



Bay Grass Restoration Partnership Newsletter



Issue 4

Fall 2006

Special points of interest:

- Eelgrass seeds dispersed over 37.4 acres on the Potomac River and 25.8 acres on the Patuxent River to date
- Bay grasses subjected to numerous meteorological and hydrographic events in 2006
- Several million sago pondweed, redhead grass and wideon grass seeds collected for experimental restoration project
- Over 230,000 oyster spat added to Harness Creek oyster reef in September 2006



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Maryland DNR's Bay Grass Restoration Continues on the Potomac and Patuxent Rivers

In order to achieve Governor Ehrlich's goal of abundant bay grasses in the Chesapeake Bay and jumpstart bay grass populations, the Department of Natural Resources (DNR) Resource Assessment Service is continuing its large-scale eelgrass restoration activities on the Potomac and Patuxent Rivers.

Eelgrass reproductive material was collected from Tangier Sound near Crisfield, MD this past summer.

Most of the seed collection was done by SCUBA divers manually picking reproductive shoots instead of using a harvesting boat as in previous years.

Approximately half of the harvested eelgrass seed material (216,000 eelgrass seeds) was utilized for immediate distribution simulating natural eelgrass seed dispersal. The

freshly collected seed material was placed into mesh bags and deployed allowing for seeds to mature and settle to the bottom in suitable restoration areas. 0.2 acres were seeded on the Potomac River near St. George Island and 0.07 acres were seeded on the Patuxent River near Parrans Hollow using this technique. Seeding densities were 800,000 seeds per acre at each site and were 2-3 times greater than last year.



Maryland DNR scientist deploying seed bags in bay grass restoration area

The remaining eelgrass seeds (approximately 257,000 seeds) were processed at DNR's Piney Point Aquaculture Facility and will be available for restoration activities in the high salinity waters of the lower Potomac and Patuxent Rivers this fall.

The eelgrass reproductive material was held through the summer in large tanks to allow

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2006 Meteorological and Hydrographic Impacts on Bay Grass

2006 was a year of several meteorological and hydrographic extremes. Freshwater flows into the Bay were considered near normal for Water Year 2006 (October 2005-September 2006), but flows varied widely. Since record keeping began in 1937, the United States Geological Survey (USGS) ranked January, June, July and September

2006 freshwater flows in the top ten highest, with flows in March, April and May ranked in the lowest ten since 1937.

In late June, the region experienced the remnants of Tropical Storm Alberto, which drenched the Northeast for five days. Some

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DNR and Anne Arundel Community College Working to Develop Restoration Techniques for Mid-Bay Species

Over the last several years, DNR has focused primarily on collecting eelgrass seeds for large-scale bay grass restoration. DNR biologists, along with Dr. Steve Ailstock and staff from Anne Arundel Community College (AACC), are now working to refine and develop large-scale bay grass restoration techniques in lower salinity waters of the Chesapeake Bay.

In order to expand the spatial range of bay grass restoration, several million widgeon grass, redhead grass and sago pondweed seeds were collected this past summer for experimental restoration technique development.

Harness Creek Oyster Monitoring

Maryland DNR recently completed the third year of oyster monitoring on the Harness Creek oyster reef. DNR scientists assessed the overall health of the oysters, as well as growth and presence of disease (Dermo and MSX) in June and August 2006. The oyster population has remained stable since June 2004, and the mean oyster length has increased by 8 millimeters (0.3 inches). An additional 238,000 spat (on shell) were added to the reef in September 2006 with help from the Chesapeake Bay Foundation, which also set and supplied the oyster spat.

Ground-truthing for bay grass restoration site selection was also performed by DNR biologists this past summer. Once the enlarged oyster reef provides significant increases in water quality, bay grass plantings will take place inshore of the oyster reef.



Oyster spat (baby oysters) on shell



Chesapeake Bay Foundation vessel, the *Patricia Campbell*

Maryland DNR began monitoring water quality conditions in Harness Creek in 2003 and is currently tracking improvements in water quality as a direct result of the oysters, relative to the habitat requirements of bay grasses for future grass transplants.

For more information on the Harness Creek project, please visit http://www.dnr.state.md.us/bay/sav/restoration/coupling_oyster_future_sav_restoration_report.pdf.

DNR Staff Visit New Germany Reservoir to Address Nuisance Aquatic Plants

DNR Resource Assessment Service staff visited New Germany Reservoir on June 14, 2006 to address citizen complaints of aquatic plants that were interfering with swimming and boating activities. A dense growth of Naiads (*Najas sp.*) was found carpeting the reservoir bottom.

Naiads are native to freshwater areas of the Chesapeake Bay and some species are considered to be excellent food sources for waterfowl. All parts of the plants (stems, leaves and seeds) are eaten by a variety of waterfowl including lesser scaup, mallards and pintails.

In order to control the plants, DNR recommended hand removal or a partial winter drawdown rather than herbicides or dredging as potential options. For more information please contact Mike Naylor (410) 260-8652 or mnaylor@dnr.state.md.us.

Wild Celery Seed Collection

DNR staff recently completed its annual wild celery seed harvest in the Middle and Gunpowder Rivers. Approximately 250,000-500,000 wild celery seeds were collected in September and October. The seeds are currently being stored for later use in the Bay Grasses in Classes program and other bay grass restoration projects in the spring of 2007.

Large-scale Restoration

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Eelgrass seed material

for the eelgrass seeds to separate from the non-seed material. After separation, the seeds were stored in re-circulating tanks and set at a constant temperature and salinity.

These new storage techniques at the Piney Point Aquaculture Facility have improved eelgrass seed survival from 20% to 80%. The seeds will be planted later in the fall on the Potomac and Patuxent Rivers when water temperatures drop below 59°F.

Maryland DNR continues to develop and implement techniques for large-scale bay grass restoration in strategic locations to help achieve Maryland's restoration goals. For more information on Maryland DNR's large-scale eelgrass restoration projects, please visit <http://www.dnr.state.md.us/bay/sav/restoration.asp>.

Impacts

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scientists had feared that this deluge would cause bay grass destruction similar to that caused by Hurricane Agnes in June of 1972. Turbid conditions were present throughout the Bay following the storm, especially in the Susquehanna and Potomac Rivers. Satellite imagery showed that the upper reaches of these tributaries were still turbid nearly three weeks after the rain event, and the Susquehanna Flats remained turbid through the end of September. However, freshwater flows into the Bay were only about one third of what they were following Agnes, and grass beds throughout the bay did not seem to be severely affected despite the high turbidity. This period of high turbidity was a concern for bay grass researchers because sediment and nutrient runoff can block light from reaching aquatic grasses and lead to their decline.



Water Stargrass near the Susquehanna Flats in late August 2006

Field observations and aerial photographically indicated that the large-scale impact of the June rain event on bay grasses was probably minimal. Bay grass distribution and abundance in the upper Bay, particularly the Susquehanna Flats, was highly variable after the June rain event (some areas experienced increases in bay grass while others experienced small declines) making it difficult to determine the impact in the upper Bay. There seemed to be no apparent effects in the mid-Bay region, widgeon grass was abundant and eelgrass seemed to rebound in some areas, including the Potomac River. Dry spring conditions (low freshwater flow and sediment conditions) preceding the June rain event may have enhanced bay grass production, making it more tolerant of the high turbidity conditions experienced in June and July. Cooler summer water temperatures and drought-like conditions in the mid to late summer also benefited bay grass growth.

Tropical Storm Ernesto ended the two month drought period when it dumped 5.41 inches of rain near BWI airport and 7.47 inches near Salisbury in early September 2006. USGS stream discharge data indicated that some Eastern Shore streams received ten times more discharge than their historic daily medians during this event. The remnants of Tropical Storm Ernesto also caused a spike in salinity from a storm surge moving up the Bay, as well as increases in turbidity, especially on the Eastern Shore.



Eelgrass (forward) and widgeon grass (background) in the Potomac River in early October 2006

The impact of this event on the Chesapeake Bay's aquatic grasses is still being investigated. Preliminary field observations and aerial photography indicate that bay grasses seem to be persisting in the Potomac River, including the St. Mary's River, and in the upper Patuxent, Severn and Magothy Rivers. Little to no aquatic grass has been observed in Eastern Bay (except in Crab Alley Bay and Marshy Creek), the Choptank River, the Chester River and the Little Choptank River (except in Brannock Bay). Bay grasses in the upper Bay region, including the Elk, Bohemia and Sassafras Rivers and the Susquehanna Flats seem to have maintained 2005 densities.

Maryland DNR will continue to monitor bay grass abundance throughout the fall and winter months.

Noteworthy NEWS

Look for *Our Bay*, a new feature page in Annapolis' *The Capital* newspaper devoted to informing readers about the Chesapeake Bay and its ecosystem. *Our Bay* premiered on September 2nd, 2006 and will be published every second Saturday. The feature page is a partnership between *The Capital* and DNR's Office of Communications and Marketing, and originally developed from an idea of one of our tributary team members.



Several DNR Resource Assessment Service staff attended the Chesapeake Bay Watershed Restoration Fair on September 21, 2006 at Sandy Point State Park. The first ever event showcased over 90 exhibits from across the Chesapeake Bay Watershed and included Bay restoration representatives from Delaware, the District of Columbia, Maryland, New York, Pennsylvania, Virginia and West Virginia.



On October 3, 2006, Maryland DNR named 10 candidate watersheds being considered for the second coordinated effort to remove a Chesapeake Bay tributary from the Environmental Protection Agency's (EPA) List of Impaired Waters. The following tributaries were selected by the Departments of Natural Resources, Environment, Agriculture and Planning after a critical review:

- ◆ Magothy River, Anne Arundel County
- ◆ Lower Gunpowder Falls, Baltimore County
- ◆ Bird River, Baltimore County
- ◆ Middle River/Browns, Baltimore County
- ◆ Port Tobacco River, Charles County
- ◆ Bynum Run, Harford County
- ◆ Lower Winters Run, Harford County
- ◆ Atkisson Reservoir, Harford County
- ◆ Cabin John Creek, Montgomery County
- ◆ Miles River, Talbot County

The final selection will be made in December 2006. Maryland's first Targeted Watershed effort, the Corsica River Pilot Project, was named the best watershed-based plan in the nation in an EPA report earlier this year. Since September, 2005, DNR has allocated \$2.7 million to the Project and with its partners planted 10 acres of oysters, restored 4 acres of wetlands and 12 acres of forested buffers and planted 458 acres of traditional cover crops.



DNR Resource Assessment Service staff will present on a variety of topics at the 3rd National Conference on Coastal and Estuarine Habitat Restoration December 9-13, 2006 in New Orleans, Louisiana. The Conference will bring timely national attention to the challenges and opportunities to comprehensive coastal ecosystem restoration throughout the U.S., and especially in Coastal Louisiana and the northern Gulf Coast. Presentations and posters given by DNR staff include large-scale bay grass restoration in Maryland, Maryland's Bay Grass Restoration Targeting System, Bay Grasses in Classes and Coupling Oyster and Bay Grass Restoration.

Robert L. Ehrlich, Jr.,
Governor



Michael S. Steele,
Lieutenant Governor

Maryland Department of Natural Resources
Resource Assessment Service, Tidewater Ecosystem Assessment
Tawes State Office Building, D-2
580 Taylor Avenue
Annapolis, Maryland 21401
410-260-8630

C. Ronald Franks,
Secretary



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