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www.ian.umces.edu
www.ian.umces.edu/ecocheck
mdcoastalbays.org
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www.dnr.state.md.us
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Water quality was still degraded in 2011

These scores and data provide additional insights into the processes, conditions, threats, and resources in the Coastal Bays. A grade can tell you how an indicator is doing, but does not explain why.

Unseen groundwater haunts Eastern Shore

As part of the water cycle, rain and snowmelt continually percolate through the soil and recharge underground reservoirs. This groundwater eventually makes its way to streams, deep aquifers, and the Coastal Bays. Across Delmarva, nitrogen (a common contaminant and nutrient found in fertilizers) in groundwater has been increasing over the last 30 years. Due to the slow-moving nature of these systems, it will take years to decades for these reservoirs to respond to current efforts to reduce nitrogen contamination of groundwater. Even if levels of fertilizer application were capped or reduced today, nitrogen input to our streams and bays from groundwater could continue to increase in the near term and could take decades to decline. A recent study by the US Geological Survey shows that groundwater discharge to streams may take 20–30 years before showing substantial changes in nitrogen resulting from best practices in farming. Further study is needed to determine if this is linked to trends in Chincoteague Bay.

Seagrass Loss

Seagrass abundance in Maryland’s Coastal Bays decreased by 39 percent in 2011 to levels not seen since the 1990s. The sharp decline is believed to be the result of degraded water quality combined with an especially hot summer in 2010 – when large declines were also seen in the lower Chesapeake Bay.

Clam increases

Despite the improvement in Isle of Wight Bay, hard clam densities remain well below historic benchmarks in all regions of the Coastal Bays. The causes of these poor density conditions have not been determined. Low density could result from unfavorable water quality conditions for hard clam survival (such as brown tide blooms) and possible increased predation by blue crabs and other predators such as cow-nose rays.

Overall, the Coastal Bays received a grade of C, with little change since 2010. Scores for total nitrogen in Isle of Wight, Sinepuxent, and Chincoteague Bays were good to excellent, and were moderate to poor elsewhere. Total phosphorus was mostly moderate to poor except in Sinepuxent and Assawoman Bays, which were good. Dissolved oxygen scores were split between moderate and poor with the highest and lowest scores in Chincoteague and Sinepuxent Bays, respectively. Chlorophyll a was good to excellent in all regions of the Coastal Bays. Seagrass and hard clam scores were moderate to very poor, except for clams in Isle of Wight Bay, which were good. This assessment is a snapshot in time. It represents the status of water quality, seagrasses, and clams in 2011.

The Coastal Bays report card

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**The Coastal Bays report card**

The aim of this report card is to provide a transparent, timely, and geographically detailed assessment of 2011 Coastal Bays’ health. Coastal Bays health is defined as the progress of four threats, and resources in the Coastal Bays. A grade can tell you how an indicator is doing, but does not explain why.

**Indicators used in the report card**

The AI of this report card is to provide a transparent, timely, and geographically detailed assessment of 2011 Coastal Bays’ health. Coastal Bays health is defined as the progress of four water quality indicators (TN, TP, CHL-a, DO), and two biotic indicators (seagrass, hard clams) toward scientifically defined ecological thresholds or goals. The six indicators are combined into one Coastal Bays Health Index, presented as the report card score. Detailed methods available at [http://ion.unmc.edu/echoknow/report-cards maryland-coastal-bays/2011/](http://ion.unmc.edu/echoknow/report-cards maryland-coastal-bays/2011/).
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