PAUL S. SARBANES ECOSYSTEM RESTORATION
PROJECT at POPLAR ISLAND
ANNUAL UPDATE
January-December 2021

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Poplar Island Researchers - Please send any updates, findings, or occurrences of note that you have gathered from your monitoring project to Claire Ruark (MES) at cruark@menv.com or call 410-770-6505 so the information can be shared in the update. Also, due to limited boat capacity, when you schedule a site visit, please call ahead of time with the number of people in your party so transport arrangements can be made.

Operations and Expansion Update:

Figure 1. Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island

In preparation for the 2020/2021 maintenance dredged material inflow season, MES Operations staff constructed four weir box systems to move ponded water from Cells 8 and 10 into Cell 9 to be discharged through Spillway 19. MES Operations used a flowable fill concrete mixture to repair a design flaw in newly constructed Spillway 19 that would allow water to back-flow from the Bay into Cell 9. Separately, MES Operations repaired the collapsed dike slope adjacent to Spillway 19 by layering fabric, various sized stone, and sand to the United States Army Corps of Engineers (USACE) specifications. MES also repaired the Spillway 19 gate after a malfunction caused unintended discharge on August 11.

Inflow of maintenance material occurred April 29 through August 29, 2021. The USACE contractor, Cashman Dredging & Marine Contracting Co., LLC (Cashman), placed approximately 2.3 million cubic yards (mcy) of material into Cells 9, 10, and 11 (Table 1).

Table 1. Inflowed Maintenance Dredged Material 2020/2021

Inflow Point	Location	Project	Total Material Deposited (cy)
1	Cell 9	Baltimore Approach Channels	601,803
2	Cell 10		502,207
3	Cell 11		1,223,797
		Total Material:	**2,327,807 mcy**

Throughout the year, MES Operations managed the Cells 1D, 4, and 7 sand stockpiles for use in dike raising. MES designated the northeast corner of Cell 4C, near Spillway 9, as a long-term sand stockpile in Cell 4ABC. MES continued to move the remaining sand from Cell 4AB to the stockpile in Cell 4C. The target elevation for the sand removal is -2' to prepare Cell 4 for future cell development, specifically the expected dredged material inflow into the cell in the 2023/2024 dredging cycle. MES Operations began hauling the wetter sand from Cell 4ABC to Cell 11 for further drying over a large area. MES disked and then rolled the material to aid in drying and compaction. Density testing will be conducted to determine if the material has achieved compaction to the USACE's specifications. Additionally, Operations staff conducted trenching and crust management in Cells 1D, 2A, 2AX, 2B, 2C, 4ABC, and 6.

During the year, the USACE contractor, H&L Contracting LLC (H&L), completed work associated with construction of the toe dike and perimeter dike along upland Cell 11. The USACE contractor, Greener Construction Services, Inc., managed the water elevations in Cells 8, 9, and 10 until May 16. This allowed for MES Operations to reclaim usable sand from Cells 8, 9, and 10. MES also conducted dike sand slope erosion management along Cells 8, 9, 10, and 11.

Under the Poplar Island Expansion (PIE) Tidal Wetlands License (#15-0131[R2]), turbidity and noise monitoring associated with the management of water in Cells 8, 9, and 10 was conducted. Turbidity and noise monitoring concluded on May 16. PIE construction monitoring reports were submitted to the Maryland Department of the Environment (MDE) monthly, and there have been no noncomplying events related to PIE construction.

Monitoring Update:
MES continues to implement the MDE guidance on discharge monitoring procedures. Discharge this reporting period was associated with rainfall accumulation and the 2020/2021 inflow of maintenance dredged material into Cells 9, 10, and 11. There were three noncomplying events in 2021. One event was related to elevated metals (likely due to sampler error), one was related to ammonia and alkalinity (due to sample handling error), and one was due to a spillway gate malfunction causing the unintended discharge of water with high pH and high turbidity.

MES Environmental staff continued collecting nutrient load data for Poplar Island throughout the reporting period. Nutrient data is collected on a monthly basis from representative spillways and inlets, and daily from all spillways during times of discharge. The data will serve as a management tool to assist in development of Best Management Practices (BMPs) when Total Maximum Daily Load (TMDL) allocations are assigned for Poplar Island.

Additionally, mass balance nutrient monitoring was introduced during the 2014/2015 inflow season and has occurred during subsequent inflow seasons until the 2019/2020 inflow season. This monitoring did not occur during the 2020/2021 inflow season due to the location of the inflow points in the PIE. TMDL and

mass balance sampling is currently conducted in cells with historical discharge data in order to better recognize trends. PIE spillways may be added to the monitoring plan in the future. This monitoring will help determine whether development of the Poplar Island project sequesters nutrients from the dredged material.

Vegetated Wetland Cells:
Per the MDE-approved monitoring plan, water quality monitoring in Cell 5AB was discontinued as of May 2021.

Table 2. Vegetated Wetland Cells Development Timeline

Wetland Cell	Cell 4D	Cell 3D	Cell 1A	Cell 1C	Cell 1B	Cell 3A	Cell 3C	Cell 5AB	Total Acres of Wetland
Last Dredged Mat. Inflow (month, year)	NA	Jan. 2003	Mar. 2006	Mar. 2006	Mar. 2006	Apr. 2007	May 2010*	Jan. 2012	
Opened to Tidal Flow (month, year)	Apr. 2003	Mar. 2005	Mar. 2009	Jan. 2011	Feb. 2012	Oct. 2014	Sep. 2015	Nov. 2017	
Completed Planting (month, year)	Aug. 2003	Jun. 2006	Sep. 2009	Jun. 2011	May 2012	Jun. 2015	Jul. 2016**	Jun. 2018	
Date Last Monitored (month, year)	NA	April 2016	April 2016	April 2016	April 2016	April 2018	May 2019	May 2021	
Acreage	24	32	45	40	36	55	57	83	372

*2010 inflow of sand from Poplar Harbor channel dredging.
**12 acres damaged by bird predation replanted in 2018.

Framework Monitoring Update:
Beginning in June 2021, routine community algae analysis was replaced with Harmful Algal Bloom (HAB) specific monitoring. Algae samples were collected at all spillways with ponded water and were analyzed for the presence of potentially toxigenic (PTOX) cyanobacteria and analyzed for toxin, if necessary, by GreenWater Laboratories. As per the monitoring plan, monitoring for signs of the establishment of a HAB was conducted in Cell 6. MES conducted weekly monitoring at Spillway 16, including the use of either a handheld fluorometer or handheld cyanofluor to measure the concentration of phycocyanin, a unique pigment found in blue-green algae.

During the reporting period, algae samples contained concentrations of *Dolichospermum* sp., *Limnospira* sp., *Anabaenopsis* sp., and *Phormidium/Microcoleus* spp., all harmful algal species. Toxin analyses showed results were non-detect, with the exception of the sample that contained *Phormidium/Microcoleus* spp. A sample collected on August 11 in Cell 10 (connected to Cell 9 to be discharged through Spillway 19) had a saxitoxin concentration of 0.11 ppb. The Environmental Protection Agency (EPA) does not currently have guidelines for a no contact threshold for saxitoxin, however the World Health Organization (WHO) has a provisional recreational guidance value of 30 ppb. At the time, Spillway 19 discharge was limited due to the water quality conditions caused by the algal bloom. Out of precaution, discharge was put on hold until a follow-up sample toxin analysis was completed on September 30; the toxin result of this sample was non-detect.

From August 2 to October 22, MES and the United States Fish and Wildlife Service (USFWS) collected 75 individuals as part of an avian and muskrat mortality response. One bird and one muskrat were sent to the National Wildlife Health Center (NWHC) for analysis. Aspergillosis was confirmed and suspected to

have affected the majority of the individuals collected. The species most affected were gulls, followed by muskrats, and were primarily collected in the PIE and Cell 3C.

This season, the United States Geological Survey (USGS), with USFWS assistance, continued conducting surveys of Poplar Island's target nesting bird populations (Figure 2). Tern pair counts were higher for Common Tern (455) and Least Tern (339) this year compared to last year (383 and 297 in 2020, respectively). Most of the Common Tern nests were located in the northwest corner of Cell 2C, with additional colonies on the east side of Cells 2C and 11, Cell 7, and on the habitat islands in Cells 1B and 3C. Most of the Least Tern nests were located on the east and northwest sides of Cell 11, with additional colonies in the northwest corner of Cells 2C and 7, and the west side of Cell 1D. USFWS attracted terns to the northwest corner of Cell 2C and the PIE embayment breakwaters, to allow for ongoing construction activity in other locations of the PIE, including the 2020/2021 maintenance dredged material inflow. For the ninth year, the USGS conducted a banding and resighting program in order to better document tern fledging success. In 2021, 550 Common Tern chicks and 299 Least Tern chicks were banded, an increase from 521 and 164 in 2020, respectively.

In order to continue accessing PIE construction sand, tern and bank swallow nesting activity was carefully managed. USFWS advised MES when managing the sand stockpiles to leave slopes instead of sheer cliffs (in which bank swallows will nest), and to continue activity in certain areas to deter tern nesting. This season, a few areas within the Cells 1D, 4ABC, and 7 stockpiles were set aside as tern and bank swallow nesting areas, while the rest of the stockpiles were actively managed without nesting issues.

The USGS and the USFWS surveyed nesting populations of Osprey, Snowy and Cattle Egrets, and Double-crested Cormorants (DCCO) on and just offsite. The site's colonial nesting waterbirds and target nesting birds continue to nest successfully on Poplar Island. Osprey pairs increased to 24 active pairs on Poplar Island and Poplar Harbor in 2021 (compared to only 9 in 2020).

Figure 2. 2021 Poplar Island Bird Nesting Map

MES continues bimonthly bird surveys for the entire site and confirmed 31 nesting species onsite for the 2021 season with six more suspected (species whose behaviors have indicated breeding or a possible nest nearby, but no nests or young were found). Onsite nesting species include Canada Goose, Northern Shoveler, Gadwall, Mallard, American Black Duck, Virginia Rail, Common Gallinule, Black-necked Stilt, Killdeer, Willet, Herring Gull, Great Black-backed Gull, Least Tern, Common Tern, DCCO, Snowy Egret, Little Blue Heron, Cattle Egret, Black-crowned Night-Heron, Glossy Ibis, Osprey, Fish Crow, Tree Swallow, Bank Swallow, Barn Swallow, Carolina Wren, Marsh Wren, Brown Thrasher, European Starling, Seaside Sparrow, and Red-winged Blackbird. Outstanding bird occurrences throughout the reporting period included first site records of Downy Woodpecker, American Woodcock, Red Phalarope, Blue-headed Vireo, Sedge Wren, Brown Thrasher, a state high count of Nelson's Sparrows (18) away from coastal Worcester County, confirmed Gadwall nesting (the first record for Talbot County) on the newly monitored Cell 3C high marsh hummocks, and rarities including: Eared Grebe and Purple Sandpipers in January, American Golden-Plover in April, Red-necked Phalarope, Red-throated Loon, and Tricolored Heron in May, American White Pelicans observed in May and June, Ruby-throated Hummingbird and a pair of American Goldfinches in June, Sandwich Tern in July, Clapper Rail and Snowy Owl in November, and Cackling Goose in December. Bird censuses performed at Poplar Island during 2021 had daily bird counts that ranged from 1,301 birds utilizing the site during a March survey to 6,591 birds onsite during a January survey.

In December 2020, a Bald Eagle pair was observed on an Osprey nest on a weir structure located in Cell 7 (NE corner). They were seen on the structure daily, often loafing and bringing sticks back to the structure. Due to the location of the nest, restrictions related to the Bald and Golden Eagle Protection Act could affect Federal and State activities, both directly and indirectly, resulting in large financial impacts to the project. Therefore, through consultation with the regional USFWS permitting office, it was advised to apply for an incidental take (disturbance) permit. The permit was received on March 3, 2021 and included restrictions such as avoiding pedestrian traffic within 330 feet of the nest and avoiding pausing when traveling within 660 feet of the nest during breeding season. As of March 23, 2021, the nest was abandoned by the eagles and no eggs were laid. Through additional consultations with the regional USFWS permitting office, it was decided to apply to amend the original permit, so that the nest and the structure itself can be removed. The amended permit was received on November 23, 2021, and the structure was removed on December 2, 2021. The amended permit also allows for USFWS and MES field crew to remove sticks from all onsite man-made structures where nests have been unsuccessful. The permit will be in effect for four nesting seasons. Monthly eagle monitoring throughout the nesting season (December 15, 2021 – June 30, 2022) will be conducted by USFWS field crew or MES Environmental staff.

Poplar Island was registered as a Monarch Waystation in 2016. Since then, USFWS has monitored both butterfly and milkweed presence in each developed wetland cell in the summer and early fall. In 2021, a continued monarch tagging effort was conducted to provide data on sex ratios, migration patterns, weather influence, and mortality rates. During the 2021 season, 491 monarchs were tagged onsite. USFWS noted milkweed becoming more abundant onsite, and three species of milkweed are now documented in the developed wetland cells. The 2020 Endangered Species Act listing status was reviewed and determined the monarch is a candidate species and therefore warranted to be listed but precluded by high priority listings. Annual review of this status will be conducted. For this reason, and the fact that Naled, the insecticide used to control adult mosquitoes, also impacts non-target organisms including butterflies, USFWS recommended that mosquito aerial sprays should be restricted during monarch migration. In 2021, aerial sprays were restricted between September 14 and October 15; however, the restricted dates may be adjusted annually depending on migration activity and USFWS field crew onsite monarch survey data.

During May, July, and September, the USFWS conducted seasonal monitoring of submerged aquatic vegetation (SAV) in Poplar Harbor, Cell 5AB pond, and reference areas. USFWS reported 32% cover in Poplar Harbor in May 2021, as compared to 27% in May 2019 (USFWS was unable to conduct monitoring in May 2020 due to USFWS' COVID-19 restrictions). In July and September, SAV was detected only in

the reference areas.

In 2021, USFWS began monitoring the eight high marsh hummocks located in Cell 3C to track wildlife usage and the success of vegetation plantings. USFWS documented five mammal species (house mouse, white-footed mouse, meadow vole, muskrat, white-tailed deer) and 17 avian species, five of which were found to be nesting (Mallard, Gadwall, Herring Gull, Red-winged Blackbird, and Marsh Wren) using the hummocks. Vegetation percent cover was >80% on seven of the hummocks. Twenty-two species of vegetation were documented, mostly grasses and forbs. *Iva frutescens* and *Baccharis halimifolia* were the dominant shrub species recorded. This monitoring will occur again in 2022.

The University of Maryland Center for Environmental Science (UMCES) continued collecting rod-Surface Elevation Table (SET) data in order to track accretion rates within the marshes. The accretion rates vary between wetland cells and within cells; generally, areas closer to the inlets are keeping pace with sea level rise (SLR) better than areas further from the inlets. Most accretion rates within the low marsh at Poplar Island are above the current rate of SLR reported for Annapolis (4.04 millimeters per year). However, the lowest rates are occurring along the edges of expanding creeks in Cells 3D and 1A, where erosion is present, and the Cell 1B mudflat. The high marsh rates of accretion are slightly lower than SLR but are still mostly keeping pace with the rate of SLR. UMCES plans to analyze data further to examine drivers of variability, including but not limited to, elevation, annual biomass production, and distance of the SET from the inlet.

During 2021, MES Survey leveled (i.e. obtained NAVD88 elevations of) all of the SETs on Poplar Island. All SET measurements now can be converted to elevations, allowing comparison of rates of elevation change to tidal datums and Poplar Construction Datum (PCD).

The National Oceanic and Atmospheric Administration (NOAA) conducted spring, summer, and fall nekton monitoring in June, July, and September. NOAA reported that results from 2021 monitoring show abundances of nektonivorous, non-nektonivorous, and total fish within restored wetland cells that have a large pond close to the inlet (such as Cells 3A, 3C, and 5AB) are similar to one another and to reference marsh creeks. NOAA conducted embayment monitoring in 2021 and reported that the embayment was more productive in spring and summer than fall. The embayment acted as a secondary nursery for striped bass juveniles and subadults. NOAA suggested that lower fish abundance in the fall could indicate overfishing and recommends decreased monitoring frequency.

Ohio University (OU) reported a total of 241 nests for the 2020 diamondback terrapin nesting season. OU collected and processed 735 hatchlings in fall 2020; 11 were included in the Terrapin Education Research Partnership (TERP) Headstart program after the Maryland Department of Natural Resources (MD DNR) approved a request to modify the distribution to include being kept on Poplar Island and within the homes of some terrapin program partners, in order to deliver virtual terrapin-themed programming to students. In March, OU recovered 93 hatchlings from overwintering nests. Due to ongoing COVID-19 restrictions, there were no spring school terrapin release tours; however, the TERP partners conducted a terrapin release in May that met the COVID-19 social distancing guidelines.

OU reported a total of 254 nests for the 2021 diamondback terrapin nesting season; 14 nests were left to overwinter until spring 2022 and on April 1, 2022, 90 hatchlings were recovered. OU collected and processed 738 hatchlings in fall 2021; 128 hatchlings were included in the TERP Headstart program, where Maryland school children raise the hatchlings collected on Poplar Island in the fall and then release them onsite the following spring.

EA Engineering, Science, and Technology, Inc., PBC (EA) was onsite in October to conduct benthic and epibenthic monitoring. This monitoring is typically conducted every three years; however, was not conducted in 2020 due to budget reductions. Monitoring in 2021 included new locations within and around the embayment and PIE.

Wildlife and Invasive Vegetation Management:
Under a Federal Fish and Wildlife Depredation Permit, certain species continue to be managed on Poplar Island. Management of wildlife is conducted to ensure target species and their habitats are protected. In an effort to protect the site's vital waterbird nesting area, during the 2021 season, the USFWS controlled for 243 adult DCCO and 382 DCCO nests in Cell 3D. During the previous season (2020), Poplar Island's DCCO nesting colony increased significantly, with 2,839 pairs nesting on both the Cells 1A and 3D habitat islands (compared to nine nesting pairs on the Cell 1A habitat island in 2019). Nesting numbers decreased to 588 nesting pairs on the Cell 1A habitat island in 2021. In 2020, due to agency site access restrictions, USFWS was unable to prevent the DCCO from nesting on the interior of the historic waterbird nesting habitat island in Cell 3D until after they caused extensive vegetation damage. Since USFWS was unsure whether the vegetation on the Cell 3D habitat island would recover, they began to attract the waterbird colony (egret, heron, and ibis) to the vegetated habitat island in Cell 1C in 2020, which led to successful relocation of the colony in 2021. Due to the ongoing DCCO nesting attempts, low soil pH, and large amounts of debris and dead vegetation on the Cell 3D habitat island, MES obtained a burn permit for USFWS, and a burn was conducted in June on the habitat island to raise soil pH, and aid vegetation recovery for waterbird nesting in future seasons.

Gull control also occurred, with the removal of 115 individuals and the oiling of eggs in 503 nests. Twenty-six Canada Geese individuals and 13 nests were removed throughout the site, and two Great Horned Owls were removed from Coaches Island, with no evidence of nesting. Due to the large muskrat population recorded in winter of 2020, USFWS removed 201 muskrats from across the site.

During 2021, MES Environmental staff continued annual noxious and invasive control of bull thistle, Canada thistle, tree-of-heaven, mile-a-minute vine, and *Phragmites australis* throughout the site. Environmental staff also conducted maintenance vegetation removal of the sparsely vegetated habitat islands in Cells 1B and 3C, which included mechanical and chemical control. This is done in order to promote colonial waterbird nesting. Environmental staff continued to monitor mosquitoes on a monthly and an as needed basis during the 2021 season. When conditions are deemed uncomfortable for onsite staff, Environmental staff will conduct monitoring including trap counts to ensure that the Maryland Department of Agriculture (MDA) minimum action thresholds are met before requesting aerial mosquito control be conducted. One mosquito aerial spray was conducted on September 7, 2021, ahead of the monarch migration period.

Safety:
As discussed at the Poplar Island Working Group meetings, to ensure that all activities occurring on the project site are coordinated and everyone is following the appropriate safety procedures, it is required that all guests contact the site to inform staff of a visit at least one day in advance. This would also be the appropriate time to set up any transportation that is needed. Advanced coordination should also be made for those with their own boat transportation. Safety procedures include the wearing of high visibility vests at all times while not in a vehicle as well as closed-toed shoes with appropriate soles. Everyone must sign in when they arrive onsite.

For those researchers who are at the site during off-peak times, please contact the site to let them know when you will be onsite; a sign in sheet and safety vests will be provided for your use during those times. For safety reasons, if you are by yourself, you will need to be accompanied by an MES employee for the time you are on the island. While visitors are welcome, normal operations duties may make it necessary to postpone certain visits if enough notice is not provided.

Tours:
The 2021 tour season was suspended during part of the year due to COVID-19 restrictions. Tours ran from September 21, 2021 to October 29, 2021. There were 373 total visitors, 107 of these were birders.

Meetings, Media, and Noteworthy:
Site Operations meetings were held approximately every three weeks throughout the period including the USACE, the Maryland Department of Transportation Maryland Port Administration (MDOT MPA), MES, and Gahagan & Bryant Associates, Inc. (GBA).

The Poplar Island public website's URL is www.poplarislandrestoration.com. Features of the website include project goals, media highlights, photos and maps, current newsletter, link to the onsite weather station, wildlife link to Ebird.org, social media links for USACE, MDOT MPA, and MES, all documents, work cited for any articles, papers, or conferences related to Poplar Island, and a contact page that links directly to MES tour staff to schedule a tour.

The annual Habitat Subgroup meeting was held virtually on March 4, 2021. The Poplar Island semiannual Working Group meetings were held virtually on June 16, 2021 and November 10, 2021. Please check the project website www.poplarislandrestoration.com documents list or contact Alexa Poynter with MES at apoynter@menv.com if you would like a copy of the meeting summaries.

The following articles and presentations relating to Poplar Island were published and conducted throughout the reporting period:

- In January, February, March, April, August, October, and December, Kristina Motley (MES) and Ryland Taylor (MES) each presented "Poplar Island an international model of innovative reuse" to multiple groups including the Anne Arundel County Master Gardeners, Audubon Coastal Ecology, Chesapeake Bay Maritime Museum Volunteers, Irvine Nature Center, Stevenson University's Restoration Ecology Class, Heron Point Retirement Community, Naturalist Hour at Audubon Naturalist Society, and the Isaac Walton League.
- In January, media referencing Poplar Island included the following:
    - *Dredging Today* published an article titled "Poplar Island project – huge win for Baltimore's economy" about the project and its many benefits to the city of Baltimore.
    - The *American Journal of Transportation* wrote an article titled "MD Governor, Board of Public Works approve contracts to study use of sediment from Port of Baltimore shipping channels for innovative reuse" that discusses the recent approval for further study on sediments from shipping channels to assess their viability for innovative reuse.
    - Published on *Defense Visual Information Distribution Services* was an article titled "Poplar Island Ecosystem Restoration Expansion complete, open to accept dredge material" announcing the recent completion of the expansion and its ability to receive inflow in the upcoming season.
    - *Dredging Today* published an article titled "Poplar Island to continue receiving dredged sediment" covering how Poplar Island would be receiving inflow in the upcoming dredging season.
    - The *American Journal of Transportation* published an article titled "MDOT MPA, Army Corps of Engineers complete historic Poplar Island construction, begin planning for next island restoration at mid-Chesapeake Bay" that discusses the completion of the PIE and the shift of attention over to the Mid-Bay project.
- In February, Willem Roosenburg (OU) virtually presented a talk titled "Climate Change and Head-starting: Influencing Life Histories Turtle Speed Ahead" discussing the Poplar Island TERP program as part of Ohio University's Ecolunch series and also as a seminar for Woods Hole Oceanographic Institute.
- In February, *Chesapeake Bay Magazine* wrote an article titled "Poplar Island construction officially complete" that celebrates the completion of the expansion and the final major contract milestone for Poplar Island construction.

- In March, the *Capital Gazette* published an article titled "Poplar Island project is a big win for Chesapeake Bay" discussing the project and the ways that it benefits the Chesapeake Bay area.
- In July, Willem Roosenburg (OU) virtually presented a talk titled "Overcoming the Curse of Sisyphus: Progress in Terrapin Conservation" covering his work on Poplar Island at the Joint Meeting of Ichthyologists and Herpetologists" as the invited Plenary Lecture.
- In July, media referencing Poplar Island included the following:
    - *Chesapeake Bay Magazine* published an article titled "Return to Poplar Island" that provides an update on the project's recent progress and successes.
- In September, Lorie Staver (UMCES) presented a talk titled "The economic and ecological importance of Poplar Island" at Horn Point Laboratory for the group Leadership Maryland.
- In October, media referencing Poplar Island included the following:
    - *Chesapeake Bay Magazine* published an article titled "Poplar Island tern tracked all the way to Aruba" about a tern that was tagged and outfitted with a transmitter by USGS.
    - *Dredging Today* published an article titled "Improving Chesapeake Bay's health with dredge material" that discusses how the project will have long term benefits for Chesapeake Bay health.
- In November, Lorie Staver (UMCES) virtually presented a talk titled "Marsh response to environmental stressors: what can we learn from monitoring data?" at the Coastal and Estuarine Research Federation's 26th Biennial Conference.
- In November, Andrew Rapp (USGS) presented a talk titled "Use of automated video collection for the monitoring of colonially nesting wading birds" at the Chesapeake Watershed Forum in Shepardstown, WV.
- In November, *Bay Weekly* published an article titled "Creature Feature: Doing our part to protect diamondback terrapins" that mentions how the Poplar Island project is a great restoration project to help foster diamondback terrapin populations.