



Recent Reports Focus on Chesapeake Bay Trends and Health June 2016

Over the last quarter, numerous reports have been published regarding the current health of the Chesapeake Bay. A brief summary of those publications follow:

Reported Loads Dropping. During a recent conference, it was reported that nitrogen and phosphorus loads dropped 3% and sediment loads 4% from 2014–2015. The Bay TMDL aims to reduce levels of the pollutants by 20 to 25 percent. Nitrogen, phosphorus and sediment loads are down 8, 20 and 7 percent, respectively, from 2009–2015. According to EPA's CBPO, the Bay TMDL is "on track, generally speaking" to meet the long-term goal, though Bay-wide nitrogen levels exceeded the 2015 target.

Bay Report Card: C in Overall Health. The University of Maryland Center for Environmental Science recently issued its annual report card for the Chesapeake Bay, giving the estuary a score of 53%, which is a "C," in overall health. The survey of Bay conditions compares seven indicators to scientific thresholds. Those indicators are combined into an overall health index represented as a percentage toward a broad set of ecosystem goals. This year's score is the highest one in a non-drought year since 1992 and represents the third year of consecutive growth, suggesting that efforts are producing some progress.

In 2015, overall total nitrogen within the Bay was moderate and slightly improved compared to the previous year. The highest scoring region was the Lower Bay region. The second and third best total nitrogen scores were in the James River and Rappahannock River. Overall, total phosphorus within the Bay was moderately good and the highest scoring region was the Lower Bay. The second and third best total phosphorus scores were in the Mid Bay and Choptank River regions.

Almost all Bay tributaries exhibited a gradient in total nitrogen and total phosphorus, with higher concentrations of both nutrients in the upper reaches and lower concentrations in the lower reaches. The Bay's mainstem exhibited a similar pattern, with higher concentrations in the Upper Bay and lower concentrations in the Mid and Lower Bay regions. Higher concentrations of both nitrogen and phosphorus in the mid to upper reaches of the tributaries can, in part, be attributed to runoff of excess nitrogen from fertilizers, power plants, and factories getting into waterways and groundwater that then feed into the Bay.

A large portion of Bay had chlorophyll-*a* measurements that frequently exceeded threshold levels. The failing regions include the Patuxent, Patapsco and Back Rivers, and the Lower Eastern Shore regions. Regions of Chesapeake Bay with chlorophyll-*a*

concentrations frequently below threshold levels tended to be in the Upper and Mid Bay, and the James River. The James River had the best chlorophyll-*a* score of all the regions. Water clarity increased from 2014 to 2015, along with prevalence of aquatic grasses.

Survey Shows Bay's Blue Crab Numbers Up 35% over Last Year. The Chesapeake blue crab stock has rebounded for the second year in a row, according to a new survey. Results of the annual Baywide winter dredge survey released in April show the crab population has improved in every area, with a 35 percent hike in overall numbers to 553 million, compared to 411million last year. Two years does not make a trend, and this news inspires both wary optimism and cautious management. The caution reflects a wide fluctuation in blue crab numbers since the survey began in 1990. Since then, the stock has bounced around from a high of 852 million in 1993 to a crash of 251 million in 2007 that caused the fishery to be declared a federal disaster. This year's survey shows marked improvement. The number of all-important spawning-age females nearly doubled from last year, the number of adult males more than doubled, and the juvenile stock fared somewhat less well. The annual dredge survey is conducted by Virginia and Maryland.

91,000 Acres of Bay Grasses Exceed 2017 Restoration Target 2 Years Early. The Chesapeake Bay Program Office's recently released results of its annual Submerged Aquatic Restoration (SAV (bay grasses)) indicator is another sign of the Chesapeake Bay's improving health. Between 2014 and 2015, underwater grass abundance in the Bay rose 21%, bringing underwater grasses in the estuary to the highest total of the last three decades. Recently collected aerial imagery revealed a total of 91,621 acres of underwater grasses across the region. This total is the highest amount ever recorded by the Virginia Institute of Marine Science aerial survey and surpasses the 2017 restoration target two years ahead of schedule. The rise in underwater grasses is being attributed to the recovery of wild celery and other species in the fresher waters of the upper Bay, the continued expansion of widgeon grass in the moderately salty waters of the mid-Bay and a modest recovery of eelgrass in the very salty waters of the lower Bay. Underwater grass abundance can vary from species to species and river to river.