kinds of groups who must actively use them. The Department has considerable discretion in granting leases, and care will be taken to avoid the abuse of this kind of lease.

# Current Leaseholders

## Questions & Answers

Q: I do not have anything growing on my lease now, How long do I have until I need to plant oysters on my lease?

A: The Department expects leases to be used for oyster aquaculture production in 2010. At least one fourth of the leased area must be planted, at a minimum density agreed to by the Department.

Q: Can I transfer my lease, or reduce the size of an existing lease in order to comply with the new law?

A: Yes. Forms are available to transfer leases upon request. Leases can also be reduced in size in order to meet the new requirements.

Q: Will any funding be available to offset some of the start up costs of an aquaculture business?

A: Yes, some funding will be available to offset the costs of getting up and running. Training will be required before money will be made available. If interested in training opportunities, contact Katie Busch at the MD DNR, (410) 260-8342

# Current Leaseholders

## Questions & Answers

Q: My lease is in an area proposed to be closed as part of the expanded sanctuary network. If the area does become a sanctuary, will I still be able to use my lease.

A: Yes, leases that are within a new proposed sanctuary will be "grandfathered in" and leaseholders would still be able to use them under the terms of the new law.

Q: My lease is in a body of water that has been classified as restricted (commonly referred to as 'polluted') by Maryland Department of the Environment. Do I need to comply with the changes set forth by the new law?

A: Yes. Individuals with leases in restricted waters will not be exempt from the new requirements. Oysters grown in restricted waters must go through a "relay" before they can be harvested for sale. More information about the relay process can be obtained from the Maryland Department of the Environment.

# Current Leaseholders

## Questions & Answers

Q: Where can I buy oysters to put on my lease?

A: Seed oysters are available at the following locations.

### MD Public Facilities:

Horn Point-Cambridge, MD 410-228-8200

Piney Point-Piney Point, MD 301-994-0241

### MD Private Facilities:

Consult Don Webster, NOAA Sea Grant MD  
Cooperative Extension Service/Aquaculture Agent,  
for a current list of suppliers

Q: Where can I buy shell to put on my lease?

A: Shell will be available this spring through the

Department. Please contact Katie Busch at (410) 260-8342, to be added to the Department's interest list.

# Current Leaseholders

## Questions & Answers

Q: What costs are involved in setting up a lease?

A: The Maryland Department of Natural Resources requires a non-refundable \$300 application fee to accompany the application form. If the lease is granted, there is an annual fee of \$3.50 per acre for submerged land lease. The rate is subject to change.

The Maryland Department of Environment jointly with the Army Corps of Engineers and Board of Public Works require a Tidal Wetland License for off bottom leases and leases within the Coastal Bays. Their application fee is \$750. Other fees may also be assigned.

Q: How long will it take between sending the lease application and being able to work the lease

A: For areas outside of an aquaculture enterprise zone, expect the process to take at least 3 months but up to a year.

# Current Leaseholders

## Questions & Answers

Q: What if fishermen damage my oyster plantings?

A: It is illegal for anyone to damage or disturb the gear or product on leased bottom. However, in the hundreds of years of leasing throughout the Northeastern United States, only a handful of conflicts have occurred. In most cases, resolution was simple and successful. In the states with the most extensive aquaculture, recreational fishing groups and aquaculture peacefully coexist.

Q: I want to establish a lease in a popular fishing area. Will I be able to do this?

A: All new lease applications go through an extensive, multi-agency review process that takes other uses into account. If a lease is proposed in an area known to be very popular for angling, the Department is very likely to oppose the establishment of the lease in order to minimize stakeholder conflicts.

# Landowner Concerns

## Questions & Answers

Q: I live on the water near Cambridge. Leases have not been allowed in the Choptank for many years. Now that someone can lease the water in front of my house, I'm concerned about how this will affect my property value and quality of life.

A: If someone requests a lease directly in front of your property, you will be notified by mail. You will be able to examine the details of the proposed lease and you'll have the opportunity to protest the lease during the public notice period. If you can demonstrate that the lease will have an adverse affect upon your property, the Department can deny the lease, request that it be moved, or limit use of the lease in other ways.

# Interested in a new Lease?

Q: When can I apply for a new lease?

A: The Department is working on a series of regulations that are expected to be in place by May, 2010. Applications can not be accepted until that time. Applications will be accepted on a first come, first served basis.

Q: Can I place my name on a waiting list?

A: No waiting list will be kept. The Department will announce the opening of the lease program publicly and will not accept lease applications until that time. If you would like to be personally contacted, please provide us with your name and phone number.

Q: How can I tell what areas are open for new leases?

A: Three steps: (all will be on the Shellfish Program website)

First, consult the public shellfish fishery area maps.

Second, consult the shellfish closure areas.

Third, contact Steve Schneider (410.260.8329) or Katie Busch (410.260.8342) at the MD DNR to see if the area has already been leased.

# Interested in a New Lease?

Q: What is the process for submitting an application for a new lease?

A: The landowner shall stake out the corners of the area of interest and submit a complete application (including plan of use in accordance with the new law) to the Department with a non-refundable \$300 application fee.

Q: What is the process for approval of an application for a lease?

A: If a lease application meets the requirements of the new law, the Department will advertise the application on the DNR website and in the newspaper for 4 weeks. We will also notify adjacent landowners and the Chair of the appropriate County Oyster Committee. A 30-day protest period will follow. The Department will then survey the area of interest to verify that it is not located in an area off limits to leasing. When all of these requirements are met, the Department shall issue the lease.

We encourage you to provide us with any additional suggestions for us as we implement the Oyster Restoration and Aquaculture Development Plan

Please remember to keep in mind DNR's

### Oyster Management Goals:

1. To establish an expanding and sustainable population of native oysters in significant portions of Chesapeake Bay and its tributaries.
2. To establish a private aquaculture industry that emerges as a major economic contributor to the State of Maryland while maintaining a more targeted and scientifically managed wild oyster fishery.

# What is the Timeline for this Proposed Plan?

The Department is holding 4 open houses around the State. When these are completed suggestions and comments will be reviewed

The Department plans to submit a regulatory proposal in February of 2010 to address the Oyster Restoration and Aquaculture Development Plan.

There will be a 30 day public comment period in April 2010 that will include public hearings.

The DNR will review comments and submit proposed regulations following the comment period.

If adopted, the regulation may be effective as early as May 31, 2010.

# Did you forget to tell us something?

If you have thought of issues we may have missed related to implementation of the Oyster Restoration and Aquaculture Development Plan, please provide us with your comments. You can submit one of three ways:

1. Write your comments down and mail them to us:

DNR- Fisheries Service

Oyster Comment

580 Taylor Ave. B-2

Annapolis, MD 21401

2. Write your comments down and fax them to us:

410-260-8310

3. Submit your comments to:

[fisheriespubliccomment@dnr.state.md.us](mailto:fisheriespubliccomment@dnr.state.md.us)

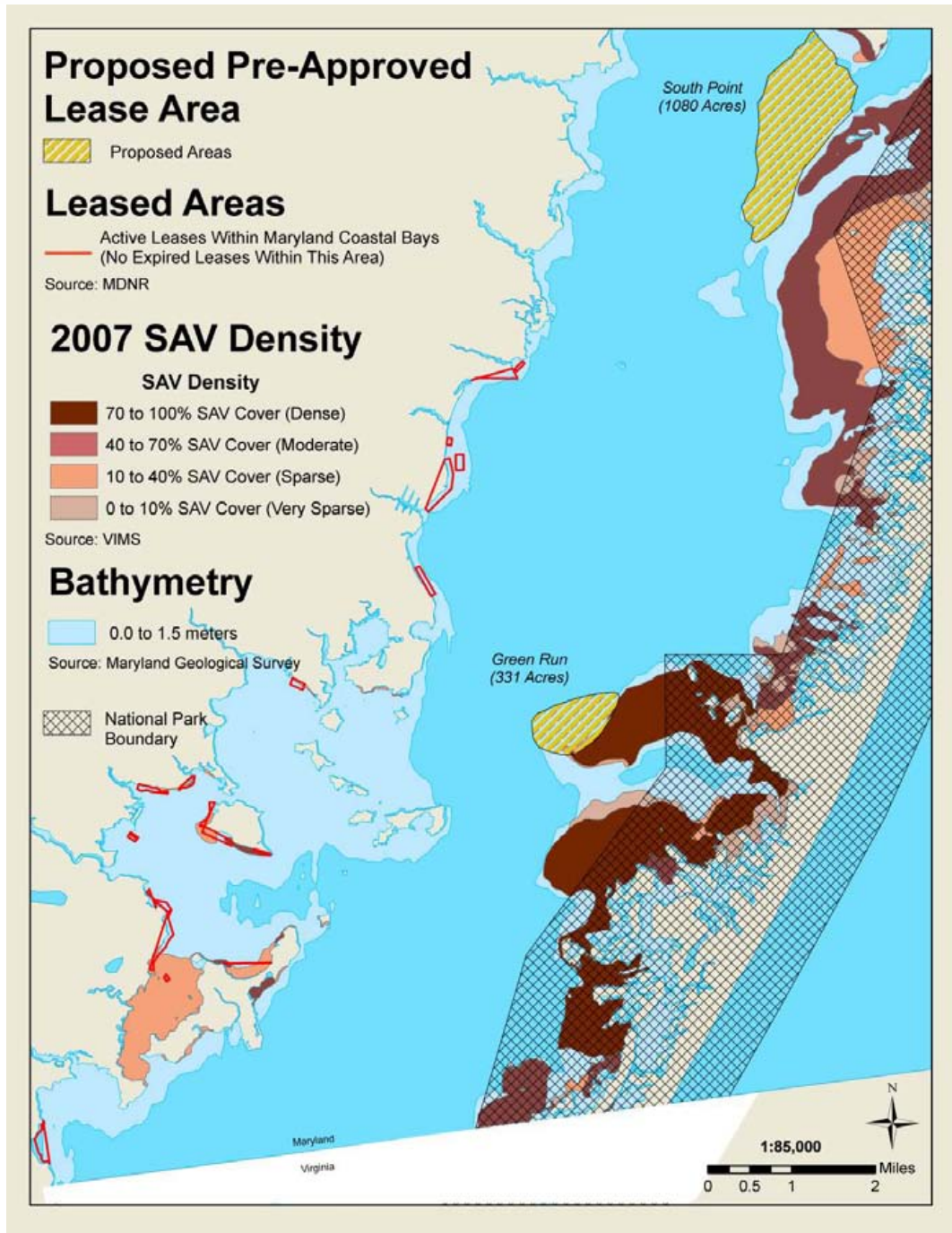
# Oyster Harvest Reports

Month February 2009-2010 MARYLAND MONTHLY OYSTER REPORT

| Date   | Number of Bushels Harvested | Gear Type<br>(please specify hand or patent tongs and power or sail dredge) | Oyster Bar or Bars Where Caught<br>(if name is unknown list nearest point of land) | To Whom Sold<br>(Registered Buyer License Number) | Port Or Creek Of Landing |
|--------|-----------------------------|---|--|---|--------------------------|
| 2/1/09 | 12                          | Power Dredge  | Crab Point (Honga River)   | 17024   | Hoopers Island           |
| 2/4/09 | 12                          | Power Dredge  | Back Cove (Tangier Sound)  | 17024   | Deal Island              |
| 2/8/09 | 12                          | Power Dredge  | Northwest Middleground (129)   | 53939   | Cristfield               |
|        |                             |   |  |   |                          |

- **The DNR needs this information to track the number of oysters being harvested from the Bay and where those oysters are coming from.**
- **Please be as specific as possible when referring to bar names, especially when there is more than one bar with the same name in the Bay (Middleground, Flat Rock, etc.).**
- **Include the bay, river or creek, or the NOAA code AND the bar name. Please do not write "Tangier Sound" or "South River" without including a bar name.**
- **Refer to the names in the official historic oyster bar book whenever possible, available on-line at: \_\_\_\_\_ . Please provide the GPS coordinates if a bar is not listed anywhere on these charts.**
- **Always record the license number of the buyer to whom you sold your oysters.**

# MD Coastal Bays Proposed Aquaculture Leasing Map



Leasing will be allowed throughout Chincoteague Bay except within SAV beds and the Assateague Island National Seashore boundary. The areas in yellow on the above map are proposed to become pre-approved for leasing, streamlining the leasing process for people looking to get into aquaculture in the Coastal Bays.

# Coastal Bays Leasing

## Questions & Answers

Q: How does a Pre-approved area in the Coastal Bays differ from an AEZ in the Chesapeake?

A: The Chesapeake AEZ allows for leasing both the bottom and the water column. The Coastal Bays Pre-approved areas only permit bottom leasing.

Q: How may I harvest the shellfish on my lease?

A: A person may harvest shellfish planted on leased areas using any method deemed appropriate (In the Coastal Bays, hydraulic escalator dredges are prohibited).

Q: Can I use bags or nets to grow shellfish in the Coastal Bays?

A: The law allows the use of "temporary protective enclosures" approved by the Department on the surface of the submerged land. It is anticipated that plastic mesh bags may be used in the Coastal Bays pre-approved areas.

# Coastal Bays Leasing

## Questions & Answers

Q: How will the pre-approved areas in the Coastal Bays affect navigation?

A: Both pre-approved areas are in shallow water (primarily 5' or less) and well away from navigational channels. We do not anticipate any negative impacts on navigation.

Q: Will the South Point pre-approved site have any impacts on nearby landowners and the public launch at South Point?

A: The leased area is over 800' away from the shoreline, and more than three football fields away from the nearest house. The leases themselves may not even be visible from shore, and noise and aesthetic conflicts are expected to be minimal at that distance. The great distance from shore will also allow boaters moving between Newport Bay and Sinepuxent Bay to transit between the shoreline and any leases.